

Archaeology of the Delaware River Valley



Annotated Bibliography

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The following annotated bibliography highlights archaeological research related to the Middle and Lower Delaware River Valley (at and below Trenton, NJ), and encompassing the present-day states of Pennsylvania, New Jersey, and Delaware. In some cases, sources with ethnographic information are also provided, as they may be useful for future archaeological studies. A few sources outside of this geographic scope have also been selectively included, to provide a broader regional context. Those looking for an overview of Indian archaeological sites specifically in the Upper Delaware River Valley should consult R. Michael Stewart's (2018) bibliography, cited in this work.

Unless otherwise noted, archaeological timeline follows (Stewart 2014 and Archaeological Society of New Jersey):

Paleo-Indian (*12,000 B.C. – 8,000 B.C.*)
 Early Archaic (*ca. 8000 B.C. - ca. 6500 B.C.*)
 Middle Archaic (*ca. 6500 B.C. - 4000 B.C.*)
 Late Archaic (*ca. 4000 B.C. – 1000 B.C.*)
 Early Woodland (*1000 B.C. - A.D. 1*)
 Middle Woodland (*1 to A.D. 900*)
 Late Woodland (*900 to A.D. 1600*)
 Contact (*A.D. 1609 -*)

Special attention for this bibliography has been given to sites of Late Woodland and Contact (Historic) Periods. However, many sites in the region were reoccupied over thousands of years. It remains difficult to document Contact Era sites in the Delaware River Valley, and many are likely lost to development. In other cases, a paucity of European trade goods sometimes lead archaeologists to propose earlier dates for the sites, when this may not always be the case.

The author of this annotated bibliography does not necessarily agree with the views articulated in all of the included works. Discrepancies can be found across sources. For instance, movement towards horticulture, the introduction of domesticates (especially maize), population estimates, and the spatial organization / seasonal (or annual) occupation of settlements, all continue to be “hot topics” in the region. New research also continues to be published related to the location of early colonial forts, and the interactions among Indians, Swedish, Finish, and Dutch settlers in the valley. This annotated bibliography is very much an active work in progress that attempts to capture some of these recent findings and discussions.

Relevant resources include:

Archives

Historic Preservation Office, Trenton, NJ

*Bureau for Historic Preservation, Pennsylvania Historical and Museum Commission,
Harrisburg, PA*

New Jersey Pinelands Commission, New Lisbon, NJ

Bulletins

The Archaeologist (Delaware)

Bulletin of the Archaeological Society of Delaware (ASD)

The Archaeological Society of New Jersey's Annual Bulletin

Pennsylvania Archaeologist: Bulletin of the Society for Pennsylvania Archaeology

The author would like to thank the New Netherland Institute, Richard Veit (Monmouth University), Jesse West-Rosenthal (NJ Historic Preservation Office), and Lu Ann De Cunzo (University of Delaware) for their assistance and support.

Abbott, C. C., 1892, *Recent Archaeological Explorations in the Valley of the Delaware* (Vol. 1), Boston, MA: Ginn & Company, Publication of the University of Pennsylvania series in Philology Literature and Archaeology, II(I).

Work first highlights prehistoric finds on banks of stream on island below Bordentown NJ, between Burlington and Bristol. Suggests the items were made in the upper river valley. Focuses on the material histories of argillite, jasper, paleolithic rocks above Trenton, as well as argillite. The argillite appears more widely distributed than jasper and quartz, has been found in South Jersey, Pennsylvania shores of Delaware and Northern Maryland. Examines burial customs on the East Bank of Delaware River (near Trenton, Bordentown). Though disturbance from plow is noted, author presents area as a “very large town” for “protracted periods.” Skeletons featured copper artifacts. Protective earthenworks suggest this was an enclosed area on the East Bank. Also mentions village site near Riegelsville, PA (Pechot-Woalhenk), allotted to the Shawnees by the Delaware in 1690-1728, and Indian and settler finds at Queen Ester Cave, north of Durham Creek. Across the publication, dates are not always provided.

Alexander, L. T., 1973, New light on Dutch clay pipes and the Baker "Crowned 5" Dutch Clay Pipe, *The Archaeologist* XXV(1):21-27.

Update on Dutch material clay pipes after another “fine” grade pipe, called the “Baker pipe” was found in Lewes, Delaware in 1967. Although it differed in size and was made of a different mold, this pipe had the same two markings (“Crowned 5” and Gouda Arms) as those found on the pipe discussed by Omwake (1967), also found in Lewes. This makes the pipe the second of its kind found in “America.” Provides illustration of main types of clay pipe bowls found in Holland from c. 1590 to c. 1930 based on research by D. R. Atkinson and a Dutch source, “Pijpkakers en Pijpmerken” by S. Laansma (1960). Argues there were three Dutch makers who used the "Crowned 5" mark: Dirk Bout, 1729 to sometime prior to 1746; Ary van Vliet, C.1740- 1746; and Jacob Scholten, 1759-1782. Based on these sources, the author offered c. 1760-1780 as a date for the Baker pipe.

Becker, M. J., 2019, Surface Survey and Ground Testing at Sam's Site (36Ch283): A Multicomponent Site in Chester County, Pennsylvania With a Nearby Shenks Ferry Occupation, *Pennsylvania Archaeologist: Bulletin of the Society for Pennsylvania Archaeology, Inc.* 89(2):63-77.

Site 36Ch283 or “Sam’s site” is located along the north side of Taylors Run in central Chester County, Pennsylvania. Though the site had been disturbed by amateur collectors, plowing and erosion, the area yielded a concentrated number of artifacts, including ceramics, and appears to have had little effect of downhill sliding. Because the site lacks stone tools and debri, a short occupation is suggested. Evidence of a post line (palisade?) and burial indicates the site may have been associated with a Shenks Ferry expansion or

relocation, perhaps around 1500 CE. Draws connections to the King-Spinelli Site and provides map of Protohistoric period peoples of Pennsylvania. Argues that Shenks Ferry peoples formed one of the confederated units of the Susquehannock, while the Lenape were hunter gatherers and only became agriculturalists out of necessity. This claim is refuted by Heinrich (2016). Aside from this “Shenks Ferry intrusion,” argues this site seems to have been used by the Minguannan Complex, a (Lenape) foraging tradition which continued well into the historic period (to about 1740 AD).

Becker, M. J., 2018, Fort Nya Göteborg and the Printzhof (36DE3): Archaeology and Ethnohistory of the first two European structures built in present Pennsylvania, *National Park Service Battlefield Preservation*.

Differentiates between two types of palisades: post-and-rail (primarily to keep in domestic animals) and the defensive type (“close-set and vertically placed pales set into a carefully dug trench”). Notes previous scholarship which argued the Dutch “bastion form” is distinguishable from other forms, though archaeological evidence has not confirmed or negated this argument. Differentiates between Indian and European constructions. Outlines major types of palisades, including full-post, split-post, post-and-rail, and contextualizes these “New World” constructions with a history of log construction in Europe. Discusses archeological developments relative to seventeenth-century constructions near Lewes, DE, Fortress Christina (near Wilmington, DE) and Johan Printz’s residence on Great Tinicum Island. Examines the construction for the palisade of Fort Ny Göteborg at site that was probably occupied by the Lenape as a fishing station. The post-and-rail palisade at Fort Ny Göteborg was a style commonly used by Swedish, Dutch, and English colonists, and is the same construction as the 1659 Dutch fort on Godin’s Bay.

