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Native American Ceramic Pipe Fragments from Great Tinicum Island (36DE3) in the Delaware River below Philadelphia: with a Brief Review of Related Regional Literature

Marshall Joseph Becker

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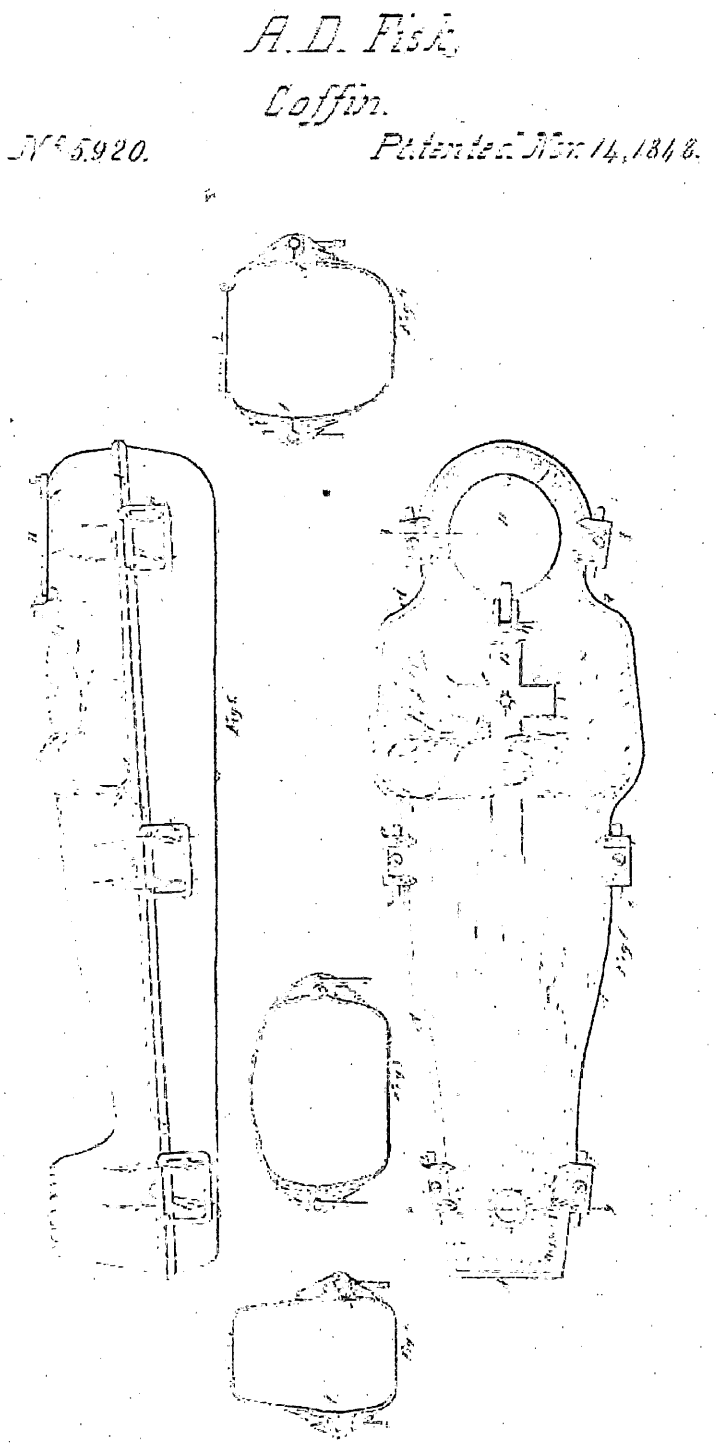

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Abstract

The strategic location and riverine food abundance of Great Tinicum Island in the Delaware River attracted intermittent occupation by hunting and gathering people over thousands of years. During the Late Woodland period and until well after Contact, a local Lenape fishing band continued to use this area, if not the island itself, for warm weather occupations. The six fragments of Native ceramic smoking pipes recovered during excavations at the Printzhof on Great Tinicum Island in the 1930s and later, between 1976 and 1985, provide interesting examples of several types and contribute information on their distribution. These pieces are described here along with a brief listing of published ceramic pipe finds in Pennsylvania and in nearby New Jersey along with a few from a wider portion of the greater Northeast.

Introduction

When Native Americans in the Northeast began smoking tobacco and other plant materials, what they used for pipes remains uncertain (but, see Blanton 2015). The earliest examples of North American pipes may date from perhaps 3,000 years ago in the upper Mississippi Valley (e.g., Kassabaum and Nelson 2016). Precisely what these various people smoked, and when tobacco (*Nicotiana* spp.) became part of the mix (see Carmody et al. 2018) remain important questions. These subjects continue to fascinate scholars and the general public alike, as they have for many years (West 1934). Well to the northeast of the Mississippi Valley, in Pennsylvania and New Jersey, the use of smoking pipes may have begun in the Early Woodland period (850- 0 BCE), with the use of straight tubes made of ceramic or of stone (steatite, etc.). The possibility that straight reeds alone may have been used for smoking has been suggested.

A brief history of smoking pipes in the greater Northeast region generally begins with various types found at sites of the Adena culture from ca 850/800- 0 BCE, or in the Midwestern Early Woodland period, long famous for producing effigy pipes. As long ago as the 1950s, William Mayer-Oakes (1955) recognized that the Adena people of the Late Archaic and Early Woodland period in the Ohio Valley were making sophisticated tubular clay smoking pipes and even exporting them to distant locales, perhaps even as far east as New England. The limited data provides no evidence of any relationship between Adena effigy pipes and the Northeast region's Native clay pipe tradition in which human faces appear on pipe bowls. Effigy pipes were a strong part of the Adena mound building tradition so dominant in Ohio and to the west, perhaps as early as 500 CE. A pipe believed to be an effigy of a "red fox," supposedly made from "flint fire clay," was illustrated and described in detail in an early volume of Pennsylvania Archaeologist. This pipe is said to have been found in a sandbank, seven miles downriver from Clearfield, Pennsylvania on the West Branch of the Susquehanna (Anon. 1932). Another "Adena" effigy pipe was found in the lower Susquehanna River area in Lancaster County, Pennsylvania and also said to be made of "fire clay" that originated in the area of Portsmouth, Ohio (Kinsey 1957). Kinsey (1957:149-151) provides measurements and a photograph. The extent of trade throughout this region over many centuries is well documented. The Adena pipe forms associated with the Midwestern Early Woodland period (ca. 850-0 BCE) found in western Pennsylvania, characterized by straight (tubular) ceramic pipes used for smoking, continue in use into the Hopewellian or Midwestern Middle Woodland period (1-400 CE) in that region. Everhart and Ruby (2020:296-299, Figure 10, note 6) provide an important overview of ceramic assemblages of the Hopewell tradition and indicate that fewer than 30 ceramic pipes are known from Ohio and Illinois sites together.

While data on Adena pipes is well published, much less has been written on or synthesized about Native-made pipes by other cultures in the Northeast and Middle Atlantic regions, or, more specifically, the Delaware River Valley, areas that fall into the Eastern Woodland period. This article is an initial step in creating such an inventory from which researchers can expand. This data includes pipes produced by various cultures and cultural phases, such as the Monongahela, Susquehannock, Shenks Ferry, Lenopi, Seneca, Mohawk and other Iroquoians. Rafferty's (2004) review of smoking pipe produced during the Eastern Early Woodland period (ca 1-500 CE) from New York appears to also be applicable to the eastern Pennsylvania region. The gradual temporal shift into the commonly termed Eastern Middle Woodland period (ca 500-1000 CE) witnessed slow changes in tobacco pipe design, the full range of which remains poorly understood. Bent or curved tubular smoking pipes became increasingly common in the eastern Middle Woodland period. During this period, more obtuse angled forms developed into clear 90-degree elbow-shaped pipes that became a popular form by the start of the eastern Late Woodland period around ca 1000 CE (Smith 1979). How the early Adena effigy style smoking pipes relate to or influenced the style of eastern Late Woodland period small effigy pipes in the Northeast, if at all, has yet to be worked out. This paper may provide some useful insights into the questions that now need to be asked.

Anthony Wonderley's (2005) review of effigy pipes and diplomacy among St. Lawrence Iroquoians and the eastern Iroquoian groups in New York State offers an important view of effigy pipe use, for which limited related examples are found at sites along the lower Delaware River Valley and the general Northeast and Middle Atlantic regions reviewed herein. Aside from one effigy ceramic pipe from the Printzhof Site (36DE3) (hereafter referred to as the Printzhof), there are only two or three other known examples (see also Mounier 2003: 103). While the evolving tradition of ceramic effigy pipes remains an interesting subject, interpretations are currently limited to the few known examples discussed below.

Smith (1979) provides a brief history of the smoking pipe and its many forms throughout the Pennsylvania area and specifically discusses elbow pipes and their affiliation with the Eastern Late Woodland era. His useful references to earlier publications were a start in the direction that this paper is continuing, to provide a basis for an extensive review of available data in print and perhaps into the extensive gray literature. An examination of the more common Late Woodland period elbow pipes, and the possible parallel continuity of straight tube smoking pipe production, may be facilitated by the data gathered here. A number of the sites listed below yielded significant numbers of pipe fragments, or at least more than one to two dozen. While excavators rarely report finding as many as 49 pipes and/or fragments, such as that found at Connecticut's Morgan Site (6HT120), the sample size reported in the literature commonly is more than the six recovered from the Printzhof.

Regular fabrication of ceramic smoking pipes appears to be a marker for the beginnings of the later Woodland periods in the Northeast (0 – 1600+ CE), with pipes being one of the Native artifact categories produced using ceramic technology (Mounier pers. Comm. 12 Nov. 2019). Mounier suggests that straight tube pipes evolved into right angle examples, and only later to the obtuse angle (elbow) forms that characterize the Late Woodland and Contact periods (after 1000 CE). Earlier carved stone tubular pipes are illustrated by Mounier (2003: 82-83), with later clay forms (pages 101-104) discussed separately. Mounier (2003: 102) suggests that elbow pipe forms were influential in the pipe form European colonizers adopted when mimicking indigenous smoking pipe technology and transforming the Middle Atlantic woodland landscape to support a plantation-based economy centered on tobacco production.

