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Sketch of First Reformed Church of Bethlehem Parsonage-Farmhouse and Outbuildings (Drawing by Margaret Foster).

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Contents

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The First Reformed Church of Bethlehem Parsonage Farmhouse Site, Albany County, Bethlehem, New York

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Situated on Route 9W in Selkirk, about six miles south of Albany, the First Reformed Church is the oldest church in the town of Bethlehem. The First Reformed Protestant Dutch Church of Bethlehem and Jericho (now the First Reformed Church of Bethlehem) applied on December 28, 1791, for incorporation under the state's religious incorporation laws. Land for a parsonage farmhouse and farm was given to the church in 1795 by Stephen Van Rensselaer. Following completion of the church and temporary pastoral service by Rev. Jacobus Romeyn during the latter half of the 1790s, officers of the new church issued a call on February 14, 1798, to Rev. George Christian Frederick Bork. He was forty years of age, and had a wife (Tabitha Chissom) and several children. Documentary evidence shows that the Bork family moved into the parsonage farmhouse in October 1800. Four domines (ministers) lived in the parsonage farmhouse from 1800 through 1820. The farmhouse was rented to tenant farmers beginning in 1821 and the church negotiated a tenant-sexton-farmer relationship with the occupants after 1881. Throughout most of its history of nearly a century-and-a-half, this was a truck farm devoted to raising vegetables for the greater Albany area market. This is a window into the lives of ordinary nineteenth and early twentieth-century families who made up most of the population in Bethlehem. The farmhouse burned to the ground on May 7, 1946, and was never rebuilt. The barns and other buildings were dismantled and carted away in 1947.

Introduction

In April 1986, permission was sought from the First Reformed Church of Bethlehem Consistory, or governing board. for the Bethlehem Archaeology Group to conduct an archaeological investigation of the parsonage farmhouse and adjacent buildings. Simply clearing this site required several weeks of back-breaking labor as volunteer archaeologists removed stubborn vines and small trees from the area around the house. allowing the establishment of an extensive grid system. The excavation phase was completed in 1991.

The project also included perusal of records, books, and papers made available by the church and by Russell L. Gasero. archivist for The Reformed Church in America in New Brunswick. New Jersey. All references to the parsonage farmhouse were abstracted from a History of the First Reformed Church of Bethlehem, New York, 1763-1963, which includes a reprint of a similar book prepared in 1913 by H. S. Van Woert, the minister at that time, and a supplementary section covering the period between 1913 and 1963 by T. W. Luidens, the minister in 1963.

Published information in the church history about the occupants of the farmhouse consisted largely of a listing of the names of tenants during selected time periods, but the archaeologists assumed that excavations around the house would help fill in the gaps. They were right. Hundreds of objects were recovered from trash pits near the farmhouse and an analysis of this extensive evidence is the main thrust of this report.

Physiographic and Geologic Background

The current building, the third church on the property, which was built in 1890, is located slightly northeast of the intersection of Route 9W and Clapper Road in Selkirk, a hamlet in the town of Bethlehem, about six miles south of Albany. A variety of trees dominate the landscape, especially in the area around the parsonage-farmhouse and on land formerly used for truck farming. This historic property is on the east side of Route 9W and slightly north of Clapper Road. A short road known as Church Road cuts through the church's property and exits at 9W within a few dozen feet of the parsonage farmhouse (see Figure 1 for precise location of the parsonage farmhouse).

Work on several test pits in May 1986 showed that glacial till made up much of the soil around the foundation of the parsonage farmhouse, which encouraged us to examine the aftermath of the Wisconsin glacier some 15,000 years ago to better understand the terrain today:

> The Delmar readvance is marked by indistinct moraines, whereas well-developed recessional moraines were formed during the retreat. The readvance folded lake clays and deposited thin, discontinuous till over lake sand and silt [Dineen 1986:102].

While the outline of the parsonage-farmhouse foundation was easy to see, it was difficult to learn the precise locations of the barn, machine shed and other outbuildings since these buildings had been dismantled and carted away in

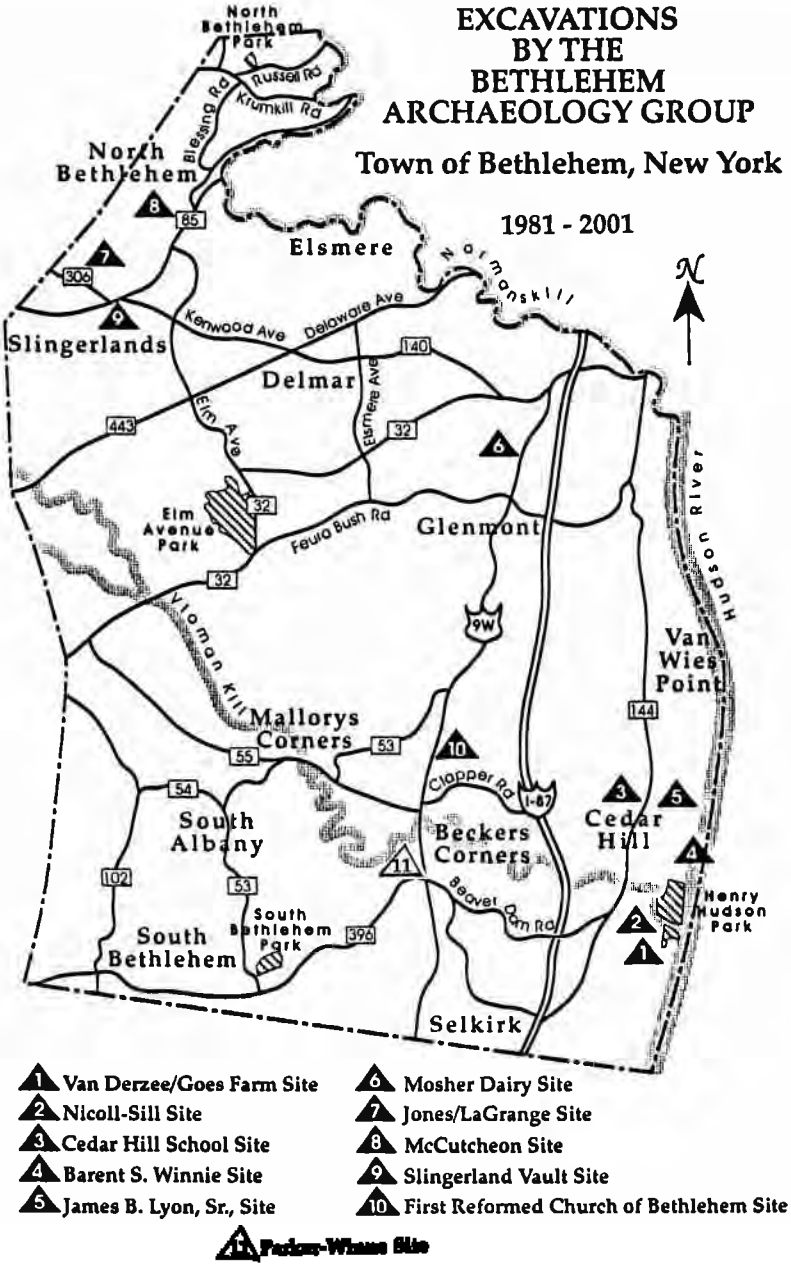

Figure 1. Town of Bethlehem map showing location of the First Reformed Church of Bethlehem and other sites excavated by the Bethlehem Archaeology Group (1981-2001).

January 1947. A faded copy of a newspaper photograph showing the outbuildings was found in the church vault. We asked an artist to use a magnifying glass to enlarge the tiny details and do a careful black-and-white sketch for publication (Figure 2). While precise distance measurements from house to the barn area buildings were still a problem, at least we had learned the general location of the outbuildings and their relative positions with regard to the farmhouse.

Excavation and Research Methods

Four three-foot-square test pits were dug within the proposed grid system and these test squares later became part of N0 E0, N10 W40, and N10 E40 in the Farmhouse Grid and N70 W30 in the Barn Grid. The test squares were excavated with a combination of shovels and trowels down to an average depth of four feet, where the excavators encoun-

Figure 2. Sketch of First Reformed Church of Bethlehem Parsonage Farmhouse and Outbuildings (Drawing by Margaret Foster).

tered a sterile layer of soil. It was encouraging to find increasingly older artifacts in two of the test squares as we moved down six inches at a time.

The parsonage farmhouse grid system was laid out in the summer of 1986 and two-person teams were organized to excavate a representative sample around and near the house. We learned rather quickly that most of the artifacts were being found along the bank some forty to seventy feet northeast of the farmhouse; hence, a larger proportion of excavation time was spent on the sixteen squares in this location. The grid system was lined up with the walls of the foundation of the farmhouse. As the accompanying site map shows, the house was rectangular in shape and rested on a foundation which is perpendicular to Route 9W (Figure 3).

Physical Stratigraphy

"Bethlehem Ch[urch]" was found on an engilogy classification of soils map with the area church labeled "T-2-E," which was defined as its with poorly graded sand (windblown), well [illegible] described as "varved clay. [illegible] Regan et al. 1982a). This [illegible] area although the soil around [illegible] the area does mixed in it the [illegible] geologic hazards and thickness of the overburden and showed the elevation of the site at about 180 ft and no specific hazards (Regan et al. 1982b).

Features

Several of the significant features on this site were trash pits located around the property, but more frequently along the bank, slightly north and 40-70 ft east of the parsonage farmhouse foundation. Further, some of these trash pits were found in the vicinity of the barn and outbuildings. Most were found in stratum II, which began about 14 in below the surface in the average square (see Figure 3 for the locations of all of the trash pits described below and Figures 4-7 for illustrations of selected artifacts recovered from the excavations):

- N0 E0-Farmhouse Grid-stratum II (along the back wall of the farmhouse foundation)

  Fragments of black, lead-glazed English redware and a mold-created, partially hand-wrought eighteenth-century key, with the intricate locking end fully intact (Figure 4). It is believed to have been manufactured in the late 1700s, a symbol of the earliest days in the oldest church parsonage farmhouse in Bethlehem .

- N0 W30. Barn Grid-stratum II

  Many objects were found, including a cross-cut saw,

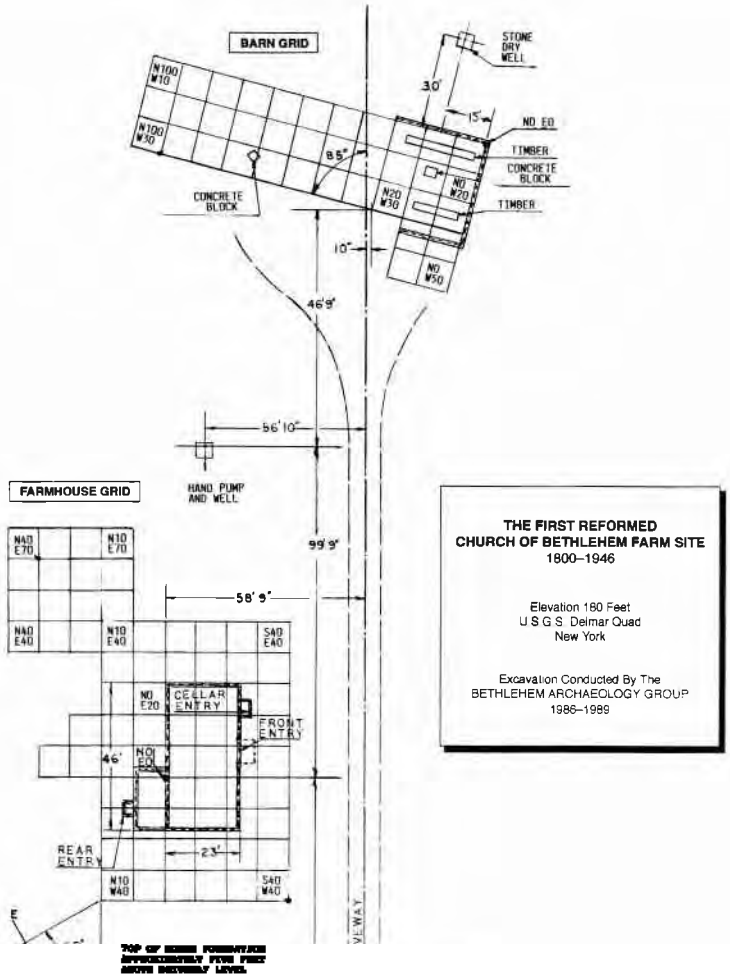

Figure 3. The First R

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(Figure 6)

• N0 W20, Barn
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wrought a
pitchfork

Bethlehem farms (Figure 4 and 6).

• **N30 W40, Farmhouse Grid-topsoil**

This was typical of several features containing late period artifacts in the topsoil. Here, a Tydol gasoline sign was uncovered, along with a number of screw-topped jars, plain white ironstone fragments, a metal cooking pot and several metal containers, all evidence of life during the first third of the twentieth century. The unit sloped downhill, rendering stratigraphic analysis especially difficult (Figure 7).

- N10 W10. Barn Grid-stratum II

  This unit revealed a variety of hardwood pegs along with a nineteenth-century clay pipe bowl and several hand-wrought tools: a spike, screwdriver, a metal buckle, and an unidentified iron ring with a crude metal strip meant to connect the ring to a piece of equipment.

- S10 W20. Farmhouse Grid-stratum II (along the west wall of the house)

  It produced several fragments of slip-decorated ware, hand-painted pearlware, creamware, clay pipe fragments, an iron fixture for a shutter, machine-made and hand-wrought rosehead nails and a transfer-printed pearlware cup fragment, all evidence of life during the early period in the farmhouse.

- S20 W20. Farmhouse Grid-stratum II

  Like nearby squares, a similar bonanza of early nineteenth century objects were recovered, including dozens of fragments of hand-decorated and blue, shell-edged pearlware, a brass buckle, and medium green wine bottle fragments, along with some lead-glazed slipware fragments and a few overglaze decorated Chinese export porcelain fragments with a red stripe around the edge (Figure 4).

- N40 E40. Farmhouse Grid-topsoil (toward the bottom of the bank north and east of the house)

  This square included a variety of twentieth-century objects—a "Superieure" toothbrush handle, a rubber canning jar sealing ring, and "Mullen" soda bottle fragment, a garter snap, 10 amp. bus fuse, and light bulb socket with a copper wire inside the glass base unit, along with a complete screw cap amber medicine bottle and a thin, porcelain Japanese dish base with a brown wash.

- N30 E50. Farmhouse Grid-topsoil

  A 1920 Buffalo nickel led the way in identifying a large concentration of early twentieth-century objects, which included a milk glass cold cream jar, an amber medicine bottle with eye dropper, "Pope Gosser" and other late-brand transfer-printed ironstone fragments, and several metal bolts with washers and nuts (Figure 7).

Interpretations

The Early Years As A Parsonage (1800-1820)

Rev. George Christian Frederick Bork, the first domine (minister) of record, accepted the call to serve the Dutch reformed churches of Bethlehem and Schodack, New York, on February 27, 1798, and moved into the parsonage at Schodack the following day. With the minster were his wife, Tabitha, daughter of Peter and Rachel Chisholm, and several of their children. As reported:

> The Rev. George Christian Frederick Bork was the first minister of whom there is any record. On February 14, 1798, the joint Consistory of Schodack and Bethlehem extended him a call. The particular duties enjoined upon him by the call were: That he must preach at Schodack and Bethlehem alternately in the Dutch and English languages twice on every Lord's day from the first Sabbath in May until the first Sabbath in November in every year, and once during the intermediate space of time; that he must catechize and visit respective families in the congregation at the determination of the consistory, and that he must explain a portion of the Heidelberg Catechism on the Lord's Day. The Elders and Deacons of the Reformed Protestant Dutch Church promise to pay yearly, in semi-annual payments, one hundred and fifty dollars [Van Woert 1913:31].

> A joint meeting of the consistories of both churches was held at the home of Colonel Francis Nicoll on July 17, 1798, [where] it was unanimously agreed that Rev. Bork be installed on the Sabbath, August 12, 1798, and that the first service be at Schodack [Van Woert 1913:32)].

> On July 11, 1800, Robert Scott of the Town of Coeymans, contracted to build for $ 75 the parsonage farmhouse [at Bethlehem], the Consistory furnishing the timber and other necessary material. The building was to be 46 by 21 feet with 14 feet posts, ten feet between the floors and having a stoop 26 by 10 feet and a canopy over the front stoop 5 by 10 feet. It was to be finished within the space of two months after the first day of August 1800. The contract was signed, sealed and delivered in the presence of Area Van Wie and Catherine Rosecrans by the following: Col. Francis Nicholl, Peter D. Winne, Peter Rosecrans, Robert Scott, Albert Westervelt, Garret A. Becker, and Cornelius Vrooman, Jr. [Van Woert 1913:32-33].

Documentary evidence confirms that Rev. Bork and his family moved into the new parsonage farmhouse at Bethlehem in late October 1800. Archaeologists working on the site tried on several occasions to understand and appreciate how Christian Bork and his wife, Tabitha, might have felt about their new home. We found some examples of the work of early local blacksmiths in the soil around the house. Did Christian Bork enjoy handling that huge, mold-created and partially hand-wrought key to open the front door of either "the little red church," or his brand new parsonage-farmhouse, whichever the key was intended to open? (Figure 4) (See Table 1 for an inventory of artifacts dated to this early period of the occupation of the house).

However, we contented ourselves with discussions of the key role of blacksmiths in the lives of early Bethlehem residents. The wide, decorative baldric brass buckle, worn by one of the earliest residents, may have been turned out in a mold by a blacksmith in Boston or New York and still looks useful today, although we found no traces of the leather belt to which it would have been attached. Eight hand-wrought nails amid a mountain of machine-cut nails brought to mind the transition from hand-made to machine-made nails in the late 1700s, when Ezekiel Reed of Bridgewater, Massachusetts, invented the first machine to cut and head a nail in one operation. We learned that "machine-cut nails taper only on two sides; [hand] wrought nails on four. The head of the most common rose nail [found here] had four hammer hits" (Sloane 1964:92).

Rev. Bork and his wife Tabitha may have appreciated the attractive hand-wrought shutter strap hinges on the windows, a tribute to the skills of a local blacksmith. It is possible that a wife of one of the early residents used the hand-wrought scissors recovered on this site to fashion her family's clothing. Other early hand-wrought objects recovered here include a gatehook, door pintle, four horseshoes and a partial whiffletree, all excellent examples of the blacksmith's art around the beginning of the nineteenth century (Figure 4).

Tabitha Bork's role in her large family of many children would have involved preparation for meals during the family's life in the parsonage farmhouse between 1800 and 1804. Lead-glazed redware bowls with a shiny black glaze or brown, lead-glazed redware bowls were probably used to bring food to the table, where it was transferred to lighter yellow creamware plates for consumption. At least one family used English banded creamware and pearlware bowls to bring food to the table, a major and more colorful improvement over the redware used for the same purpose. Two-tine forks could have been used with the lighter yellow creamware or with the blue-edged pearlware, which may have been purchased by a member of one of the early minister families. Colorful slip-decorated redware could have been used to bring rolls or fruit to the table. Just how the saucer-size, high-gloss, blue pearlware dishes were used puzzled several of us working on this site; possibly for nuts, pickles or related condiments? Some of the brownish,

Table 1. First Reformed Church Of Bethlehem Farmhouse Artifacts-The Early Years (1800-1820).

1770-1800	green, lead-glazed redware	
1770-1800	slip-decorated (probably American) redware fragments	
1790-1810	free-blown prescription bottle fragments; very thin glass	4
1800-1820	deep green wine bottle fragments	12
1775-1810	wide, decorative, baldric brass buckle	1
1780-1810	blue shell-edged English pearlware fragments	26
1780-1810	green shell-edged English pearlware fragments	41
1790-1820	hand-tooled bone buttons	5
1790-1820	brass buttons (most with loops on the reverse side)	5
1800-1820	hand-forged iron door pintle	1
1790-1820	ribbed clay pipe stem fragments	5
1790-1820	kaolin clay pipe bowl fragments	32
1790-1810	hand-forged iron gatehook	1
1790-1810	hand-forged iron horseshoes	4
1790-1810	mold-created iron door key	1
1790-1810	mold-created iron padlock fragment	1
1790-1810	hand-forged iron scissor fragments	5
1790-1800	hand-wrought iron rosehead nails	5
1775-1810	transfer-printed English pearlware fragments	517
1775-1810	lighter yellow English creamware fragments	522
1785-1795	English annular (banded) creamware fragments	33
1795-1810	English annular pearlware fragments	30
1790-1810	slip-decorated, lead-glazed redware	108
1795-1815	assorted hand-decorated English pearlware fragments	61
1795-1815	blue, underglaze, high gloss, hand-decorated, English pearlware fragments	35
1790-1810	hand-forged, two-tine iron pitchfork	1
1790-1810	hand-forged iron shutter strap hinge	1
1790-1815	marbelled English annular pearlware fragments	21
1790-1810	earthenware fragments with a green copper stripe	5
1790-1815	assorted greenware fragments	8
1813-1820	transfer-printed English ironstone china fragments	69

Table 2. First Reformed Church of Bethlehem Farmhouse Artifacts-Church Farmhouse Tenant Life (1821-1900).

1820-1880	shell buttons	8
1840-1900	fabric covered buttons	4
1840-1900	ceramic & rubber buttons with loops on the reverse side	3
1880-1900	horn and early composition buttons	9
1828-1900	F. Brown's Essence of Jamaica Ginger bottle fragments	
1842-1895	Hunt's Liniment bottle (G.E. Stanton on reverse) aqua	1
1849-1865	J. R. Bursall's Arnica Liniment, N.Y., aqua	1
1856-1865	H. Thompson Hair Dye No. 2 bottle, clear	1
1850-1865	Batchelor's No. 1 Hair Dye bottle	1
1850-1880	Blasie's and Hill's hair dye bottles, square, aqua	2
1858-1880	Ball fruit jar fragments, clear	55
1858-1900	Mason fruit jar fragments	34
1858-1880	Boyds & Consolidated fruit jar lids, white glass	22
1854-1865	Dr. Porter's Medicated Stomach Bitters, aqua	1
1861-1900	Ayer's Sarsaparilla bottle fragments	2
1875-1895	William E. Masten's Balsam of Horehound bottle fragments	21
1880-1895	Dutch mineral water bottle fragments, stoneware	30
1860-1900	ink earthenware bottle fragments with shiny glaze	6
1880-1895	Dovell's ink bottle fragments, aqua	2
1880-1895	Renne's Magic Oil (pain killer) bottle fragments, aqua	3
1887-1895	Hood's Compound Sarsaparilla bottle, aqua	1
1884-1895	Stafford's and Waterman's ink bottles,clear	2
1840-1880	door pintles	2
1850-1880	assorted furniture casters	19
1842-1850	Canadian token (Bank of Montreal)	1
1821-1830	kaolin clay pipe stem labelled "R. Morgan"	1
1850-1870	Peter Dorni kaolin clay pipe stem fragment	1
1850-1895	railroad baggage man's cap insignia	2
1872-1895	Meerschaum kaolin pipe bowl and partial stem labeled "Bevil"	1
1850-1895	straight metal razors	2
1885-1895	glass kerosene lamp fragments	3
1821-1900	plain American whiteware fragments	1975
1821-190	American stoneware fragments	224
1826-1838	Thomas Mayer/Longport transfer-printed English whiteware	52
1843-1855	J & J Mayer transfer-printed English whiteware fragments	32
1850-1880	probable American yellow ware fragments with raised white bands	44
1850-1900	transfer-printed American whiteware fragments	374
1850-1900	French porcelain fragments	255
1853-1862	E, Challinor & Co. transfer-printed English whiteware fragments	254
1875-1900	complete German/Austrian porcelain demi-tasse cup	1
1875-1900	German/Austrian porcelain fragments	19
1895-1900	Pitcairn's transfer-printed English whiteware fragments	49
1850-1880	open-pit (cross-cut) saw for sawing planks	1
1850-1900	blacksmith's hammers	2
1820-1900	clay marbles (brown, yellow, white)	9
1850-1900	soft, graphite pencils	3
1850-1900	hand-forged whiffletree fragments	3
1885-1900	assorted harness buckles	18
1895-1900	mold-created iron bridle bit	1
1870-1920	fork fragments	2
1895-1900	spring-loaded metal fastener and four chain links	5
1870-1900	mold-created clock keys	3
1870-1900	mold-created indoor door keys	5
1870-1900	desk or cashbox keys	2
1880-1900	Corwin door latch and lock set	1
1850-1900	wall-mounted lamp bracket	1
1850-1900	lamp wick mechanism	1
1850-1900	iron sickle bar mower blade	1
1890-1900	barn door hinge	1
1885-1895	button hook (wooden handle is missing)	1
1800-1830	manicure scissors	2
1820-1860	Seth Thomas clock works	1
1885-1900	assorted kitchen knives	5
1830-1870	teaspoons	4
1850-1900	hand-forged eggbeater fragment	1
1885-1900	stove lid lifters	3
1860-1900	Mexican silver table knife	1
1850-1900	William A. Rogers serving spoon	1
1885-1900	kitchen paring knives	2
1860-1900	Fairfield plate soup spoons	2
1890-1900	sugar spoon with initials "A.F." & "W.B." on the reverse	1
1890-1900	spoon handle fragment with initials "C.G.W."	1
1890-1900	assorted metal medicine boxes	5
1890-1900	hand-forged ice chipper	1
1870-1900	assorted bolts with screw grooves, some with nuts	20
1890-1900	assorted metal drawer pulls	7
1870-1890	metal cabinet door stays	3
1890-1900	woman's metal chain purse fragment	1
1895-1900	harness snap hooks	2

redware fragments were unglazed and could have been manufactured in the Colonies, since they look like parts of beanpots or flower pots (Figures 4, 5, and 6).