Becker, M. J., 2016, The Raritan Valley buffer Zone: A Refuge Area for Some Wiechquaskeck and other Native Americans during the 17th Century, *Bulletin of the Archaeological Society of Connecticut* (78):55-92, http://digitalcommons.wcupa.edu/anthrosoc_facpub/43

Questions how the “Wiequaskeck,” north of Manhattan Island, were related to the Raritans or “Raritangs.” Presents the Raritan River Valley as a buffer zone, a “neutral trade route during the Late Woodland and Contact periods” (59). Drawing from historical documents, such as deeds, the author argues that the Wiequaskeck came to the Raritan valley from ca. 1635-7 (during the Pequot War) and remained for half a century. Proposes that Staten Island was a buffer region. Implicates Lenape groups along the Delaware River who moved overland through New Jersey into these territories.

Becker, M. J., 2015, Lenape (“Delaware”) Mail Carriers and the Origins of the US Postal Service, *American Indian Culture and Research Journal* 39(3):99-121.

Explores the role of Lenape mail carriers from the Delaware River to Manhattan Island in the seventeenth-century, citing ethnohistorical sources such as the writings of Isaack de Rasière, Johannes De Laet (1625), and Stuyvesant (1648). De Rasière mentions an overland route connecting the areas, traveled both by Lenape “runners” and the Susquehannock. The crossing on the Delaware was at “Mechechasou” at the falls of Trenton. This path crossed an Indian territory as late as 1679. Claims this overland was established soon after the Dutch erected a trading location on Burlington Island, circa 1623 to 1625 (102). Provides a table with mailing addresses on the South River, which refers to “Meggeckosjou” as a crossing point. Lenape seasonal movements for winter hunting, and the movement of many Lenape in 1660 to ally with the Susquehannock in the fur trade, influenced timing of post.

Becker, M. J., 2015, Native Mail Carriers in Early America. *Postal History Journal* (160):16-27.

Examines how the Lenape of the lower Delaware River sent letters between Fort Amsterdam on Manhattan and Dutch forts along the Delaware. Claims 1-95 largely follows this overland route across the state of New Jersey. Of particular import for archaeologists is the inclusion of a detailed Nicholaes Visscher 1656 map, reflecting the knowledge gained by the Dutch since Blaeu of 1635, particularly of the Indian settlements. Claims the Dutch Fort Nassau was on Burlington Island and was dismantled in 1651.

Becker, M. J., 2014, A Seed in Skokloster Castle, Sweden: Searching for the Origins of Eight Susquehannock Artifacts. *The Bulletin of the Archaeological Society of Delaware*, 51(New Series):35-49. Retrieved from http://digitalcommons.wcupa.edu/anthrosoc_facpub/ 36

Examines what are thought to be native North American artifacts which first appeared in 1710 inventory at Skokloster Castle as “Indian artifacts.” Since New Sweden was located along the Delaware River, author looks to the material culture of the Lenape and Susquehannock. He mostly discredits their potential as Lenape artifacts using claims from ethnohistorical sources that “River Indians were poor and had nothing but maize to sell.” For this reason the author focuses on the material culture of the “white Minquas (Susquehannock) and their “united nations” (*Tehaque, the Skonedidehoga, the Serasquacke, the true Minquas, and the Lower Quarter of the Minquas*) in the central Susquehannock River drainage. These fur traders were “militarily dominant” west of the river; in the 1650s they offered Swedes land, presumably to serve as a buffer from the Iroquois. Cites ethnographic and illustrated evidence from John Smith, who journeyed up Susquehanna River in 1609, as far as the *Nansemunds and Chisapeacks*, and was offered tobacco pipes and tobacco bags. The Susquehannock were illustrated with pouch or quiver, and wolf head pendant, both very similar to ones in the Skokloster collection. Also includes description of ungerminated, unaltered seed affixed to one of the artifacts (a

headress); the seed is a *Ranunculus bulbosa* (*St Anthony's turnip*), common in wetlands and meadows in Eastern US.

Becker, M. J., 2010, Late Woodland (CA. 1000 - 1740 CE) Foraging Patterns of the Lenape and Their Neighbors in the Delaware Valley, *Pennsylvania Archaeologist*, 80(1):17-31, Retrieved from http://digitalcommons.wcupa.edu/anthrosoc_facpub/54

Report synthesizes ethnographic and archaeological data about the Lenape (“Lenape”, “Lenopi”, “Sekonese/Ciconicin” and “Munsee”) of the Delaware River Bay and Valley. According to the author, Lenape culture became distinctive starting (1000-11100 CE, Middle - Late Woodland), with a marked shift from foraging to resource extraction (including cultivation of maize), alongside the “introduction of bow and arrow” in 1000 CE. Provides map that locates the different lands home to Lenape groups. Up and down the river, Lenape diet for most of the year relied upon anadromous fish and catadromous eel along feeder streams between and including Tohickon Creek (below Lehigh River) and Old Duck Creek (now Leipsic River). Argues that kin-related fishing bands of the Woodland era shifted to “matrilineal descent” around (1200-1500 CE), suggests fishing was women’s work, and women were “owners” of the home territory of the band, an ideology that lasted well into the 1700s. Between 1660 and 1740, groups shifted from fishing to a mixed foraging economy. Argues against year-round occupation of fishing stations, noting that no permanent structure has been located at such a site. Argues that fall harvests saw gatherings at one location, with arranged marriages. Marks 1660 as time when many Lenape moved to Central Pennsylvania for better access to the fur trade. Explains resource extraction for each group/geographic region of Delaware.

Becker, M. J., 2001, The 1659 Dutch fort on Pilottown Road in Lewes: Zwaanendael map re-evaluated, *Bulletin of the Archaeological Society of Delaware* 38:1-5.

Examines Dutch post-and-rail construction fort which was built south of the 7 June 1659 additional purchase of land granted to the Dutch from the Indians around Bombay Hook. Using archaeological reports, argues that the Zwaanendael map dates to 1659, and thus depicts a different fort than the Zwaanendael fort of 1631 on the Whorekil. Notes that we are still lacking scholarly knowledge of Dutch forts in both archaeological and written historical record. The diamond-shaped enclosure at Lewes is one prominent example of an early defensive work, but we lack information from the original excavations. The dates of ceramics or white clay smoking pipes from this site would have helped date the site, but these are inaccessible.

Becker, M. J., 1989, Lenape Population at the Time of European Contact: Estimating Native Numbers in the Lower Delaware Valley, *Proceedings of the American Philosophical Society* 133(2):112-22. www.jstor.org/stable/987042.

Site 36CH60 in Chester County (PA) was occupied during the historic period (ca. 1720 - 1733). Corroborates colonial documents with thorough surface survey and four seasons of excavation. Claims the Lenape were “foragers” before contact and remained foragers “well into the nineteenth century.” Argues that the total population could not be greater than 500. Delineates geographic and cultural boundaries between the Lenape and the Munsee, who he sees as culturally distinct groups. The boundaries are as follows: the southern boundary of Munsee territory is north of the Forks of the Delaware (PA). The Western boundary of Lenape territory is at the headwaters of the streams feeding the lower Delaware River, reaching westward to Susquehannock territory; and southward to Ciconicin territory at the Leipsic River. He argues that the Lenape are culturally different than the inhabitants of southern New Jersey. Because Lenape villages had not been found in archaeological record, argues that the Lenape were foragers in small bands, were not agriculturalists, and did not stockpile maize.