Thomas Harriot (1588:Second part, 5-6), as with so many other early European visitors to North America at the start of European colonization, reported on Native inhabitants; unusual practice of preparing and taking in the "smoke thereof by sucking it through pipes made of claie into their stomacke and heade." The shape of these clay pipes is not

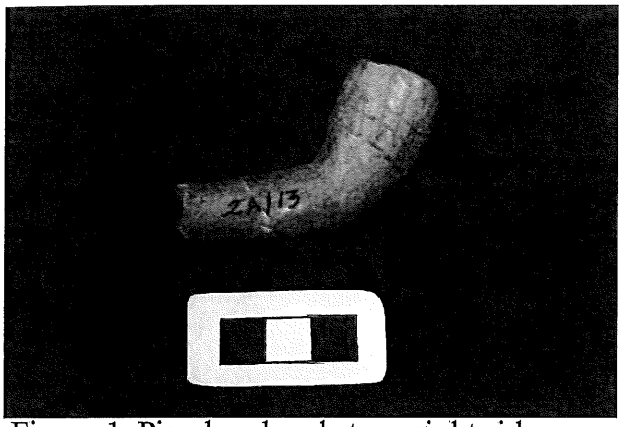

Figure 1. Pipe bowl and stem, right side, 36DE4, Foster W. Krupp, Neg. No. 6304.

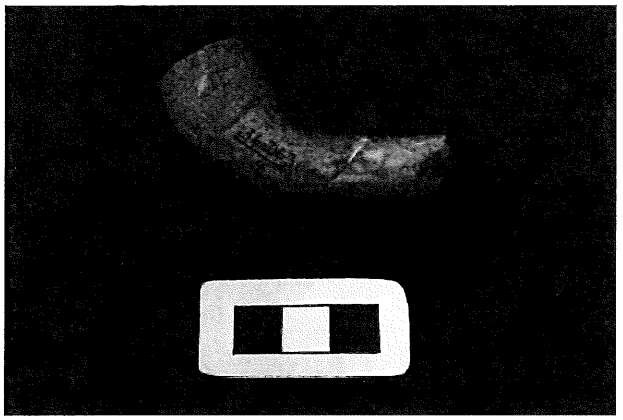

Figure 2. Pipe bowl and stem, left side, 36DE4, Foster W. Krupp, Neg. No. 6304.

recorded, but the European production of kaolin smoking pipes soon became a major industry. That these early European examples had tiny bowls at right angles to the pipe stem. suggests that the Native-made pipes seen in the Middle Atlantic region served as the primary examples Europeans adopted for their kaolin pipes.

Scott Kostiw's (2019) recent publication of ceramic smoking pipe fragments recovered from the King Cole Site in Warren County New Jersey, in the upper Delaware Valley, provides a series of 17 fragments, from 12 individual pipes. There, surface collecting over many years has amassed this important array of pipe fragments, all of which are inferred to be Late Woodland in date based on associated lithic artifacts. Included in his sample is a pipe fragment with a well-modeled human face (Kostiw 2019:Figure 6). Although this site is located some 3.2 miles north of Belvidere, New Jersey, in a location far removed from the Printzhof on Great Tinicum Island near the Philadelphia International Airport, the rarity of these modeled faces from any site in this region stimulated me inquire more about the tradition, call attention to those from the Printzhof, and inventory others found in Pennsylvania and nearby locales. The small Printzhof collection adds another location

Table 1: Locations of the Major Archaeological Sites Noted in Text

Site Name & No.	Location	No. of Native Pipes	References
Printzhof Site (36DE3)	Essington, PA	6	This Article
Overpeck Site (36BU5)	Bucks County, PA	>25	Forks 1980
King Cole Site	Warren County, NJ	12	Kostiw 2019
Friendsville Site	Garrett County, MD	Not Enumerated	Boyce-Ballweber 1987
Gnagy Site	Somerset Plateau, PA	122	George 1983
Hanna Site	Somerset County, PA	24	Butler 1939
Parker Site	Wyoming Valley, PA	31	Abel 2019; Gollap 2019
Tioga Region	Bradford County, PA	6	Murray 1941
Strickler Site	Lancaster County, PA	>18	Kent 2001:184, 312-315; Thomson 2012
Bell Site(36CD34)	Clearfield County, PA	Not Enumerated	Matlack 1992; George 1997
Redstone Old Fort Site (36FA8)	Brownsville, PA	10	Michael1981
"Minisink"	Upper Delaware Valley, NJ	3	Heye and Pepper 1915; see also Staats 1992
Land Farm	Salem County, NJ	1	Bello and Morris 1998

and data set from which this modeled ceramic type is known and provides a few bits of information concerning similar, probable Late Woodland period elbow pipes.

The data presented below begins with a detailed discussion of the clay pipe attributes that characterize each of the six Native-made pipes recovered from the Printzhof, followed by a discussion of pipes found at the Overpeck Site in Pennsylvania. From there, recovered Woodland period pipes found in Virginia, Maryland, and southwestern and central Pennsylvania, are presented. A brief discussion of some New Jersey pipes is provided, along with pipes recovered from the greater Northeast region. Table 1 provides a synopsis of sites that contained Native-made pipes.

Native Ceramic Smoking Pipes from the Printzhof Excavations

Excavations at the Printzhof in 1937 encountered, or preserved, only a single example of a Native ceramic pipe, in the form of an entire short stem. I suspect that the crude Printzhof excavations during the 1930s resulted in the inadvertent discard of small ceramic pieces in favor of keeping only the one relatively large and easily recognizable pipe tube. Three later excavation seasons, including careful sifting, almost entirely working to reprocess earth previously turned over, still produced only four additional pieces of Native pipes. The recovery of these four additional clay pipe pieces provides only a bit more information as to varieties of form and differing excavation techniques. The initial excavation involved no sifting, and tended to recover only large artifacts or of large pieces. Thus, it is not surprising that the earlier recovered pipe fragment is larger than any of the other four found. The pipe stem recovered in 1937 was among the jumble of metal and ceramic artifacts from the Printzhof excavations that had been held in storage at the American Swedish Historical Society (ASHS) in Philadelphia for more than 40 years. This collection includes sherds from two Bonnin and Morris saucers, a form previously unknown from any surviving examples of that factory's output (Becker 2017), and a wide range of other important

Figure 3. Three pipe stems from the Printzhof, 36DE3. Foster W. Krupp, Neg no. 6288. Top. 36DE3/ 13, Middle. 36DE3/ 14, Bottom. 36DE3/ 15.

artifacts from the 17th century and later, thus proving to be an exceptional repository for rare and informative artifact types.

A pipe with a modeled ceramic human face, or a portion thereof, is the sixth pipe fragment recovered from excavations at the Printzhof. This is a rare find. Another unusual find is the short stem of a ceramic pipe (L=51 mm), being a type relatively unknown. A listing and description of these six ceramic items are presented below in the order in which they were catalogued at West Chester University or at the State Museum of Pennsylvania. The catalog number follows the slash after the site number: 36DE3 (Figures 1 and 2).

This pipe has a bowl that appears to be a modified "tulip" shape, but reduced in size. The bowl is minimally distinguished from the near-vertical stem (tube) by a slight (1 mm) swelling around its entire base. The overall shape appears very much like an imitation of a ca. 1600 CE European tobacco pipe, while retaining some traditional features of Native pipes. That is, the bowl and its base form an angle of about 45 degrees from the stem, but it is far from what generally is called a Native elbow-shape pipe. The "tulip" bowl is taller (18 mm) at the front than at the smoker side of the bowl (only 15 mm tall). The flat rim of the irregular bowl (diam. 19 mm) appears cut as with a wire or blade, and seems as if hollowed out from a solid lump of clay. The opening accommodates the tip of a small finger. At the extreme base of the bowl interior, near the angle with the stem, a smoke hole enters, being 5 to 6 mm in diameter at the surviving end of the stem.

The surviving stem portion is 33 mm long and 13.5 mm in outer diameter at the break, and appears to swell to about 14 mm where it bends to support the bowl. This suggests that it was of approximately constant diameter along its entire length. A break in the surviving stem, probably excavation damage from the 1937 period, has been mended. I suggest that the stem would have been about 13 to 15 cm. in length when intact.

The clay appears to have a very fine temper but I cannot determine type. The clay is a reddish buff color and seems to have been polished all over the exterior surface before the "design" was incised into the bowl. This is a very rudimentary "hatching" formed by three irregular lines made parallel to the bowl top and crossed by 12 "vertical" lines running from the bottom to the top of the bowl. No other attempt at decoration appears.

36DE3/ 13: Intact short pipe stem/bowl recovered in 1937 (Figure 3)

This 57 mm long piece includes the entire stem and only minimal traces of a bowl. The stem length varies from 50 to 51 mm, and "ends" at a groove that extends around only the upper half. The clay is a reddish buff color (see above), and also has been burnished or polished. No temper is visible to the naked eye. At the mouth the outer diameter is 7.5 mm, penetrated by a large oval hole that is 5.0 to 5.5 mm across. Although the stem expands rapidly to 18 mm in outer diameter, the bore hole appears to remain uniform until it reaches the bowl. The bowl seems to expand evenly from the stem as if in a straight trumpet design, and has a thickness of 2.5 to 3.0 mm at all surviving bits. One location along the surviving bowl base, where the encircling groove end is present, measures 7.5 mm and has no surface design traces. Approximately 120 degrees to the left of this 7.5 mm extension (when viewed from the smoker's end), and about in the middle of the grooved area, about 6.5 mm of the bowl survives. This tiny projection of surviving bowl reveals what seems to be an incised line that would have encircled the base of the bowl (parallel to the groove). At right angles above this 6 mm long surviving incision, there extend "up" the bowl two (possibly three) incisions, but the fragment and these lines end at about 2 mm from the bowl base.