Since so many fragments of transfer-printed English pearlware and creamware dishes were recovered from this site and since the dates they were manufactured are roughly 1770 through 1810, it is possible that they were used by one of the four minister families between 1800 and 1820. When added to other indicators of affluence and when these finds are compared to the pottery used by both wealthy and poor families in Bethlehem during this time period, the affluence of the minister families is clearly above average but by no means high. No porcelain was found on this site which dates to the early period (Figures 4, 5, and 6).

The lack of clay pipe fragments dating to the early period suggests that no one in the minister families smoked, and since so few green wine bottle fragments were recovered here, it would seem that few if any of them drank alcoholic beverages. Such pleasures may have been regarded as sinful for men of the cloth around the turn of the nineteenth century.

Church Farmhouse Tenant Life (1821-1899)

The big life-style story in the nineteenth century on this site can be told by the discarded bottles of all sizes and shapes, some depicting possible ailments harbored by the tenants, some illustrating food, cosmetic or letter-writing preferences. "Starting early in the nineteenth-century... advances in chemistry and physiology permitted rapid proliferation of new more effective chemical agents," (Encyclopedia Americana 1994 9:403). The century was a fiscal bonanza for drug companies, which turned out thousands of bottled medicines and cosmetic products designed to fix most human problems (Figures 5 and 6) (See Table 2 for an inventory of artifacts dated to this period of the church farmhouse occupation).

The evidence from the First Reformed Church parsonage farmhouse is typical of that found around other modest homes in Bethlehem. Hunt's and Birdsall's liniments were used to soothe tired muscles, Dr. Porter's Medicated Stomach Bitters and Piso's Cure to ease inner aches and pains. At least one of the families tried Masten's Balsam of Horehound and F. Brown's Essence of Ginger. The archaeological record shows that Ayer's Sarsaparilla was used by one or more residents during the Civil War to cure scrofula (tubercular swellings in the neck), a product containing 18% alcohol. Sometime in the 1880s, residents consumed Renne's Pain killing Magic Oil, which recalls the rampant huckstering of "alcohol-laced medicines, a nineteenth-century phenomenon that lasted until the passage of the Food and Drug Act of 1907" (Brewer 1993:196). Some thoughtful residents preferred the mineral water cure, which came in attractive Dutch stoneware bottles. Those who got their medicine from the local doctor often asked him to refill their tiny, thin, prescription medicine vials from the big bottles he carried in his wagon (Figure 5). One such medicine vial was found near the front door of the house. Bethlehem's legendary Dr. John Babcock filled many such orders as he made his rounds by horse and wagon between 1842 and 1868. Soon after the invention of the pen, people on this site were using ink bottled by Stafford's, Waterman's or Dovell's, three well-known companies in the late nineteenth-century.

An 1842 Bank of Montreal Canadian token recovered by the author in stratum II near the front steps of the farmhouse raised more questions than answers. How did someone living on the farm get the coin? Since railroad connections to Canada were just a figment in the imaginations of wealthy financiers toward the middle of the nineteenth century, we assumed that it was connected with lake and canal trade. Most of the archaeologists doubted that someone in a farm family of modest means had actually traveled to Canada in 1842 (Figure 5).

Objects used around the house were recovered often during the excavations and these ranged from mold-created clock keys and a Seth-Thomas clock mechanism to a Corwin door latch and lock set. Handy kitchen tools found included assorted kitchen knives, a hand-wrought ice chipper, Fairfield plate soup spoons, teaspoons, and a silver teaspoon engraved with the initials "A.F." in script on the front and "WB" on the reverse (Figures 5 and 6).

Buttons on clothing and shoes were now made of shell, glass, and rubber with smaller numbers of horn, vegetable ivory and early plastic, judging from the examples found on this site:

> Although brass buttons had been produced in Philadelphia as early as 1750, the American button industry made no substantial progress until the War of 1812 , when it grew after imports from Europe were cut off. A small factory in Waterbury, Conn. then made buttons for the Army and Navy. At the same time, button discs and molds covered with fabric were made in Easthampton, Mass. In 1864 the first factory for manufacturing vegetable ivory buttons was set up in Leeds, Mass. Around 1880 a German immigrant in Muscatine, Iowa, succeeded in making pearl buttons from shells of freshwater mussels [Encyclopedia Americana 1994 5:77].

The image of horses and wagons hauling equipment around the farm and vegetables to markets in Albany and

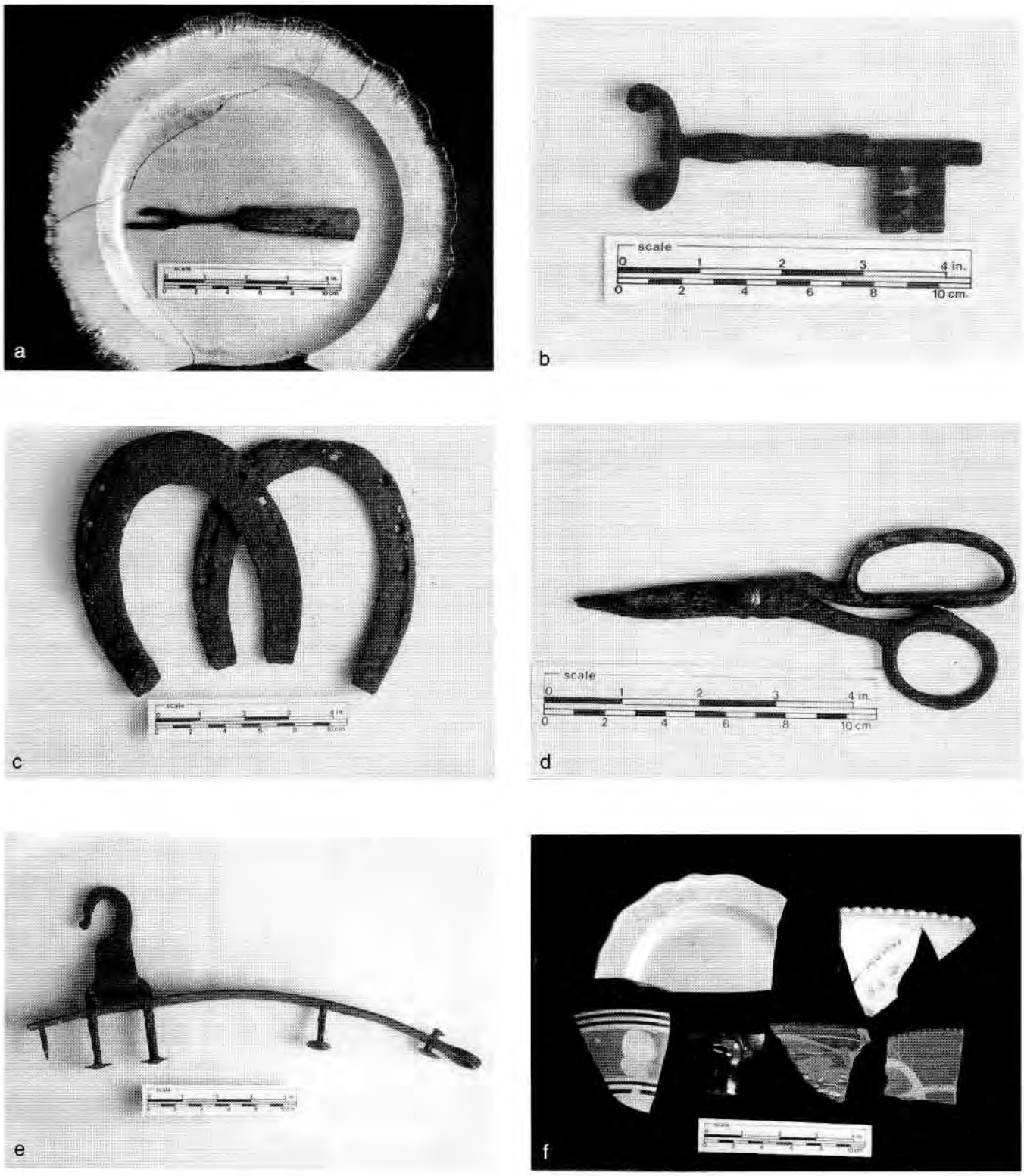
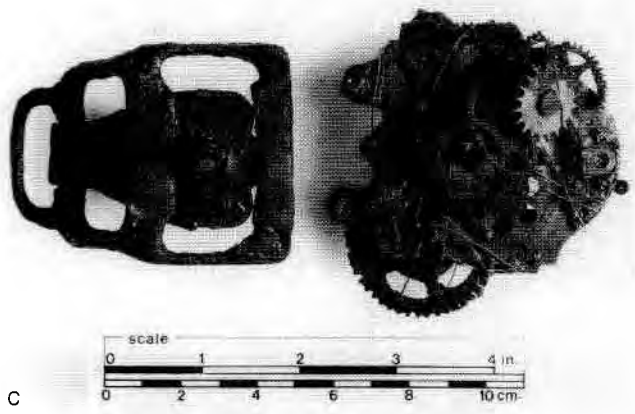
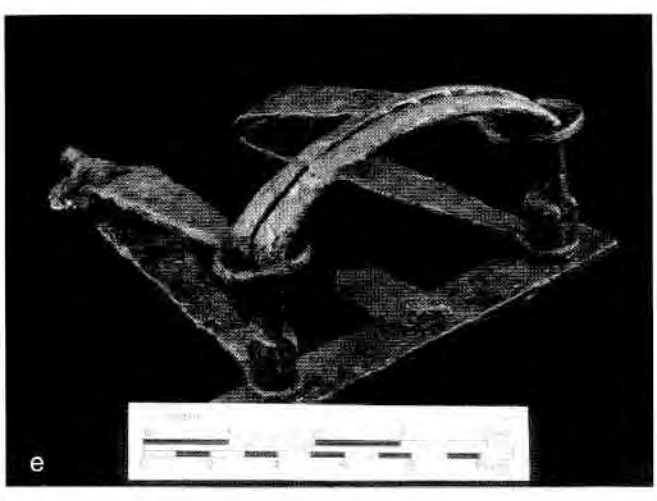


Figure 4. Artifacts dating to the Early Years (1800-1820): a. blue, shell-edged pearlware; b. probable front door key; c. hand-wrought horseshoes; d. hand-wrought scissors; e. whiffletree fragment; f. assorted 18th Century pottery [top-creamware, bottom (L to R) banded creamware, black lead-glazed redware, Brown lead-glazed, redware, slip-decorated redware].

Figure 5. Probable Church Tenant possessions (1821-1900):a, blue, underglaze hand-decorated English pearlware; b, silver teaspoon with initials "AF" on top; and "WB" on reverse; c. 1842 Canadian halfpenny; d. Thomas Mayer/Longport English pearlware, Abbey Ruins pattern; e. straight razors; wooden handles are missing; f, prescription vial often filled at home by the doctor.





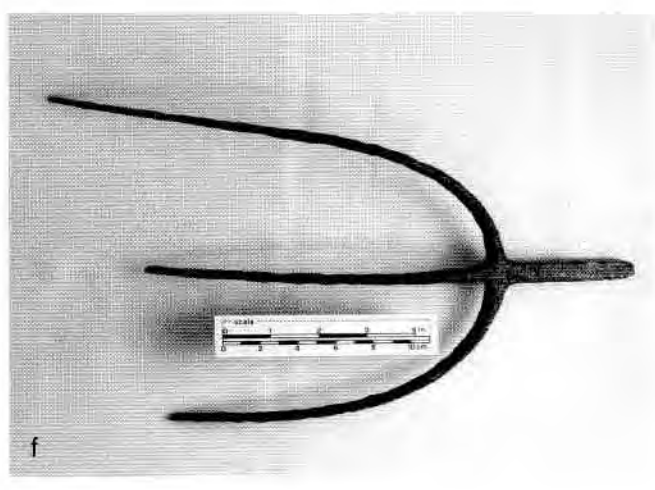


Figure 6. Probable Church Tenant possessions (1821-1900): a. assorted artifacts dating to about 1860; b. hand-wrought ax; c. buckle and Seth Thomas clock works; d. hair dye bottles; e. hand-wrought animal trap; f. hand-wrought pitchfork.

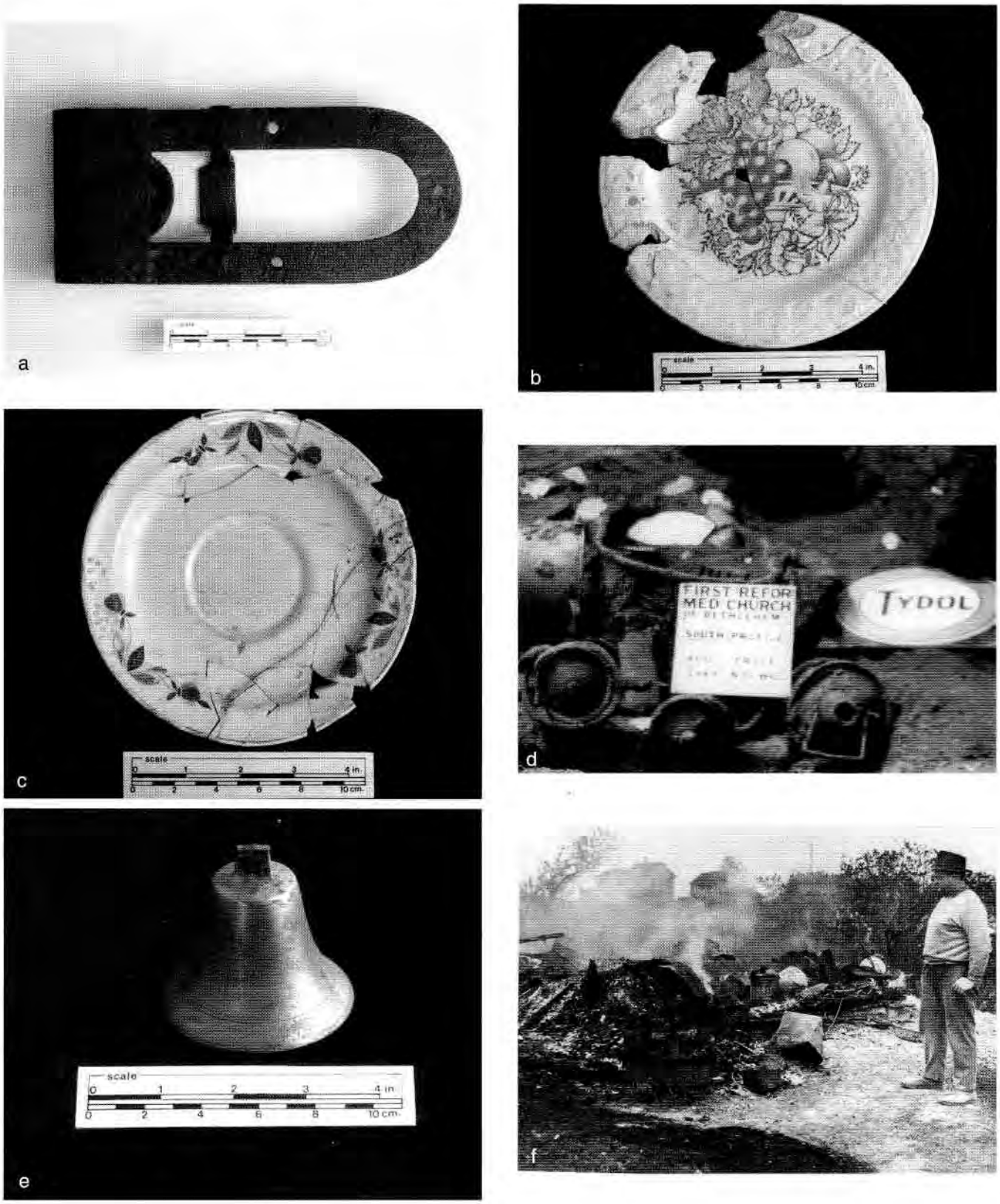


Figure 7. Probable Church Tenant possessions (1901-1946): a. barn door roller; b. Homer Laughlin whiteware "Harvest" pattern; c. Hall dinnerware; d. twentieth century cache of assorted artifacts; e. alleged Henry Golden dinner bell; f. Henry Golden, after farmhouse burned, May 7, 1946.

surrounding towns is arguably the most common image one could use to illustrate the life-styles of Bethlehem's nineteenth century residents. First Reformed Church of Bethlehem parsonage farmhouse residents are good examples of this ground rule. The two blacksmith's hammers recovered here suggest that the tenant farmers made or at least repaired some of their own wagon and horse hardware, although the largest number of horse and wagon hardware pieces found here were probably made in a mold and many of them may have been mass-produced for sale via the catalogue companies.

Further, as the laboratory staff checked the two best-known mail-order catalogues while identifying the horse and wagon hardware found here, they discovered that as many a third of the items were similar to those listed for sale in a catalogue. A bridlebit found in the Barn Grid is very much like the one shown in the 1895 Montgomery Ward catalogue (Montgomery Ward & Co. [1895]1969:338). Barn door catches, roller wheels and hinges and an iron sickle bar mower blade are all very similar to iron products listed for sale in a competing catalogue (Sears Roebuck, & Co. 1969:686) (Figure 7). The same procedure was followed in analyzing household objects, which enabled the laboratory staff to identify the probable manufacturing dates for items such as teaspoons, stove lid lifters, eggbeaters, lamp brackets, button hooks, soup spoons, and kitchen knives, to mention a few of the artifacts recovered here.

Having identified a clear-cut trend toward buying through catalogues by the residents of this site toward the end of the nineteenth century, the history of the catalogue movement in American culture became an important aspect of this story. The idea of direct selling by mail was conceived by Aaron Montgomery Ward in Chicago soon after a disasterous fire destroyed his business in 1869. By 1872, he had a catalogue in the mail to hundreds of his customers (Latham 1972). Richard Sears and Alva Roebuck had a similar idea. Their advertising was aimed at farmers and "by late 1893 [the Sears Roebuck catalogue] was expanded to 322 pages and included everything from bicycles to sewing machines" (Weil 1977:8-11).

If the dishes purchased by the tenant farmers throughout the nineteenth century are regarded as major criteria for determining level of affluence, then life on the farm was reasonably modest. Since so many fragments of plain American whiteware were recovered here, it is obvious that the first few tenant farmer families, headed by Marcus Lasher, John and Jurian Leedings, who occupied the farmhouse from 1821 through 1880 (Van Woert 1913:38-67), used the new china-glazed, hard-finished, clean-appearing dishes on a daily basis. Further, it is possible that at least one, possibly two of these tenant families brought out their best Thomas Mayer/Longport and E. Challinor transfer-printed English whiteware when guests arrived on weekends. Forks now came with three tines, and spoons labeled "Fairfield Plate" graced the table. Toward the end of the century, when families headed by Elias Osterhout, Abram Van Olinda, George Latta and Robert Furman lived there between 1881 and 1899 (Van Woert 1913:69-83), plain American whiteware was probably still the basic tableware during the week, but Pitcairns transfer-printed English whiteware and/or German and French porcelain were probably used for company (Figures 4 and 6).

The ornate glass tumbler bases recovered from the grounds around the farmhouse illustrate the output of the pressed glass industry, which had created a huge volume of pressed glass objects from 1827, when such pressing was first done (Encyclopedia Americana 1994 12:792). It is believed that most of the pressed glass objects found on this site were created by hand press, including the pressed glass punch bowl with a thumbprint design, and an attractive candy dish, of which only fragments remain.

The ubiquitous brown clay marbles and graphite pencils were about the only nineteenth-century children's playthings found on the church farm site, unusual because so many families with children lived there. Straight-edged razors recovered here are very similar to a style described as the "Hamburg Ground Rattler" (Montgomery Ward & Co. [1895] 1969:444), which were used for shaving after lather was applied with a brush dipped in a mug containing soap. A few fragments of a broken mug were found. As did many residents in Bethlehem in the second half of the nineteenth century, families living in the church farmhouse bought fruit and canning jars with the familiar "Mason's Patent Nov. 30th 1858" wording and zinc screw caps with Boyd's so-called porcelain liners. In reality, the liners were made of milk glass. A photograph of the same jar appeared in a popular catalogue with the words:

> Our Mason Jars are the product of the best makers. The caps are the genuine Boyd Porcelain Lined. We call attention to this, as many dealers are handling inferior jars, the caps in many cases being poorly finished, light in weight, and imperfect in fit [Montgomery Ward & Co. (1895) 1969:545].

Also recovered on the farm and available in the catalogues were a variety of celluloid products, of which combs were the most common. Manufactured between 1868 and 1920 "celluloid plastic (is described as) imitation of ivory, amber, coral, tortoise shell, and mother-of-pearl" (Miller 2000 29:16).

Early Twentieth-Century Life on the Church Farm (1901-1946)

Despite the passage of the Food and Drug Act of 1907, residents of the farm bought Dr. Miles's Sarsaparilla and Phillips Milk of Magnesia well into the twentieth-century, although what they would cure was more definitively described on the labels. Coca-Cola bottles full of a tasty new liquid were becoming more numerous for quenching thirst (See Table 3 for an inventory of artifacts dated to this final period of the farm's occupation). During the flapper years in the 1920s and later, females living in the farmhouse had discovered Dr. Ellis's hair-waving fluid and Pond's Cold Cream in the familiar white glass jar. Further, a variety of brand-name products added more spice and taste to meals and included Courtenay Worcestershire Sauce and H. J. Heinz Mustard, which were consumed on this site. Now, a larger assortment of food, medicine, and cleaning products could be purchased in stores in jars and bottles of many shapes and sizes. On the First Reformed Church farm, these included: Windex glass cleaner, Clorox for bleaching clothes, and Vicks Vapor Rub for soothing a hacking cough. Milk and cream came in clear glass containers in several sizes and with names such as Borden's and Dairy Lea, which were probably delivered to the parsonage farmhouse. Eventually, several brands of soda competed with Coca-Cola including Royal Crown, Pepsi-Cola, and Mullen's, a local firm that sold a variety of flavored sodas in fancy clear-glass bottles inscribed with their name.

A few automobile-related objects were recovered here, one suggesting possession of a Buick. Just why a metal dealer tag labeled "Buick/Open, Lester Glen, Toms River, NJ" could have been discarded here puzzled the archaeologists on the site. Did someone travel all the way to New Jersey to buy a car? More understandable were the Willard hard rubber battery cap and the license plate: NY 27, 4X.59.19. A metal crank found in the Barn Grid could have been used to start a car or tractor motor. With little question, residents on the church farm had moved into the motor age for its advantages in transporting both people and products to their desired destinations; and the attractive Park Sherman lighter found on this site would have made it easier to light a cigarette enroute to the market.

Thomas Edison (1847-1931), better than most, would have understood the complex background of most of the electric-related objects recovered around the church farm—from electrical socket adapters and brass light fixtures to incandescent electric light bulbs with glass and copper wire filaments, which were broken and discarded after 1920. Lighted candles on Christmas trees were replaced by small, colorful, electric bulbs. Finally, the fuses used to control

Table 3. First Reformed Church Of Bethlehem Farmhouse Artifacts-Early Twentieth Century Life in the Church Farmhouse (1901-1946).