Boulanger, M. T., Lattanzi, G. D., Roush, C. C., and M. D. Glascock, 2017, Geochemical Analysis of Mica Source Specimens and Artifacts from the Abbott Farm National Historic Landmark (28Me1), *American Antiquity* 82(2):374–96. doi:10.1017/aaq.2017.1.

Mica appears at the Abbott Farm site (Trenton, NJ) in greater frequency than any other Early/Middle Woodland site in New England or Mid-Atlantic. Nearly all of the mica was found in storage pits at the site, at different stages of work/cutting. They were “likely destined for the production of mica crafts,” though it is possible that the rectangular sheets were their final form. Portable X-ray fluorescence (pXRF) and neutron activation analysis (NAA) were conducted to ascertain a chemical characterization of the mica, with the goal of identifying provenance-related geochemical differences. The majority of the mica artifacts exhibited a “single geochemical fingerprint... presumably representative of a single geological source.” The makeup was similar to Delaware and Chester County sources, south of Philadelphia. Because mica crafts do not often appear at regional Middle Woodland sites, the authors suggest that the mica may have been traded westward to the Hopewell core area of Ohio.

Cross, D., 1941, *Archaeology of New Jersey*, Volume 1, Archaeological Society of New Jersey.

Provides history of archaeology of New Jersey up to 1941, overview of petrology and typology of artifacts with illustrations. In relation to Delaware River Valley, provides report of following sites: Delaware Bay Drainage (East Point, Indian Head, Shemaker, Moore, Riggins); Delaware River Drainage (Salisbury, Goose Island, Kille, Miller, Woodbury Annx, Pine Hull, Gruno, Hurff, Smith, Wheeler, Koens-Crispin, Worrell, Locust Lane, Conti, Evans, Murray, Harvey, Bordentown (28Me37), Lenhardt-Lahaway Hill, Larrison, Red Valley, Young’s Nursery, New Sharon, Rosenkrans Ferry, Fairy Hole Rock Shelter). Data includes maps and artifact distribution lists, with classifications.

Dates of sites are not always provided, but European trade objects, when found, are noted. Of particular import for the Contact era is the Salisbury Site, an “extensive and permanent village” located one-half mile west of Bridgeport (Gloucester County). The site included seventeenth-century European trade goods, such as pipes of Dutch or English origins.

Cross, D., 1956, *Archaeology of New Jersey, Volume 2: The Abbott Farm*, Archeological Society of New Jersey and New Jersey State Museum.

Detailed overview of excavations at Abbott Farm Site on the Delaware River, at bluffs and the lowlands of the bluff. The burials were dated from at least late Early Woodland to the historic (Contact) period. Included stone, copper and clay industries, pottery (with illustrations). Due to a paucity of European trade material, the author suggests that the site may have been abandoned around the time of European arrival. However, the historical record suggests Indians lived in the area well into the eighteenth century. Some issues in dating related to mixed stratigraphy. There is some evidence that the site was occupied in the Paleoindian period (8,000 - 3,000 BC); finds from early Woodland are not well represented - yet relative depths of materials could be confusing these results. Cites historical references to King Mosilian (1634), Crosswicks population, Atsayongky, and Sankikanes - the latter were “around or above Falls of the Delaware at Trenton, North of Abbott Farm.” According to this research, in the Lower Delaware and tributaries, the Salisbury site is the only one with European trade material - otherwise trade material is “scarce or absent.”

Cultural Resource Group, Louis Berger & Associates, Inc., 1992, SS-2 and APEC storage service projects Woodbury lateral loop natural gas pipeline expansion archaeological investigations at sites 28GL111, 28GL205, 28GL206, 28GL209, and 28GL210: West Deptford and East Greenwich Townships, Gloucester County, New Jersey, prepared for Transcontinental Gas Pipe Line Corporation, Houston, Texas; East Orange, New Jersey. Vol. 1.

The SS-2 and APEC project areas are located on the Inner Coastal Plain of New Jersey. The surrounding area shows “expanding industrial complexes and residential areas” “rapidly encroaching upon agricultural fields.” Site 28GL111 showed Lackawaxen/Poplar Island (LPI) occupation, with projectile point manufacture, especially imported biface preforms of argillite and charred nuts. The authors suggest this site was associated with 28GL210 and was occupied by groups of the same size, though 28GL210 showed significant disturbance and provided no data on subsistence or seasonality. Phase III excavations at site 28GL206 revealed a series of occupations dating from the Late Archaic through the Late Woodland Period, with most cultural material found near “the head of a defunct springhead or drainage feature that runs into Nehonsey Brook.” The stratigraphy of the site had been damaged due to “root and rodent

disturbance and localized redposition through colluvial processes” as well as plowing. Regarding the Late Woodland Period, several Madison points were recovered; the site was possibly used to exploit a narrow range of resources such as hunting or plant harvest. Site 28GL209 had components dating to the Late Archaic through the Late Woodland. The eastern portion of the site (Area B) contained exclusively Woodland II (Middle and Late Woodland period) components, including 29 Late Woodland Overpeck Incised ceramic sherds, which were discovered in the plowzone during Phase III systematic tests. The site was heavily disturbed by plowing, and intensive dispersed testing failed to reveal any sub-plow features. Volume 2 of the same publication provides Figures and Plates. Volume 3 Provides Appendices.

Cushman, R. D., 2007, *The Context of Death: Burial Rituals in the Delaware Valley, Archaeology of Eastern North America: 153-160.*

Examines Indian burials from the Late Woodland (900 AD - 1620 AD) and Contact (1620 AD -) in the Delaware River Valley, especially to gain a better understanding of the cultural differences of Lenape and Munsee groups. Argues that status is not always well represented in mortuary contexts, but patterns regarding age and gender are suggested, and can be strengthened when viewed comparatively across several sites. Provides map of the excavations at the Lenhardt site, Burlington County New Jersey. Burials were found in the area denoted as "excavated" near the junction of Lahaway and Crosswicks Creeks. Argues that archaeologists should look more critically at the ritual and sacred use of space, including how graves and grave goods are classified vis-a-vis refuse pits and non-mortuary artifacts.

Custer, J. F., 2013, *The Indigenous Others of New Sweden: A Postcolonial View of Current Archaeological Data Concerning the Unami Lenape People at the Time of European Contact.* Paper presented at the Encountering ‘Others’ in the Atlantic World: Perspectives from the Material World,’ 375th New Sweden Anniversary Conference, 7-10 November 2013, Council for Northeast Historical Archaeology New Sweden History Conference.

ABSTRACT: “Recent archaeological studies of Woodland Period Native American sites in the central Middle Atlantic excavated very large areas of up to 30 acres. More than 2000 pit features were excavated. Detailed flotation studies of plant food remains produced datasets at a scale not previously available. New data contradicting previous reconstructions of pre-Contact Lenape culture include: 1)community patterns indicative of small residential groups of fewer than 3-4 families, not villages; 2)absence of agricultural plant remains even though remains of wild plant foods are present;3)a relatively continuous distribution of residential sites with no empty “buffer zones”; 4) very complicated and often ambiguous relationships among material culture markers of varied Algonkian-speaking social groupings suggesting a series of sophisticated weblike

peaceful social interaction networks that also included the Iroquoian Susquehannocks. Traditional reconstructions of Lenape culture at odds with new data may best be viewed as persisting triumphalist colonialist ideologies.”

Custer, J. F., 1987, Late Woodland ceramics and social boundaries in southeastern Pennsylvania and the northern Delmarva Peninsula, *Archaeology of Eastern North America*, 13-27.