36DE3/ 14: Section of pipe stem of relatively uniform diameter (Figure 3)

This 55 mm long section of pipe stem is 11.5 to 12.0 mm in outer diameter at one end and 11 mm in outer diameter at the other, suggesting a relatively long and uniform stem. The bore hole at the "larger" end is 3.0 to 3.5 mm in diameter and just slightly smaller at the other end. The hard-fired clay is more buff than reddish buff in color and seems to be entirely without added temper. The surface is quite well polished, somewhat like colonial made European ceramic pipes.

36DE3/ 15: (Field number 2D/3). Section of pipe stem, slight curve leading to bowl (Figure 3).

This 40 mm long section of pipe stem has a very slight curvature at the larger end as well as two bore holes in that area that help to define this as an elbow style. The smaller end is about 12 mm in outer diameter and pierced with an off-center bore hole measuring under 3 mm in diameter, which is located close to the upper surface of the tube. This very straight hole exits at the other end just

above the lower margin of the pipe. At 15 mm before this "exit," the hole is intersected by another hole, ca. 2.5 mm in diameter that penetrates into it from the very center of the curved area that is broken at a point where it measures some 14 by 14 mm in diameter. This suggests a bowl that extended from the stem at perhaps a 45-degree angle (cf. 36 DE 3/ 4 above).

The surface is a reddish buff color and is characterize by longitudinal marks created by planing the surface with a knife-edge, rather than polishing it.

36DE3/ 19: (Field no. 2E/4). Center of a human face modeled on a pipe bowl (Figures 4 and 5)

The portion that has been recovered of this pipe represents a well-modeled human face effigy with the area at the hairline being at the rim of the pipe bowl. The surviving portion is 34 mm tall and at most 20 mm wide. This small fragment includes the medial halves of both eyes, a well-modeled nose with both nasal apertures, and the entire mouth and chin. The bowl rim portion reveals that this face was vertical on the pipe bowl, but in which direction it looked or if it were one of a pair on a Janus-headed pipe cannot be determined.

The surface is highly polished and of a gray color. No temper is visible in the clay body. The face modeling is particularly detailed, although not of portrait quality. The broad forehead is clearly the rim area of the pipe bowl, estimated as at least 25 to 27 mm in diameter. The nose is broad and flat bridged, in keeping with the shape of the bowl. The nostrils are formed by a tool like a knife point, being thin and vertical. The eyes are square or rectangular depressions, and the left side of the right eye was clearly impressed by the same tool as used to impress the left side of the mouth. The lips themselves are not clearly delineated, being best defined by the incision forming the mouth. The lower lip area simply merges with the chin, which seems to have a deliberate dimple pressed into its surface at the center.

36DE3/ 397 (original 1937 number "28")

While this article was in review in 2020, Tracey Beck, Executive Director of the American Swedish Historical Museum, was organizing the Museum files concerning the artifacts recovered during Donald Cadzow's excavations at the Printzhof in 1937. She located an undated and unattributed two-page "List of Historical Objects Unearthed at Tinicum Island" on which there appears as number "28 – DELAWARE INDIAN PIPE – from Trench #8, 5 ft. down." This list includes many of the objects that appear on a four-page "Loan Out Listing of Objects [from] The State Museum of Pennsylvania to American Swedish Historical Museum 1/31/92 -3/31/95" (see Siokalo 1988:38; Solmssen et al. 1988). This loan list of objects for an exhibition includes items from Tinicum Island with numbers in the original 1937 sequence; objects that do not appear on the two-page listing from the site. Number 28, the Native pipe, was included on the loan sheets (page 1), repeating the data quoted above, but adding a new catalog number: 36DE3/ 397.

Janet Johnson, Curator of Archaeology at the State Museum, located and shared the views of "28 – DELAWARE INDIAN PIPE" as shown here in Figures 12a-c and one with a scale (Figure 12d). This last photograph enables us to see that the surviving stem is 55 mm long, has a stem that is 18 mm high near the bowl which is 33 mm tall and 24 mm in diameter. This pipe rests flat on its stem and has a similar "rouletting" pattern on the side facing the smoker and on the opposite side. Both the gray-black surface and composition of the clay are unusual, having no known counterparts in the published literature. This sixth Native example of a pipe from 36DE3 adds considerable information to the record.

Beyond the Printzhof: A Pipe Reference List for the Surrounding Region

This paper began with a search for comparative information with which to compare a surprisingly small group of clay smoking pipe fragments recovered over several seasons of excavations at the Printzhof. The assumption that the topic had been covered at length at an earlier date was soon demonstrated to be false.

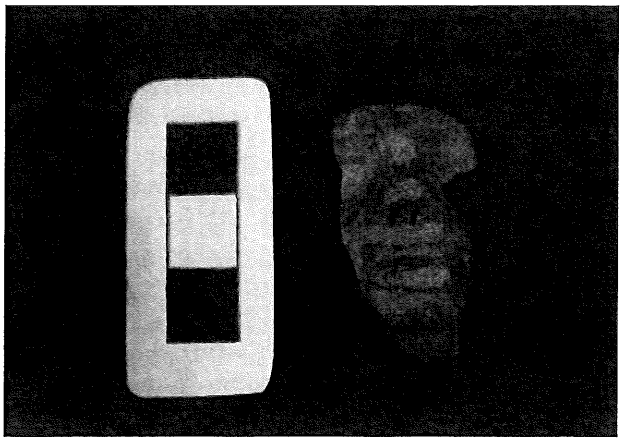

Figure 4. Modeled face from a pipe bowl at the Printzhof, 36DE3/19. Foster W. Krupp, Neg. no. 6295.

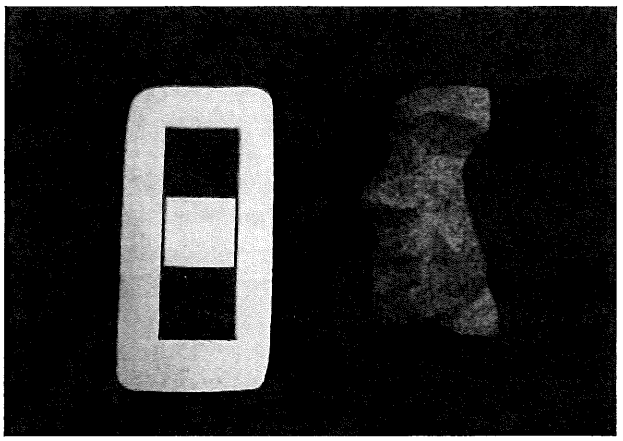

Figure 5. Angled view of Printzhof pipe bowl face, 36DE3/19. Foster W. Krupp, Neg. no 6301

Despite numbers of volumes that relate to the archaeology of pipes (e.g. Bollwerk and Tushingham 2016, Rutsch 1973), simple catalogues are rare. Thomson's (2012) descriptions of smoking pipes from the Strickler Site, a single seventeenth century Susquehannock village, fills 92 pages. Thus the accumulated pipe data from even a small region or from one area presents a challenge that is rarely met. The data tabulated below represents a small portion of the evidence for smoking pipes in Pennsylvania and adjoining parts of the Northeast. Even this preliminary effort offers some clues regarding cultural borders and differing cultural traditions.

The Overpeck Site (36BU5) in Bucks County, Pennsylvania

A summary of the smoking pipe data from the Overpeck Site (hereafter referred to as Overpeck) is presented at the beginning of this preliminary listing because the inventory includes a relatively large sample; a sample that also appears to me to be the most closely related to the few pieces known from the Printzhof. The similarities lie in the simplicity of forms, the presence of straight tube examples, and the short lengths of the stems on those pipes with angled bowls. Since Overpeck is located at the farthest northern extreme of what has been reconstructed as Lenape territory (see Becker 2006), the findings help to confirm a proto-Lenape origin for at least some of the pipes from the Printzhof. Ceramics from the multicomponent Overpeck Site (36BU5) define Overpeck incised pottery, dated to the early Late Woodland period (see Forks 1980). The makers of this pottery appear related to the Susquehannock of central Pennsylvania. The Susquehannock were one of the several tribes using the Forks of Delaware region to the west of Overpeck as a shared resource area. Later activities and perhaps occupation, with a cemetery, is attributed to the "Delaware" Indians, most likely Lenape, a conclusion with which I now agree. The Overpeck pipe specimens, none of which were found in the many identified burials at the site, include four relatively intact pipes (Forks 1980:37, Figure 33) and a great number of stem and bowl fragments (Forks 1980:35-38, Figures 34-37). No definitive number is listed as the excavation methods and subsequent curation, or lack thereof, dispersed the artifacts from this site.

No European pipes are known to be represented at Overpeck, other than a few surface finds of late dates. The Native-made pipes suggest an obtuse angle ceramic tradition, but they remain without context because looters had disturbed the site extensively and excavation methods used were unstandardized. Strohmeier (1980) offers measurements, decoration descriptions and color evaluations of numerous pipe fragments, but precisely where in the Late Woodland period they fall remains uncertain. I suggest that most are from the terminal Late Woodland period, just before the time of European contact (ca. 1550-1600). This

date fits well with the Rich Hill Rockshelter in Bucks County, Pennsylvania (Strohmeier 1988), located near wetlands connected to Tohicken Creek, the northernmost extent of Late Woodland Lenape territory. The only pipe fragments recovered from Rich Hill Rockshelter are two small bits probably from the same pipe. They are tan in color and of a smooth, untempered clay with incising around the bowl edge, very similar to the Printzhof fragment containing the human effigy (see Figure 5) and examples from Overpeck. The rock shelter context may indicate a Late Woodland date for this material (Becker 2011a).

The Overpeck and Printzhof sites both reflect the hunting and gathering Lenape people. Tushingham's (2016) focus on chemical evidence for the plants smoked by hunters and gatherers as distinct from horticultural populations might be tested using these pipes.