1909-1944	Lincoln Head cents	18
1906-1910	Barber and Liberty Head dimes	2
1920-1930	metal crank for automobile or tractor motor	1
1927-1928	New York License plate: "NY 27 4X.59.19	1
1930-1940	hunting/trapping/fishing license (token)	1
1901-1930	fragments of plastic glasses	8
1901-1940	plastic hairpin fragments and hatpin	3
1901-1940	make-up compacts with mirrors	3
1901-1940	Avon lipstick container	1
1910-1940	Park Sherman cigarette lighter	1
1915-1930	costume jewelry fragments	9
1920-1945	late plastic buttons	28
1930-1945	ladies pocket book metal frame (held a red plastic bag)	1
1920-1945	incandescent electric light bulb sockets	8
1920-1945	G. E. Mazda 15 watt light bulbs	2
1920-1940	porcelain light fixtures and internal parts	4
1901-1940	assorted pressed glass dish fragments	7
1901-1930	red carnival glass vase fragments	22
1915-1935	nursing bottle fragments (T. H. Stouch, Pa. on one of them)	2
1901-1940	Coca-Cola bottle fragments, pale green	6
1901-1940	Tru-Ade juice bottle	1
1929-1938	Dr. Miles Medical Co. sarsaparilla bottles, aqua	2
1931-1945	Vicks Vapor Rub jar with screw cap	1
1910-1940	Pond's cold cream jar fragments, milk glass	3
1906-1946	Phillip's Milk of Magnesia bottle fragments, cobalt blue	11
1901-1940	Henry L. Dunbar transfer-printed American earthenware fragments	68
1901-1945	transfer-printed, burned American whiteware fragments	316
1908-1927	Anchor American ironstone fragments	11
1910-1946	E. M. Knowles transfer-printed American whiteware fragments	22
1915-1925	Homer Laughlin transfer-printed whiteware fragments	76
1943-1944	Homer Laughlin "Tudor Rose" whiteware fragments	15
1901-1930	iron cold chisels	3
1901-1930	assorted screwdriver fragments (one nearly complete)	4
1910-1940	iron, barn door roller wheel	1
1901-1930	ceramic doll fragments, some made of bisque	11
1901-1930	Maddock and Co. English toy whiteware dish (made in Burslem)	1
1901-1940	glass lamp chimney fragments	14
1901-1920	chopping or mincing knife	1
1901-1945	brass "dinner" bell	1
1901-1945	machine-made, multi-colored glass marbles	7

electric current in the farmhouse sported fancy names such as "Royal Crystal" and "Bus." However, the count on all of these objects was very small, considering the potential for breakage.

Although base fragments with manufacturers' names were infrequent finds in twentieth century trash pits, transfer-printed patterns on dish fragments were the order of the day. Homer Laughlin's "Tudor Rose" pattern and an attractive, transfer-printed pattern manufactured by E.K. Knowles, were identified from base marks and may have been used by one or more of the families headed by William Barkhuff, Spencer Gallup, Ira Hallenbeck or Harold Eck, all of whom lived on the farm for short stretches after 1908 (Van Woert 1913:87-140:Figure 8). Forks and spoons were made of light-weight alloy metals and could have been purchased from mail-order companies since so many of them are similar to those shown in popular catalogues of the time. One or more families used red carnival glass to bring water and flowers to the table. According to a source on glassware, "Base colors in carnival glass range from amber, red, and blue-green to purple. These were sprayed with iridescent orange, blue, green or purple for a tremendous color range" (Spillman 1982:329).

The last family to live in the farmhouse was headed by William Henry Golden, who rented the farm between 1936 and 1946 for a nominal fee of ten dollars a month in exchange for janitor work at the church (Van Woert 1913: 141-146). Stories handed down in the Golden family suggest that Mrs. Golden called "Henry" to meals with the brass sleigh bell found near the house, although no recent descendant agreed to vouch for the tale. In any event, the Golden kitchen between 1936 and 1946 was apparently laden with handy gadgets. A number of broken or worn-out kitchen tools such as potato mashers, egg beaters, food choppers, knife sharpeners, tea bag strainers and can openers, to mention a few, were recovered from the soil around the farmhouse, all evidence of better things for better living (Figure 7). In a similar vein, a few tools recovered from the Barn Grid included the familiar Stanley iron block plane, a blacksmith's cross peen hammer for shaping metals, a twist bit for boring holes in wood, iron cold chisels and several sizes and types of flat metal wrenches and screwdrivers, all needed for equipment and motor repairs so necessary for operating the farm efficiently.

Summary

In sum, with rare exceptions, the farm families living in the parsonage farmhouse between 1821 and 1946, lived very modest lives, bought inexpensive equipment required for daily life, frequently ordered budget items through a catalogue, spent very little on recreation and adornment, were protective of their money (few coins were recovered during five summers of digging), and bought just enough of many of the items needed for daily life to get by. In short, the numbers in Tables 1-3 tell the story well: there were very few items in many of the artifact categories from bottles to tools. A close examination of the chart shows that only one item was recovered in fifty of the artifact types listed and another forty-four items shown in the chart had five items or less. More evidence of frugal living?

Acknowledgements

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Lithic Types And Varieties Of New York State

John D. Holland, Buffalo Museum of Science

To prehistoric people seeking raw material for stone tool-making, New York State was both an abundant and a sparse provider. The Onondaga escarpment extending easterly from the Niagara River to the Hudson River and southward to the Pennsylvania state line was a never ending source of high quality chert. Most areas, however, are totally lacking natural exposures; the only source available was glacial-derived drift from boulders, cobbles, and pebbles. An exception is the eastern section of the state which is comprised of smaller exposures with many type varieties. Very little information about chert from geological and archaeological surveys and reports is available to researchers. Geologists avoid chert because it is not a valuable commercial product, being comparatively valueless. Chert deposits have proved useful as stratigraphical markers because of inherent durability to resist erosional forces. The following listing is not a totally comprehensive study of chert in this state, nor is it deemed to be. Rather, it should be regarded as a preliminary guide and springboard to more intensive investigations. Constant reviews and new data by geologists in the field have resulted in unit name changes which can easily cause confusion. Basic member names are preferable to using formation and group designations. Synonyms or aka's (also known as) are popular in providing a less technical measure of identification, but the coining and use of these names should be avoided whenever possible.

Lithic Types

NAME: Allentown.
SYNONYM: Kittatinny, Limeport, and Upper Allentown.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Cambrian System, Allentown Formation, Upper Allentown and Limeport Members.
COLOR: Black.
COMMENTS: Chert occurs in two members; Upper Allentown and Limeport. The synonym Kittatinny is an older term used when the distinction between Allentown was not fully understood.
REFERENCE: Bergman et al. 1992; Lavin 1983a.

NAME: Alsen.
SYNONYM: Helderberg.
TYPE: Chert.
DISTRIBUTION: Albany, Greene, and Ulster County.
STRATIGRAPHY: Devonian System, Helderberg Group, Alsen Formation.
COLOR: Dark gray to black.
COMMENTS: Alsen chert effervesces upon contact with hydrochloric acid on both raw and weathered surfaces.
REFERENCE: Dunn and Rikard 1961; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Lavin 1983b; Prothero and Lavin 1990; Wray 1948.

NAME: Aquetuck.
SYNONYM: Schoharie.
TYPE: Chert.
DISTRIBUTION: Greene and Orange Counties.
STRATIGRAPHY: Devonian System, Schoharie Formation, Aquetuck Member.
COLOR: Black.
COMMENTS: Of the three Schoharie members only the Aquetuck is chert bearing.
REFERENCE: Jensen and Schaffel 1967; Jensen and Southard 1962; Oliver et al. 1962; Rogers et al. 1990; Waines 1967.

NAME: Anstin Glen.
SYNONYM: Austen Glen.
TYPE: Chert.
DISTRIBUTION: Dutchess, Greene, and Orange Counties.
STRATIGRAPHY: Ordovician System, Normanskill Formation, Austin Glen Member.
COLOR: Black.
COMMENTS: This formation is rarely chert bearing.
REFERENCE: Bence and McLelland 1976; Drake et al. 1989; Dunn and Rikard 1961; Fisher and Warthin 1976; Isachsen et al. 2000; Jensen and Schaffel 1967; Offield 1967.

NAME: Balmville.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Duchess, Orange, and Ulster Counties.
STRATIGRAPHY: Ordovician System, Trenton Group, Balmville Limestone Formation.
COLOR: Gray.
COMMENTS: Balmville lithology is typically conglomeratic with angular and rounded dolomite and chert pebbles.
REFERENCE: Fisher 1961; Fisher and Warthin 1976; Jensen and Schaffel 1967; Offield 1967; Rogers et al. 1990.

NAME: Beaver Run.
SYNONYM: Beaverdam.
TYPE: Chert.
DISTRIBUTION: Dutchess and Orange Counties.
STRATIGRAPHY: Ordovician System, Ontelaunee Formation, Beaver Run Member.
COLOR: Dull, opaque black to translucent gray.
COMMENTS: Texture is described as gnarled due to penetrative criss-crossing cleavage.
REFERENCE: Bergman et al. 1992; Funk and Steadman 1994; LaPorta 1989; Lavin 1983a.

NAME: Becraft.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Albany, Columbia, and Ulster Counties.
STRATIGRAPHY: Devonian System, Helderberg Group, Becraft Formation.
COLOR: Black and very dark blue.
COMMENTS: Name given for limestone exposures on Becraft Mountain near Hudson.
REFERENCE: Dunn and Rikard 1961; Grauban 1903; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Kindle 1912; Ruedemann 1930, 1942; Van Ingen and Clark 1903; Wray 1948.

NAME: Beekmantown.
SYNONYM: Calciferous, Kittatinny.
TYPE: Chert.
DISTRIBUTION: Clinton, Essex, and Washington Counties.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Fort Ann Formation.
COLOR: Variable from black to gray to white.
COMMENTS: The synonyms Calciferous and Kittatinny are older terms that have fallen into disuse. Beekmantown limestone is exposure at Beekmantown Corners, Beekmantown Township, Clinton County, New York, is considered the type site.
REFERENCE: Drake 1989; Fisher et al. 1970; Lavin 1983a; Rogers et al. 1990.

NAME: Big Springs.
SYNONYM: Epler.
TYPE: Chert.
DISTRIBUTION: Southeastern counties of New York.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Epler Formation, Big Springs Member.
COLOR: White, maroon and white, jade green, and lavender.
COMMENTS: The maroon variety can be confused with heat-treated Hardyston Jasper.
REFERENCE: Bergman et al. 1992; LaPorta 1989; Markewicz and Dalton 1977; Prothero and Lavin 1990.

NAME: Bois Blanc.
SYNONYM: None.
TYPE: Chert.
DISTRIBUTION: Erie County.
STRATIGRAPHY: Devonian System, Tristates Group, Bois Blanc Formation, Springvale Member.
COLOR: White, blue, blue-gray, mottled blue-gray.
COMMENTS: Bois Blanc is the only formation of the Tristates Group in Western New York and is not chert bearing in this region. Bois Blanc chert does occur in Western New York in glacial drift originating in southern Ontario, Canada.
REFERENCE: Eley and von Bitter 1989; Lindemann 2002; Holland 1999; Isachsen et al 2000.

NAME: Branchville.
SYNONYM: Epler.
TYPE: Chert.
DISTRIBUTION: Southeastern counties of New York.
STRATIGRAPHY: Ordovician System, Epler Formation, Branchville Member.
COLOR: Black, light blue, dark blue, white, lavender.
COMMENTS: Branchville is the lower of three chert bearing members; Lafayette and Big Springs.
REFERENCE: Bergman et al. 1992; LaPorta 1989; Markewicz and Dalton 1977.

NAME: Briarcliff.
SYNONYM: None.
TYPE: Chert.
DISTRIBUTION: Dutchess, Orange, and Westchester Counties.
STRATIGRAPHY: Cambrian System, Briarcliff Dolomite

Formation.
COLOR: Light to medium gray.
COMMENTS: The Briarcliff unit is named for Briarcliff Manor, Mount Pleasant Township, Westchester County.
REFERENCE: Fisher 1961; Fisher and Warthin 1976; Offield 1967.

NAME: Brunswick.
SYNONYM: None.
TYPE: Argillite.
DISTRIBUTION: Bucks and Montgomery Counties.
STRATIGRAPHY: Triassic System, Newark Group, Brunswick Formation.
COLOR: Reddish-brown.
COMMENTS: The Brunswick Formation is underlain by the Stockton Formation.
REFERENCE: Didier 1975; Kingsley et al. 1990; Van Houten 1987.

NAME: Buttermilk Falls.
SYNONYM: Onondaga.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Devonian System, Buttermilk Falls Limestone Formation, Echo Lake, Stroudsburg, McMichael, and Foxtown Members.
COLOR: Gray and black.
COMMENTS: Buttermilk Fall represents an Onondaga Formation facies change. Only the Stroudsburg and Foxtown Members are chert bearing.
REFERENCE: Brett and Verstraeten 1994; Lavin 1983a.

NAME: Califon.
SYNONYM: Leithsville.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Cambrian System, Leithsville Formation, Califon Member.
COLOR: Black, gray, blue-gray, orange and black mottled.
COMMENTS: Califon chert frequently occurs as residuum and glacial drift.
REFERENCE: Bergman et al. 1992; LaPorta 1989; Markewicz and Dalton 1977.

NAME: Chaumont.
SYNONYM: Leray, Watertown.
TYPE: Chert.
DISTRIBUTION: Jefferson County.
STRATIGRAPHY: Ordovician System, Black River Group, Chaumont Formation, Leray Member.
COLOR: Black, gray, brownish-gray.
COMMENTS: Limited to the Watertown area of Jefferson County.
REFERENCE: Cameron and Kamal 1977; Fisher 1965; Jensen 1971; Shaw 1969; Walker 1973; Wray 1948.

NAME: Cherry Valley.
SYNONYM: None.
TYPE: Chert.
DISTRIBUTION: Erie and Onondaga Counties.
STRATIGRAPHY: Devonian System, Hamilton Group, Oatka Creek Formation, Cherry Valley Member.
COLOR: Black.
COMMENTS: The Cherry Valley Member is known as Agoniatites Limestone in some areas for its distinctive cephalopods.
REFERENCE: Baird et al. 1999; Dunn 1964; Griggs 1987; Rogers et al. 1990.

NAME: Chuctanunda Creek.
SYNONYM: None.
TYPE: Chert.
DISTRIBUTION: Herkimer and Montgomery Counties.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Chuctanunda Formation.
COLOR: Black.
COMMENTS: The Chuctanunda Creek type site is within the city of Amsterdam along North Choctanunda Creek. Stratigraphically rests upon the Tribes Hill Formation.
REFERENCE: Fisher 1965; Hutchinson 1991.

NAME: Clarence.
SYNONYM: Onondaga.
TYPE: Chert.
DISTRIBUTION: Erie County.
STRATIGRAPHY: Devonian System, Hamilton Group, Onondaga Formation, Seneca, Moorehouse, Nedrow, Clarence, Edgecliff Member.
COLOR: Gray, mottled gray-black, black.
COMMENTS: The Clarence Member is considered a facies of the Nedrow Member.
REFERENCE: Brett and Verstraeten 1994; Lindemann and Simmonds 1977; Lindholm 1967; Oliver 1966.

NAME: Coeymans.
SYNONYM: Helderberg.
TYPE: Chert.
DISTRIBUTION: Orange and Ulster Counties.
STRATIGRAPHY: Devonian System, Helderberg Group, Coeymans Formation.
COLOR: Dark gray to black.
COMMENTS: Coeymans and New Scotland chert are

macroscopically similar.
REFERENCE: Banino and Cutcliffe 1979; Dunn and Rikard 1961; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Kindle 1912; Lavin 1983a; Rogers et al. 1990; Van Ingen and Clark 1903.

NAME: Connelly Conglomerate.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Orange and Ulster County.
STRATIGRAPHY: Devonian System, Deerparkian Series, Connelly Conglomerate Formation.
COLOR: Black.
COMMENTS: Chert is found among the Connelly Conglomerate constituents.
REFERENCE: Banino and Cutcliffe 1979; Epstein and Lytle 1987; Finks 1968; Heyl and Salkind 1967; Lavin 1983a; Waines 1967.

NAME: Crooked Swamp.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Ordovician System, Richenbach Formation, Crooked Swamp Dolomite Facies.
COLOR: Light gray to light blue.
COMMENTS: Of minimal prehistoric toolmaking concern.
REFERENCE: Bergman 1992 et al.; LaPorta 1989; Lavin 1983a.

NAME: Cutting.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Northeastern New York.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Cutting Dolomite Formation.
COLOR: Black.
COMMENTS: The Cutting Formation extends easterly into northwestern Vermont.
REFERENCE: Fisher et al. 1970; Dawson 2002; Landing 2003; Rolfe 1969.

NAME: Deepkill.
SYNONYM: Deep Kill.
TYPE: Chert.
DISTRIBUTION: Columbia and Greene Counties.
STRATIGRAPHY: Ordovician System, Deepkill Formation.
COLOR: Black.
COMMENTS: Deepkill weathers brown, not white as does Normanskill chert.
REFERENCE: Drake 1989; Fisher 1961; Isachsen et al. 2000; Landing 2003; Rogers et al. 1990; Ruedemann 1930; Wray 1948.

NAME: Edgecliff.
SYNONYM: Onondaga.
TYPE: Chert.
DISTRIBUTION: Widely across New York State.
STRATIGRAPHY: Devonian, Onondaga Formation, Edgecliff Member.
COLOR: White and black, gray, gray mottled, black.
COMMENTS: Some lower member Edgecliff chert is a distinctive white with small, black inclusions.
REFERENCE: Brett and Verstraeten 1994; Buehler and Tesmer 1963; Dunn 1964; Isachsen et al. 2000; Landing 2003; Lindholm 1967; Oliver 1966; Rogers et al. 1990; Wray 1948.

NAME: Epler.
SYNONYM: Beaver Run, Lafayette.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Epler Formation, Lafayette, Big Springs, Branchville Members.
COLOR: Dark gray to black.
COMMENTS: Chert occurs in nodules, lenses, and stringers throughout the Epler Formation.
REFERENCE: Bergman et al. 1992; Drake et al. 1989; Geyer 1970; LaPorta 1989; Lavin 1983a; Markewicz and Dalton 1977; Prothero and Lavin 1990; Root 1977.

NAME: Esopus
SYNONYM: Sharon Springs.
TYPE: Chert.
DISTRIBUTION: Orange, Otsego, Schoharie, and Ulster Counties.
STRATIGRAPHY: Devonian System, Esopus Formation.
COLOR: Dark gray, black.
COMMENTS: Like Snake Hill the siliceous shale Esopus was used for stone toolmaking purposes.
REFERENCE: Banino and Cutcliffe 1979; Dunn and Rikard 1961; Fisher 1961; Funk et al. 1989; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Kindle 1912; Landing 2003; Lindemann 2002; Rogers et al. 1990; Wray 1948.

NAME: Finch.
SYNONYM: Whitehall.
TYPE: Chert.
DISTRIBUTION: Washington County.

STRATIGRAPHY: Cambrian/Ordovician System, Whitehall Formation, Finch Member.
COLOR: Black.
COMMENTS: Other chert bearing members of the Whitehall Formation are Skene and Warner Hill.
REFERENCE: Landing 2003; Mango 2002.

NAME: Fort Ann.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Clinton, Essex, and Washington Counties.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Fort Ann Formation.
COLOR: Blue, blue-gray, and black.
COMMENTS: The type section is at Fort Ann, New York.
REFERENCE: Hammer 1976; Hayman and Kidd 2002; Landing 2003; Isachsen et al. 2000; Kuhn and Landford 1987; Wray 1948.

NAME: Fort Edwards.
SYNONYM: Great Meadows.
TYPE: Chert.
DISTRIBUTION: Washington County.
STRATIGRAPHY: Ordovician System, Fort Edward Formation, Great Meadows Member.
COLOR: Dark olive gray to blue gray with occasional white splotches of white quartz.
COMMENTS: Fort Edwards reassigned to Wolf Hollow.
REFERENCE: Hayman and Kidd 2002; Landing 2003.

NAME: Galway.
SYNONYM: Ticonderoga.
TYPE: Chert.
DISTRIBUTION: Saratoga and Essex County.
STRATIGRAPHY: Cambrian System, Beekmantown Group, Ticonderoga Formation.
COLOR: Black.
COMMENTS: Ticonderoga name changed to Galway.
REFERENCE: Fisher et al. 1970; Gannett 1902; Isachsen et al. 2000; Landing 2003; Lavin 1983a; Rogers et al. 1990; Wray 1948.

NAME: Glenerie.
SYNONYM: Glenarie, Glen Erie.
TYPE: Chert.
DISTRIBUTION: Albany, Greene, Orange, Schoharie, Sullivan, and Ulster Counties.
STRATIGRAPHY: Devonian System, Oriskany Group, Glenerie Limestone Formation.
COLOR: Blue.
COMMENTS: The Glenerie Formation was named for the town of Glenerie in Ulster Township, Ulster County in the Hudson Valley.
REFERENCE: Banino and Cutcliffe 1979; Dunn and Rikard 1961; Fink and Schuberth 1962; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Lavin 1983a; Rogers et al. 1990; Waines 1967; Wray 1948.

NAME: Goat Island.
SYNONYM: Ancaster and Lockport.
TYPE: Chert.
DISTRIBUTION: Niagara, Erie, Chautauqua, Cattaraugus, Genesee, and Livingston Counties.
STRATIGRAPHY: Silurian System, Lockport Formation, Goat Island Member.
COLOR: White, gray, and blue.
COMMENTS: Goat Island chert in nearby Ontario, Canada, is known as Ancaster.
REFERENCE: Ely and von Bitter 1989; Holland 1999; Rogers et al. 1990; Zenger 1965.

NAME: Great Meadows.
SYNONYM: Fort Edwards.
TYPE: Chert.
DISTRIBUTION: Washington County.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Fort Edward Formation, Great Meadows Member.
COLOR: Dark olive gray to blue gray with occasional white splotches of white quartz.
COMMENTS: Great Meadows name changed to Tribes Hill.
REFERENCE: Landing 2003; Rogers et al. 1990.

NAME: Gull River.
SYNONYM: Huronian, Yellow Onondaga.
TYPE: Chert.
DISTRIBUTION: Grey County, Ontario, Canada.
STRATIGRAPHY: Ordovician System, Gull River Formation.
COLOR: White with tinges of light blue, gray, brown, cream.
COMMENTS: Huronian chert was transported by glaciers from Canada and deposited throughtout western New York and northwestern Pennsylvania where it is incorrectly referred to as Delaware and Yellow Onondaga. Heat treated resembles red jasper.
REFERENCE: Ely and von Bitter 1989; Fox 1979; Holland 1999.

NAME: Halcyon Lake.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Columbia, Duchess, and Orange Counties.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Halcyon Lake Formation.
COLOR: Medium to dark gray.
COMMENTS: The formation is named for Halcyon Lake, Pine Plains Township, Duchess County.
REFERENCE: Drake 1989; Fisher 1961; Fisher et al. 1970; Jensen and Schaffel 1967; Lavin 1983a; Lavin 1983b; Offield 1967; Prothero and Lavin 1990.

NAME: Hamburg.
SYNONYM: Leithsville.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Cambrian System, Leithsville Formation, Hamburg Member.
COLOR: Black to light blue and blue-black.
COMMENTS: The Hamburg Member underlies the Califon and overlies the Wallkill Members.
REFERENCE: Bergman et al. 1992; LaPorta 1989, 1994.

NAME: Hannacroix.
SYNONYM: Kalkberg.
TYPE: Chert.
DISTRIBUTION: Albany, Greene, Otsego, and Ulster Counties.
STRATIGRAPHY: Devonian System, Helderberg Group, Kalkberg Formation, Hannacroix Member.
COLOR: Black.
COMMENTS: Only the Hannacroix Member of the Kalkberg Formation is chert bearing.
REFERENCE: Banino and Cutcliffe 1979; Dunn and Rikard 1961; Fisher 1961: Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Wray 1948.

NAME: Harmonyville.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Ordovician System, Ontelaunee Formation, Harmonyvale Member.
COLOR: Light and dark blue, black, light and dark gray with red mottled varieties.
COMMENTS: Harmonyville chert is often fractured internally sealed and unsealed.
REFERENCE: Bergman et al. 1992; LaPorta 1989, 1994; Lavin 1983a; Markewicz and Dalton 1977.

NAME: Helderberg.
SYNONYM: Alsen, Becraft, Coeymans, Kalkberg, New Scotland, Port Ewen.
TYPE: Chert.
DISTRIBUTION: Albany, Columbia, Fulton, Greene, Herkimer, Madison, Montgomery, Oneida, Orange, Sullivan, and Ulster Counties.
STRATIGRAPHY: Devonian System, Helderberg Group, Alsen, Becraft, Coeymans, Kalkberg, New Scotland, Port Ewen Formations.
COLOR: Gray, black, white.
COMMENTS: The Helderberg Group extends from New York to West Virginia.
REFERENCE: Fisher 1961; Isachsen et al. 2000; Kindle 1912; Lavin 1983a; Lindholm 1967.

NAME: Hickory Corners.
SYNONYM: Reynales, Wallington.
TYPE: Chert
DISTRIBUTION: Niagara and Monroe Counties.
STRATIGRAPHY: Silurian System, Reynales Formation, Hickory Corners Member.
COLOR: Gray.
COMMENTS: Distributed throughout western New York as glacial debris.
REFERENCE: Grasso 1973; Isachsen et al. 2000; Kilgour 1966.