ABSTRACT: “When motifs and ‘grammars’ of Late Woodland ceramic designs are analyzed for ceramics from the southeastern Pennsylvania, northern Delaware, and northeastern Maryland area, two distinct interaction zones are defined. One includes northern Delmarva and southeastern Pennsylvania and corresponds to the Minguannan archeological complex which is similar to complexes of the Delaware River Valley, coastal New England, the lower Delmarva Peninsula, and Virginia Coastal Plain. The second interaction zone includes the Shenks Ferry complex which is more similar to archeological complexes to the north and west. The zones show different settlement, subsistence, and organizational patterns. A major ethnic/cultural boundary is proposed with Minguannan-related complexes associated with Algonkian speakers and Shenks Ferry-related complexes associated with Eastern Siouan, or Iroquoian, speakers. It is further hypothesized that a Late Woodland migration could have brought Algonkian speakers into the coastal areas of the Middle Atlantic.”

De Cunzo, L. A. and W. P. Catts, 1990, Building a Framework for Research: Delaware's Management Plan for Historical Archaeological Resources, *Northeast Historical Archaeology* (19):1-49, <http://orb.binghamton.edu/nehavol19/iss1/1>

Overview of management plans in Delaware from 1986-1990. Outlines the 1989 Comprehensive Plan, with temporal periods/geographic zones and research domains for historical archaeology in Delaware, starting with 1630-1730 as the “exploration and frontier settlement” period. Objectives include: identifying trends and aspects of Delaware cultural history pertinent to archaeological research; identifying historical archaeological property types built on previous historical, geographical, architectural, and archaeological research; expanded secondary research to better situate themes, time periods, and geographies for historical archaeological research; devising a management plan to for Delaware's historical archaeological resources over the next five years. Emphasizes household/family structure, economic, occupational, ethnic, religious systems, production sites, trade sites, cultural and natural landscape, social group identity, early Dutch, Swedish, English period, comparative colonialism. Provides map of Delaware historical archaeological sites recently investigated within the research context of the *Management Plan*, cited as examples in this article. Proposes avenues for future archaeological research of domestic economic systems in the region, with the three

interrelated foci: architecture and land use, foodways, and self-sufficiency and market participation. Includes research questions.

Dunlap, A. A. and C. A. Weslager, 1958, Toponymy of the Delaware Valley as revealed by an early 17th century Dutch Map, *Bulletin of the Archaeological Society of New Jersey* 15:1-13.

Includes facsimile of map with Indian settlements. Could be corroborated with written and archaeological data.

Ekengren F., Naum M., and U. I. Z Wolfe, 2013, Sweden in the Delaware Valley: Everyday Life and Material Culture in New Sweden. In Naum, M. and J. Nordin (eds.) *Scandinavian Colonialism and the Rise of Modernity: Small time agents in a global arena*, New York, NY: Springer: 169-187.

Using interdisciplinary approach that privileges material culture, provides new insights on political, cultural, and environmental landscapes of New Sweden. Related to the archaeological history of the Delaware Valley, contextualizes finds from the Printzhof site and location of Swedish sites. Provides map of New Sweden on Delaware Valley, and details Swedish placenames. Traders in New Sweden often acted as intermediaries, trading European goods from the Dutch and English to the Indians for furs, and then reselling those furs for the European market. Points to Susquehannock sites as the best archaeological context to search for interaction with New Sweden, though European artifacts found on these sites might not discernibly be of Swedish manufacture. Some Susquehannock centers where European artifacts were found include: Roberts site on the Conestoga Creek, Lancaster County (ca. 1630– 1645), Strickler Site, Lancaster County, mid-seventeenth-century settlement at the height of Susquehannock power. The authors note that European trade goods did not disrupt but rather were integrated with Indian material culture, or worked to fit existing traditions.

Ekengren, F., 2013, Materialities on the Move: Identity and Material Culture Among the Forest Finns in Seventeenth-Century Sweden and America In Naum M. and J. Nordin (eds.) *Scandinavian Colonialism and the Rise of Modernity: Small time agents in a global arena*, New York, NY: Springer: 147-165.

Draws comparisons between the agricultural practices and building traditions of the Forest Finns in Sweden with the understudied Delaware Valley. Estimates that 30% of the settlers arriving in New Sweden from 1638 and 1654 were forest Finns. Forest Finns had different building traditions than Swedish farmers, including the smoke cabin (Fi. *pirtti*), the grain-drying shed (Fi. *ria*) and the smoke sauna (Fi. *savusauna*), and were known for their slash-and-burn agricultural practices; the latter faced judicial restrictions. Yet, by the end of the seventeenth-century the Swedish had adopted Finnish techniques, especially slash and burn and grain-drying sheds, while Finns intermarried with Swedes

and took on Swedish building styles and language. Unfortunately archaeological material related to these topics is scant, thus much of this chapter relies on written sources.

Fry, J. T., 2004, *Historic American Landscapes Survey: John Bartram House and Garden (Bartram's Garden)*, HALS No. PA-1, History Report," MS Report, U.S. Department of the Interior, National Park Service, HABS/HAER/HALS/CRGIS Division, Washington, D.C.: 1-134.

Using archaeological and historical sources, offers a thick history of property and gardens of Quaker John Bartram (1699–1777) on the west bank of the Schuylkill River in Philadelphia, PA. The gardens were founded by Bartram, a local of nearby Darby, in 1728 on land known as Aronameck, formerly the site of a 1648 Swedish plantation. The entire park, now a National Historic Landmark, runs alongside the lower Schuylkill and “extends from the CSX Railroad bridge south of Grays Ferry Avenue to 56th Street.” Artifacts (especially lithics, and some ceramics) recovered from this site during archaeological excavations indicate that Indians have occupied in this area from the Archaic to the Late Woodland Periods (ca. 3000 BCE - 1550 CE). However, no artifacts have been found within any features such as “postholes, pits, hearths, [or] house sites,” suggesting a “small-scale seasonal occupation” over a long period of time. One twenty-acre portion of Bartram’s Garden has been documented on the Pennsylvania Archaeological Site Survey of the Pennsylvania Historical and Museum Commission as a prehistoric site (36 PH 14). While no Contact-period finds have been located at Bartram’s Gardens or the nearby Woodlands, ethnographic evidence suggests the area is surrounded by Contact locations, such as to the south (Kingsessing) and on the eastern bank of the Schuylkill River (Passyunk). The author discusses local placenames and explores historical references to the Aronameck Plantation, in the vicinity of Bartram’s Garden, known to be occupied by Peter Jochimson (ca. 1618–1654) of New Sweden by at least 1648, and Hans Månsson (1612–1691) by at least 1653.

Gall, M. J., Veit, R. F. and R. W. Craig, 2011, *Rich Man Poor Man, Pioneer, Thief: Rethinking Earthfast Architecture in New Jersey*, *Historical Archaeology* 45(4):39-61.

Detailed overview of architectural structures and styles in New Jersey, potentially useful for in-situ archaeological comparisons in the Delaware River Valley. For the seventeenth-century, list includes two possible English constructions (ca. 1677-1689), at the Salisbury site in Gloucester County (NJ); the English-Quaker Woolston/Bunting Farmstead (1684-early 1700s) in Burlington County (NJ); possibly English Columbus Market Historic and Prehistoric house (late 1600s- ca.1720) in Burlington County (NJ); and French Huguenot David des Marest’s possible house ca. 1678-1720 in Bergen county (NJ). Some other Dutch constructions are mentioned, though these are dated mostly after

the seventeenth-century, such as the early eighteenth-century Dutch dwelling and workshop (28-Mi-891) in Middlesex County.