The Monongahela of Southwestern Pennsylvania, Virginia and Maryland

During the Late Woodland Period of this region centered on southwestern Pennsylvania a series of palisaded villages have been identified (Johnson 2001; Richardson et al. 2002), all with round structures arrayed around a central open area. These have been identified as belonging to the Monongahela culture, which extends into nearby Maryland and Virginia (see also Weslager 1941); areas where smoking pipes are formed with obtuse angles and incised bowl edges. Monongahela villages share what is known as the Monyock shell tempered ceramic tradition, with plain and cord marked wares that extend as far south as the Miley Site, located several miles southeast of Mauertown, Virginia. Miley has both a Middle and Late Woodland period occupation (Wilkison 1966). There, recovered incised shell tempered clay elbow pipe fragments, associated with Late Woodland triangular projectile points, are not extensively described in Wilkison's article. An associated serrated mussel shell tool could have been a tool used to ornament pottery, but does not appear related to incisions on the pipe fragments. Closer attention to comparisons of the pipe fragments may reinforce the Monongahela relationship. Monongahela pipe decorating had been believed to be performed using a cord wrapped device, such as used for decorating their cooking pots, but this has not been confirmed.

The Friendsville Site in Garrett County, Maryland (Boyce-Ballweber 1987) represents a Late Woodland period village located in the floodplain of the Youghiogheny River. Radiocarbon dating provides evidence suggesting that Friendsville is an early manifestation of the Late Woodland Monongahela culture. Boyce-Ballweber provides a detailed description of 'Monyock' ceramic style in reference to the Early Monongahela culture, indicating that it represents a transition within Monongahela style, with a movement from 'Watson limestone tempered ware' to Monongahela shell tempered ware. At this site, one complete untempered clay elbow pipe was found next to the mandible in a burial. The upper bowl edge is decorated with five concentric rings possibly made by a dentate stamp. Equivalent dentate stamping is present at the lower bowl area by "...12 nearly vertical lines in 4 groups of 3 each" (Boyce-Ballweber 1987). The many shell-tempered pipe fragments briefly noted, and not counted, are decorated in what Boyce-Ballweber (1987) believes is similar to 'Mayer-Oakes Monyock'-type obtuse angle elbow pipes (cf. Mayer-Oakes 1955:63, Plate 18) that exhibit cord impressing and rouletting accomplished using a "rotary tooth implement." Boyce-Ballweber clarifies that the "rouletting" on the Friendsville pipes was conducted using a pointed stick rather than a clock wheel. Bowl edges are commonly decorated with incising or dentation. Monyock-type elbow pipes are most prevalent in the southern regions of Pennsylvania and farther south. How this pipe assemblage relates to that recovered from the Posey Site (18CH281) in Charles County, Maryland, dating from 1650-1680+ CE has not been interpreted by others, but may relate to the Monongahela culture. The Posey site is on Mattawoman Creek and is believed to relate to the historic Mattawoman tribe.

Like the Friendsville Site, the Household Site (ca. 1500 CE) in Westmoreland County, Pennsylvania (George, Babish and Davis 1990) also overlooks the Youghiogheny

River. There, pipe fragments are present but rare in the recovered assemblage, but appear to be Late Woodland in date. One bowl fragment is ornamented with nested triangles stamped into the artifact's bottom and distal side. Other fragments reveal bowls that are decorated with parallel lines, as well as nested triangular impressions; all are well described in published literature. The Kirshner Site (36WM213), also in Westmoreland County, yielded two elbow pipes from burials; both illustrated by Lucy (1983). One pipe is carved from soapstone and the other is of clay with "rouletted" decoration (Lucy 1983). No temporally diagnostic artifacts are included with the recovered material but Lucy suggests a Late Woodland period date. Pipe shapes and decorations do not conclusively confirm this date.

The Wadding Rockshelter (36AR21) is a Late Woodland (900-1635) Monongahela site in Armstrong County, situated in western Pennsylvania (George and Bassinger 1973) near the confluence of the Mahoning Creek with the Allegheny River. There, a single Native-made clay elbow pipe, without temper, was excavated from the rock shelter site. The pipe has zigzag dentate decoration where the bowl and stem meet.

The Monongahela-related Gnagy Site on the Somerset Plateau of southwestern Pennsylvania produced an impressive 122 ceramic pipes and fragments, the majority of which are elbow style (George 1983; cf. Butler 1936, 1939). Richard George's 1983 site report includes statistics and detailed measurements, as well as limited photographs. George (1997) also excavated a single ceramic elbow pipe from the McJunkin site burial in Allegheny County, Pennsylvania and believes it to be associated with the Monongahela culture based on its form and decoration. He speculates that incising on the pipe was made with bone tools (cf. Herbstritt 1981). A radiocarbon date puts the McJunkin Site pottery at around 1570 CE. This is a valuable source for cross-referencing incising

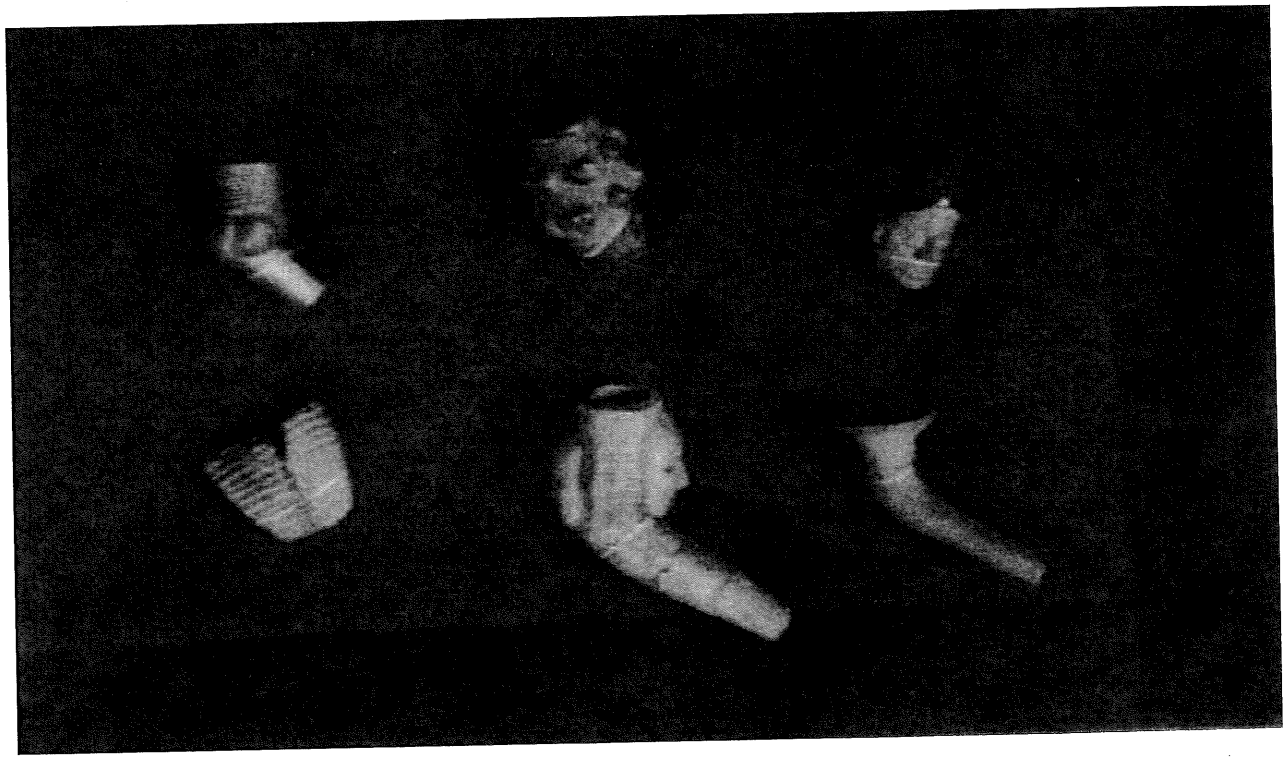

Figure 6. Photograph of 6 pipes or fragments from Tioga Point region (from Murray 1941), with Janus pipe lower center.

styles within a culture that is said to have included migrant potters from the New York area.

In his comparative study of ceramic styles at McJunkin, Richard George (1997) suggests a 16th-century migration of a New York population into western Pennsylvania and an amalgamation of peoples, a migration akin to that of the New York Susquehannock into southeastern New York after 1500-1540 CE, and later down the Susquehanna River (Becker 2021b). This postulated migration might tie the region of the Susquehannock with that occupied by the Monongahela and their neighbors. This purported linkage would require finer dating techniques than are at present available for the pre-Contact period.

The Redstone Old Fort (36FA8) site, located near Brownsville in Fayette County, Pennsylvania is dated to the middle to late Monongahela period (ca 1450-1630 CE). Ten stem fragments from elbow pipes were excavated but little other diagnostic data is provided (Michael 1981). Bonnie Brook is a multicomponent Monongahela site located in the plateau region of Central Butler County (Pittsburgh), Pennsylvania on the floodplain of the Connoquenessing Creek. The site is said to have a Late Woodland Monongahela cultural occupation. Four pipe bowl fragments were excavated; three of which were ceramic and one of stone. Michael separates the pipe fragments into two listings: the 'Monyock' obtuse elbow cord impressed type and the plain vasiform Monongahela style. The few pipe decorations actually reported from the finds consist of dentate or roulette stamping around the bowl edge. One artifact has triangular dentations infilled with horizontal and parallel incised lines.