NAME: Hope.
SYNONYM: Rickenbach.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Ordovician System, Rickenbach Formation, Hope Member.
COLOR: Black to blue-black.
COMMENTS: The Hope Member chert beds are seldom more than a few inches thick.
REFERENCE: Bergman et al. 1992; LaPorta 1989; Lavin 1983a.

NAME: Hoyt.
SYNONYM: Whitehall.
TYPE: Chert.
DISTRIBUTION: Clinton, Essex, and Saratoga Counties.
STRATIGRAPHY: Cambrian System, Saratoga Springs Group, Whitehall Dolomite Formation, Hoyt Limestone Member.
COLOR: Dull black, gray-black, blue-gray, blue-black.
COMMENTS: Lester Park about 5 km west of Saratoga, NY, is the Hoyt type site.
REFERENCE: Fisher 1965, 1980; Friedman 2002; Lindemann 2002; Wheeler 1942; Wray 1948.

NAME: Indian River.
SYNONYM: Mount Hamilton, Normanskill.
TYPE: Chert.
DISTRIBUTION: Greene and Washington Counties.
STRATIGRAPHY: Ordovician System, Chazan Series, Normanskill Group, Indian River Formation.
COLOR: Red and green.
COMMENTS: Indian River is both chert and siliceous shale.
REFERENCE: Brumbach and Weinstein 1999; Drake 1989; Hammer 1976; Isachsen et al. 2000; Landing 2003.

NAME: Kalkberg.
SYNONYM: Helderberg, Hannacroix.
TYPE: Chert.
DISTRIBUTION: Albany, Greene, Otsego, and Ulster Counties.
STRATIGRAPHY: Devonian System, Helderberg Group, Kalkberg Formation.
COLOR: Black.
COMMENTS: The type site is located at Austin's Glen on Catskill Creek in Greene County. Only the Hannacroix Member is chert bearing.
REFERENCE: Banino and Cutcliffe 1979; Dunn and Rikard 1961; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Wray 1948.

NAME: Lafayette.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Ordovician System, Epler Formation, Lafayette Member.
COLOR: Light blue, gray mottled, and steel blue-gray.
COMMENTS: Both Lafayette and Epler are equally regarded in reference to this chert.
REFERENCE: Bergman et al. 1992; LaPorta 1989, 1994; Lavin 1983a.

NAME: Lake George.
SYNONYM: South Long Island.
TYPE: Chert.
DISTRIBUTION: Lake George, Warren County.
STRATIGRAPHY: Nondescript.
COLOR: Speckled black.
COMMENTS: Reputed to be a local chert from the vicinity of the Weinman site on the southern end of Lake George.
REFERENCE: Funk 1976a.

NAME: Leithsville.
SYNONYM: Kittatinny.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Cambrian System, Leithsville Formation, Califon, Hamburg, and Walkill Members.
COLOR: Blue-gray, dark gray, brown, orange and black.
COMMENTS: Kittatinny is an older term used when the distinction between Allentown, Beekmantown, Leithsville not clear.
REFERENCE: LaPorta 1989; Lavin 1983a; Prothero and Lavin 1990.

NAME: Leray.
SYNONYM: Chaumont, Watertown.
TYPE: Chert.
DISTRIBUTION: Jefferson County.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Chaumont Formation, Leray Member.
COLOR: Black.
COMMENTS: Limited to the Watertown area. Infrequently used prehistorically.
REFERENCE: Cameron and Kamal 1977; Shaw 1969; Wray 1948.

NAME: Limeport.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Cambrian System, Allentown Formation, Limeport Member.
COLOR: : Blue-gray, gray, and black.
COMMENTS: Limeport chert is typically oolitic.
REFERENCE: Bergman et al. 1992; LaPorta 1989, 1994.

NAME: Little Falls.
SYNONYM: Knauderack, Whitehall.
TYPE: Chert.
DISTRIBUTION: Montgomery County.
STRATIGRAPHY: Cambrian System, Little Falls Dolomite Formation.
COLOR: White, aqua blue, black.
COMMENTS: Black coloration is the result of anthraxolite inclusions.
REFERENCE: Fisher 1965; Isachsen et al. 2000; Landing 2003; Lavin and Prothero 1981; Wray 1948.

NAME: Lockatong.
SYNONYM: No data.
TYPE: Argillite.
DISTRIBUTION: Hunterdon County.

STRATIGRAPHY: Triassic System, Newark Supergroup, Lockatong Formation.
COLOR: Dark gray, black.
COMMENTS: Varies from black pyritic shale to tough, massive calcareous argillite.
REFERENCE: Didier 1975; Olsen 1980; Van Houten 1987.

NAME: Lockport.
SYNONYM: Ancaster, Goat Island.
TYPE: Chert.
DISTRIBUTION: Glacial deposits and outwash throughout western and Central Pennsylvania.
STRATIGRAPHY: Silurian System, Niagaran Group, Lockport Formation, Oak Orchard, Goat Island, and Eramosa Members.
COLOR: White, dark gray to bluish gray, light blue, commonly mottled dark spots.
COMMENTS: Outcrops of Lockport chert are rare, but commonly alluvial in Western New York.
REFERENCE: Bolton 1957; Eley and von Bitter 1989, Fowler 1971; Kilgour 1966; Laird 1935; Lavin 1983a; Parkins 1974; Tovell 1965; Wray 1948; Zenger 1965.

NAME: Mettawee.
SYNONYM: No data.
TYPE: Argillite, quartzite, conglomerate.
DISTRIBUTION: Columbia and Washington Counties.
STRATIGRAPHY: Cambrian System, Cassayuna Group, West Castleton Formation, Mettawee Member.
COLOR: Light gray with dark gray mottling.
COMMENTS: Sparse exposures.
REFERENCE: Ashton 1990; Fisher 1961; Isachsen and Fisher 1970; Metz 1967; Skiba 1984.

NAME: Minisi.
SYNONYM: Shawangunk.
TYPE: Chert.
DISTRIBUTION:
STRATIGRAPHY: Silurian System, Shwangunk Formation, Minisi Member.
COLOR: Various shades of gray.
COMMENTS: Chert appears in conglomerate gravel.
REFERENCE: Epstein 1980; Lavin 1983a; Van Diver 1985.

NAME: Moorehouse.
SYNONYM: Corniferous, Onondaga.
TYPE: Chert.
DISTRIBUTION: West to east across New York and south to Pennsylvania.
STRATIGRAPHY: Devonian System, Onondaga Formation, Moorehouse Member.
COLOR: Gray, gray mottled, black.
COMMENTS: The Moorehouse Member is named for Moorehouse Flats in Onondaga County. Located nearby is the type site in a limestone quarry on the Onondaga County Penitentiary grounds.
REFERENCE: Brett and Verstraeten 1994; Buehler and Tesmer 1963; Dunn 1964; Isachsen et al. 2000; Lindemann 2002; Lindholm 1967; Oliver 1966; Wray 1948.

NAME: Mount Merino.
SYNONYM: Normanskill, Pleasantdale.
TYPE: Chert.
DISTRIBUTION: Washington, Renesselaer, and Greene Counties.
STRATIGRAPHY: Ordovician System, Normanskill Group, Mount Merino Formation.
COLOR: Green, black.
COMMENTS: Weathers white.
REFERENCE: Brumbach 1987; Brumbach and Weinstein 1999; Drake 1989; Isachsen et al. 2000; Jensen and Schaffel 1967; Offield 1967; Ruedemann 1930; Wray 1948.

NAME: Napanee.
SYNONYM: None.
TYPE: Chert.
DISTRIBUTION: Fulton and Herkimer Counties.
STRATIGRAPHY: Ordovician System, Black River/ Trenton Group, Napanee Formation.
COLOR: Black.
COMMENTS: The Formation was named for the town of Napanee, Ontario, Canada.
REFERENCE: Cameron et al. 1972; Cameron and Kamal 1977.

NAME: Nedrow.
SYNONYM: Onondaga.
TYPE: Chert.
DISTRIBUTION: Extends easterly from Clarence to Albany south to Pennsylvania.
STRATIGRAPHY: Devonian System, Onondaga Formation, Moorehouse Member.
COLOR: Mottled gray and black also solid black.
COMMENTS: Bold, black exposures occur near the town of Nedrow in Onondaga County.
REFERENCE: Brett and Verstraeten 1994; Buehler and Tesmer 1963; Dunn 1964; Isachsen et al. 2000; Lindemann 2002; Lindholm 1967; Oliver 1966; Wray 1948.

NAME: New Scotland.
SYNONYM: Helderberg.
TYPE: Chert.
DISTRIBUTION: Orange and Ulster Counties.
STRATIGRAPHY: Devonian System, Helderberg Group, New Scotland Formation.
COLOR: Black.
COMMENTS: New Scotland chert representing the Kalkberg Member is exposed in an abandoned quarry in Orange County.
REFERENCE: Banino and Cutcliffe 1979; Dunn and Rikard 1961; Fink and Schuberth 1962; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Kindle 1912; Van Ingen and Clark 1903; Wray 1948.

NAME: Normanskill.
SYNONYM: Coxsackie, Flately Brook, Flint Mine Hill, Mount Merino, Pleasantville.
TYPE: Chert.
DISTRIBUTION: Greene, Orange, Rensselaer, Saratoga, Ulster, and Washington Counties.
STRATIGRAPHY: Ordovician System, Normanskill Group, Mount Merino and Indian River Formations.
COLOR: Black, red and green.
COMMENTS: Often mistaken for Deepkill chert which does not weather white as does Normanskill.
REFERENCE: Berdan 1954; Brumbach 1987; Brumbach and Weinstein 1999; Cushman 1953; Cushing and Ruedemann 1914; Drake 1989; Fisher 1961; Funk 1976b; Holland and Ashton 1999; Lavin 1983a, 1983b; Offield 1967; Ruedemann 1930; Wray 1948.

NAME: Onondaga.
SYNONYM: Eastern Onondaga, Central Onondaga, Western Onondaga, Divers Lake, Black Rock, Seneca, Moorehouse, Nedrow, Clarence, Edgecliff.
TYPE: Chert.
DISTRIBUTION: Buffalo, Erie County to Albany, south to the Pennsylvania boundary.
STRATIGRAPHY: Devonian System, Onondaga Formation, Edgecliff, Clarence, Nedrow, Moorehouse, Seneca Members.
COLOR: White, gray, mottled gray, dark blue, and black.
COMMENTS: The most ubiquitous chert and widely used chert prehistorically in the state.
REFERENCE: Brett and Verstraeten 1994; Isachen et al. 2000; Jensen and Schaffel 1967; Kindle 1912; Lavin 19983a, 1983b; Lindholm 1967; Oliver 1966; Wray 1948.

NAME: Ontelaunee.
SYNONYM: Beaver Run, Harmonyvale.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Ordovician System, Kittatinny Group, Ontelaunee Formation, Lafayette, Big Springs, Branchville Members.
COLOR: Dark gray.
COMMENTS: Three members of the Ontelaunee Formation are chert bearing.
REFERENCE: Drake 1989; LaPorta 1989; Lavin 1983a.

NAME: Oriskany.
SYNONYM: Ridgely, Shriver.
TYPE: Chert.
DISTRIBUTION: Albany, Herkimer, Onondaga, and Ulster Counties.
STRATIGRAPHY: Devonian System, Tristate Group, Oriskany Formation, Ridgely Member.
COLOR: Bluish gray, dark gray, black.
COMMENTS: Oriskany outcrops across the central part of the state to the Hudson River.
REFERENCE: Hammer 1976; Isachen et al. 2000; Kindle 1912; Lavin 1983a; Van Ingen and Clark 1903; Wray 1948.

NAME: Pensauken.
SYNONYM: Pensauken Gravel.
TYPE: Gravel.
DISTRIBUTION: Staten Island.
STRATIGRAPHY: Miocene System, Columbia Group, Pensauken Formation.
COLOR: Black, gray, brown , yellow.
COMMENTS: Pensauken gravel chert may have been derived from the Kittatiny outcrops in northwestern New Jersey.
REFERENCE: Bowman and Lodding 1969; Kingsley et al. 1990; Lavin 1983a, 1983b; Owens 1999; Prothero and Lavin 1990.

NAME: Pine Plains.
SYNONYM: None.
TYPE: Chert.
DISTRIBUTION: Dutchess County.
STRATIGRAPHY: Cambrian System, Pine Plains Formation.
COLOR: Dark gray or black.
COMMENTS: Pine Plains chert sometimes appears as siliceous ooliths.
REFERENCE: Fisher 1961; Fisher and Warthin 1976; Jensen and Schaffel 1967; Offield 1967.

NAME: Poestenkill.
SYNONYM: No data.
TYPE: Conglomerate chert.
DISTRIBUTION: East of the Hudson River between Schuylerville, Washington County and Hudson, Columbia County.
STRATIGRAPHY: Ordovician System, Poestenkill Formation.
COLOR: Black.
COMMENTS: Pebble chert in the conglomerate Poestenkill has been identified as Normanskill.
REFERENCE: Lavin 1983a; Ruedemann 1930, 1942.

NAME: Port Ewen.
SYNONYM: Helderberg.
TYPE: Chert.
DISTRIBUTION: Ulster County.
STRATIGRAPHY: Devonian System, Helderberg Group, Port Ewen Formation.
COLOR: Black.
COMMENTS: Port Ewen is the lowest of the six chert bearing Lower Devonian Helderberg formations.
REFERENCE: Banino and Cutcliffe 1979; Isachsen et al. 2000; Jensen and Schaffel 1967; Kelley 1967; Lavin 1983; Van Ingen and Clark 1903; Wray 1948.

NAME: Port Jervis.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Devonian System, Ulster Group, Port Jervis Formation.
COLOR: Black.
COMMENTS: Port Jervis Formation beds have been reported in New Jersey, Pennsylvania, Maryland, and West Virginia.
REFERENCE: Fisher et al. 1970; Woodward 1943.

NAME: Poughquag.
SYNONYM: Cheshire, Cheshire Quartzite, Cheshire Orthoquartzite.
TYPE: Quartzite.
DISTRIBUTION: Duchess and Orange Counties.
STRATIGRAPHY: Cambrian System, Poughquag Formation.
COLOR: White, tan, pink, and brownish.
COMMENTS: Poughquag correlates with Hardyston Quartzite. The name Cheshire is applied to the same unit as Poughquag in Massachusetts and Vermont.
REFERENCE: Brock 1989: Fisher 1961; Fisher et al. 1970; Fisher and Warthin 1976; Heyl and Salkind 1967; Jensen and Schaffel 1967; Oldfield 1967.

NAME: Poultney.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Washington County.
STRATIGRAPHY: Taconic Allochthon, Giddings Brook Slice, Poultney Formation, Crossroad and Dunbar Road Members.
COLOR: Black.
COMMENTS: Poultney chert weathers to white and gray. The type site location is the Poultney River west of Poultney, Vermont.
REFERENCE: Drake et al. 1986; Fisher 1961; Potter 1979; Rowley et al. 1979.

NAME: Reynales.
SYNONYM: Hickory Corners, Wallington.
TYPE: Chert.
DISTRIBUTION: Niagara, Monroe
STRATIGRAPHY: Silurian System, Clinton Group, Reynales Formation, Hickory Corners Member.
COLOR: Gray, and gray with tiny carbon inclusions appearing as black pepper.
COMMENTS: The eastern facies of Reynales is named Wallington in the Genesee River Valley Gorge at Rochester, New York.
REFERENCE: Holland 1999; Grasso 1973; Isachsen and Fisher 1970; Wray 1948.

NAME: Rickenbach.
SYNONYM: Hope.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Ordovician System, Rickenbach Dolomite Formation, Hope and Lower Members.
COLOR: Light gray to black.
COMMENTS: Rickenbach is occasionally oolitic.
REFERENCE: Bergman et al. 1992; Drake 1989; LaPorta 1989; Lavin 1983a; Markewicz and Dalton 1977; Prothero and Lavin 1990; Wray 1948.

NAME: Rochdale
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Dutchess County.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Rochdale Limestone Formation.
COLOR: Dark gray and black.
COMMENTS: Cephalopods, gastopods, and trilobites occurring in the formation are typical.
REFERENCE: Fisher 1961; Fisher et al 1970; Fisher and Warthin 1976; Jensen and Schaffel 1967.

NAME: Rysedorph.
SYNONYM: No data.
TYPE: Conglomerate chert.
DISTRIBUTION: East of the Hudson River between Schuylerville, Washington County and Hudson, Columbia County.
STRATIGRAPHY: Ordovician System, Rysdedorph Formation.
COLOR: Black.
COMMENTS: Pebble chert in the conglomerate Rysedorph has been identified as Normanskill.
REFERENCE: Fisher 1961; Lavin 1983a; Ruedemann 1930, 1942.

NAME: Schoharie.
SYNONYM: Aquetuck.
TYPE: Chert.
DISTRIBUTION: Herkimer County to Orange County.
STRATIGRAPHY: Onondaga System, Schoharie Formation, Aquetuck Member.
COLOR: Black.
COMMENTS: Of the three Schoharie Members only Aquetuck is chert bearing.
REFERENCE: Jensen and Schaffel 1967; Oliver et al. 1962; Waines 1967.

NAME: Seneca.
SYNONYM: Onondaga.
TYPE: Chert.
DISTRIBUTION: Cayuga, Erie, Genesee, Monroe, Seneca, Ontario, and Otsego Counties.
STRATIGRAPHY: Devonian System, Hamilton Group, Onondaga Formation, Seneca, Moorehouse, Nedrow/ Clarence, and Edgecliff Members.
COLOR: Medium gray to dark gray.
COMMENTS: The Seneca Member is underlain by the Tioga Bentonite Ash Beds also known as Onondaga Indian Nation. The chert has abundant microfossil fragments.
REFERENCE: Baird et al. 1999; Buehler and Tesmer 1963; Brett and Verstrataeten 1994; Isachsen et al. 2000; Lindeman and Simmonds 1977; Lindholm 1967; Luther 1914; Oliver 1966; Smith et al. 1988.

NAME: Skene.
SYNONYM: Whitehall.
TYPE: Chert.
DISTRIBUTION: Warren and Washington Counties.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Whitehall Formation, Skene Member.
COLOR: Black.
COMMENTS: Skene chert weathers white.
REFERENCE: Fisher 1984; Landing 2003.

NAME: Snake Hill.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Saratoga and Schoharie Counties.
STRATIGRAPHY: Ordovician System, Snake Hill Formation.
COLOR: Black.
COMMENTS: Snake Hill is more accurately described as siliceous shale. Darker in color than Esopus.
REFERENCE: Banino and Cutcliffe 1979; Cushing and Ruedemann 1914; Drake 1989; Fisher 1961; Fisher and Warthin 1976; Funk and Walsh 1968; Isachsen et al. 2000; Landing 2003; Offield 1967; Ruedemann 1930; Wray 1948.

NAME: Stafford.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Erie and Onondaga Counties.
STRATIGRAPHY: Devonian System, Hamilton Group, Skaneateles Formation, Stafford Member.
COLOR: Dark bluish gray and black, characterized by buff to brown weathering.
COMMENTS: The Stafford Member extends into central New York, but is chert bearing only in western New York.
REFERENCE: Baird et al. 1999; Buehler and Tesmer 1963; Luther 1914.

NAME: Stissing.
SYNONYM: No data.
TYPE: Chert
DISTRIBUTION: Dutchess and Orange Counties.
STRATIGRAPHY: Cambrian System, Stissing Dolomite Formation.
COLOR: Dark gray.
COMMENTS: Stissing is the stratigraphic equivalent of Tomstown Dolomite of New Jersey and Pennsylvania. Typesite is Stissing Mountain, Stanford Township, Dutchess County.
REFERENCE: Fisher 1961; Fisher and Warthin 1976; Isachsen et al. 2000; Jensen and Schaffel 1967; Offield 1967.

NAME: Stockbridge.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Rensselaer County.

STRATIGRAPHY: Stockbridge Format on.
COLOR: Black
COMMENTS: Prehistoric use of Stockbridge chert may be insignificant due to its paucity.
REFERENCE: Fisher 1961; Ratcliffe 1979.

NAME: Stuyvesant Falls.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Dutchess County.
STRATIGRAPHY: Ordovician Syste , Stuyvesant Falls Formation.
COLOR: Green-gray and black.
COMMENTS: The green-gray chert occurs in shale of the same color, whereas black chert occasionally is found in black shale seams.
REFERENCE: Fisher 1961; Fisher and Warthin 1976, Hammer 1976; Kuhn and Lanford 1987; Landing 2003.

NAME: Ticonderoga.
SYNONYM: Galway.
TYPE: Chert.
DISTRIBUTION: Saratoga, Essex County.
STRATIGRAPHY: Cambrian System, Beekmantown Group, Ticonderoga Formation.
COLOR: Blue-black, black.
COMMENTS: Ticonderoga is possibly a modification of the Indian word Chiderogo "sounding waters". Name changed to Galway.
REFERENCE: Fisher 1984; Fisher et al. 1970; Gannett 1902; Isachsen et al. 2000; Landing 2003; Lavin 1983a; Roden-Tice 2002; Wray 1948.

NAME: Tribes Hill.
SYNONYM: Champlain Valley, Great Meadows.
TYPE: Chert.
DISTRIBUTION: Washington County.
STRATIGRAPHY: Ordovician System, Tribes Hill Formation, Wolf Hollow Member.
COLOR: Gray.
COMMENTS: The name Tribes Hill bas replaced Great Meadows.
REFERENCE: Fisher 1965; Landing 2003.

NAME: Upper Allentown.
SYNONYM: Allentown.
TYPE: Chert.
DISTRIBUTION:
STRATIGRAPHY: Cambrian System, Allentown Formation, Upper Allentown Member.
COLOR: Blue, blue-gray, ash gray, bla k.
COMMENTS: The wide variety of chert beds within the Upper Allentown is responsible for the range of chert colors.
REFERENCE: LaPorta 1989; Oldfield 1967.

NAME: Wallingt n.
SYNONYM: Hickory Corners, Reynales.
TYPE: Chert.
DISTRIBUTION: Monroe County.
STRATIGRAPHY: Silurian System, Clinton Group, Wallington Formation.
COLOR: Gray-blue, dark gray, gray to black.
COMMENTS: Wallington is an eastern facies expression of the Reyna es Formation.
REFERENCE: Grasso 1973; Isachsen et al. 2000; Kilgour 1966.

NAME: Wallkill.
SYNONYM: No data.
TYPE: Chert.
DISTRIBUTION: Orange County.
STRATIGRAPHY: Cambrian System, Leithsville Formation, Wallkill Member.
COLOR: Light to dark gray, blue gray , black.
COMMENTS: Wallkill chert occurs in concentric banded nodules.
REFERENCE: Isachsen et al. 2000; LaPorta 1989; Lavin 1983a; Prothero and Lavin 1990.

NAME: Walton.
SYNONYM: No data.
TYPE: Conglom rate chert.
DISTRIBUTION: Delaware County.
STRATIGRAPHY: Devonian System, Walton Formation
COLOR: Gray.
COMMENT: T ere is no indication this chert was used prehistorically.
REFERENCE: Fletcher 1967.

NAME: Warner Hill.
SYNONYM: W itehall.
TYPE: Chert.
DISTRIBUTION: Washington County.
STRATIGRAPHY: Cambrian System, Whitehall Formation, er Hill Limestone Member.
COLOR: White and gray to black.
COMMENTS: Warner Hill is the cliff forming limestone near Whitehall, Washington County.
REFERENCE: Fisher 1984; Hayman and Kidd 2002; Landing 2003; Mango 2002.

NAME: Whitehall.
SYNONYM: Finch, Little Falls, Skene, Warner Hill.
TYPE: Chert.
DISTRIBUTION: Clinton, Essex, and Washington Counties.
STRATIGRAPHY: Ordovician System, Beekmantown Group, Whitehall Formation, Finch, Skene, and Warner Hill Members.
COLOR: Dark blue, blue-black, black, and white.
COMMENTS: White Hall Formation chert weathers to a whitish cortex. Name changed to Little Falls.
REFERENCE: Hayman and Kidd 2002; Landing 2003; Mango 2002; Roden-Tice 2002; Wray 1948.

NAME: Wolf Hollow.
SYNONYM: Champlain Valley, Great Meadows.
TYPE: Chert.
DISTRIBUTION: Washington County.
STRATIGRAPHY: Ordovician System, Tribes Hill Formation, Wolf Hollow Member.
COLOR: Gray.
COMMENTS: Wolf Hollow replaced former name Great Meadows.
REFERENCE: Fisher 1965; Landing 2003.

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Endscrapers From the Eaton Site

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After seventeen field school excavations, the Eaton Site assemblage is ready to be examined more closely. One hundred sixty-two endscrapers found on the site were studied. Just what endscrapers were used for and the controversy surrounding hafting is discussed. In addition, data concerning variability and patterning in six areas of the site are reported. What this suggests for the site, as well as the potential impact of extensive plowing on the sample, are also discussed. Site maps showing the areas under discussion, bar graphs, and photos are used to give a better overall picture of this artifact and its distribution.