Grossman-Bailey, I. Phase III Archaeological Data Recovery at the South Broadway Site (28-CA-168): Realignment of South Broadway (CR 551), Newtown Creek (Mp 31.89) to Woodland Avenue (MP 32.36), Camden (NJ): RGA, Inc.

Phase III archaeological data recovery (archaeological fieldwork, background research, artifact and specialized analyses) at the NRHP-eligible South Broadway site (28-Ca-168) for the proposed realignment of South Broadway in Camden, New Jersey. Included five five-foot excavation units and mechanical excavation of five strip blocks covering a total area of 3,740 square feet (0.0086-acres). Over 1,000 prehistoric artifacts were recovered across Phase IB/ II/III. Nine prehistoric features were identified in Phase II and III (two hearths, five FCR clusters, two possible post stains). Archaeobotanical analysis, starch grain analysis, and macrobotanical analysis (wood charcoal fragments, carbonized plant material) were conducted. Based on this data, the site was dated from the Terminal Late Archaic to Early Woodland period. Proposed activities, based on short-term occupation, include cooking, plant processing, hunting, and limited tool manufacture. The site in question is likely part of a larger site of unknown size on the peninsular land-form setting.

Grossman-Bailey, I., Heinrich, A., Strohmeier, D., and J. Falchetta, 2017, Phase III Archaeological Data Recovery at the Newtown Creek Site (28-CA-167): Holtec Technology Center (New York Shipbuilding Corporation Site). Camden (NJ): RGA, Inc.

Phase III archaeological data recovery was conducted by RGA, Inc. (RGA) within core areas of the Newton Creek site (28-Ca-167) for the proposed Holtec Technology Center. Excavation included 32, five-foot square units in seven blocks, with a total area of 800 square feet. Together with Phase IB and II surveys, this encompasses an excavation of four percent of the 0.5 core site. Across Phase IB - Phase III, lithic artifact assemblage totaled 7,333, including mostly jasper and quartzite and featuring debitage, tools, cobbles, fire cracked rock, fragments; ceramic assemblage (n=125 sherds) featured Terminal Late Archaic/Early Woodland to Late Woodland period types. 21 faunal specimens were recovered, and 11 prehistoric features were documented, including: “an enigmatic ditch/structural feature, hearths, heated rock clusters/hearth remains, a pit, and possible posts.” Details starch grain analysis, yielding new information about Indian foodways and resource extraction, especially related to maize. Historical accounts suggest the potential for a Swedish or Dutch outpost and Dutch contact with Indians at the mouth of Newton Creek. Accelerated Mass Spectrometer (AMS) radiocarbon dates at the Newtown Creek site suggest occupation from Late Woodland and Contact periods, however no European trade goods were located during the excavation. Considering the

lack of Contact period artifacts (European trade goods) the site has been associated as primarily a Late Woodland occupation. Connects this site to nearby Gloucester City site (28-Ca-50), which does feature European trade goods.

Grumet, R. S., 1995, *Historic contact: Indian people and colonists in today's Northeastern United States in the sixteenth through eighteenth centuries*, Norman, Oklahoma: University of Oklahoma Press.

Contextualizes written and archaeological data to better address settlement patterns, industries, culture, exchange, and lifeways of Indian peoples in the American Northeast during the sixteenth and tumultuous seventeenth and eighteenth centuries. In particular, his chapter, 'Munsee Country' addresses the groups living between and across Pennsylvania (near today's Easton), western Long Island, and the upper Delaware and lower Hudson River Valleys. Explores traditions in pottery and iconography, including images. Maps historic archaeological contact sites throughout the region, with archaeological labels, and provides sources when known. Mentions that production of tubular shell beads was common among these groups during the 1500s. While the geographic scope of this chapter focuses on the Upper Delaware region, will be useful for scholars looking to situate Lower Delaware groups within a broader regional context. The following chapter, 'Nanticoke Country,' similarly situates the culture, lifeways, and traditions of Indians in the central portion of the Delmarva Peninsula from southern Delaware to the state line of Virginia. Maps historic contact sites near today's Milford (DE), Lewes (DE), Rehoboth Beach (DE), among others.

Gundy, B. J., 2003, New Castle Hundred Church Road (Wynnefield to 5.R. 71) Improvements, Geomorphology Report Prepared for the State of Delaware Department of Transportation, Delaware.

The Church Road Improvements project spanned the areas of Fort Casimir, New Amstel, and New Castle, sites possibly linked to seventeenth and early eighteenth century exploration and frontier settlement. However, the report found that given the specific location of the planned improvements: "the potential for in situ pre-contact and or historic period archaeological resources [was] non-existent."

Harris, M., 2007, A Middle Woodland Settlement System in the Schuylkill River Valley, Southeastern Pennsylvania, Unpublished Master's thesis, Department of Anthropology, Temple University. Accessed March 2020.

Provides thick context for settlement in the Susquehannock River valley and sheds light on spread of domesticates, ceramics, population growth, and changing settlement patterns in the surrounding region, including up and down the Delaware River. Offers review of

Early Archaic to Late Woodland Periods. New findings of Late Woodland Overpeck incised sherds at sites on the Schuylkill River (36MG395) and Perkiomen Creek (36MG407) suggests the potential for later occupation than previously assumed. Compiles, maps, and analyzes a number of findings related to the Fox Creek phase (A.D. 200 – A.D. 800) settlement system from the Pennsylvania Archaeological Site Survey Files, environmental review (CRM-ER) reports, and PHMC's prehistoric artifact inventory. Presents new archaeological data from excavations in the Schuylkill River Valley and into Southeastern PA, also related to this Middle Woodland occupation. Suggests a distinctive settlement pattern, and presents three models for regional interaction (including strong ties) with the middle Delaware Valley.

Heinrich, A. R., 2016, Lenape Horticulturists: Moving the 'Maize Debate' Forward in the Lower Delaware River Valley, *Journal of Middle Atlantic Archaeology* 32:9-25.

Divides Delaware River Valley by two major cultural groups: one north of Raritan River in central NJ that spoke a Munsee Algonquin dialect and another south of the Raritan river that spoke Unami dialect. These groups were organized into bands along river drainages on both sides of the river. Addresses previous assumptions that the Lenape of the Lower Delaware River Valley were mobile foragers throughout the Woodland period, while surrounded by horticulturists to the north, west, and south. Cites lack of evidence of cultigens at archaeological sites for this misconception. Uses written record and archaeological comparisons to contradict the forager hypothesis and the hypothesis that women primarily fished, as argued by Becker (1999). Presents archaeobotanical evidence from Gloucester City Native American Archaeological historic district of cultivars and wild plants such as grasses (maize, bristlegass, little barley/wild rye), sunflower, and squash. In particular, evidence of maize was found on a ceramic style from 200 CE – 800 CE beneath "house pattern with a post mold" with radiocarbon dates of c. 885-995 CE. Also presents phytolith analysis showing that these Lenape groups modified their landscape significantly, especially along a "now-extinct tributary." Argues there is no archaeological or ethnographic evidence that the Lenape ratcheted up their maize production to sell to settlers, rather claims it is likely the Lenape were harvesting maize in greater yields already.

Huey, P. R., 2005a, The Archaeology of 17th-Century New Netherland Since 1985: An Update, *Northeast Historical Archaeology* 34(Article 6): 95-118, <https://doi.org/10.22191/neha/vol34/iss1/6>.