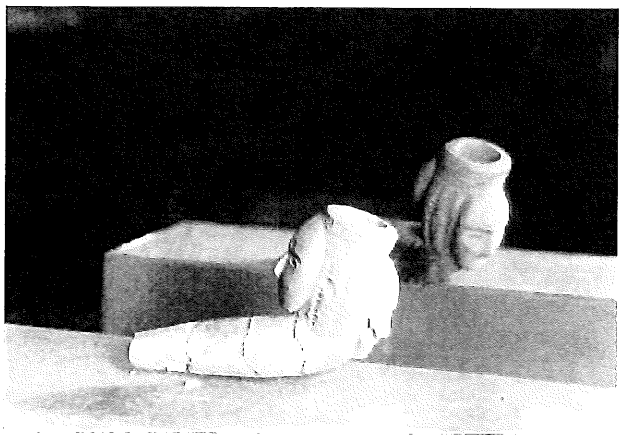

Figure 7. The Janus-faced pipe from area around Tioga Point, in the Tioga Point Museum collections (see Murray 1941). Photograph by Deb Twigg.

Excavations of the Novak site in Redstone Township, Fayette County, Pennsylvania led to the discovery of a Late Woodland Monongahela village on an upland setting southeast of the Monongahela River Valley. Two pipe bowl fragments and one complete pipe were excavated from the site and their dentation is indicative of Monongahela untempered clay pipe making style (see measurements and photographs in Boyce 1984). This may be compared with the pipe from a burial in Friendsville, Maryland.

Three early period Monongahela (early Late Woodland) sites (i.e., Montague, Hanna, and Clouse sites) in Somerset County, Pennsylvania Mary Butler excavated in the 1930s include an impressive amount of information that often is overlooked (Butler 1936, 1939). Each of these three sites produced an interesting array of materials, including some impressive pipes, almost all obtuse elbow types with careful punctate decoration. The pipes from the Montague Site (Butler 1939:34-37, Plates 11-12) are similar to the pipes of the Hanna Site (Butler 1939:55-56, Plate 17) where 23 house patterns were identified. The Hanna site, near Harnedsville, Pennsylvania along the Casselman River and on the Great Allegheny Path, yielded 24 elbow pipe pieces, of which eight ceramic fragments (and one of stone) are illustrated in Butler's article.

Butler's excavations around the five houses identified at the Clouse Site, which is surrounded by a double palisade, produced an array of ceramic pipes. Four ceramic bowls (3 with rouletting and one plain) and 12 stems were recovered (Butler 1939:62). Butler says they are all similar to those at the Hanna Site. From the Bruckner Site in Greene County, Pennsylvania, Butler's Plate 19 in her 1939 article depicts 11 whole or

fragmentary ceramic pipes. In Plates 20 and 21 of her article, Butler depicts a total of 25 stone pipes from various other sites in Greene County. Together these many examples form an excellent background for the study of ceramic pipes among the Monongahela peoples, a culture that is described at length in the many recent archaeological reports on excavations from southwestern Pennsylvania (for example, see references in Johnson 2001; Richardson et al. 2002).

To the east of the Monongahela territory, in the Susquehanna Valley, we find the wide area drained by that river to have been the home of a Late Woodland peoples generally identified as Shenks Ferry. Interest in a better definition of these people has recently gained considerable attention (Herbstritt 2019). By 1525, if not before, groups belonging to the Susquehannock culture were shifting their villages from New York into the Tioga Point region, and then south into central and lower Pennsylvania. This process is being addressed by several scholars.

The Parker Site in Pennsylvania's Wyoming Valley is glossed by Smith (1972) as part of the 'Wyoming Valley' culture; perhaps associating it with what Gollup (2019) calls proto-Susquehannock. Smith dates this site to before 1525 CE based on the lack of Contact era artifacts (also see, Abel 2019). Of note, however, is that the 31 Native clay pipe fragments recovered include some of elbow form resembling European-made types. This feature suggests that early post-Contact Natives rapidly adopted and incorporated European white clay pipe shape in their own pipe production, adding them to the inventory of Native-made ceramic pipes. The pipe bowls from the site are usually plain, though some do show decoration of a number of forms and styles. The bowls also range from straight walled to slightly flaring to greatly flaring. These artifacts are called Parker Incised, sharing features of several types of decoration on a limited range of forms (shapes). The site date suggests a Susquehannock occupation. At this time, the Susquehannock were moving down river to the lower Susquehanna part of the valley, apparently attracted by access to the western pelt trade via the Allegheny River, but also being pressured by those Iroquoian tribes that became the "Five Nations".

Elsie Murray's (1941:15) report commenting on an illustrated booklet from the Tioga Point Museum (Anon. 1939) includes a photograph

Figure 9. Photograph of 6 pipes in State Museum of Pennsylvania, T. B. Skinner Collection. Photograph courtesy of Janet Johnson, Curator.

of six clay pipe fragments of completely different forms from the Bradford County, Pennsylvania area (Figure 6). These include a small trumpet shape, a modeled human face (only) fragment measuring 1 5/8 inches tall and 1 1/16 inches wide (Figure 8), and an impressively modeled Janus-headed pipe (Figure 7). The specific sites from which these six came are not indicated. I know of no equivalents for the Janus-pipe, but possibly some of the modeled faces known only as fragments of a single face, such as that at Tinicum Island, came from such dual-faced pipe bowls. In addition, Janet Johnson of the State Museum of Pennsylvania has identified a photograph included "in a manuscript by Dorothy Skinner at the time of the Indian Survey," of an image from the T. B. Stewart collection (personal communication 10 March 2020) (Figure 9). Johnson reports that although Stewart lived in Lock Haven, Pennsylvania, he held collections that came from all over the state, which problematizes the provenance of the examples in the Skinner collection photograph. The T. B. Stewart image includes six pipes, ranging from an Archaic period platform type to one bowl fragment with a modeled face. Another intact bowl appears unique, with a roughly late European shape, complex stripes, and a tiny face looking back at the smoker.

Note should be made that all of the known modeled faces appear on pipes that are made using fine clays without any temper visible to the naked eye. The faces commonly modeled on Susquehannock pottery rims are far cruder by the use of tempers and clays that are not amenable to detailed feature molding. Thus, there is little likelihood that a face from a pipe might be confused with one that had been worked into the rim of a pot.

The possible relationship between the six items Elsie Murray (1941: 15) reported from Bradford County and the 30 burials that had been excavated between 1882 and 1895 at the Garden Site at Tioga Point, near Waverly, Pennsylvania. is nowhere stated (see also Murray 1938). I suspect that the six Bradford County pipes or pipe fragments derive from the nearby Tioga Point Farm site near the confluence of the Chemung and Susquehanna rivers (see Becker 2021b). The clay pipes excavated there are reported to be of the 'trumpet' style and of 'platform' design with incised notches along the bowl rim. They are said to represent Owasco types; however, the incising is similar to that of the Monongahela style (Lucy and Vanderpool 1978). Owasco-period sites date from ca 800 to 1300 CE, gradually merging into Iroquois in all of the Five Nations sequences in central New York (Tuck 1978: 322). Thomson's (2012) review of the Strickler pipes provides close historical comparisons.

Figure 8. Murray Garden pipe face fragment (Murray 1941 fig. upper right). Photograph by Deb Twigg.

Central Pennsylvania Pipes

Barry Kent's (1984) overview of Susquehannock villages and activities in the lower Susquehanna Valley offer basic evidence for Native and imported pipe use throughout most of the post-Contact period. Of particular note is that the pipes in the material culture of the early phases of the Susquehannock Confederacy (Becker 2021b) appear to be reflected at sites extending to sites of the Upper Potomac Valley of Maryland (Wall and Lapham 2003).

All the examples of pipes from the Murray Farm Site, in Waverly, Pennsylvania near the New York state border should be compared with pipe finds from the Strickler Site in Lancaster, Pennsylvania, a Susquehannock site recently re-dated to about 1655 – 1670/75 CE (see Thomson 2012, Wyatt 2019). Strickler is located near the Mary Site described below (cf. Kent 1984, 2001:184, 312-315). Cadzow's (1936:115, Plate 31)

mention of Strickler includes data on four Native-made clay pipes that he says are fashioned from local clay. Strickler's pipes include examples with effigy figures on the rim, on the side opposite the smoker (Figure 10). One of the Strickler pipes has a punctate design (cf. Butler 1939), but it is quite unlike that recovered from the Printzhof site (see Figure 4). Fourteen clay elbow pipes were found among the grave offerings at the Middle Cemetery within the Strickler site (Heisey and Witmer 1962). Some of these are illustrated, but the photographs and text offer little diagnostic pipe data. More recently, Karen Thomson (2012) reviewed the amazing variety of smoking pipes from the north section of the Strickler Site ("Cemetery 2"); examples that were recovered from graves in the 1940s and 1950s that had become part of the Futer Collection (see in Kent 1984). The Strickler Site dates from a period when Native ceramic pipes had become quite elaborate in form, and their use by Natives was complimented by a wide variety of European white clay and pewter pipes that often are paralleled by designs seen in Native-made examples. Included in this sample of Native-made clay pipes are four tulip-bowl examples, with long curving right angle bends (Thomson 2012:59, Figure 4.9). These are similar to one of the Printzhof pipes. Whether the Strickler examples with slightly obtuse angles and minimal decoration reveal the presence of Shenks Ferry people in this cemetery or if they represent trade goods has not been determined, as highlighted below.

The Mary Site (Kinsey and Graybill 1969) is a single component Late Woodland site, said to be Shenks Ferry related, located on a terrace above the Susquehanna River, south of Washington Borough in Pennsylvania. The three known pipes from this site are small, with slightly obtuse-angled elbow forms. This is a shape often attributed to "Funk incised" and is considered diagnostic as one of the phases of the Shenks Ferry culture, but details of chronology and distribution have yet to be worked out (cf. Herbstritt 2019).

A Shenks Ferry habitation area on Canfield Island: (36LY251) Lycoming County, Pennsylvania (Bressler 1992) is a single-component Late Woodland site. Excavations yielded only a single example of an elbow pipe, a "puffed sleeve" possible tulip form considered by Bressler to be in the Shenks Ferry style (cf. McFate culture, see below). This Late Woodland example was made of untempered clay, with vertical incising around the top edge of the bowl. Ten horizontal lines that run parallel to the stem are on proximal and distal sides of the bowl, but do not extend around the bowl to form complete circles. These lines are separated at each side with a vertical line. Beneath each of the ten horizontal lines are diagonal cuts that may have been interpreted to resemble feathers.