Introduction

Situated on a knoll bordering the Cazenovia Creek flood plain, the Eaton Site (Buf 2-4, UB 221, A029-0003) is a multi-component site located in West Seneca, N.Y. The site has yielded artifacts from the Early Archaic through Middle Woodland periods in addition to Iroquoian artifacts from a major sixteenth-century occupation. This Iroquoian occupation may represent a branch of the Erie (Engelbrecht 1994; Salisbury 2001). Historically the area was used for farming and was extensively plowed in the late nineteenth and early twentieth centuries. The northern and eastern portions of the site have been destroyed (Engelbrecht 1994; Salisbury 2001).

Seventeen summer archaeological field schools have taken place at the site under the direction of Dr. William Engelbrecht. In the course of these field schools, 257 2m x 2m units have been excavated. Additional excavations have been done by the Houghton Chapter of the New York State Archaeological Association and by other archaeologists. The Eaton Site artifacts recovered by the field schools are housed at Buffalo State College and it is the endscrapers from this collection that form the basis of this study.

This study addresses the distribution of endscrapers on the site and variability within the sample. William Engelbrecht identified 162 endscrapers from the site in consultation with John Holland of the Buffalo Museum of Science. I examined the endscrapers for the attributes of weight, length and thickness, in addition to morphological variation and distribution patterns. Aiding me in my examination of distribution patterns was a GIS database containing additional information on the site including units excavated, the distribution of other artifacts, and the levels from which they are derived. Endscrapers were found in 114 of the 257 excavated units.

The total number of endscrapers recovered from the seventeen field seasons remains to be determined. At the time of writing this article, Dr. Engelbrecht was in the process of re-examining all of the bags of chert debris from the site and was occasionally finding more endscrapers. All endscrapers identified up to October 2003 were included, but because more may be found, the figures used here may not be the final ones. Such additional discoveries are unlikely to affect markedly the results of this analysis.

Endscrapers are commonly defined as unifacially-retouched tools that have a steep edge area of between 60 to 90 degrees, usually on the distal end. The vast majority of endscrapers from Eaton follow this definition, but a few were found to have some bifacial retouch as well. Endscrapers form part of the stone tool assemblage in almost all areas of the world and in most time periods when stone tools were used (Andrefsky 1998:194). Some of the endscrapers found at Eaton could relate to earlier components, but the assumption is made that most of the sample relates to the Iroquoian occupation. Endscrapers are believed to have functioned as a tool to work and scrape skins as well as bone, wood and antler. Modern day use of endscrapers for this purpose was brought to light in a recent article by S. Brandt and K. Weedman (2002). This present day ethnographic report gives an account of a woman from the Konso region of Ethiopia who not only uses endscrapers to scrape hides but manufactures her own tools as well. Odell suggests that endscraper function goes beyond scraping to graving, slicing, boring, chopping and even to being used as a projectile (Odell 1981). There is a difference of opinion as to whether endscrapers were hafted or not, the common assumption is that they were (Andrefsky 1998:193). Semenov on the other hand contends they are hand-held (Semenov 1964:87).

Distribution

The excavated units in this site are designated as either inside a longhouse, outside a longhouse, or partial units which are defined as having at least one-third of the unit

inside a longhouse. Of the total excavated units, 133 are defined as outside of the longhouses, 72 are inside, and 52 units are partials. The breakdown of the 162 endscrapers found is as follows: 71 were uncovered in the outside units of the longhouses, 52 were found in the inside units and 39 were in partial units. The breakdown by averaging is .7 endscrapers per inside unit, .5 per outside and .8 for partials (or an average of .6 endscrapers per unit using the total excavated).

For the purpose of this discussion, the focus will be on six defined areas. These areas consist of three longhouses, a refuse pit, a midden and a palisade. All excavated units within 2 m of these areas are considered (Figure 1). The total numbers of units for the focus areas are 72 inside, 52 partial and 69 outside units (193 total).

Longhouse #1 Area

Longhouse #1 is located in the southwestern portion of the site. There were 18 endscrapers uncovered for an average of .4 endscrapers in the 41 inside units excavated. Thirteen endscrapers uncovered in the 18 partial units give an average of .7 per unit while the 22 outside units held 9 endscrapers for an average of .4 endscrapers per unit.

Longhouse #2 Area

In the southeastern excavated area of the site, 9 endscrapers were found in the 9 units designated inside of Longhouse #2, yielding an average of 1 endscraper per unit. Those found here occurred in only 4 of the 9 inside units. One of these units (4S 17E) contained 4 endscrapers, which is the highest concentration of endscrapers found in any unit of the site. In the 13 outside units, there were 6 endscrapers for an average of .5 per unit and a .9 per unit average in the 22 partial units in this area that contained 20 total endscrapers.

Longhouse #3 Area

Located in the northern part of the site, Longhouse #3 area is represented by 22 inside units, 12 partial units and 6 outside units. There were 25 endscrapers found in the inside units for an average of 1.1 endscrapers per unit. Partial units of the longhouse contain an average of .5 (6 endscrapers found in the units), while outside units contained 3 endscrapers for an average of .5 endscrapers per unit.

Refuse Pit/Feature 50

This area, located directly north of Longhouse #3, is identified as a refuse pit. Six units were taken into consideration, but the pit itself only extends over 2 centrally positioned units (56N 1W, 58N 1W). In his 1995 field report, Engelbrecht states his opinion that the area was originally dug as a clay extraction pit, which was subsequently used as a refuse pit. These 6 units yielded 10 endscrapers for an average of 1.7 endscrapers per unit. In the 2 central units, 5 of the 10 endscrapers were found. These 6 units show a dramatic concentration of endscrapers. It is always exciting to find exactly what you expected, and in this locale, I had expected to find large numbers of endscrapers, since it was a refuse area.

Southern Midden Area

This area is near the bank (the edge of the site area), below Longhouses #1 and #2 in the southernmost area excavated by the field schools. It consists of 9 outside units yielding a total of 6 endscrapers for an average of .7 endscrapers per unit.

Palisade Area

This area defines the northernmost perimeter of the site. Relatively few endscrapers were recovered from this portion of the site. It consists of 13 outside units in which 3 endscrapers were found for an average of .2 endscrapers per unit.

Endscraper Variability

Very similar numbers of broken and whole endscrapers were found at the site: 78 broken (48%) and 84 whole (52%) endscrapers (see Figures 2 and 3). In the six defined areas the 1:1 ratio still applies as the number of broken endscrapers in these areas total 60 (47%) with 68 (53%) whole (Table 1). Broken endscrapers were defined as those that were visibly damaged, some to the point that the original morphology will probably never be determined. Damage included large pieces gouged out of the sides, endscraper ends snapped off leaving only small tip areas and/or damage leaving what could be assumed to be only the center portion of the tool.

As part of this study, the whole endscrapers were weighed, and length and width was measured. One only has to look at the differing ranges of measurements of the endscrapers to understand that there is a large amount of variability in the sample. The weights of the Eaton Site whole endscrapers (N=84) range from 0.8 gm to 39.3 gm, with the highest concentration in the 5.1 gm to 10 gm group (Figure 4). Lengths for the sample run from 22 mm to 68 mm with highest concentration in the 31 mm to 40 mm

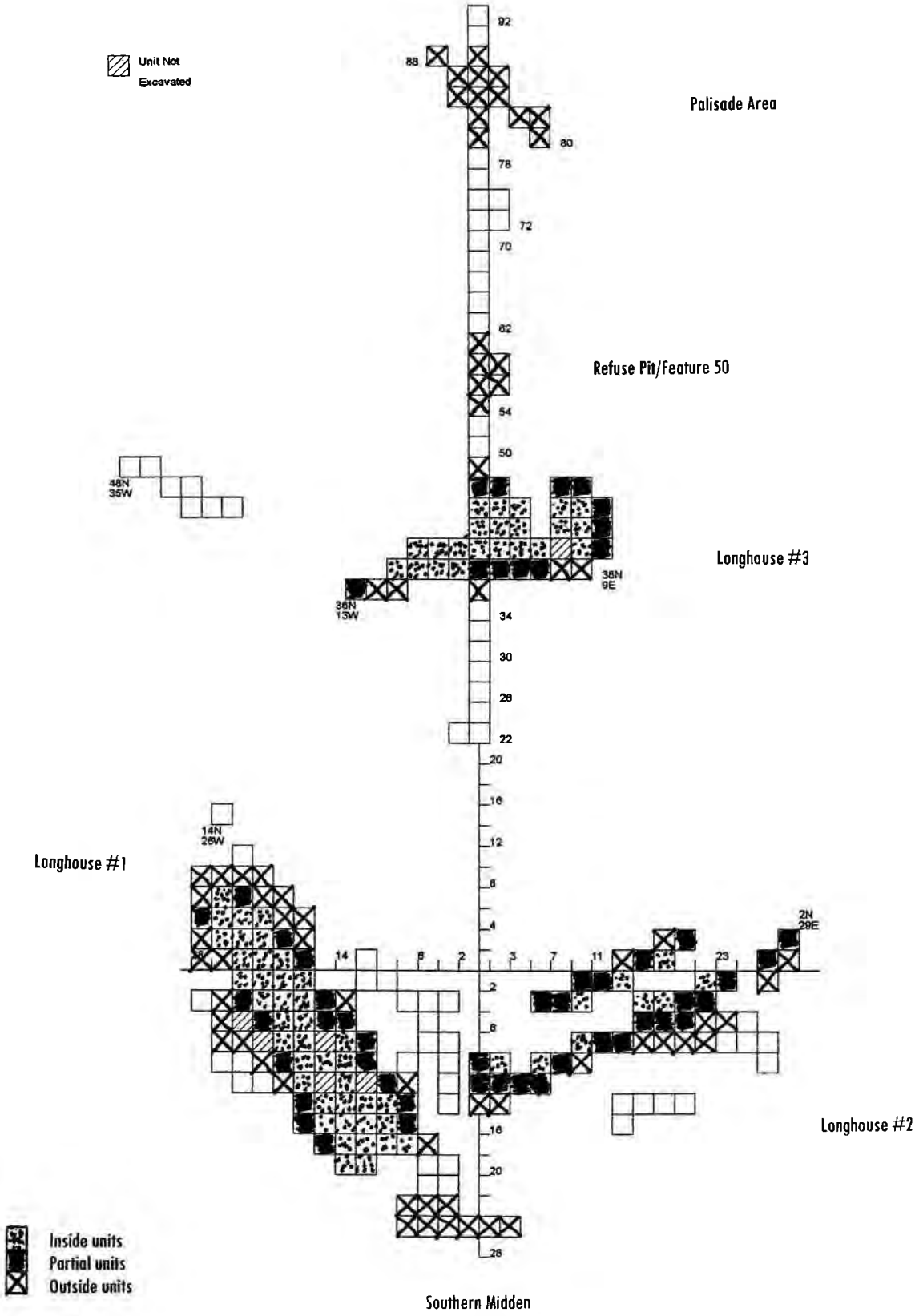

Figure 1. Site map of the Eaton Site showing the six areas under discussion and the designated inside, outside, and partial units of these areas

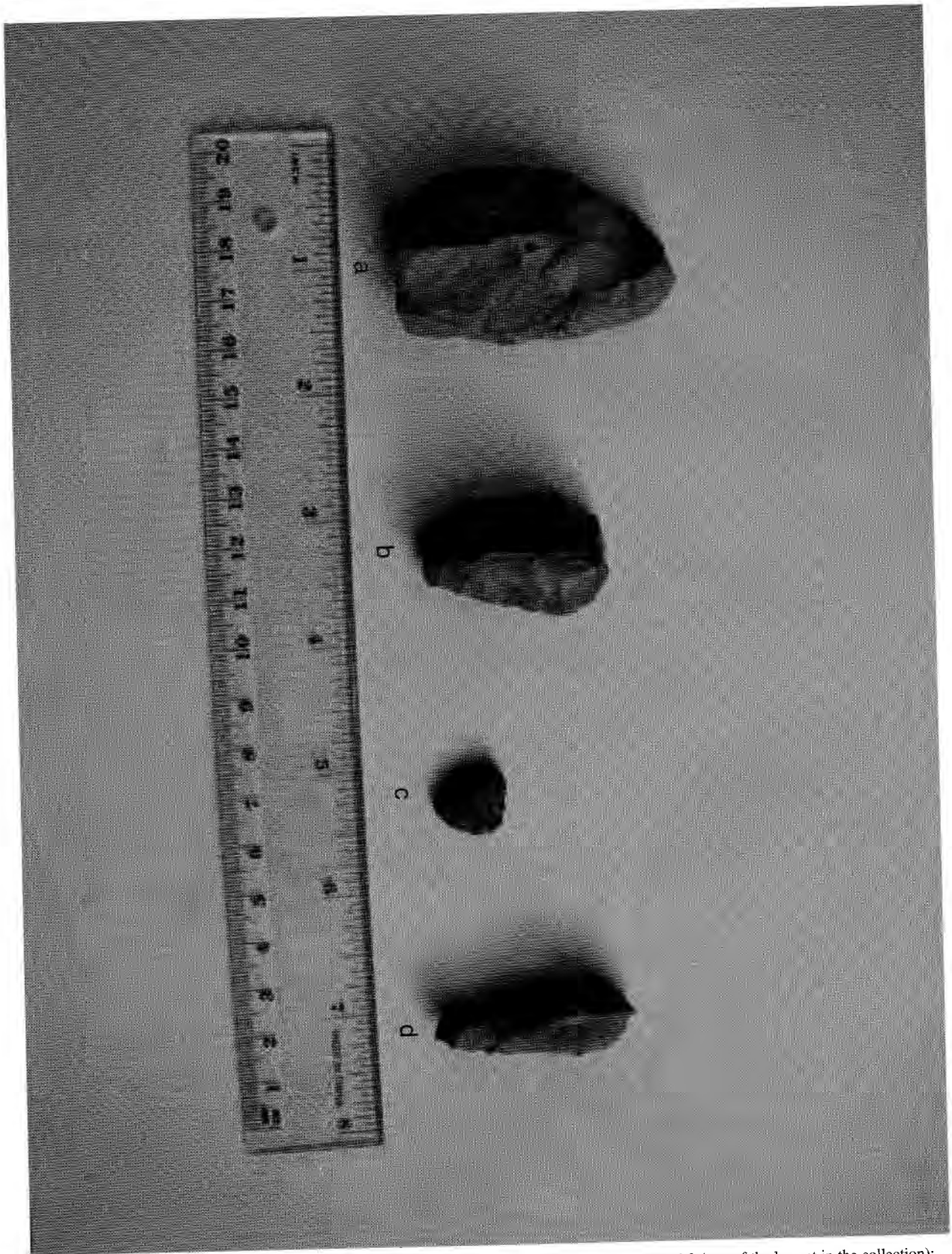

Figure 2. Whole endscrapers showing types of variability within Eaton Site sample. a)E1180 40N 5E Level 2 (one of the largest in the collection); b) E578 8S 9E Level 1; c) E457 10S 8W Level 2 (an example of a thumbnail scraper); d) E755 4N 18W Level 1.

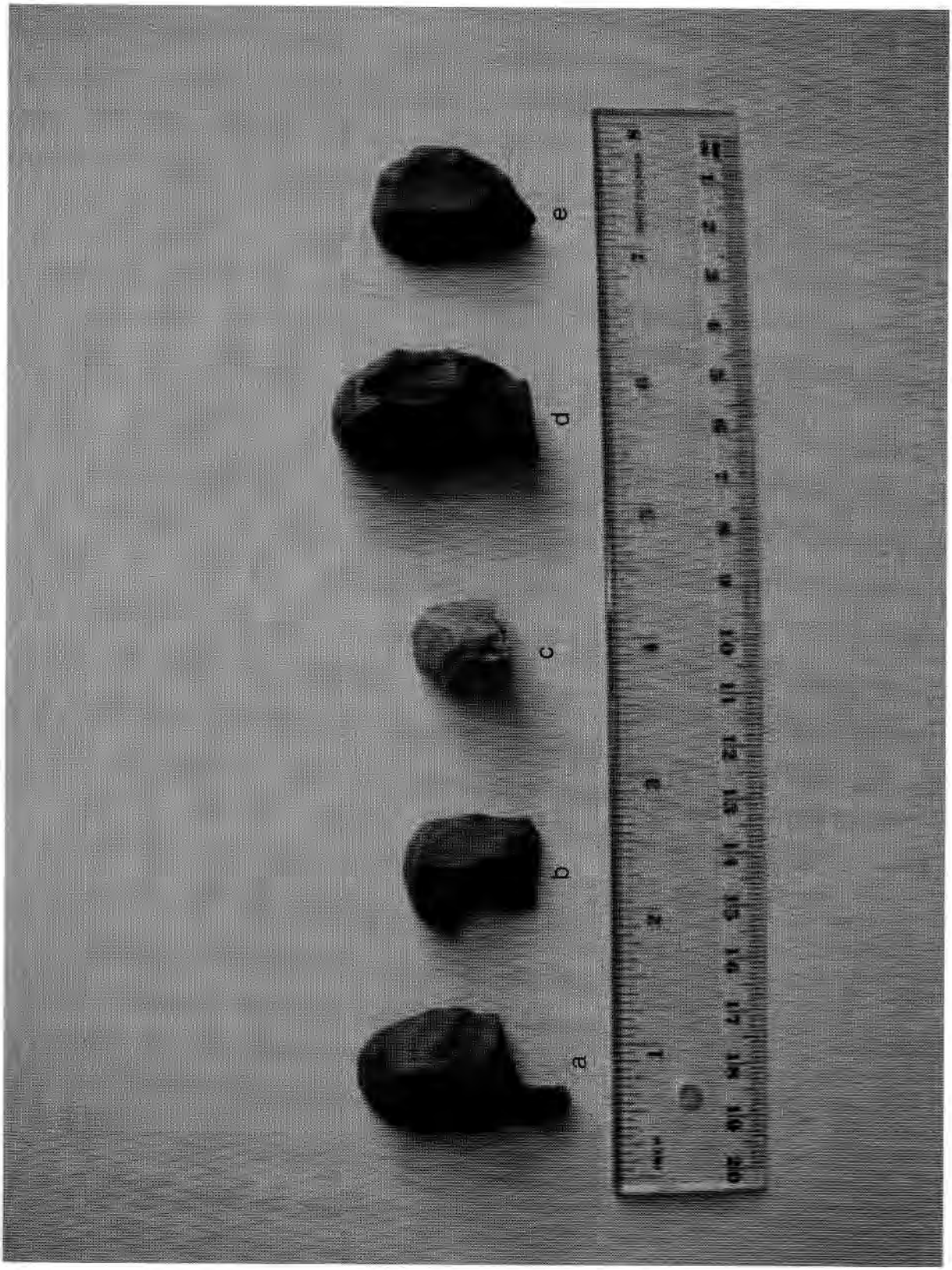

Figure 3. Broken endscrapers showing typical patterns of damage found in Eaton Site sample. a) E755 4N 18W Level 1 (found in same level as Figure 6d); b) E1175 40N 5E Level 1; c) E1247 32N 1W Level 2; d) E170 14S 18W Level 3 (shows common type of break pattern found on what would be the hafted end of the endscraper; e) E365 8S 19E Level 1.

Table 1. Distribution of Broken and Whole Endscrapers in six focus areas at the Eaton Site.

Areas	Inside Units	Partial Units	Outside Units*
	Broken/Whole	Broken/Whole	Broken/Whole
Longhouse #1	7/11	5/8	4/5
Longhouse #2	3/6	10/10	5/1
Longhouse #3	15/10	1/5	0/3
Feature 50			4/6
S. Midden			4/2
Palisade			2/1
TOTALS	25/27	16/23	19/18

*Outside Units are defined as units outside of Longhouse inside and partial units.

range (Figure 5). Whole endscraper thickness ranged from 2.4 mm to 28.5 mm with an almost equal number concentration (32/34 respectively) in the 6-10 mm and the 11-15 mm categories (Figure 6). Size variability ranged from approximately the size of a dime to that of a large teardrop-shaped rock. Some specimens were flat while others were extremely thick on the working edge.

A determination of whether the endscrapers had been hafted was difficult to establish strictly by visual examination, so none was made. Examination under a microscope may yield a more definitive answer. There are some endscrapers that seem to have been snapped off at what could be the hafting end, but it is also possible that the snapped ends occurred in the manufacturing process. It is also interesting to note that out of the 162 endscrapers, 17 (10%) appear to have been manufactured from either rejected preforms or are endscrapers refashioned from other tools.

Discussion

The endscrapers found at the Eaton Site were identified on the basis of form, that is, steep retouch on one end of a unifacially worked piece. Initially, my assumption was that women primarily used endscrapers to scrape hides. Upon further research I now realize that this assumption was simplistic. Andrefsky (1998) cites endscraper function studies done by Dumont (1983) and Siegel (1984). Dumont looked specifically at function while Siegel did functional analysis to test the theory that endscrapers were used only on hides. Both studies concluded that endscrapers were used on a variety of materials. A microscopic study of the edge wear of the endscrapers from the Eaton Site would be a better

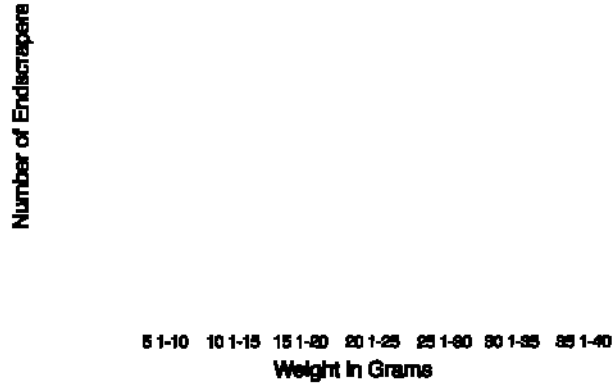

Figure 4. Eaton Site-Weights of whole endscrapers (n=84)

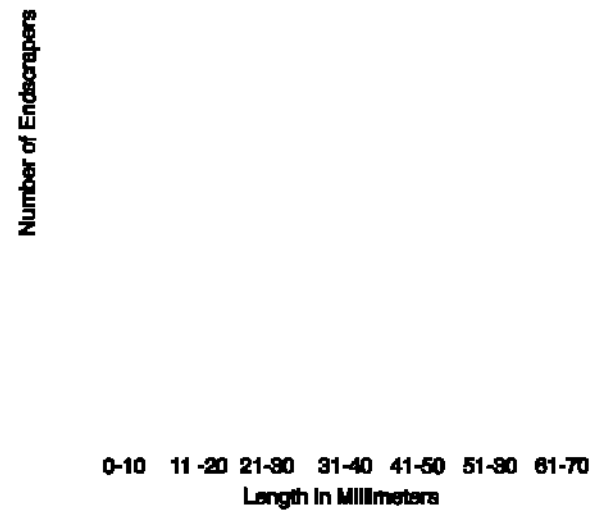

Figure 5. Eaton Site-Lengths of whole endscrapers (n=84).

indicator of what materials they were used on, but this was beyond the scope of this study. In addition, some of the endscrapers found at Eaton appear to have been made from rejected preforms or had another prior function. The function of each endscraper in the Eaton sample had not been determined so there was no way to factor in function as a way to identify the endscrapers. Meltzer (1981) concluded

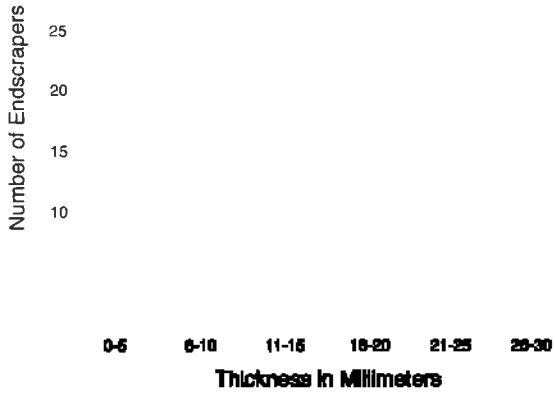

Figure 6. Eaton Site-Thickness range for whole endscrapers (n=84).

that form was due to function after he had "conducted a discriminate analysis to assess whether endscraper form was the result of function or style" (Andrefsky 1998:194).

Brink (1978:21) contends in his thesis "...that no two stone tools are ever identical...". This is suggested by Figures 4, 5, and 6 which indicate a 'normal' distribution. Of the 7 endscrapers with weights between 30.1 to 40 gm, only 3 of them have thicknesses that range between 21 and 30 mm (two in the 21-25 mm range and one in the 26-30 mm range). There are 12 endscrapers with lengths that fall in the top ranges of 51 to 70 mm, but of these 12, only 7 of these have weights that are in the heaviest weight ranges of 30.1 to 40 gm (four in the 30.1- 35 gm and three in the 35.1-40 gm range).