Details insights from excavations and written data in Albany (Beverwijck) from research especially in the late 1980s-1990s; focused especially on New Amsterdam and other places along the Hudson River. Documents important works in the study of Dutch / New Netherland material culture (ceramics, utensils); New World Dutch architecture and

furnishings. Seventeenth-century Dutch artifacts can also be found at French fort in today's Maine, Fort Ninigret in Rhode Island, Iroquoian sites near Lake Erie, and elsewhere. References 1986 dig at New Castle, Delaware, where mid-seventeenth century Dutch majolica and other ceramics were found at site of Fort Casimir, built by the Dutch in 1651 and captured by the Swedes in 1654. Dutch artifacts also found near Chesapeake Bay in Maryland at site of Charles Calvert's residence (1665-1700), and a large number of Dutch artifacts also were found at Compton site (1651-1684) in Calvert County (MD) - as evidence of "highly intense Dutch trade in Maryland during the mid 17th century." Similarly suggests Dutch trade with the Susquehannock of Pennsylvania, discussed in work of Barry Kent (1989). Reflects with a more global perspective on recent archaeological work of seventeenth-century Dutch material culture could be useful for comparative approach. Also charts developments within the Netherlands for seventeenth-century Dutch ceramics, glass, and other artifacts based on excavations. Suggests marbles may be an ethnic marker, as they are found at Dutch sites but not English.

Huey, P. R., 2005b, An Annotated Bibliography of Selected Sources on the Archaeology of Old World Dutch Material Culture in the 16th, 17th, and 18th Centuries, *Northeast Historical Archaeology* 34 (Article 7):119-189, <http://orb.binghamton.edu/neha/vol34/iss1/7>.

Lists and describes some of the many sources that relate to the archaeology of the Netherlands of the sixteenth, seventeenth, and eighteenth centuries. Wrecks of Dutch ships of this period en route to or from the Netherlands are also included.

Immonen, V., 2011, Farming and Brass Kettles as Forms of Colonial Encounter: New Sweden from an Archaeological Perspective, *Scandinavian Studies* 83(3):365-86, www.jstor.org/stable/23075473.

Reflects on recent historical research on New Sweden. Adds to this with an archaeological perspective which is entirely absent in these works. Claims seventeenth-century European sites are lacking identification and excavation in the Delaware River Valley because of industrialization, destructive modern land use, and other methodological problems. Offers overview of architectural structures from New Sweden, most notably churches (originally log constructions) and some Delaware Valley homes attributed to the Swedish, including Printzhof. All forts have since fallen, and several have not been located exactly. Details land-use, construction, site organization, and cultural features of Swedish and Finnish settlers to New Sweden. Cites copper as an important material for Dutch traders. Situates kettles in "old world" trading contexts between the Swedish and Sami peoples in fourteenth and seventeenth centuries, as a comparative backdrop for the circulation of and new meanings generated by kettles among the Lenape of the Delaware Valley.

Jones, E. E., and S. N. DeWitte, 2012, Using spatial analysis to estimate depopulation for Native American populations in northeastern North America, AD 1616–1645. *Journal of Anthropological Archaeology*, 31(1):83-92.

Looks beyond historic sources to estimate population loss and chart depopulation among Northeastern Indian groups, including the Minisink and Susquehannock. Because these groups lack historic population estimates, the authors employ the spatial interpolation technique of kriging to estimate depopulation rates among such groups where population data is absent. From AD 1616 to AD 1645, the authors estimated a depopulation rate ranging from 35% to 98%, with the greatest disturbances along and between the Connecticut and Hudson Rivers. Patterns for population include: “Multiple diseases and their impact on immune competence,” “Settlement location and type,” and “Genetic variability.” Their results, when compared to other depopulation rates elsewhere in the US, suggest that kriging is a viable method for demographic analysis, when reliable data exists elsewhere in the region.

Kraft, H.C. and R. Mounier, 1982, The Late Woodland Period in New Jersey (ca. A.D. 1000 - 1600), in Chester, O. (ed.), *New Jersey's Archaeological Resources from the Paleo-Indian Period to the Present: A Review of Research Problems and Survey Priorities*, Office of Cultural and Environmental Services, New Jersey Department of Environmental Protection, Trenton, New Jersey: 139-184.

Overview of archaeological research related to the Lenape of today’s New Jersey as of 1982. Includes maps of “known or suspected” sites of Late Woodland occupation. When published, most research focused on north of Delaware Water Gap. Many sites below the Gap likely have been lost to development, however some could be preserved under parking lots and other modern features. Typifies ceramics, lithic, and organic artifacts as diagnostic of the Late Woodland Period; location and organization of Late Woodland sites; culture history and chronology of the period; the state of archaeological research related to this period; and biases and limitations of research. Provides information for responsible management of archaeological resources going forward, including future research questions.

Kraft, H., 1974, *A Delaware Indian symposium*, Pennsylvania Historical and Museum Commission Anthropological Series No. 4, Harrisburg, PA, 160 pp.

Discusses trade between Europeans and Delaware Indians from the 1600s to the 1700s. Elaborates on Lenape social and political structure, as well as cultural practices, like naming.

Krofft, H. E., Peckler, D., Calhoun, E., and K. S. Barile, 2014, Phase II Archaeological Testing of Site 7NC-F-171 in New Castle County, Delaware, Prepared for Delaware Department of Transportation Prepared by Dovetail Cultural Resource Group.

Phase IB archaeological survey and Phase II evaluation along the U.S. Route 301 Spur for the Delaware Department of Transportation (DelDOT). Much of the land in this Route 301 project area was granted to Augustine Herman in the mid-seventeenth century as “St. Augustine Manor,” from Delaware River westward to Choptank Road. Herman also owned “Bohemia Manor.” However, the project area was considered most relevant for the historical period of 1770-1830, and was damaged by flooding. The following activities were conducted: archival research for thorough historical context of the area; intensive pedestrian survey and mapping for above-ground and subsurface features and artifact clusters; test unit excavation; and site-wide soil chemistry samples (2-3). Environmental overview of Black Creek Tenant Site in west-central New Castle County, Delaware is given, as is history of land use in area to present day. An occupation layer dated to the eighteenth-century was documented, as well as some assemblages, but no cultural features were identified during the excavation. Site was not recommended eligible for the NRHP under Criteria A-D (i).

Lattanzi, G. D., 2007, The Provenance of Pre-Contact Copper Artifacts: Social Complexity and Trade in the Delaware Valley, *Archaeology of Eastern North America* 35:125-37, www.jstor.org/stable/40914516

Situates the copper debate in the Delaware River Valley - previous scholarship has argued that the Adena culture in the Midwest brought copper to the Northeast, while later scholars argued that the Adena artifacts and burial rituals were brought into the region through trade networks from the Archaic into the Woodland period. More recent studies indicate that the copper was from more local sources in the Northeast. The study involves 10 Copper artifacts, previously excavated and amassed from five archaeological sites (four in NJ, 1 in PA) for an ICP-MS study, with the goal of locating major trace elements to determine their geological source. The chemical composition of the Middle and Late Woodland artifacts indicates they are from local sources, such as the Franklin Mine (NJ), or the Cornwall Mine (PA), rather than the Midwest. Two Late Archaic artifacts (“Old Copper Culture spear points”) appear to be from the Great Lakes area. More research is needed to highlight Delaware Valley regional and cultural diversity during the Early Woodland period.