The Native people of the Clarion River Valley are believed to have used the Split Rockshelter in Elk County, Pennsylvania (Herbstritt and Love 1973).

Figure 10. Murray Garden pottery rim sherd with modeled face, probably Susquehannock.

Typically the faces so commonly modeled on the collars or rims of Iroquoian and Susquehannock pots are rude, in keeping with the lower firing temperature of these ceramic types.

There, a 26 mm long mouth piece that Herbstritt and Love suspect to be an elbow pipe was found along with a triangular projectile point, suggesting a Late Woodland period date. This site has been weakly ascribed to the Shenks Ferry culture, but whether this was a specific, identifiable people

or an early phase of the Susquehannock culture remains debated. No other diagnostic material is described.

Three Shenks Ferry period elbow pipe artifacts from the single component Murry Site in Elk County are described as "Funk incised" (Kinsey and Graybill 1969), and thus were created during the Funk Phase (either Terminal Shenks Ferry or mid-to late Shenks Ferry culture. The incising style is described in great detail and photographs of each are provided. In addition to the type site (36LA2) there are only five other sites considered to be Shenks Ferry villages. I cannot distinguish them from early Susquehannock villages.

From the north-central part of Pennsylvania, the multi-component Bell Site (36CD34) in Clearfield County, poses an important developmental perspective within what is called McFate culture of that region (post-1500 CE). McFate pottery trends (McFate Site is 36CW1) are said to have developed from a combination of the Shenks Ferry and Monongahela cultures that preceded it (Matlack 1992). A radiocarbon date of 1570 CE confirms a Late Woodland contemporaneity of the Bell site occupation component with Monongahela sites. Matlack (1992) states that the Bell site people produced pipes that continued to use the clay composition and firing techniques from the Monongahela. Matlack also provides a history of pipe decoration in relation to McFate pottery, a pipe style he also believes is descendant from types in the Monongahela and Shenks Ferry cultures. Matlack's detailed descriptions and sketches suggest a Monongahela relationship of the pipe forms excavated at the Bell site. Evidence for Monongahela pipe style can be seen in bent elbow design and the tan color.

According to Matlack (1992), the single McFate-type elbow pipe that he describes suggests a continuity in the pipe making techniques at the Bell site. However, its 'puffed' elbow seems a remnant from the Shenks Ferry style. Bell-style pipes have rouletting around the perimeter of the bowl but not on the 'puffed' elbow. George (1997) suggests that the Bell site included the presence of foreign potters, but this is speculative. The varied pottery styles excavated would suggest that ceramic traditions may have converged at the nearby McJunkin site (George 1997).

Delaware Valley Pipes

A single pipe with a "tulip"-shaped bowl excavated at a site in the upper Delaware Valley region of New Jersey is well described by Staats (1990), who believed that it relates to what I call the "Munsee" immigrants who came into this area after 1630-1650 CE (cf. Becker 2016). In fact, Staats (1990) independently placed the site occupation date at around 1650-1675 CE based on his interpretation of the artifact styles in the same feature. The context of the feature from which the pipe was recovered offers little help in placing the date or the cultural affiliation, but comparative evidence from sites in New York suggests a probable Iroquoian connection for this single Native made ceramic pipe. The "Munsee" cemetery south of Bena Kill, across from Minisink Island in the upper Delaware River produced an array of Native-made smoking pipes similar to the range found at Pennsylvania's Strickler Site of the same period, i.e., ca. 1640/45 – 1665 CE. At this "Munsee" cemetery, three pewter pipes were recovered (Heye and Pepper 1915:50-54, facsimile p.39) with six European clay pipes (Heye and Pepper 1915:55-57, facsimile p. 40) and three Native-made examples (Heye and Pepper 1915:47, see facsimile p. 37). Two of these Native pipes were found in a single grave. The European-made pipes at the site all post-date 1640.

Concerning "tulip-shaped" pipe bowls, Skinner (1925) discusses an "antique" terra cotta Seneca-incised elbow pipe said to have been found some time ago and then passed down through an Indian familyIn 1925 it was still in use by Mrs. Mary Titus of the Beaver Clan (Seneca) at the Allegheny Reservation when it was secured for the Heye Foundation. The family formerly lived on the Cornplanter Reservation in Pennsylvania, but precisely where the pipe was ultimately lost (and then found) is not reported. The pipe elbow is a right angle and the stem is short (ca. 86 mm long) and appears unbroken. The pipe bowl is 80 mm tall and has a slight swelling,

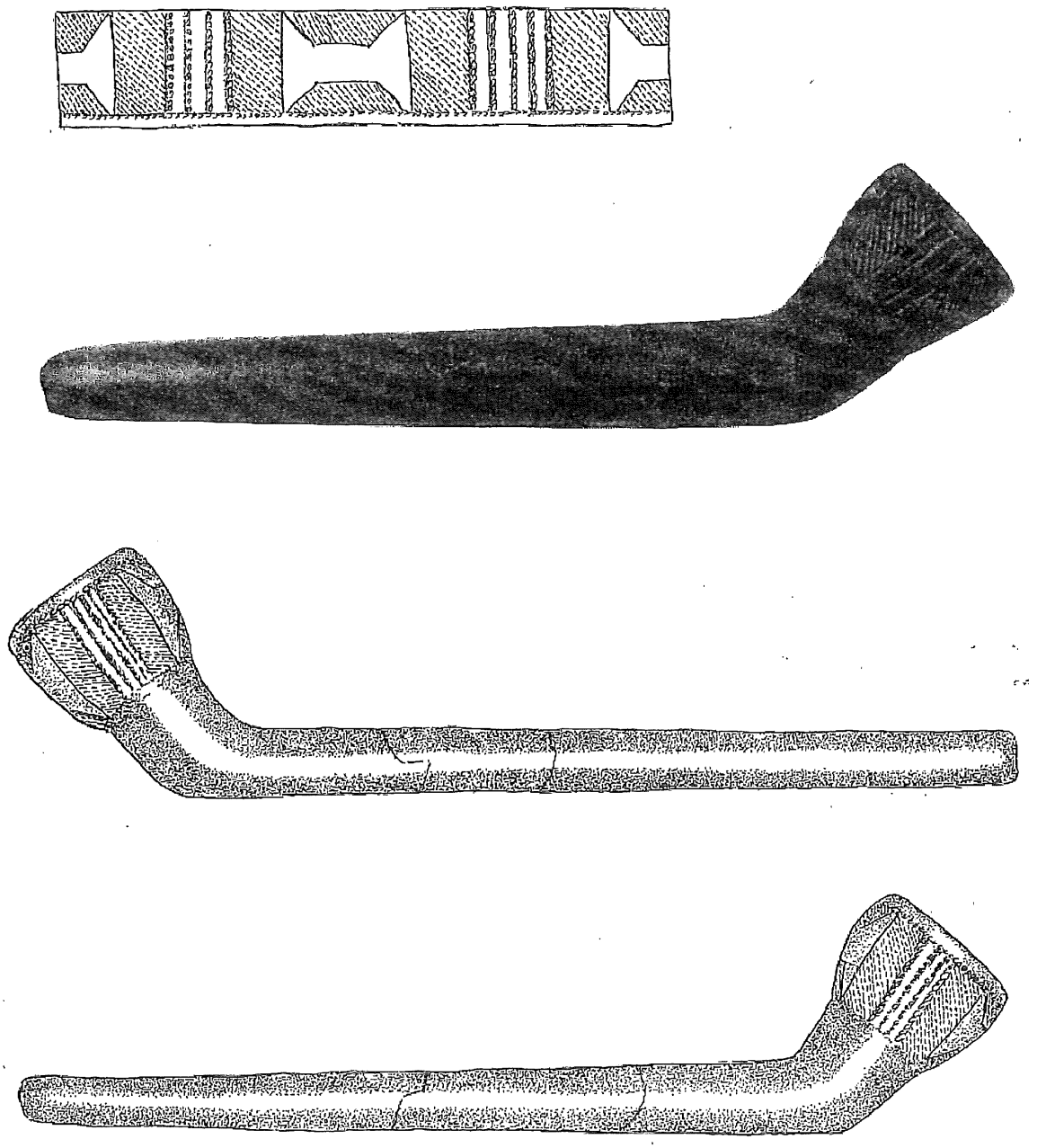

Figure 11. An intact ceramic pipe with "tulip" bowl from the Land Farm Site, Salem County, NJ. Drawn by Alan Carman of Bridgeton, NJ for Bello and Morris 1998: Fig. 1 (Bulletin ASNJ 58: page 68). Used with permission.

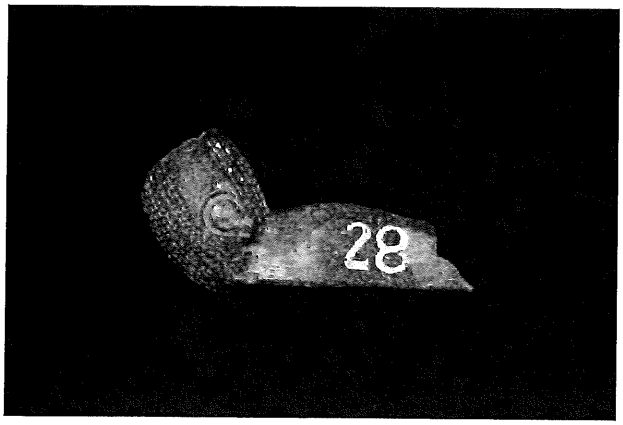

Figure 12a.