In the manufacturing of endscrapers for use in Brink's endscraper microwear study,

> The intent was not to produce exact copies of the artifacts, but rather to manufacture tools of roughly similar form. Of the tools made, those selected for use were the ones which fell in or near the range of variation of formal attributes exhibited in the prehistoric sample [Brink 1978:25].

The prehistoric samples used as models were procured from the Smoky Site located in western Alberta. This sample (Smoky Site) included both broken and unbroken endscrapers. In a visual evaluation of the endscrapers from the Eaton site against the photos of those tools manufactured for Brink's study (1978:141), it is worth noting that, with the exception of those scrapers deemed reuse or preform rejects and those identified as thumbnail endscrapers, the morphology of all were the same with minor exceptions. Visual comparisons between the Eaton collection and those photos of the prehistoric samples from the Smoky Site (Brink 1978:211) also show remarkable similarities in both the broken and whole specimens.

The use of small thumbnail endscrapers (of which there are two in the collection) also begs the question as to how they could be hafted. It would make sense that a small thumbnail endscraper would be used to scrape small areas hard to get at in wood or hides. The thumbnail examples in this collection appear to be too small to attach to a handle, but are perfect for hand held tool usage. There was no reliable way to differentiate hafting from non-hafting. Endscrapers with snapped ends that may have been broken off at the handle only allow for the possibility that hafting could have occurred. Various tasks would also require the use of both hafted and non-hafted endscrapers. The idea is also posited here that it is not unreasonable to assume that endscrapers could be used both with and without a handle. Brandt and Weedman (2002) affirm the use of hafted endscrapers for scraping hides in this traditional community, but I suggest that it would be difficult to haft a thumbnail endscraper. The collection here provides no definitive information on this subject that could be obtained strictly by visual assessment.

One of the difficulties in studying the artifacts from the Eaton Site is the fact that the site was plowed. Salisbury (2001) discussed the effect that both natural (non-cultural) and cultural processes had on the archaeological record at Eaton. It was his contention that while natural processes played a part in the destruction of some of the artifacts it was the cultural activities of those who had occupied the site, as well as those who came after, that had the biggest impact overall. I am of the opinion that the more modern technologies used in plowing (animal drawn plows and mechanical farm equipment) cause damage and destruction far different from that which would have been caused by the less technical societies that had occupied the site earlier. A mechanized plow would break up artifacts far more readily and forcefully than a hand-held hoe.

Broken endscrapers are found through
one of the more interesting and unexpected
in Feature 50 (refuse pit). Out of the 10 ends
this area, 6 of them were whole. It woul
assume that there would be more broken e
refuse pit. Breakage due to normal use
but there is the real potential for breakage
order to find out if there was
breakage due to plowing versus breakage
I looked at the numbers of artifacts and

zone is approximately 25 cm deep). In the plowzone of the six areas under discussion, there is close to a 1:1 ratio of broken to whole endscrapers (54 broken: 55 whole). If you look at the numbers in the plowzone for the entire site, you also get a close to 1:1 ratio (70 broken: 72 whole). In the areas below the plowzone (levels 3 and 4 and features), we also find a similar ratio. The total count in the discussion area for broken endscrapers is 8 and 11 for whole endscrapers. There is one endscraper found outside of these areas, making the entire site totals: 8 for broken endscrapers and 12 whole endscrapers below the plowzone. I had expected to see a very large number of broken endscrapers in the plowzone, which would support the idea that plowing caused a lot of the damage. Because I did not find that, however, I suggest that while plowing may have caused some damage to endscrapers, it is not enough to warrant a blanket statement on the destructiveness of plowing on the stone tools, at least for this site.

Visual inspection shows some consistent break patterns. One type of pattern is a clean break at what would be the hafting end. This break would be uniform with a clean snap off a handle. This suggests hafting of some of the samples in this collection. Since there were many examples of this type of break in the sample, my assumption is that this type of breakage pattern is not one that is caused by plowing. Other damage consists of chips, gouges or pieces being broken off. Just how the damage occurred cannot be ascertained by this study but there is the potential for breakage either through normal use or through plowing.

Another issue is what effect, if any, plowing has on the distribution pattern of artifacts in a site. It is natural to assume that plowing would displace artifacts from their original provenience. Just how displaced they become is the question. Engelbrecht argues that even though the site has been extensively plowed, "...studies (e.g., Trubowitz 1978), suggest that the spatial patterning of artifacts may survive repeated plowing, albeit in a somewhat 'fuzzier' state" (Engelbrecht 1994:6).

It seems clear that there is not an even distribution of endscrapers across the site. Endscraper averages in the partial units, (0.7, 0.9 and 0.5) suggests that they follow a pattern established by having been lost or kicked under longhouse berths. Longhouses #2 and #3 have the highest inside averages (1 and 1.1 respectively), large numbers in comparison to #1, which has a .4 endscraper average. These longhouses are the two that are least excavated. Longhouse #2 has an almost equal average of endscrapers in the partial and inside units (1 and .9). The fewest number of endscrapers were found in the palisade area (3 or a .2 average). The highest average found is in Feature 50 with a 1.6 average number of endscrapers, while the southern midden yielded an average of 0.7 endscrapers.

In looking at the endscraper concentrations between longhouses, I looked for reasons why one house would have larger numbers than another. One reason that might be considered would be the length of time a longhouse was occupied. To this end, I looked at Dziadaszek's (2002) research on post mold density of the longhouses on the Eaton Site. This model of longhouse duration uses density of post molds as a way to estimate the length of time a longhouse was occupied. The assumption is that replacement posts add to the original post mold patterning. A dense pattern of post molds suggests that more repairs were needed and that the longhouse was occupied longer than ones with less dense patterning. Dziadaszek's research found no significant differences in wall post mold densities among the three longhouses, and therefore suggests a roughly equivalent duration of occupation for the Eaton longhouses. If the study's conclusion is valid, that all of the houses were occupied for close to the same time period, then differing occupation lengths can be ruled out as a reason why there were higher concentrations of endscrapers inside Longhouses #2 and #3 than in Longhouse #1. It is commonly assumed that all longhouses were functionally equivalent. I propose that the explanation for the differing endscraper counts in these longhouses is that, at least in this case, Longhouse #1 was one where endscrapers were used in a specific activity that was the 'focus' of the house, and not in the others. More excavation of the two houses (#2 and #3) would be needed in order to support this supposition.

The rationale behind studying weights, lengths, and physical attributes was an attempt to do two things: 1) to identify any variability within the sample subtypes, such as thumbnail endscrapers or endscrapers that were unusually large; 2) to use such subtypes to look for spatial patterning. However, I was unable to identify any clear subtypes. While there were concentrations of endscrapers in a few areas on the site, there were no apparent concentrations of specific varieties with regards to measurements or morphology. It was hoped that these data (measurements and/or morphology), in concert with data previously collected, would show relationships between morphology and task types and possibly suggest gender usage. Furthermore, no direct correlation was found between endscrapers and other tools uncovered at the site. By far the most common artifact found throughout the site are bifaces in varying stages. Drills, both broken and whole, were found in large numbers in the Longhouse #1 area; however, this is also the area with the highest number of excavated units. Very small numbers of drills were found in the other two longhouse areas. Further study may reveal a more definitive relationship between the drills and endscrapers in the area of Longhouse #1, but in looking at the distribution of endscrapers as a whole throughout the site, there does not appear to be a correlation.

There also doesn't seem to be a correlation between endscrapers and knives. Knife totals are small as a whole throughout the site, with no concentrations that appear related to endscrapers.

Conclusions

Judging from the fact that endscrapers were found throughout the site, I suggest that they were used for a variety of tasks in addition to the most widely accepted one of hide scraping. Large, heavy endscrapers may have been more able to withstand the hard surface of bone. The use of endscrapers on wood might explain their presence in the inside units and suggest that males used them, with the assumption that building and defense were male-related tasks. Brandt and Weedman's study (2002) supports the assertion that endscrapers might have been made and used by both genders, as it is the traditional task of females in this Iroquois region community to scrape hides. In other nearby communities though, it is the males who perform the scraping duties. Brandt and Weedman also pose the question of whether it is possible to "differentiate women's activities from men's on the basis of stone tools"(2002:53).

Concentrations of endscrapers are found within designated units. One such concentration is in Feature 50, which can be expected in a place of refuse. Another is in the inside units of Longhouses #2 and #3. The assumption when working with Iroquoian longhouses is that every one is like another. This may not be the case here in terms of activities performed inside. Excavation so far has revealed 25 endscrapers in the 20 inside units of Longhouse #3 and 9 endscrapers in the 9 inside units of Longhouse #2 (remembering that one inside unit alone [4S 17E] contained 4 endscrapers). These numbers are much higher than the yield of endscrapers in the 41 inside units of Longhouse #1 (0.4 per). Engelbrecht states that by 1994, Longhouse #1 had been almost totally excavated (1994). This information leads me to believe that a significant number of endscrapers would likely not be found in any subsequent excavation done in the Longhouse #1 area. With more excavation yet to be done in Longhouses #2 and #3, the probability of finding more endscrapers is high.

There were no obvious patterns with regards to size or morphology of the endscrapers found in the longhouses, nor did one contain larger/heavier endscrapers than another. It is the number of endscrapers recovered in the inside units that encourages one to ask if there is a meaningful reason for the high numbers in Longhouses #2 and #3. Did members of the longhouse belong to a family where more hunters resided or does the location of the longhouse in relation to the palisade mean something?

Comparing the numbers of endscrapers in Longhouse #2 and #3 units with those in Longhouse #1 is difficult as these are the longhouse areas that have the smallest number of units excavated. If we compare the longhouse areas relative to the total numbers of units excavated, we find that Longhouse #1 has 81 units containing 40 endscrapers, Longhouse #2 has 35 endscrapers in 44 units and Longhouse #3 contained 34 endscrapers in 40 units.[1] With Longhouse #1 being the most completely excavated, further excavations in the Longhouse #3 and #2 areas may not only reveal additional endscrapers, but possible patterning as well. These data may help answer questions regarding endscraper morphology, task and gender usage, as well as possible functional differences between longhouses.

Acknowledgements

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[1]We must remember that these are units within the 2 m periphery of the partial units of the longhouses and do not take into account endscrapers from the midden refuse pit, palisade, or other outside areas

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Islands of Creation, Islands of Rebirth

William A. Fox, Canadian Museum of Civilization

A review of archaeological efforts to "read" the archaeological record concerning the spiritual or cosmological beliefs of past Native peoples is presented, focusing on the upstate New York and southern Ontario region surrounding Lake Ontario. The influence of United States researchers George Hamell and Robert Hall is noted, along with the general paucity of such research in the study region. Finally, a possible symbolic relationship between two well known New York State mortuary sites is explored.[1]

While Christopher Hawkes has argued for his "ladder of inference," ranking symbolic meaning or "inference from material remains to spiritual life" at the top or least attainable rung (Hawkes 1954:162), Thomas Emerson has observed that:

> The problems (of dealing with the realm of mental constructs or cosmology) are identical to those that archaeologists have in interpreting the rest of the artifact assemblage. The difference between the two realms of interpretation comes from the fact that traditionally it has been acceptable to make the leap from artifact to chronology, function, or definition of specific cultures. Archaeologists have been trained to accept the ambiguities in such transitions as inevitable and unobjectionable in their research. This is not the case with the transition from artifact to symbolism, except at a very superficial level [Emerson 1989:46].

Emerson is speaking as a researcher of the Mississippian period, having experience on exceptional Middle Woodland sites such as BBB Motor; however, this perspective is echoed by Alexander von Gernet in a 1992 paper entitled "New Directions in the Construction of Prehistoric Amerindian Belief Systems." He observes that "A scepticism about the possibility of reconstructing prehistoric ideational subsystems can be assuaged by an acknowledgement that the basic methodological concerns are not unlike those present in reconstructing economic or social realms" (von Gernet 1992: 137). Concerning the selection of relevant analogues, as discussed by Alison Wylie (1985:93-107), von Gernet notes that "The search for credible analogical arguments is facilitated by the existence of constraints on infinite variability in human symbolization and belief" (von Gernet 1992:137). He also speaks to the ideological conservatism of First Nations, evident in the North American archaeological record, as previously noted by Peter Furst (1977).

Since the nineteenth century, researchers have attempted to access the symbolic meaning—the met-aphors—in the archaeological record. Early attempts can be found in the writings of archaeologists in the Northeast, such as David Boyle (1900:23-26; 1903:30-31) and William Wintemberg (1924), William Beauchamp (1897), Arthur Parker (1918), and others elsewhere in North America; such as, Charles Willoughby (1935) and Antonio Waring (1977:30-69). Sporadic efforts are evident in the literature thereafter, including William Ritchie's 1947 publication and his 1950 article concerning evidence of bear ceremonialism on an Owasco site, as well as his report on the early seventeenth-century Dutch Hollow site, in which be considers Seneca "concepts of the supernatural"(Ritchie 1954:50, 61-63) and "ceremonial paraphernalia," referencing ethnohistoric and ethnographic documents (Ritchie 1954:63-69). During the same period, William Webb was describing faunal evidence for medicine bundles interred with Late Archaic burials in the middle Ohio River region (Webb 1946, 1950:336-343). A little over a decade later, William Sears penned his seminal article on the interpretive potential of various data classes, entitled "The Study of Social and Religious Systems in North American Archaeology" (Sears 1961).

Perhaps the most influential proponents of symbolic studies during the latter half of the last century, outside of the field of rock art, have been Robert Hall, who published "An Anthropological Perspective for Eastern United States Prehistory" in 1977, and whose pioneering work on Adena-Hopewell ideology was presented in the Chillicothe Conference volume published in 1979, and George Hamell, whose oft cited 1983 article entitled "Trading in Metaphors: The Magic of Beads" initiated his series of articles concerning Iroquois ideology as represented in the archaeological record. Several of Hall's works were referenced in the 1980s by Alexander von Gernet and Peter Timmins

[1] This is a revised version of a paper originally prepared for the *Transcending the Modern Borders: Integrating Archaeological Data at a Regional Scale* Session at the 69th Annual Meeting of the Society for American Archaeology in Montreal

(1987) in their article on tobacco and shamanism. Other major contributors to this growing literature include N'omi Greber (1983), Mark Seeman (1988) and William Romain (2000) in Ohio, and Bob Salzer and Grace Rajnovich concerning the spectacular Gottschall rock shelter in southern Wisconsin (Salzer 1987, Fox and Salzer 1999:252-258, Salzer and Rajnovich 2000).

Native cosmology and symbolic expression have generally been minority concerns among Ontario and New York researchers, as they have been elsewhere in North America. Given the evident significance of this sphere of life among historically documented Native peoples, and indeed among modern traditionalists, it is unfortunate that so few archaeologists are prepared to contribute to this research domain. Perhaps the following will generate some interest, if not debate. This recursive exercise attempts to apply multiple lines of evidence to the interpretation of a New York State mortuary site.

Burial Mounds in the Circum-Lake Ontario Region

The first major reference to New York State burial mounds is Ephraim Squier's mid-nineteenth century report, which, however, focuses primarily on village related earthworks (Squier 1850). This document and its republished version was followed by the works of Thomas (1894:503-515), Beauchamp (1905) and, of course, William Ritchie (1938, 1944, 1965) (Figure 1). In the Province of Ontario, reports of burial mound investigations date back to 1839, when an August 27th Upper Canada Herald newspaper account described the contents of a mound excavated under the supervision of "several officers of the 1st Battalion" on the grounds of Dundurn Castle in Hamilton (Spence and Fox 1986:36)(Figure 1). Thomas Wallbridge documented his exploration of mounds in the Bay of Quinte vicinity, one of which at Massasauga Point (Wallbridge 1860:414-417) (Figure 1) appears to have been a typical Middle Woodland burial mound, as opposed to the enigmatic paired rock mounds distributed around the east end of Lake Ontario (Robertson 2001). David Boyle, Ontario's first provincial archaeologist, investigated seven mound sites in the Lake Ontario drainage basin (Boyle 1888:9-10, 1897:14-41, and 1902:25-29), including the famous Serpent Mound on Rice Lake (Figure 1). This site was further explored by Henry Montgomery (1910:1-5) and Richard Johnston (1968), while additional investigations of burial mounds in the Trent valley were undertaken by William Ritchie (1949:2), Michael Spence and Russell Harper (1968), Fred Richardson (1968), Walter Kenyon (1986:24-40), and Ellis et al. (1990). Finally, John Land (1915:50) reported a mound along the south shore of Burlington Bay (Figure 1).

This paper focuses on a particular structural attribute of Middle Woodland burial mounds in the region. To this end, information concerning the reported internal stone architecture of the aforementioned mounds is summarized in Table 1; however, many of these sites were excavated over a century ago and by individuals who would be considered avocational archaeologists, at best. Recording is extremely variable in detail and, thus, the data in Table 1 must be interpreted and understood in this context. Constructs such as stone slab cists enclosing burials or cobble pavements overlying burials were easily observed and would be expected to be noted. What emerges from the available literature is a diversity of mound architectural traditions, some of which may not have included interments (Robertson 2001).

One particular series of mounds in the Genesee River valley stand out as unique to the Lake Ontario region assemblage. William Ritchie excavated Mound 2 at the Middle Woodland Squawkie Hill site in 1936 and discovered an adult female centrally interred in it. In describing this mound, he states that:

> The shoulder was girdled with a 2 foot zone of roundish river pebbles, bordered on the inner edge by a slightly sloping tier, approximately 3 feet wide, of flat overlapping slabs of limestone, sandstone and shale from the neighboring river gorge [Ritchie 1938:11: Plates 1-4].

And in a later publication, referring to the same mound, he says:

> The shoulder for two feet was reinforced with a platform of roundish river pebbles, about the size of a large orange, bordered on the inside by a double tier of flat overlapping stone slabs, about 3 feet in breadth [Ritchie 1944:208, Plate 95] (Figure 2)

On investigation of the remnant of Mound 1, he reports:

> A portion of a stone-reinforced shoulder, identical in character with that to be described in Mound 2, was uncovered on the western side [Ritchie 1944:208].

Ritchie (1938:6) also notes that there is no evidence that additional slabs were removed by agricultural activities on either mound, and that: "In both cases the slabs and pebbles were embedded in the upper part of the sand core below the loam sheathing" (Ritchie 1938:11). No other "pavements" are reported for Middle Woodland burial mounds in the circum-Lake Ontario region; however, the Squawkie Hill perimeter pavements of pebbles or cobbles are similar in structure to a number of the mounds recorded by

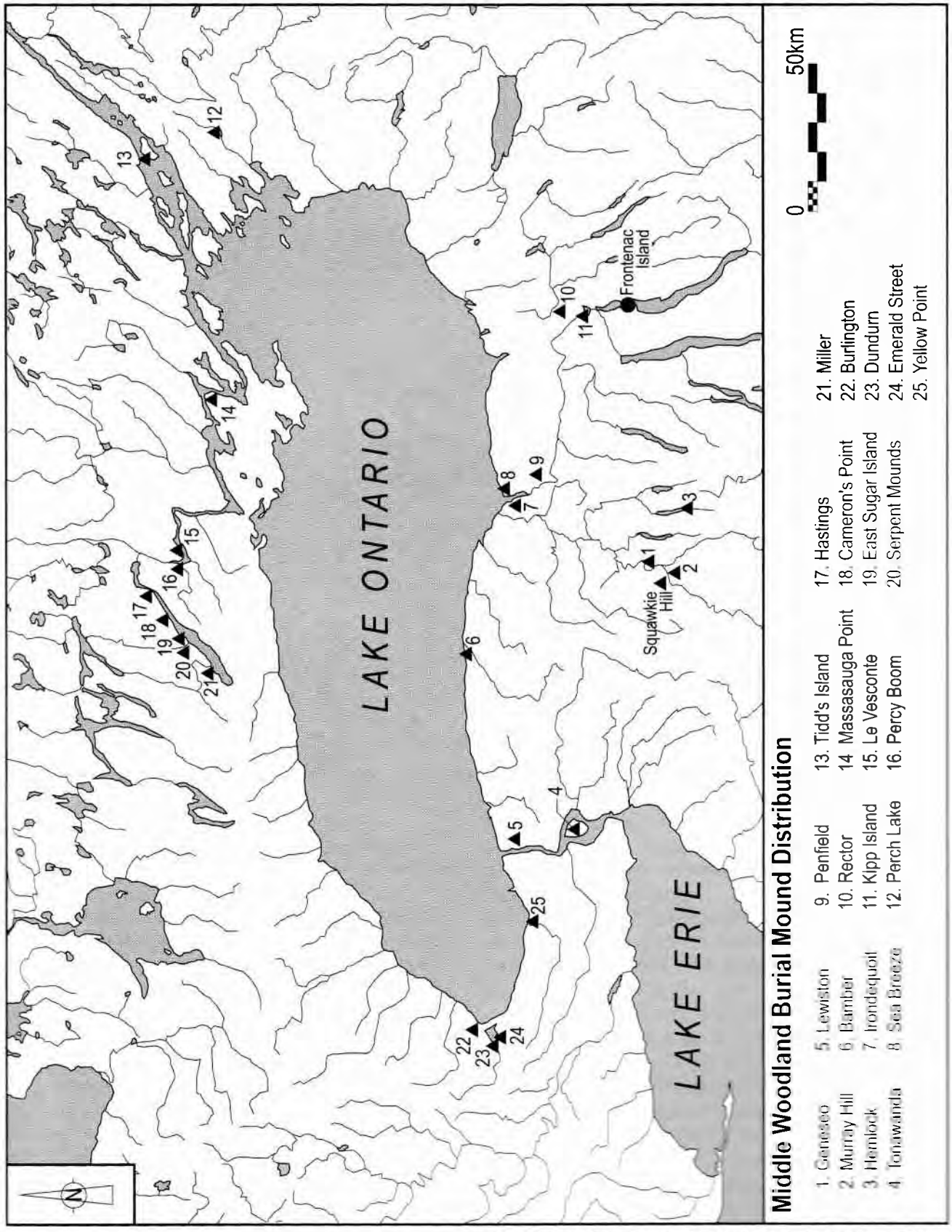

Figure 1. Middle Woodland Burial Mound Distribution. *Additional mound sites within the Lake Ontario drainage basin depicted in Cyrus Thomas' Distribution of Mounds in the Eastern United States (1894) map have not been included, due to a lack of textual information)

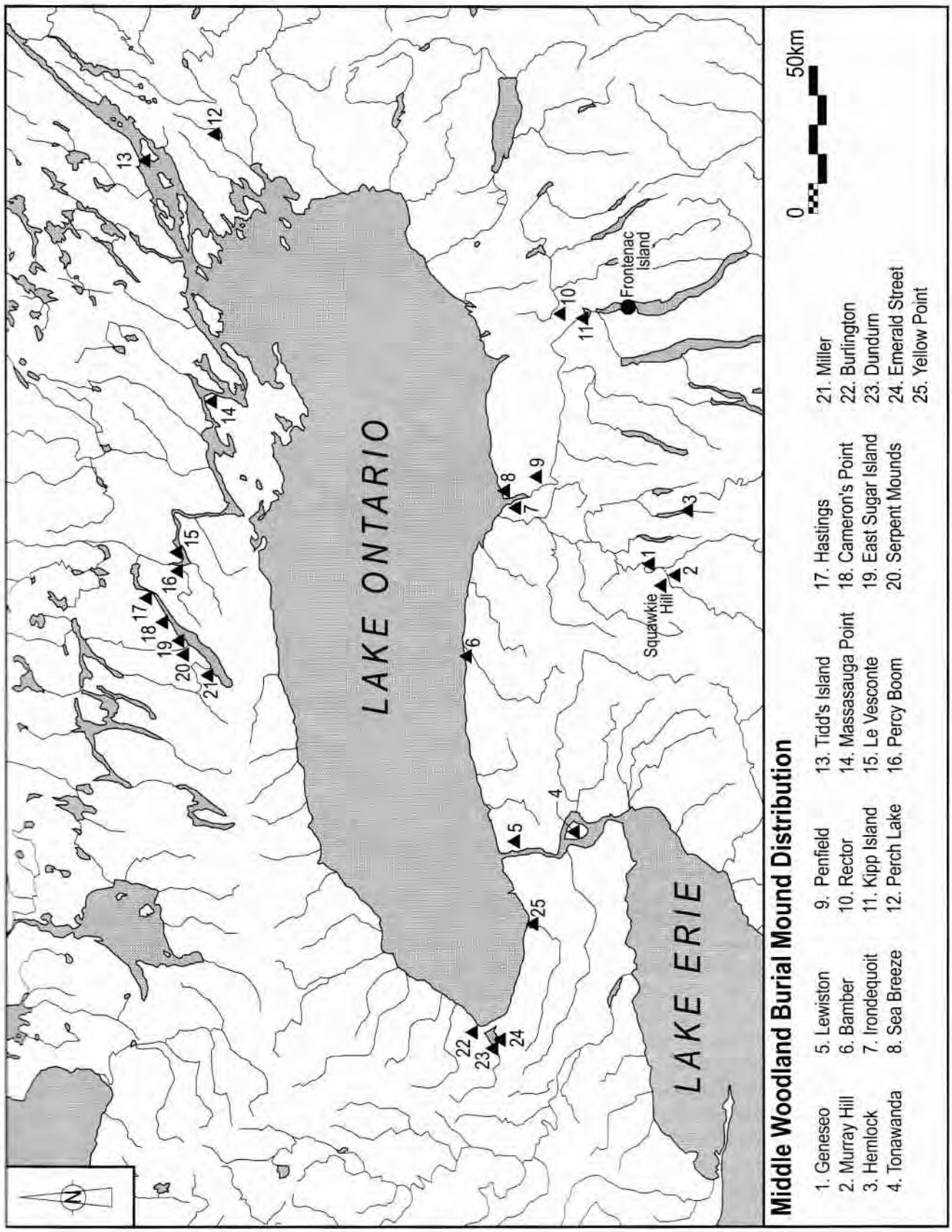

Figure 1. Middle Woodland Burial Mound Distribution. *Additional mound sites within the Lake Ontario drainage basin depicted in Cyrus Thomas' Distribution of Mounds in the Eastern United States (1894) map have not been included, due to a lack of textual information)

Figure 2. Squawkie Hill Mound 2 Diagram. Reproduced from Ritchie (1938:108;part of Plate 4). With permission of the Rochester Museum & Science Center

Willoughby (1922:62-64, 74-78; Fig. 27-28, 34-37) at the Turner group of earthworks in Ohio. These Hopewell mounds, however, do not have the interior pavement of rock slabs. Were these pebbles and slabs intended as reinforcement for the Squawkie Hill mounds, as suggested by Ritchie (1938:6)? If so, why do they not cover the entire mound, and why not use the more substantial slabs throughout? Indeed, why not use these materials on the surface of the mound, as opposed to a buried stratum? Certainly, such slabs are easily located in the vicinity of the Genesee River gorge.