Liebeknecht, W., Cress, G., Tvaryanas, D., and I. Burrow, 2002, Survey, Evaluation, and Construction monitoring of onshore and submerged archaeological resources at Proprietor’s Park, City of Gloucester, Camden County, New Jersey, On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

Survey and evaluation of submerged and onshore archaeological resources at Proprietor's Park along Delaware River in Gloucester (NJ) for the protection of the park from seabank erosion due to the failure of existing seawall. The excavation was conducted in the southwest area of the old town of Gloucester, (established mid-1680s). It was also considered likely that the site was one of earlier American Indian and European occupations, as it is surrounded by other sites with dense occupation. Survey and onshore excavation of shovel tests in areas affected by proposed improvements were conducted by Hunter Research Inc. Includes typology of found diagnostic artifacts and ceramic diagnostics dating from Late/Terminal Archaic to Late Woodland periods. Decorated tobacco pipe fragments and faunal material were also found and described. Excavation suggests a "dense and complex prehistoric Native American occupation" beneath the park. One uncovered feature, named 28CA101, was linear and parallel to the presumed line of early historic riverbank, and is thought to be a southern extension of the predominantly late prehistoric occupation documented to the north. This occupation extends for at least 1500 feet along the riverfront from the coast guard site to the south of the original ferry site at Gloucester Point in the park. Connects this data with adjacent sites 28Ca50 (Maar Associates Inc. 1985) and Coast Guard Station site (Louis Berger & Associates Inc. 1994) showing plentiful evidence of prehistoric occupation with greatest intensity falling into the Late Woodland Period (AD 1000-1600). Includes Appendix E: New Jersey State Museum Site Registration Form, with coordinates of the site.

Liebeknecht, W. B., 1986, "The Fort Elfsborg Spoon," *Bulletin of the Archaeological Society of New Jersey*, 40:45-46.

Analysis of a pewter spoon found in 1980 on the shore of the Delaware River near Elsinboro Point, Salem County, New Jersey, tentatively dated to the mid-seventeenth century. Elsinboro Point was the site of the New Swedish Fort Elfsborg from 1643-1653, though the exact location of the fort was not known at time of this publication. Similar pewter spoons have been found at Tinicum Island, occupied by Governor Printz (1643-53). The author conjectures that the spoon in question may be made from the same mold as the spoons on Tinicum Island, as they are similar in size and have distinguishing mold markings. These spoons were analyzed by Harper (1978).

Louis Berger & Associates, Inc., 1994, Survey and Evaluation of Historical and Archaeological Resources at the Former United States Coast Guard Station, City of Gloucester, Camden County, New Jersey, On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

Phase I and II historic and archaeological survey at site of former Gloucester City Coast Guard Station. Recovery of prehistoric resources indicated occupations spanning Transitional/Late Archaic, Early/Middle Woodland, and Late Woodland Periods. Shovel tests demonstrated that intact or nearly intact prehistoric remains are distributed over the

entire property, except for isolated areas in the eastern and western margins.

Archaeological investigations yielded a total of 2,494 prehistoric artifacts. These remains came primarily from the plowzone, buried A and B horizons. Diagnostic artifacts (lithics, ceramics) from these contexts indicate prehistoric occupation over several thousand years. Most of the ceramic material was from Late Woodland, but also included Early Woodland and Middle Woodland types. The majority of the diagnostic lithic material also dated to the Late Woodland.

MAAR Associates, Inc., 1985, Data recovery at 28-Ca-50 Gloucester City, New Jersey. On file, New Jersey Historic Preservation Office (NJDEP), Trenton, New Jersey.

Archaeological investigation at Site (28-Ca-50) in Gloucester City (NJ) shows Late Archaic, Late Woodland, Contact, and early historic occupation. The evidence of Late Woodland occupation is most prominent. Excavation uncovered Woodland ossuary, over one-thousand prehistoric objects (mostly lithic debitage, fragments of diagnostic tools, and ceramic sherds), twenty-one cultural features (mostly interpreted as hearths). Contact-era finds include Spanish Real silver coin, and trading beads and tokens.

McEachen, P. and V. Bourgeois, 2004, The Edwards Run Site (28-Gl-304), East Greenwich, New Jersey. Paper presented at the 69th Annual Meeting of the Society for American Archaeology, Montreal, Canada.

Documents the surface find of a brass gangler, associated with the Contact Period, at the Edwards Run site (28-Gl-304) in East Greenwich Township, Gloucester County, NJ.

Mounier, R. A., 2003, *Looking beneath the surface: the story of archaeology in New Jersey*, New Brunswick, New Jersey: Rutgers University Press.

Useful and expert overview of archaeological history of New Jersey, focusing on the area's Indian past. Bibliography includes references to original archaeological reports. Counterpart to Veit (2002).

Multiple Authors, 2013-2015, Special Edition: The Abbott Farm National Historic Landmark, *Bulletin of the Archaeological Society of New Jersey*, Stewart, R. M. and B. Obermeyer (guest eds): Vol. 68-70.

Special edition, multi-author bulletin focusing on the archeological work of Charles C. Abbott and recent developments related to the archaeological sites at the Abbott Farm National Historic Landmark (near Trenton, NJ) since Abbott's fieldwork in the late 1800s. Articles cover the following topics: regional (pre)history and the Delaware peoples; a summary of archaeology at Abbott Farm; Middle Woodland Abbott Ceramics; local Delaware placenames; language, ethnography, and oral traditions and cultural

affiliation; and mortuary (pre)history. Lastly, Andrew Martin explores the excavations of Ernest Volk (1894-1895) at the Lalor Field at Abbott Farm (28-ME-1).

Omwake, H. G., 1967. A Unique Dutch White Clay Pipe. 1- *The Archeologist* (XIX), 1:1-4.

Study of Dutch pipe of “fines” quality found between Lewes Beach House and Delaware Bay at Lewes, Delaware. Two marks were identified: a crowned 5 maker’s mark on the bottom of its small heel, and a supplemental arms of the city of Gouda in relief on the left side of the heel. Since the crown 2 dates to 1679, it is estimated that crowned 5, of an unknown maker, came into use in the final quarter of the seventeenth century. The Gouda mark was authorized by the provincial government in 1739 as a way to differentiate between ordinaires, since Amsterdam merchants were known to mix fine pipes with those of inferior quality (3). In 1740 this was amended - if the pipe was of ordinary quality, a capital S (*sleight*, ordinary) and the arms of Gouda were placed on both sides of the heel or bowl, while the single arms indicates a fine pipe. Therefore a bowl with the single arms of Gouda cannot be earlier than 1739, while one with double arms dates no earlier than 1740. This Lewes Specimen is unique because it has an obtuse angle, which is seen as a seventeenth-century trait, but its marks preclude dating before 1739. The author tentatively dates the pipe to the last quarter of seventeenth-century.

Omwake, H. Geiger, T., Stewart, D., Blake, M. C., and J. Witthoft, 1963, "Report on the Townsend Site near Lewes, Delaware," *The Archeologist* XV(1), Printed by The Leader, Seaford, DE.