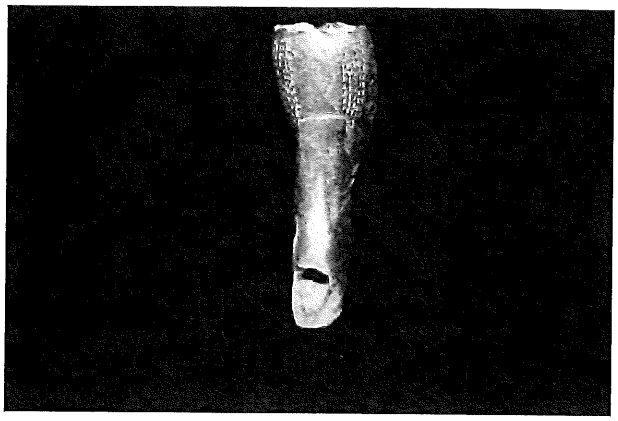

Figure 12b.

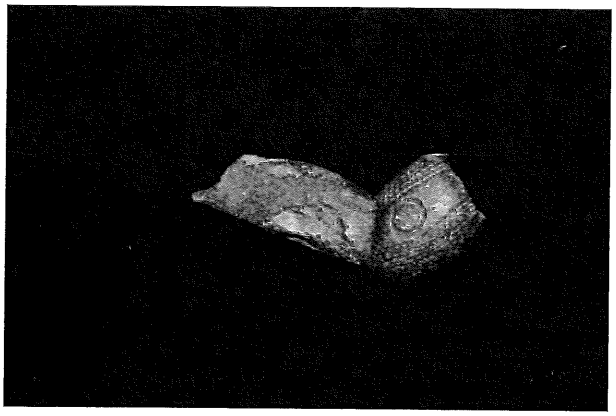

Figure 12c.

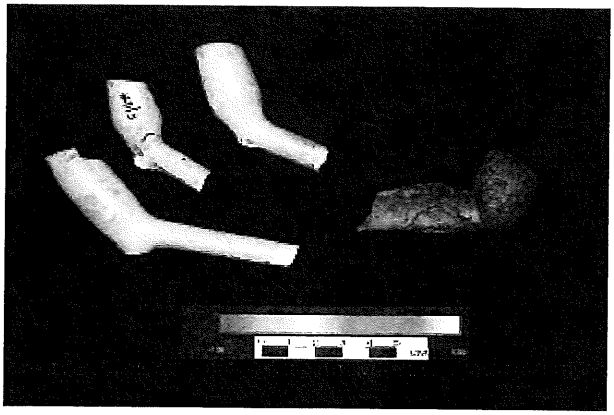

Figure 12d. Figures 12a-d, 12a-c, d. Three views of Native-made clay smoking pipe 36DE3/397, and a side view with scale. Pipe now at the State Museum of Pennsylvania (courtesy of Janet Johnson, Curator of Archaeology; used with permission).

tulip-like form with three horizontal incised lines running around the bowl (Skinner 1925:Figure 102). Skinner believes that a similar pipe, but with a tubular bone mouthpiece attached, is in the New York State Museum, possibly catalogued as Seneca, and was still in use when L. H. Morgan obtained it prior to 1850. Tuck (1978:329, Figure 5d) illustrates a similar pipe from the Canandaigua Owasco Phase (ca. 800-1300 CE) at the Lakeside Park site in western New York. Tuck's (1969) examination of Onondaga prehistory notes that the Burke site produced many elbow pipe pieces from a late Chance Phase in the Late Woodland Period. Radiocarbon dating puts the Burke Site artifacts at around 1450 CE. The four elbow pipes Tuck illustrates in his 1969 article seem to be trumpet style, of which one has incising around the bowl.

New Jersey Sites

Several basic volumes relating to the archaeology of New Jersey include glimpses of ceramic smoking pipes used by the various Native groups, primarily the Lenopi of the southern regions and their ancestors. Dorothy Cross's pioneering work (1941) offers useful basic information. R. M. Stewart's (1998) ceramic review also includes data on ceramic pipes (see also Mounier 2003: 101-104; Kraft 2001: 307-309, including some effigy types). These works should be included in any effort to gain an overview of clay pipe use in New Jersey, and in particular to allow comparisons to be made with the few pipes from the Printzhof and related Lenape sites.

More recently, Kostiw's (2019) report on smoking pipe fragments from New Jersey's King Cole Site in Warren County, including a human effigy pipe bowl, reawakened my interest in publishing the Printzhof's Native clay pipe fragments. Few as these may be, the Printzhof pipe data is an essential beginning in the compilation of this initial pipe listing. The King Cole Site is far up the Delaware River, in a zone that had long been utilized by the Mohawk, Esopus, and others as part of their shared resource area (see Becker 2016). The Mohawk and others may have used the Delaware River as a route by which to trade down to the Delaware Bay. The possibility that the King Cole human effigy pipe bowl and that from the Printzhof were made and traded around the same time, if not carried, by the same people may be considered. Kostiw (2019: Figure 1, D-G) also illustrates four other pipe fragments from three different New Jersey sites that have been published (Stewart 1998:Figure 101; Martin 1991:Figure 6; Forks 1980:Figure 36A, G).

The small, multi-component Land Farm site in Salem County includes pipes with a variety of decorative styles. The earliest pipes excavated there are of the Shenks Ferry style. One intact elbow-shaped black untempered specimen has a rouletted design on both the "puffed" bowl and the elbow. The bowl is of the form called "tulip" shape when identified at New York sites (Bello and Morris 1998:120, Figure 1; Figure 11). I suspect that this is a post-1500 CE form occasionally seen in New Jersey and elsewhere in Pennsylvania. Bello and Morris (1998), in their outstanding artifact report, describe this elbow-shaped clay smoking pipe (159 mm long) as recovered from a Native grave of the Contact period. The grave-pit apparently is of a late date. The authors' careful examination reveals that, under 30x magnification, the clay can be seen to include minimal amounts of highly crushed grit and sand that they suggest "might occur naturally in the clay" (Bello and Morris 1998:119). Depending on the clay sources utilized as well as clay working processes, similar inclusions may appear in other clay pipes of this period that have not be scrutinized as carefully. A similar specimen was reported by Cross (1941:98, 100, Plates 39b, 40b), who states that it was recovered from a Contact period grave at the Murray Site in nearby Burlington County, New Jersey.

Veit and Bello (2002) offer specific information on Burial 20 at the Lenhardt-Lahaway Hill Site (28MO1) in Monmouth County, previously noted by Cross (1941), but report no Native-made or European-made pipes. Veit and Bello indicate that of the more than 200 graves identified at this site, smoking pipes were not found among the grave goods, although "Fragments of buff-colored Native American tobacco pipes were also found at the site ..." (Veit and Bello 2002:68), from locations without clear provenance. Some of these fragments may derive from elbow-shaped examples, but this is not certain. Salvage operations at the Abbott Farm Site in Mercer County along the Delaware River in the fall of 1966 identified three flexed burials "with the long axes oriented roughly east-west" (Pollack 1968: 84); an orientation that I am sure is indeed a very rough estimate. "An obtuse angle clay pipe exhibiting a beautifully decorated bowl was found with one of the skeletons" (Pollak 1968:84). Pollak also suggests that this elbow-shaped smoking pipe from there may date from the "Archaic period" is clearly in error. The present location of field notes and artifacts from Pollak's salvage project are unknown.

A Few Other Examples of Pipes from Sites Elsewhere in the Greater Northeast

Excavators at the Perkins Point Site (44BA3) in Virginia (Whyte and Geier 1982) identified only four Native-made undecorated clay pipe stem fragments, all from pit features and all dated to the late 1500s CE; or to the Contact period as it overlaps with the Late Woodland (Whyte and Geier 1982:23, Figure 10, Table 1). How these fragments relate to the broader picture of pipe use has been difficult to determine. The single clay bowl of an elbow pipe excavated from the Late Woodland layer of the Clemson Island Site (Lock Haven, Clinton County, Pennsylvania) is said to be similar to Owasco types that date from 1000-1200 CE (Custer et al. 1996).

A Note from New England

Skipping any reports of smoking pipe finds at indigenous-occupied sites on Long Island, I wish to make particular note of an extremely good sample of pipe fragments recovered in the late 1980s from the Morgan Site (6HT120) in Rocky Hill, Connecticut. The cultural affiliations of the people at this site, along the Connecticut River some 12 kilometers south of Hartford, remain uncertain but the archaeological record is superlative (Lavin 1988, 2013:204, upper left). The 49 pipe pieces found at the site have been reported in a desultory and unedited fashion (Gudrian 1995), without scales for the photographs and no detailed drawings. Yet, the 49 small pipe fragments recovered tell us something important regarding the high quality of Lavin's excavations. I suspect that these extensive and particularly careful excavations yielded an excellent sample of pipe fragments, but did not necessarily reveal that the Native occupants of the site were using smoking pipes more often or in unusual ways. The possibility that the dispersion of pipe fragments at the Morgan Site was unusual, however, merits consideration.

Smoking pipes recovered at other sites in New England received some attention in Willoughby's (1935:181-190) general review of artifacts of ancient cultures. Despite various mentions, and Trubowitz's (2004) research efforts, the subject of Native-made pipes remains poorly explored. Four recently published pipe bowl fragments from a Late Woodland period site in Brewster, Massachusetts (Strauss 2019:94, Figure 13) are barely described, a typical problem of reported information in which mention of pipes is incidental to a larger report. Smoking pipes in New England, in general, seem to have been poorly made and crudely decorated with incisions and lines. The review by Witthoft et al. (1953) of Micmac (Mi'kmaq) style pipes known from Maine and Canada suggests that only vase-shape and acorn-shape bowls were made, requiring a separate stem be inserted, resulting in a two-piece pipe. From this report, Iroquoian and New England Algonkian styles do not appear to extend as far north as upper Maine (cf. Trubowitz 2004). Obviously a more intensive review is in order from areas within New England; beginning with some overview such as that presented here the southwestern and central Pennsylvania area.

Discussion

An impressive array of ceramic smoking pipes was made by Native American peoples throughout the greater Northeast. Gathering a sample of data on Native tobacco pipes from Pennsylvania and immediate surrounds suggests that general forms were uniform throughout the greater Northeast. At present the available data from any specific region remains too limited to allow the formulation of more specific ideas concerning the evolution of shapes and even decorative motifs.