Original Islands

Robert Hall, in his pioneering work on Middle Woodland symbolism, has spoken to the expression of the Earth Diver creation story in the fills of Midwest mounds, observing that "A strong argument can be made that some Hopewellian and other Woodland mortuary ceremonialism was in fact creation drama reenacting mythical origins" (Hall 1979:260). Certain black organic fills identified by researchers, particularly in proximity to interments, have been correlated symbolically with the primordial muck brought to the surface by a variety of animal and bird species (depending on the version referenced), in order to create the Earth Island home of humanity. The "island" created on the landscape through the construction of a burial mound could then be considered a metaphor for creation, as depicted in the following Seneca Earth origin story:

Table 1. Internal Stone Architecture of Burial Mounds in the Circum-Lake Ontario Region.

Mound Site	Stone Architecture	Configuration
Squawkie Hill 1	Slabs(?)/ water-worn pebbles	Pebble"sheathing" under loamlayer/ 2 slab(?) cists
Squawkie Hill 2	Slabs/ water-worn pebbles	Central slab cist, slab lined perimeter/ pebble paved perimeter
Squawkie Hill 3	None	
Geneseo	Slabs/cobbles	Cobble covered central burial/ slab outlined area adjacent
Murray Hill	Yes	Cist(?)
Hemlock	Not recorded	
Tonawanda	Not recorded	
Lewiston	Rock fragments/ slabs	Indeterminate
Bamber	Slabs(?)	Cist
Rondequoit	Not recorded	
Sea Breeze	Not recorded	
Penfield	Not recorded	
Pector	None	
Nine Island	Noue	
Perch Lake	Rock fragments	Annular mound
Todd's Island	Slabs	Over burials, particularly crania
Wassassaga Point	Rock fragments/ slabs	Cist(?) within slab lined pit
Le Vesconte	Boulders	Possible burial enclosure at east end, otherwise scattered
Port Boom	Unknown	
Hastings	None	
Cameron's Point	Boulders	Capping sub-floor burials(?)
Big Sugar Island	None	
Serpent Mounds	Boulders	No evident patterning
Miller	Boulders	No evident patterning
Princeton	Not recorded	
Auburn	None(?)	
Donald Street	Not recorded	

Now Turtle spoke, saying: 'Moreover, perhaps, I would be able to give aid to the person of the woman-being. Now all the man-beings confirmed this proposal. Now, moreover, Turtle floated there at the point directly toward which the body of the woman-being was falling thence. So now, on the Turtle's carapace she, the woman-being alighted. And she, the woman-being wept there. Some time afterward she remembered that seemingly she would hold [in her hands] earth. Now she opened her hands, and moreover. she scattered the earth over Turtle. As much as she did this, then it seems that this earth grew in size. So now she did thus, scattering the earth very many times [much]. In a short time the earth had become of considerable size [Hewitt 1903:225-226].

The Seneca version of the creation story is unusual. as it lacks the classic allusion to an animal "earth diver" (Hall 1984:259 1997:19, 22), who often sacrifices its life to bring earth from the bottom of the water world in order to create the new land upon the back of the turtle (for a more standard Earth Diver story, see Parker 1923:59-73). Consistent with other Iroquois and Huron versions, the primordial mother *Iagen'tci* falls from the sky world and lands upon a turtle resident of the water world below. Soil from the upper world clutched in her hands is scattered on the turtle's carapace, and expands to create the home of life on Earth. This is the Turtle Island home of the Iroquoian peoples and their neighbours.

It is proposed that these Genesee River Middle Woodland mounds may have been constructed as metaphors for the Earth origin island, as implied for contemporary Midwestern mounds by Hall. However. if this were the case. their "shorelines" are not identical to that symbolized in the Turner Mounds of Ohio. The Squawkie Hill "islands" would appear to display the shoreline configuration of a bedded sedimentary rock controlled lacustrine island. as opposed to. for instance. Ohio River islands in the Cincinnati vicinity. Anyone familiar with lakeshore geomorphology will recog-

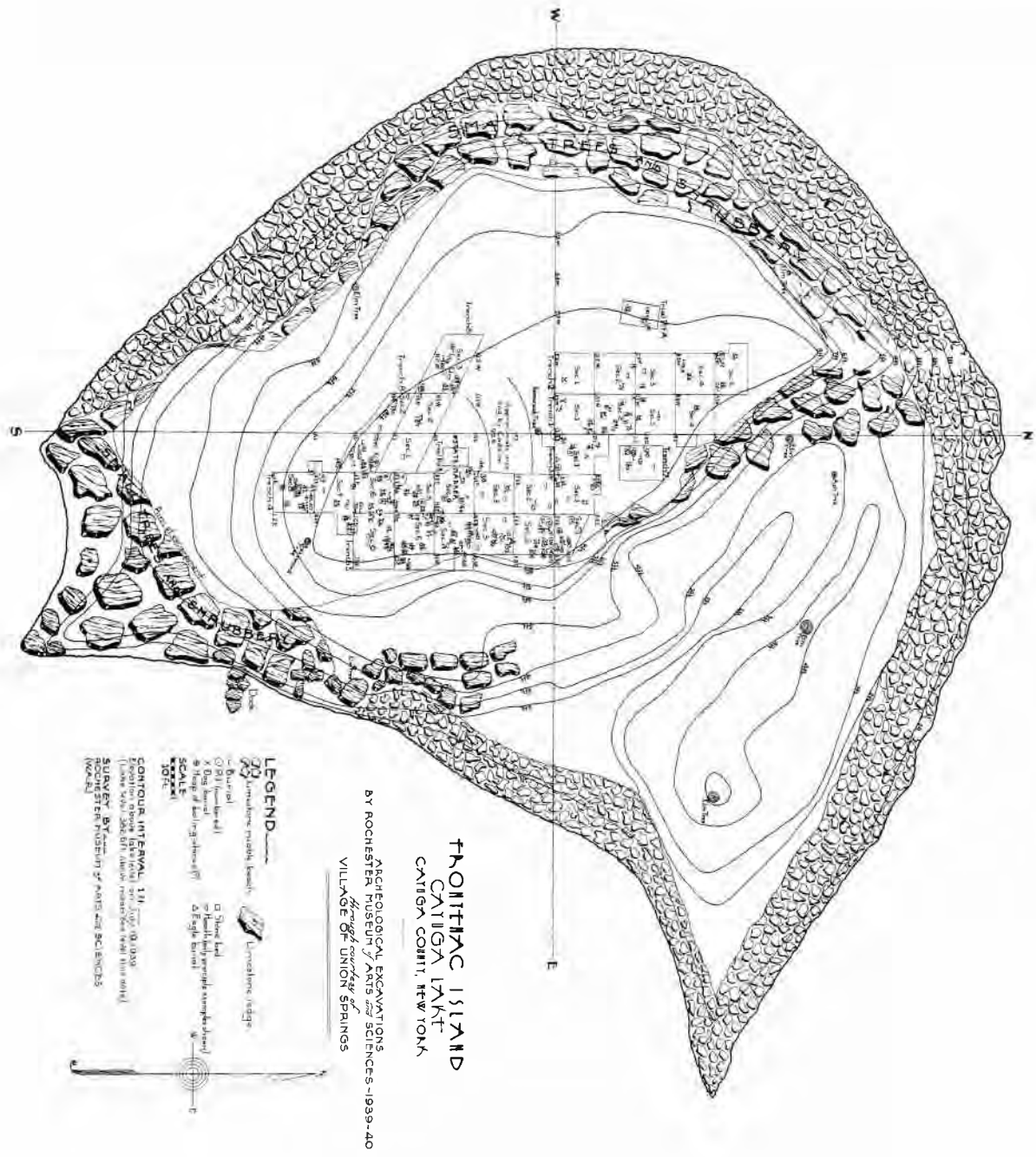

Figure 3. Frontenac Island Map. Reproduced from Ritchie (1945: Enclosed Map). With permission of the Rochester Museum & Science Center

nize the pattern of pebbles/cobbles grading to bedrock slabs illustrated by Ritchie (1938:8, Plate 4) in Squawkie Hill Mound 2 as the typical configuration of a bedrock-associated storm beach, backing a lower energy foreshore deposit (Figure 2). This mound structure, should it relate to a lacustrine island, would seem to symbolize not just any island, but one specific to a limestone bedrock outcrop. Such islands are characteristic of the eastern Lake Ontario basin, resulting from the erosion of Ordovician limestone exposed along the shoreline. Examples include Little Galloo Island, in Jefferson County. About 100 km east of the Squawkie Hill mounds is Frontenac Island, "the only island in the Finger Lakes" (Ritchie 1945:2) consisting of "a resistant mass of fissured fossiliferous Cobbleskill limestone" (Ritchie

1965:104). This unique geologic feature displays a "rubble beach" (Ritchie 1945:3) shoreline configuration extremely similar to that constructed in Squawkie Hill Mound 2 (Figure 3). It is also a mortuary site of evident spiritual significance to local Native peoples from Late Archaic through Middle Woodland (Point Peninsula) times (Ritchie 1945:16).

What other evidence might suggest that the Squawkie Hill mounds relate to the earth's origin? First, the central stone cist-encased burial in Mound 2 consisted of an adult female. She was obviously highly regarded, being the primary interment, and was buried wearing a unique pendant of cedar wood encased in native copper, with an outer sheet of native silver. Such metals, as argued by Hamell (1983:5), are "material culture expressions of a 'metaphysics of light'" while in a Seneca story, a man who desired immortality was transformed into a red cedar tree (Hamell 1984:10). Likewise, the child interred in the central stone cist of Mound 1 was accompanied by 78 lustrous pearl beads—a whiteness connoting "the cognitive aspect of the purposiveness of Mind, Knowledge and Greatest Being" (Hamell 1983:6). Hamell would argue that both ornaments symbolized brightness, light, and life after death.

A third line of evidence relates to the continuity between the local Late Archaic and Middle Woodland periods in the use of symbolically relevant box turtle shell rattles, which are usually recovered from mortuary contexts. Specimens were interred with three Archaic period individuals on Frontenac Island (Ritchie 1944:136 and 1945:42), and one was recovered from a Middle Woodland burial on the nearby Kipp Island site (Skinner 1919:47). In the writer's regional overview of this instrument, it has been suggested, based on a variety of lines of evidence, that these rattles symbolized "birth/rebirth/fecundity" (Fox 2002:12). In fact, box turtle shell rattles of very similar form continued in use among upper New York State regional populations from the Late Archaic through the Late Woodland periods into the seventeenth century among the Seneca (Ritchie 1944:67, 9. 17, 63-65, Plates 1, 6, 10; Fig. 1-4, Sempowski and Saunders 2001:103-105). Most recently, among the Seneca, use of box turtle shell rattles has been limited to the Society of Women Planters (Kurath 1968:91).

Is the congruity of form between the Squawkie Hill mounds and the Frontenac Island "isle of the dead" (Ritchie 1965:91) coincidental? I believe that such an hypothesis is unlikely, given the proximity and structure of the two sites (Figure 4). I suggest that the Squawkie Hill mounds mimic an earlier site of death and rebirth—a unique island in their cultural (spiritual) landscape. If one accepts this admittedly speculative construct, it might follow that the "Earth Diver myth" and its symbolic island expression is of considerable antiquity in the region, extending back in time at least to the Late Archaic peoples resident in what is now upstate New York during the third millennium B.C. Finally, it should be remembered that the L'Anse-Amour site on the Strait of Belle Isle clearly indicates that Archaic period peoples were practicing mound interments, with central stone cists, over 7,000 years ago (McGhee 1976).

Conclusions

Should the above construct approximate past reality, it would simply join a growing corpus of archaeological evidence concerning the extensive temporal and spatial distribution of congruent Native belief systems in the Northeast and, indeed, across the continent (Fox and Salzer 1999, Hall 1997, Hamell 1983, Rajnovich 1994, von Gernet 1992, von Gernet and Timmins 1987). I believe that this hypothetical congruity holds tremendous potential for our understanding and interpretation of archaeological sites. What is more, it is testable, as researchers view new evidence coming from the ground, or review documentation from previous excavations "with new eyes." In scale, such evidence will range from individual artifacts and their contextual setting, to cultural landscapes and their components.

Acknowledgements

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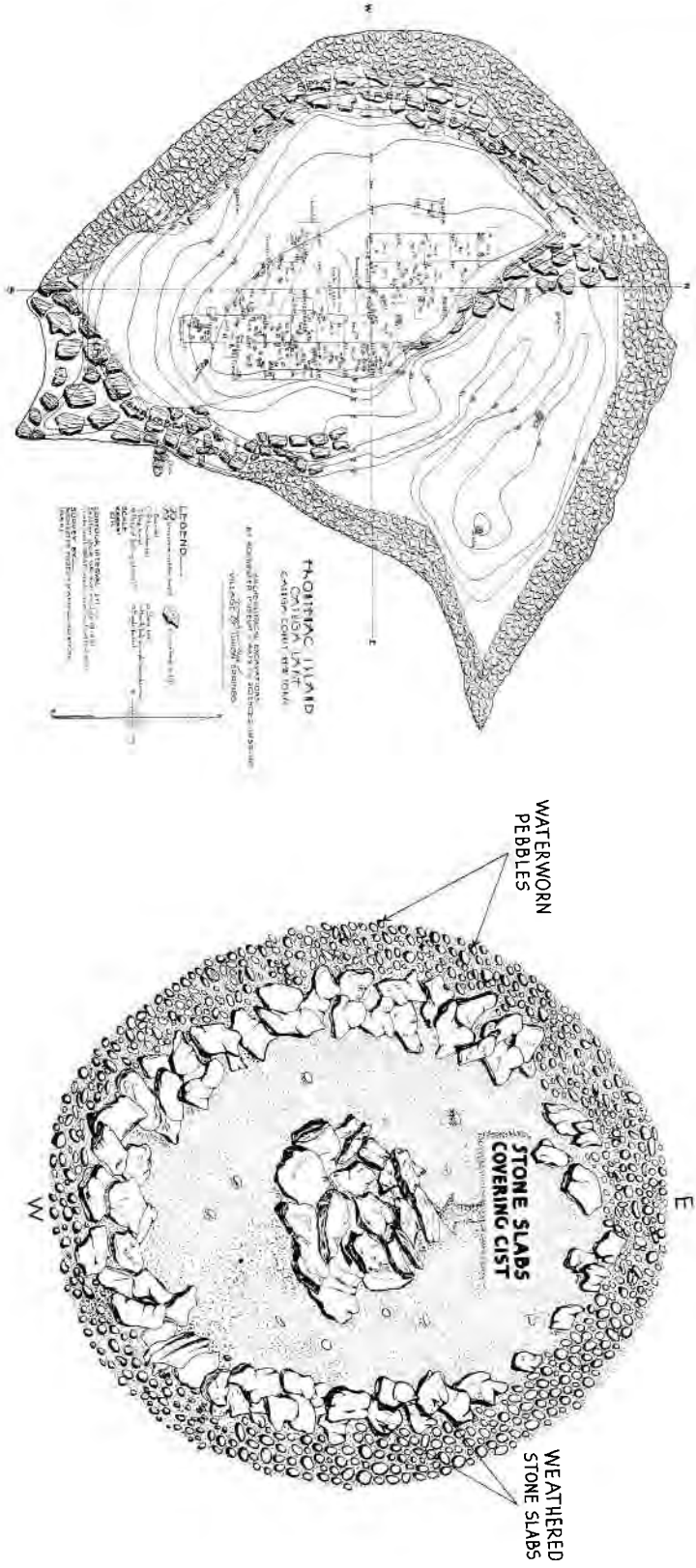

Figure 4. Frontenac Island Map shown alongside Squawkie Hill Mound 2 Reproduced from Ritchie (1938:108:part of Plate 4 and Ritchie 1945: Enclosed Map) With permission of the Rochester Museum & Science Center.

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In Memoriam

New York State has in the past two years unfortunately lost several individuals who have made significant contributions in one way or another through their association with the New York State Archaeological Association. It is interesting to note the range of interests and contributions covering the prehistoric through the historic periods, and including the relatively new field of historical archaeology. Were it not for the efforts of the following individuals our knowledge of our cultural heritage would not be in any way as comprehensive as it is today. They will all be missed.

Barber B. Conable Jr. (1922-2003)

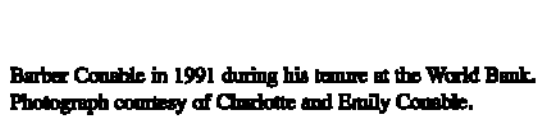
Barber B. Conable Jr., a Lewis H. Morgan Chapter member for many years, died in Florida on November 30, 2003. New York State lost a firm supporter of archaeology, as well as a respected United States Congressman, who made major contributions in the fields of taxation and social security. He was born in Warsaw on November 2, 1922, in Wyoming County, New York, and was for many years a resident of Alexander, New York. He always strove to ensure the preservation of the region's cultural heritage through personal encouragement and financial assistance to scholars.

A graduate of Warsaw New York High School, Barber Conable went on to Cornell University and graduated in 1942. He served in World War II and in the Korean War, as a member of the United States Marines. He received his law degree from Cornell in 1948, and practiced law in Wyoming County before being elected to Congress, and eventually becoming a New York State Senator. He was elected to the United States House of Representatives in 1964 and served for twenty years. He served as President of the World Bank from 1986 to 1991.

Barber Conable was made a Fellow of the Rochester Museum & Science Center, in Regional Archaeology, in 1993. He was also on the Boards of Cornell University, the Holland Land Office in Batavia, New York, the Genesee Country Village and Museum in Mumford, New York, the Museum of the American Indian (now the National Museum of the American Indian), and the United States Capitol Historical Society. He was also appointed for several years to the Smithsonian Institution's Board of Regents.

Despite being in Washington for many years, he always returned to the Rochester area, which continued to be the focus of his enduring archaeological and historical interests. Barber often presented talks and slide presentations of anthropological interest to the NYSAA and the general public. He and his wife Charlotte welcomed and encouraged researchers. Over the years, they provided moral and financial support to research in local archaeology through the Rochester Museum & Science Center's research program, and often visited area sites undergoing excavation. The Seneca Iroquois were of particular interest to him and he had many Native American contacts at local reservations. Barber Conable will be remembered for his boundless enthusiasm for all endeavors relating to the history of the Genesee Region of New York State.

Charles F. Hayes III
Sonia L. Sempowski



Barber Conable in 1991 during his tenure at the World Bank. Photograph courtesy of Charlotte and Emily Conable.

J. Sheldon Fisher (1907-2002)

J. Sheldon Fisher, the archaeologist most responsible for preserving Ganondagan, died December 21, 2002, at the age of 95. His involvement with the Morgan Chapter traces back to its founding era three quarters of a century ago. From 1931 to 1940, Fisher served as Recorder for the Morgan Chapter.

As a child of five, Fisher met Arthur C. Parker at the 1913 Victor Centennial celebration. Parker, the Seneca who was then New York State Archaeologist, was speaking on the role of the Seneca in history. That was 90 years ago, and the experience opened the young boy's eyes to the traces all around us of civilizations dating back thousands of years. He spent summers in volunteer archaeology work in the 1920s and 1930s under Dr. Parker, who had come to head the new Rochester Municipal Museum. Fisher worked many of those years with William A. Ritchie as co-trainee under Parker. When in Albany, Parker had compiled the two-volume *Archaeological History of New York State*, which Ritchie would later expand upon when he himself had become New York State Archaeologist. The core of Ritchie's data derived from his field work with Sheldon Fisher.

In school at Genesee Wesleyan Seminary in nearby Lima, Fisher enjoyed hiking just north of the campus to one of the well-known archaeological sites, where he gathered glass beads and wampum from the cultivated fields. He skipped his commencement ceremony to attend an archaeological conference with Ritchie in Trenton New Jersey. Ritchie gave a scholarly paper, while Fisher headed a Q & A session on pre-Iroquoian sites in western New York. Members of Parker's staff then included John Bailey, Albert Hoffman, Kenneth Ocorr, Harold R. Smith, and Arleigh Hill, in addition to Fisher and Ritchie. At the end of the 1934 season, Parker noted that this team had collectively found "the largest collection of smoking pipes of the Seneca culture." Among other sites, Fisher excavated at Dutch Hollow, the Sackett Farm, Brewerton, Carlton Island, Point Peninsula, Golah, Kienthe, Bainbridge, Honeoye Lake, Squawkie Hill, Mt. Morris, and Howland's Island. A Monroe High School student named Charles Wray joined the group during this time as a museum student associate.

One of Dr. Parker's pet goals was the preservation of the Boughton Hill site in Victor, not far from Sheldon's Fisher's birthplace in Fishers. Before his death in 1955, Parker passed the torch to Fisher on this project. In 1964, the U.S. Department of the Interior approved Fisher's application for its designation as a National Historic Landmark. The Seneca Nation then adopted Fisher under the name "Hiawassees," meaning "he who chases news and history." Over a decade of anguished struggle ensued, as Fisher "swam upstream" in persuading the state to preserve the site, while simultaneously fighting off huge harassment by project opponents. In July 1987, three hundred years after Denonville's invading army laid waste to the site, the Ganondagan State Historic Site was opened to the public. It now totals over 50 acres. In the 1980s, Fisher donated the only artifacts on display there. In 1998, he sold the balance of his archaeological collection to the Friends of Ganondagan for their use in a future museum on the site.

During the 1970s, he spent six summers excavating and studying the 1830s home of Brigham Young in Mendon, and subsequently persuaded the Mormon church to purchase it for preservation. Over his long career, Fisher served as Curator of the Rochester Historical Society and founder of a long list of organizations which are still going strong after more than half a century. Many know him best as the founder of the popular Valentown Museum in Fishers. Sheldon Fisher's archaeological legacy consists of the knowledge science has gained from his museum excavations with Parker and Ritchie, combined with the public appreciation and understanding via Ganondagan of how information about cultures helps people understand one another.

J Sheldon Fisher. Photograph courtesy Douglas A. Fisher.

Douglas A. Fisher, February 6, 2003

Editor's Note:

Douglas Fisher's account of his father's involvement in western New York Archaeology certainly presents an excellent overview of Sheldon's long career. Although I was only able to associate with him after I came to the Rochester Museum in 1959 as a curator, Sheldon was a frequent visitor to the Museum and to Morgan Chapter events and he used to provide me with many anecdotes relative to his prior association with the Museum, especially when William A. Ritchie was active as an archaeologist. In subsequent years perhaps the most significant aspect of our association was our mutual concern for the future of the Boughton Hill Site, now Ganondagan State Historic Site. Much has been said about Sheldon's continual work to get the site recognized and developed and I remember with pleasure discussing various methods of appealing to public officials and local interested persons in order to ensure that the site obtained the recognition it deserved for future generations.