The arrival of Europeans, and the development of complex and diverse economic interactions with many specific tribes, expanded Native American cultural material to include an array of European-made white clay, pewter and base metal pipes (see Veit and Bello 2004). The vast literature on European white clay pipes, and the more specific studies of base metal pipes among Native peoples (see also Thomson 2012) reveal the extent to which Native peoples adopted these European produced items into their existing material culture. The six Printzhof ceramic pipes or fragments thereof, all lacking specific provenance, may have predated or even been contemporary with a wide range of unusual European white clay pipe fragments also recovered from this site (see kaolin pipes in Becker 2011b, also 1979 and 1999). Without any provenance for the broad array of artifacts recovered during the excavations in the 1930s we can only state that the six ceramic smoking pipes and fragments from the Tinicum Island excavations came from the area immediately surrounding the actual location of the fort and main buildings associated with the Printzhof on Tinicum Island (Becker 1999, 2011b, 2018, 2021). Whether they predated the construction of these structures or were contemporary in date cannot be determined.

In West Virginia, the Fort Ancient Village Site (Applegarth, Adovasio and Donahue 1978) is located on the floodplain of the New River gorge and is dated 1100-1200 CE. One of the three pipe fragments recovered there is fashioned from soft stone. The two clay pipes include a grit-tempered vasiform elbow pipe with an irregular collar and one with shell and grit temper. Both are said to be similar to other clay examples found in other Late Woodland sites of West Virginia.

The Fairport Harbor Site (33LA5) in Lake County, Ohio, along Lake Erie just west of Ashtabula (Murphy 1971a), is a single component site dated to ca 1300 CE on a former channel of the Grand River. Two elbow pipes were found, one bowl contains four incised rings and a border of punctuates, and the other has six incised rings. A ceramic elbow pipe also excavated in northeastern Ohio is associated with the 'Whittlesey' focus, dated to what in Pennsylvania would be called the Late Woodland (Murphy 1971b). This focus appears to include the people along the southern shore of Lake Erie known in the Contact Period as the Cat Nation, destroyed by 1654 or 1655 by raiding from the Five Nations Iroquois.

Weinman and Weinman (1970b) offer a detailed account of the stratigraphic record at the first Rip Van Winkle Site in Green County, New York, southwest of Albany. They report on three distinct levels and distinctive artifact types from this Hudson River location. The ceramic elbow pipes from this site, dug in 1968, are incised and decorated in a Late Woodland to Contact Period fashion, and perhaps were imported into the area (cf. Weinman and Weinman 1970a). The local people at Contact were Esopus, but their close ties to the Mohawk to their north are now noted. Weinman and Weinman (1974) also conducted excavations 0.4 kilometers to the north along the river at the Rip Van Winkle No. 2 Site, also along the river but several miles south of Athens in Greene County, New York. There they recovered two pipe stem fragments and part of an obtuse angle pipe bowl decorated with four linear incisions encircling the open end. Weinman and Weinman (1974) compare this pipe bowl type with an early Oak Hill type from the Dewandalaer Site in Montgomery County, New York (Lenig 1965:12-13)

From Ontario and other Canadian areas to the north of New York's Five Nations Iroquois there are interesting connections in pipe styles, but also many differences. Regarding the human effigy pipe fragment from The Printzhof, an excellent overview and chronology of similar examples from among the Ontario Iroquoians has been compiled by Mathews (1980). Elbow pipes are well known from an array of Canadian archaeological sites, but these are generally beyond the area of immediate interest. The Bristow Site in Ontario (Sweetman 1967) offers a representative sample, although only a few elbow pipes were recovered. Sweetman identifies the general style as Middleport; being well-made grit tempered pieces with incising and dentation. Middleport is an Iroquois style developed in southern Ontario placed within the post-1000 CE era. The McDonald site, located in Simcoe County, Ontario, yielded a few elbow pipe fragments that Warnica (1963) describes as 'Lalonde,' defined as including polished trumpet style, either barrel shaped or ringed. Photographs and measurements are provided, as is the incising that appears on all the barrel style examples. Examples of smoking pipes from Ontario also are known from the Guyatt Site (Bell 1963) and many others, but no patterning has yet been suggested.

Chapdelaine's (2019) outstanding report form excavations at a St. Lawrence Village site southwest of Montreal devotes the entire chapter 8 to the pipe data. This 1.3-hectare village of ca. 500 people living in at least seven long houses has been dated to 1490-1510 and is the largest example in a local sequence that extends from 1300 to ca. 1550 CE. The excavations, carried out in conjunction with the Akwesasne Mohawks who now live in that region, provide critical data for understanding the form and evolution of Native pipe forms in that area.

In a recent publication on findings from the Feltus Site in southwestern Mississippi, dated to the Coles Creek period (700-1200 CE) that immediately predates the Mississippi period, Kassabaum and Nelson report on the erection of freestanding posts and the complex rituals surrounding these activities. Most significant for this review, Kassabaum and Nelson (2016:136) report on "zones of specially procured sediments such as ash and clay" as part of the deposits around these posts. Within the specially dug pits themselves, the authors found an "array of meaningful materials including bear and human remains, pipe fragments, and feasting debris" (Kassabaum and Nelson 2016:136, see also 143). The use of pipe fragments in these Coles Creek rituals (see also Carmody et al. 2018) provides us with a very different possible interpretation of the collections of smoking pipe pieces that we find are common at so many sites in the greater Northeast. To my knowledge, ritual use or disposal by Natives of smoking pipes that they created has not been mentioned, let alone studied.

While we know from the extensive literature that the ritual smoking of pipes at inter-cultural gatherings throughout the greater northeast was a well-developed behavior before the arrival of Europeans, this may have required the use of specific types of pipes (see Becker 1985). Very little information exists regarding this process, but we do know that in the Core Area of wampum use (Becker 2012b), the use of wampum in diplomacy overshadowed ritual pipe smoking for nearly 200 years (Becker 2012a). Only when wampum diplomacy came to an end, in the early 1800s, did the use of the calumet return to prominence in intercultural events.

The presence of a carefully modeled human face on one of the six ceramic pipe fragments recovered from the excavations on Tinicum Island provides a small addition to the small number of similar examples now known (e.g., Kostiw 2019:Figure 6 for a single example from New Jersey). All of these pipes with modeled faces may be terminal Late Woodland in date, but the lack of a single well dated example leaves this as speculative. The cultural association of tulip-bowl shapes among Native-made ceramic elbow pipes in general, and the variations on that shape, also merit specific attention.

The recent and much-vaunted Native smoking pipe research of N. Trubowitz (2004) purports to reveal much about cultural stability among Native peoples (Trubowitz 2000a, 2000b). These claims simply lack basic data. Trubowitz largely ignores the data from sites in Pennsylvania and fails to assemble as much information as has been gathered here. Thus, he misses the changes that are evident throughout the Woodland Period. On the other hand, the detailed and extensive information included in Thomson's (2012) research at the Susquehannock Strickler Site is valuable as a pivot point around which other research can revolve. Her efforts can be compared with samples dating from before and after the well-dated Strickler Site (36La3), at 1648-1665.

With vast numbers of European white clay smoking pipes being presented to, and purchased by Natives in the greater Northeast, the production of Native-made ceramic pipes for recreational uses appears to have come to an end by about 1700 CE. Calumets, or diplomatic pipes, are defined by stone bowls mounted on increasingly elaborate wooden stems. The sites listed above commonly include dates throughout the 1600s, but establishing a specific terminal date for Native-production has been more elusive and probably varies considerably. Indeed, the small Contact period West Creek site, which has no site number assigned, is located along the New Jersey Atlantic shore 40 kilometers north of Atlantic City. The 1,071 European white clay pipe fragments have production dates ranging from 1710-1750 (Fink 2017:106-109). While Native ceramics (sherds from bowls) were recovered at this location (Fink 2017:111), not a single example of a Native-made clay pipe was identified, strongly suggesting that the Lenopi indigenous occupants had utilized European-made ceramic pipes to replace their own pipe making technology by this time.

Conclusions

Scholars will find that the numbers of publications in which Native-made ceramic smoking pipes from the Northeast and Middle Atlantic are described in any detail are remarkably few. Associated provenance data is also generally lacking. The evidence suggests that the tubular pipes of the Early Woodland Period evolved from steatite Archaic Period prototypes (see Becker 1985). By the Middle Woodland period variations on elbow shapes began to appear, and by the Late Woodland period the elbow pipe form had become common. Further, changes in bowl design and decoration, such as the tulip shape, may have predated the introduction of European-made kaolin pipes in the early 1600s, an innovation that also appears to have led to changes in Native made pipe shapes. Imported European-made white clay pipes, of new forms and designs, were introduced and became increasingly frequent on Native-occupied sites during the Contact period, but traditional Native forms may have remained in use as late as 1700.

More traditional Native clay pipe forms may have persisted in ceremonial contexts, but the documentary record suggests that Native-made stone pipe bowls figured among the important elements of treaty deliberations and diplomacy. The use of wampum prestation (formal presentation with expectation of a return gift) came to overshadow smoking of the "peace pipe" during eighteenth-century diplomatic interactions, but reassumed primacy in the early 1800s as the role of wampum declined and ceased entirely as regards European diplomatic interactions (Becker 2012). Imported European made clay pipes appear to have remained entirely used for recreational smoking while certain Native products, in the form of increasingly elaborate calumets, retained formal and ceremonial usage, despite changes in the actual constructions.

Ultimately, the small collection (N=6) of Native-made smoking pipe fragments derived from a single site in southeastern Pennsylvania offers a few clues to the distribution of various bowl forms, as well as the decorative variations found within a single location. Comparisons with known examples from sites within the surrounding vicinity and from surrounding regional cultural zones, suggest that Native-made clay pipes may have had a wider range than I had expected during the Contact Period, perhaps as a result of European trade and other forms of cultural contact. Further studies, focusing on individual types of pipes, may offer clues regarding where and when specific bowl forms and shapes originated and were used.

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