Charles F. Hayes III

Elizabeth G. Holahan (1903-2002)

Rochester and the Lewis H. Morgan Chapter were saddened by the passing of Elizabeth G. Holahan on December 12, 2002. She had been a Life Member of the Chapter since the early 1960s when she became a staunch supporter of archaeological excavations at the Stone-Tolan House Site in Brighton, New York.

Elizabeth Gibson Holahan was a native of western New York, having been brought up in Caledonia and Rochester. She graduated from East High School in Rochester. She studied interior design at Rochester Mechanics Institute (now Rochester Institute of Technology). She subsequently bought and lived in the Oliver Culver House. She was President of The Landmark Society of Western New York for nine years and of the Rochester Historical Society for forty-three years until retirement in September 2000. In 1981 she was made a Fellow of the Rochester Museum in the field of Architectural History

While working professionally as an interior designer and historian in New York State, she entered the field of historical archaeology in the summer of 1960 when she requested that Rochester Museum investigate the grounds of the Stone-Tolan House Site for the Landmark Society. The Stone-Tolan House has been documented as the oldest house in Monroe County (1792). During the field season under the direction of Dr. Alfred K. Guthe, Curator of Anthropology at the Rochester Museum, several features were excavated, yielding artifacts that supplemented the documentary research and helped interpret the history of the site dating from 1792-1820 when Orringh Stone and his family occupied the location and used it as as a farm and tavern. The Lewis H. Morgan Chapter of the New York State Archaeological Association assisted in the project. In subsequent years, excavations were led by Daniel M. Barber of the Lewis H Morgan Chapter (and later Historical Archaeologist at the Rochester Museum) for the Landmark Society of Western New York, with myself, then a curator at the Rochester Museum, acting as a consultant. During those years many Morgan Chapter members volunteered their time at this important location. Elizabeth Holahan used to bring the excavations as often as possible and frequently brought much-appreciated lamb sandwiches for lunch. The archaeological excavations at the Stone-Tolan Site have been a source of many lectures, publications, and exhibits. The artifacts were deposited at the Rochester Museum and they form the nucleus of an important collection illustrating daily life in western New York in the late eighteenth and early nineteenth centuries. Elizabeth Holahan can be credited with her continuing support throughout these years during the initial archaeological investigations by Guthe and myself.

Elizabeth Holahan. Photograph courtesy of Rochester Historical Society.

In 1961 Elizabeth Holahan wrote an informative paper about the history of The Stone-Tolan House for *Museum Service* (Bulletin of the Rochester Museum of Arts and Sciences 34 (6):104-106). Again the same year she wrote for the same publication "Notes on the Cultural Debris at the Stone-Tolan Site (*Museum Service* (34 (8):142-145). It was in this last paper that she carefully described many of the ceramics, particularly those of English manufacture, found on the site. On a trip to England she brought back some complete examples of creamwares and black basaltes, items that were later used in an extensive exhibit at the Rochester Museum on the archaeological investigations at the site.

Working with Elizabeth Holahan was always a pleasure, and over the years, it became more and more apparent that her cooperation with the Morgan Chapter and the Rochester Museum in the developing field of Historical Archaeology was instrumental in adding a significant amount of research on both Seneca Indian and European material culture dating c. 1790-1820.

Charles F. Hayes III

Reprinted from *Lewis Henry Morgan*. Rochester NY Regional Chapter Newsletter Volume 1. Issue #5. May-June 2003.

Richard E. Hosbach (1927-2004)

Richard E. Hosbach, M.D., F.A.A.P., Chenango Chapter member, and NYSAA Corresponding Secretary passed away on January 24, 2004. A resident of Norwich for years, he had been one of the leading avocational archaeologists and researchers in the archaeology of central New York, especially in Chenango and Madison Counties. He and his dedicated associates in the "Wednesday group" were very much involved in investigating the history and prehistory of the Oneida Iroquois.

Richard Hosbach was born in West Hartford, Connecticut. He graduated from Trinity College in 1950 with a B.S. degree and from New York Medical College with an M.D. in 1955. He was a veteran of World War II, with service in the United States Navy. He moved from New York City to Norwich in 1959 and spent his career specializing in pediatric medicine.

As a member of the Chenango Chapter of the NYSAA, he held the offices of President, Vice-President, and Trustee. He and his wife Peg encouraged the many important activities of the chapter including local meetings, excavations, and hosting the NYSAA Annual Meeting on occasion. He was also a member of the Society for Pennsylvania Archaeology, the Massachusetts Archaeological Society, and the New Jersey Archaeological Society.

Richard Hosbach contributed several research papers to the *Chenango Chapter NYSAA Bulletin*. One of his significant publications was "A Gyneco-Android Subset of Native Iroquoian El Rancho Pipes: A New Pipe Designation with the Philosophical Concept of Sexual Duality as its Basic Motif." This paper was published in the *Proceedings of the 1989 Smoking Pipe Conference*, Research Records No. 22 by the Rochester Museum & Science Center. In addition to his interest in archaeology, he was also very active in many professional medical organizations, the Boy Scouts, and the Red Cross. He attended national and international medical meetings, presenting lectures in his field.

Perhaps the most important legacy that Richard Hosbach left to New York State was his untiring dedication to research and dissemination of the results. His spirited participation at conferences and lectures attested to the fact that both professional and avocational archaeologists can make a real difference when cooperation and mutual respect are present.

Charles F. Hayes III

Richard Hosbach at NYSAA 75th Annual Meeting in April 1991 at Rochester, New York. Photograph courtesy of Robert Gorall

Alton J. Parker (1912-2003)

Alton J. Parker, a member since 1951 of the Lewis H. Morgan Chapter, NYSAA, passed away on November 24, 2003 in Greece, New York. He had worked as a Senior Production Engineer at Eastman Kodak Company after service in the United States Army Air Force. He also attended Rochester Institute of Technology.

Alton Parker participated in the archaeological research at many western New York sites including Shelby Fort, Hummel, Morrow, Stone-Tolan, and Oakfield with Alfred K. Guthe. He was especially known for bringing the Footer Site—an important untouched prehistoric Iroquois site in the Bristol Hills south of Rochester, New York—to the attention of the Rochester Museum & Science Center. In the 1960s and 1970s, this site and others closely related in the area were the subject of intensive analysis by many researchers involved in the study of the origins of the Seneca Iroquois. Ceramic analyses and settlement pattern studies resulted in a number of research papers in many journals including NYSC's 1984 Research Records No. 17, *The Origin and the Development of the Seneca and Cayuga Tribes of New York* edited by Mary Ann Palmer Niemczycki. Alton wrote an account of his research on the Bristol Hills site in 1964. This was subsequently published in *The Iroquoian* (Vol. 26, 1981). His collection of artifacts, especially ceramics, from the site were all donated to the Rochester Museum.

After retirement from Eastman Kodak Company after 35 years, Alton moved to North Carolina. He maintained his archaeological contacts, in addition to continuing extensive travel throughout the world and serious interests in horticulture, clocks, classic automobiles, photography, travelogue presentations, and giving lectures in introductory archaeology in North Carolina and Florida. He always supported archaeological research and continuously increased his knowledge by joining archaeological societies in Pennsylvania, North Carolina, Florida, and Tennessee. He attended or visited archaeological field schools and excavations in the American Southwest, New York State, and North Carolina. He also participated in conferences and served as a member of the Morgan Chapter Executive Committee.

Alton Parker in 2000. Photo courtesy of Bernice Parker.

After his first wife, Betty, died, Alton Parker returned to Rochester. He and his new wife, Bernice, both participated in Morgan Chapter meetings and he volunteered at the Rochester Museum & Science Center from 1994-1995. In 1995 he received a Certificate of Merit from the NYSAA, and in 2002, received a Certificate of Appreciation from the Morgan Chapter for over 50 years of archaeological work.

Alton was always an enthusiastic and vigorous advocate of the need for mutual respect and cooperation between professional and avocational archaeologists. Such a legacy can only add to the existing examples prevalent throughout the history of the New York State Archaeological Association.

Charles F. Hayes III

Edward S. Rutsch (1936-2003)

On July 6, 2003, Edward S. Rutsch, a native of New Jersey, and a popular and charismatic archaeologist associated with New York State professional and avocational archaeologists, passed away. He was born in Teaneck, New Jersey, on October 6, 1936. He graduated from George Washington University and went on to receive a Masters degree in Anthropology from New York University; he also studied American Civilization at the University of Pennsylvania. He received the NYSAA's Meritorious Service Award. He taught at Cooper Union and was a Professor of Anthropology at Fairleigh Dickinson University in Madison, New Jersey. His wife, Mary Jane, who predeceased him, was also active in the latter.

Ed, or "Big Ed" as he was often called, was particularly well known for his advocacy of industrial archaeology. Although not residing in New York, he excavated mills throughout New York State. Both New York and New Jersey have lost a researcher who brought a new dimension to the archaeological study of the industrial revolution. He was a founding member and, at one time, President of the Society for Industrial Archaeology.

He also worked on numerous coastal sites in both New York and New Jersey. He excavated at Port Mobil with his professor, Bert Salwen, and studied coastal New York projectile points. This latter research was published in *The Bulletin* No. 49 in 1970. He did research on native smoking pipes at the Heye Foundation where he was a research curator. The founding and existence of Historic Conservation and Interpretation can be attributed to him as well. Perhaps one of his most significant contributions in New York State was his not generally recognized involvement with the research, preservation efforts, and excavation leading to the discovery of the African Burial Ground in New York City.

In the 1970s he was active in the archaeology of the Interstate System and helped to save the Great Falls Landmark and the Great Falls National Landmark Historic District in Paterson, New Jersey. Over the years, many other sites in New Jersey were investigated by him, including the Delaware and Raritan Canal, Liberty Park, Long Pond, the Dundee Canal, and the Morristown National Historic Site.

Edward S. Rutsch at September 10, 1994 Mt. Hope Miner's Reunio
Photograph courtesy of William Sandy.

He also was active in projects and consulting in Savanna
Georgia, Puerto Rico, and the Virgin Islands.

An Edward S. Rutsch Memorial Fund has been set up
his name at Michigan Tech in Houghton Michigan. Th
fund will support ongoing research and students at the We
Point Foundry in Cold Spring, New York, a site that was
particular interest to him. A memorial service was held
Liberty State Park in New Jersey on July 17, 2003.

Charles F. Hayes III

Harold S. Secor (1919-2004)

Central New York archaeology and archaeologists lost an extremely competent and personable individual when Harold Secor passed away on January 5, 2004, in Newark, New York. He was born there on September 22, 1919, and grew up in the area. He attended Alfred University before going into the family lumber business and working locally as a draftsman. Harold is well known for his active involvement in his community, serving for a time as the Mayor of Savannah, as well as in many other civic organizations, including the American Legion. He was a much decorated veteran of World War II, with service in the United States Army Air Force, including being a prisoner of war for two years in the infamous Stalag 17 in Austria, after his B-24 was shot down over Germany.

In the late 1940s, he became involved in investigating the many archaeological sites in his local area. A member of the Lewis H. Morgan Chapter of the NYSAA, he received the Certificate of Merit for his many contributions to the area and was made a Fellow of the NYSAA in 1988. The latter award citation read in part that he:

> for over fifty years has been the resident expert of eastern Wayne County prehistory. Harold encouraged numerous archaeologists to explore this part of New York State and has for many years guided students as well as aided professionals. He has been unfailingly generous with information and given freely of his time in order to discover and help preserve the numerous archaeological sites which exist in Wayne County.

Harold's major contribution to New York archaeology were his excavations and compilation of existing and new archaeological data relating to the Savannah region. Published in 1987 by the Wayne County Historical Society, *Pre-History of the Savannah, New York Area* has been a major resource for the archaeological history of the region, particularly that of the Archaic and Early Woodland periods. Their Mound and the Hunter's Home Site were of special interest to him. He was in continual contact with Dr. William Ritchie at the time when the latter was employed by the Rochester Museum and later by the New York State Museum. Harold's new data on Savannah area sites were included in Ritchie's *Archaeology of New York State*. He also published additional information on the Hunter's Home Site in *The Iroquoian*, No. 17, in 1990. Harold, his wife Erma, and his family have always attempted to spread the word of his research and to try and interest students, museums and universities in continuing the research on the important complex of sites in his local area.

Harold Secor in 2003. Photograph courtesy of Robert Gorall

A significant portion of Harold Secor's collection was deposited at the Rochester Museum & Science Center and this material has served researchers well throughout the years. In an era when archaeological research is being necessarily restricted and controlled for a variety of reasons, Harold's pioneering assembling and interpreting of artifacts and data from Central New York takes on added significance. Such efforts will be long remembered as an extremely valuable contribution to New York's heritage.

Charles F. Hayes III

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 Executive Committee
General Business Meeting
NYSAA 88th Annual Meeting
Strathallan Hotel, Rochester, NY
April 30, 2004

Opening:

NYSAA President, Louise Basa called to order the regular meeting of the Executive Committee to discuss General Business at 7:10 pm on April 30, 2004.

Present:

A quorum was ascertained by roll call of the Executive Committee & Committee Chairpersons or their alternatives. Present were: President, Louise Basa; Vice-president Ellis McDowell-Loudan; Secretary, Lori Blair; Treasurer, Carolyn Weatherwax.

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

Absent: Louis A. Brennan/Lower Hudson, Metropolitan and Mid-Hudson.

A. Reports of the Officers

President: No formal report. Louise commented that communication is key. There has been a suggestion of creating a newsletter with electronic distribution. Susan Winchell-Sweeney does the Adirondack Chapter's newsletter as a pdf and has offered her assistance in production and distribution of the newsletter.

Vice-President: No report.

Recording Secretary: Report on File.
With regret, we report that Dr. Hosbach died suddenly in 2003. His presence and contributions to the NYSAA are sorely missed. The NYSAA Executive Committee honors him by producing the minutes that he recorded at the 2003 annual meeting of the NYSAA.

The minutes of the 87th annual meeting were approved at the Saturday banquet.

Corresponding Secretary: Report on File.
The final membership for 2002 was 537 with a total of 596 actual members. As of April 2004, there are 302 paid memberships for a total of 338 actual members. This appears to be a decrease in membership from the same time last year; however, membership lists have not been submitted by several chapters.

Continuing from last year, electronic correspondence and visibility on the Internet continues to increase. Since taking over the office in May 2002, over 400 e-mail messages *directly* relating to the business of NYSAA have been logged. At-large applications, printed from the NYSAA web page, continue to be sent in.

Treasurer:

Adirondack Trust Company		
CD# 16112		
Interest (3.25%)	$413.95	$12,474.15
CD# 31673		
Interest (3.00%)	$203.21	$ 6,857.02
NOW# 2945406		
Interest (0.5%)	$ 44.28	$13,175.69
NYSAA TOTAL ASSETS		**$32,506.86**

CASH RECEIPTS 2003-2004

es	$9,145.00
lication sales	40.00
rest NOW acct.	44.28
nt Auction 03	67.60
TAL RECEIPTS	$9,296.88

DISBURSEMENTS 2003-2004

: ... expenses	$1,299.26
... es 2003)	125.00
... es 2004)	125.00
... ter 2003	35.00
... ation	5,000.00
	600.00
... gency (ins)	1,038.00
...	604.63
...	1,989.47
... ense	50.19
... ISBURSEMENTS	$10,866.55

... ECEIPTS 2003-2004 $ 9,296.88

... ecking account 4/20/03 + $14,745.36

TOTAL $24,042.24

... L DISBURSEMENTS 2003-2004 $10,866.55

... e checking account 4/20/04 $13,175.69

... arolyn is concerned about how cost of insurance ... a fluctuating membership, including institutional ... that presumably carry their own liability insur... will investigate and will be reporting. Joe ... Houghton), Fred Assmus (Orange), Jack Coates ... and Carolyn will work on the insurance policy.

Report of the Committees

Nominations - Karen S. Hartgen.

... were 200 ballots cast for election of officers for ... The ballots were counted by Karen Hartgen and ... Bell-Loudan. Officers for the 2004-2006 term ... President. Louise Basa. Vice-President – Marie-... Sissie) Pipes, Treasurer – Carolyn Weatherwax. Corresponding Secretary – J. William Bouchard, and Recording Secretary – Lori J. Blair.

Louise Basa will appoint nominating committee asap.

2. Awards and Fellowships - Peter Pratt

The Fellows had a very successful meeting. Awards will be presented at the Banquet.

3. Chapters and Membership - Carolyn Weatherwax

Report on file. Several suggestions to increase membership of the local chapters have been made, including a new improved membership brochure that contains a general phone number and address. Karen Hartgen will help to revamp membership brochure. Motion by Sherene Baugher, 2nd by Jack Lee to republish brochure. Voted and passed.

4. Publications – William Engelbrecht

CDROM is complete so we need to focus on marketing. General understanding that $12,474.15 CD was earmarked for major publications. Bill is asking for more formal earmarking of a publications fund.

Sissie Pipes stated that the proceeds of the sale of the back issues are to go towards the CDROM project (830 copies). Also began a swap of journals from other states including Virginia, Maine and New Jersey which were sold at $2.00 per copy. Made $1,575.20. Motion by Bill Engelbrecht, 2nd by Wayne Lenig to put towards the publications fund. Passed.

A partial invoice for $3,500 for production of CDROM has been submitted.

Bulletin

Issue #119 of *The Bulletin* is ready and will be mailed after the conference. Cost for production of #119 was $5,500 as compared to $5,900 for #118 and $10,000 for #116. Savings were realized by producing the graphics at RMSC. Future issues will indicate awards recipients. Also need to know if any Certificate of Merit recipients are deceased.

Issue #120 is in process; to be edited in June, full set of papers; hopefully due out late this year. There was a discussion of putting minutes of the meetings back in *The Bulletin*. especially with the cost savings of the last few years. It was felt that 3 pages for minutes could be accom-

modated. Motion made by Sissie Pipes and 2nd by Dale Knapp to put the minutes of the annual business meetings back in the Bulletin. Voted and passed.

5. Finance – Fred Stevens - On file

Finances appear to be in good order. The two CDs held at the Adirondack Trust Bank will mature this year. The larger of the two will be reinvested into a new 3-yr CD. The other matures in November and will be reinvested based on financial markets at that time.

6. Legislative – Francia McCashion - No report

7. Library- Ellen Barcel

David Detrich is working on an electronic catalog of the library's holdings. Currently, approximately two thirds have been computerized. The library will accept requests for copying and mailing to be completed at cost.

8. Program for 2005-Thousand Islands Chapter

The 89th Meeting of the NYSAA will be hosted by the Thousand Islands Chapter. The meeting will be held May 6-8, 2005 at the Ramada Inn (same as ESAF meetings). A call for papers will be posted on the NYSAA website.

Special Appointees

ESAF Liaison – Tim Abel

Report on file. ESAF met in November 2003 in Mount Laurel, NJ. The NYSAA application for the Louis A. Brennan award was approved for production of 118 back issues of *The Bulletin* on CD ROM. The prize was $2,000. Thanks to all involved, including Sissie Pipes, Dale Knapp, and Bill Engelbrecht. The money will be put in the publication fund.

NYAC Liaison – Marie-Lorraine Pipes

A $2,000 contribution made to the Funk Memorial Fund. Student Paper award winner was Andrew Ferry, Preservation Award went to Alvin Wanzer of the NYSAA Mid-Hudson Chapter. New awards include a $100 prize for student poster and $100 prize for a research paper by avocational/non-professional. The paper must be submitted for publication in *The Bulletin*. Educational programs are being developed: one in the form of a power point presentation for avocational/non-professional archeologists and the other for local planning boards. NYAC is looking into putting NYAC files in the New York State Museum archive. Louise Basa asked for volunteers to work with Sissie on perhaps archiving NYSAA files as well.

Ethics – no report

ASPI- Ann Morton

ASPI program continues to monitor sites. Archeological Conservancy will purchase 2 sites – the Pan Site and Arrowhead Road. New brochure is on hold to include SHPO website. The support of the 2-yr pilot program is up. Several recommendations were offered, including continuing ASPI on a regular and continuing basis in some format, getting the brochure out, and having ASPI initiate the program for local planning boards. There are no budgetary requests at this time since there are still funds available at this time for the brochure and mailings. More volunteers are needed.

Motion by Ann Morton, 2nd by Jack Lee to have ASPI program to continue either as a standing committee if the by-laws allow or in some other form. Voted and Passed.

CDROM Project – Marie Lorraine Pipes

The CDROM is almost complete and should be available at the end of June. Order forms available for conference price of $40.00. There was a discussion of pricing. Sissie suggests a price of $50 with a higher institutional/library price. Distinction between individual and libraries is servers with multiple dial-in users at libraries vs. non-servers/computers. Bill Engelbrecht will do the marketing with ideas from Sissie. Motion by Sissie Pipes, 2nd by Delores Elliot to price CD Rom at $50.00 for individuals and $200.00 for libraries. Voted and approved.

Archeology Month -

Daria Merwin of NYAC will be handling Archaeology Month.

Special Presentation – Douglas Mackey, NYS OPRHP

Doug made a special presentation on a new website created by the Office of Parks, Recreation and Historic preservation that shows the locations of archeologically sensitive areas, reviewed and reported resources, and National Register properties. Such a site is useful in planning and preservation. The address of the site is

http://www.nysparks.state.ny.us/shpo/.

The official notice for the website is due out in May. Doug Mackey or John Bonafide can be contacted at the OPRHP offices in Waterford for more information.

New Business

Harold Zoch has suggested that all chapters use GPS system to identify site locations. Louise Basa suggests putting this in the newsletter with suggestions as to units to buy.

Future Meetings

2005 – hosted by the Thousand Island Chapter. The meeting will be held in Watertown, New York on May 6-8, 2005.

2006 – hosted by the Orange County Chapter - Several locations in the Middletown/Newburgh area are under consideration.

Chapter reports for the past year were submitted by the following chapters and are on file:

Adirondack
Beauchamp
Chenango
Houghton
Long Island
Lewis Henry Morgan
Orange County
Upper Susquehanna
Thousand Islands
Triple Cities
VanEpps-Hartley

Adjournment:

Motion by Tyree Tanner to adjourn, 2nd by all. Meeting adjourned at 9:15pm.
The next general meeting will be in Watertown, NY

Respectfully submitted. Lori J. Blair, Recording 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. Upon acceptance, authors are asked to submit their article in electronic format —either DOS/Windows or Macintosh format. Most current word processing programs can be accommodated.

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 2 point greater font size than 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):

inches	in	meters	m
feet	ft	centimeters	cm
yards	yd	kilometers	km
miles	mi	hectares	ha

In-Text Reference Citations

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).

Quotations

Quotations of five lines or less should be included in the text; double quotation marks are used. The citation should follow the form indicated above for in-text reference citations, but should always include page number(s). Quotes of more than five lines should be inset in a block and double spaced without quotation marks. Citations, including page numbers, should follow in brackets.

Tables

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.

Figures

All photos and line drawings are designated as figures and numbered consecutively as they are referred to in the text. Captions should be submitted on a separate page, not as part of the illustration. A light pencil marking on the back of the photo or drawing should identify the particular illustration. Photos and drawings should be high quality images reproducible at sizes appropriate to the journal. Authors bear the responsibility for obtaining written permission for the reproduction of any materials protected by U.S. copyrights. Figures may be submitted as digital images files if they are acceptable for publication. Photographs should be submitted as rgb or greyscale tiff or pdf files, 8" x 10" or 5" x 7" at a minimum of 300ppi. Line art should be submitted as bitmap tiff or pdf files at a minimum of 1000ppi. No other formats, such as jpg, doc, etc. will be accepted. Contributors may be required to provide photographic prints or hard copy drawings if digital image files are not useable for publication.

References Cited

The list of references cited should include all references cited in the text (except personal communications), and conversely, only references cited in the text should be listed. Authors bear the responsibility for double-checking the accuracy of each and every item used. The list should be alphabetized by the author's last name then first name and middle initial. Multiple entries by the same author should be in chronological order with the earliest first. Avoid use of n.d. unless absolutely necessary—if the date is truly unknown. The format for references should follow the *American Antiquity* Style Guide (see *American Antiquity*, Volume 57, number 4, pp. 749-777). Examples of the most commonly needed formats are listed below:

Book with single author
James W.
1985 *Evolution of the Onondaga Iroquois: Accommodating Change 1500-1655 A.D.* Syracuse University Press, Syracuse, New York.

Book with multiple authors
William H. and Richard P. Grossenheider
1976 *Peterson Field Guides: Mammals*. 3rd ed. Houghton Mifflin, Boston.

Edited book (author is editor)
William (editor)
1979 *The American Heritage Dictionary of the English Language*. Houghton Mifflin, Boston.

Translated book
Engaert, 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.

Reprinted book
Hunt E. editor
1973 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.

Multi-volume set
Reuben G. editor
1896 *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.

Past and Present NYSAA Award Recipients

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

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- Robert E. Funk (1977, 1994)

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