At Townsend excavation, found pieces of small yellow Dutch “bezand” Ijsselbricks, kaolin pipes, European ceramics and glass. Bricks similar to Townsend examples were made in Friesland, Northern Holland as early as the last quarter of the sixteenth century until ca. 1850, and have also been found in-situ in a seventeenth-century fireplace on Maspeth Long Island, in an area first settled by the Dutch. Most pipes were similar to English types and had English marks, though one pipe’s mark (featuring a milkmaid) could be traced to a Guida guild, 1660. There is a small possibility that the site was that of an Indian town contemporaneous to Swanandael, but authors suggest that its Indian occupation was likely several decades prior (proposes date of 1570). There is little trace of post molds because of the sandy soil, but evidence from pits between houses and material culture indicate the long history of the site. The Indian pottery, with tin rope or strand of clay coil construction in particular corresponds in its distribution to Nanticoke, and most closely relates to Rappahannock or Chickahominy wares of coastal Virginia and of the Chesapeake. Shell-tempering appears to be an old trait from the coastal Middle Woodland tradition, and vessel forms and decorative motifs were also similar to coastal motifs. Authors suggests that Abbott Zoned ware was an ancestor for the Townsend

Incised. European arrival appears to have caused social upheaval, disorganization, and depopulation, and is notable in the archaeological record of the site.

Pagoulatos, P., 2007, Native American Contact Period Settlement Patterns of New Jersey, *Bulletin of the Archaeological Society of New Jersey* 62:23-40.

Overview of archaeological reports in the Delaware River Valley, drawing from files at the New Jersey State Museum. Sites of particular interest for the Contact era include: Grantberry Farm (Burlington County), Sandhicky (Burlington County), Farnum Park (Camden County).

Pietak, L. M., 1995, Trading with Strangers: Delaware and Munsee Strategies for Integrating European trade goods, 1600-1800. PhD Dissertation, Department of Anthropology, University of Virginia.

Examines archaeological and ethnographic data reflect upon the circulation of European goods among the Delaware and Munsee groups of the Delaware River Valley and surrounding areas. Focuses on personal ornamentation in mortuary contexts, where these goods are most frequently documented. For instance, at Overpeck site (36-Bu-5) in Bucks County (PA), along Delaware River, conch shell cores were found accompanied by a single shell bead, suggesting wampum production.

Schmidt, G., 2009, Preliminary Analysis of Clay Tobacco Pipes at Avery's Rest, *paper draft*, Delaware Historical and Cultural Affairs, Digital Archive.

The Archaeology Society of Delaware (ASD) began field work in fall 2006 until 2008 at Avery's Rest (7S-G-57). Surface collections were performed across the whole site. Plow-zone removal in selected areas revealed many shallow features, thought to be daub pits, outbuilding post holes and homestead work areas. Additionally, two well features were excavated. The pipe fragments were kaolin white clay imported pipes. Only two identifiable pipe bowls were located; though neither had a maker's mark. Provides histograms for the bore diameter of the 141 pipe stem fragments found in the plowzone. A Bimodal distribution was found in their measurements using the Binford dates, suggesting perhaps two occupations of the site (one in 1730, another in 1682). Similar bimodal distributions were found in the measurable pipe stem fragments found in the surface infill of a well feature (Feature 11), found during the excavation. It is proposed that Feature 11 dates to the late 1600s.

Schindler, B., 2008, Rethinking Middle Woodland Settlement and Subsistence Patterns in the Middle and Lower Delaware Valley, *North American Archaeologist*, 29(1):1-12.

Studies of Indian subsistence and settlement patterns along the Lower and Middle

Delaware River during the Middle Woodland (1 - 1000 AD, as defined by author) have mostly focused on annual, brief exploitation of anadromous fish in river-feeding streams. This narrowed exploration should be expanded to focus on “other phases of anadromous fish life cycles” and “other migratory fish.” The author argues that fish would have been available on a broader basis, “almost continuously from March until November,” meaning the exploitation of this resource would not need to be as dramatic in order to generate surpluses for storage. These findings have implications for social organization, indicating that large work groups would not have been necessary to take advantage of the resources. This means settlement patterns “may have consisted of small groups residing at prime fishing locations on a year-round basis” with “logistical forays for diet supplementation and resource-procurement.” The author contextualizes these findings by references fishing locations possibly linked to the Abbott Farm site.

Schuldenrein, J., 2003, Landscape change, human occupation, and archaeological site preservation at the glacial margin: Geoarchaeological perspectives from the Sandts Eddy Site (36Nm12), Middle Delaware Valley, Pennsylvania in Cremeens, D. L. and J. P. Hart (eds.), *Geoarchaeology of Landscapes in the Glaciated Northeast*, Albany, NY: *New York State Museum Bulletin* 497:181-210.

Deep-time study of Sandts Eddy Site a multicomponent, stratified site containing some Woodland and Contact period material but more significant intact, and deeply buried Early and Middle Archaic Period components. Analysis provides raw sedimentation rate data for the most deeply stratified and accurately reported archaeological sites along the Delaware Valley. In total, six sites were selected, spanning a linear distance of 160 stream km. The study reconstructs the Holocene floodplain to reflect upon site formation processes related to the occupation strata and models the regional geoarchaeology of the Middle Delaware Valley based on correlation and projection with existing cultural and alluvial stratigraphies. Presents stratigraphy and soil-sediment analysis, an integrated cultural and sedimentary stratigraphy, landscape history, archaeological preservation potential by archaeological component, and a correlation of prehistoric landscape histories of Middle Delaware Valley sites. Research suggests fruitful paths for future models of Holocene human paleoecology.

Springate, M. E. and Richard Grubb & Associates, 2011, Early Settlement at Bombay Hook, Kent County, Delaware, Paper presented at the 4th Annual Symposium on the Early Colonial Archaeology of the Delaware Valley, New Castle Courthouse Museum, New Castle, Delaware, Saturday May 14, 2011.

Richard Grubb & Associates was contracted to assist the United States Fish and Wildlife Service with Archaeological Overview and Assessment for Bombay Hook National Wildlife Refuge (approx. 16,000 acres, est. 1937) and almost 5,000 surrounding acres.

Study included palaeoenvironmental, pre-contact, contact period, and historic contexts for archaeological resources within the refuge and site predictive models that determined the likelihood of areas to contain pre-contact and historic archaeological resources. Site relatively undisturbed - several early features can be seen - such as marsh improvements and roads. Bombay Hook (Boomtjes Hoeck, “tree point”) on the Delaware River was an important geographic marker for land transfers and divisions during the colonial era. Huguenot Peter Bayard, likely first colonial settler in the area, purchased Bombay Hook Island in 1679, can find reference in Dankaerts’ journal, and in 1680 census. Shortly after relocated to Dankaerts Labadist community at New Bohemia Manor - location unknown - perhaps underwater or washed away. Authors note that upland areas on the island are “sensitive.” Report also details late eighteenth century and maps of the area. Site later became a stop for the underground railroad.

Stanzesi, A. J., 1981, Quahog “shell tools,” *Bulletin of the Archaeological Society of New Jersey* 37:15-18.

Details the quahog shell tools found at excavations at the Pennella and Tuckerton Shell Mound sites in Tuckerton, NJ. The shells, dating to 1530 to 1810 years BP, were likely used in processing shellfish.

Stewart, R. M., 2018, *References Relevant to the archaeology of Native Americans in the Upper Delaware River Valley of New Jersey, New York, and Pennsylvania*, New Jersey Historic Preservation Office Trenton, New Jersey.

Author’s note: “The New Jersey Historic Preservation Office has sponsored a review of published and unpublished materials related to the Native American archaeology of the Upper Delaware Valley as part of an alternative mitigation. This review is the basis for a series of forthcoming topical essays updating and synthesizing aspects of the archaeological record of Pre-Contact and Contact times in the region. The essays will provide contexts and highlight research issues to aid future academic and cultural resource investigations that involve this portion of the greater Delaware Valley. For the purposes of this project the Upper Delaware was defined by portions of the drainage basin that exist in the following states and counties: New Jersey: Warren and Sussex counties New York: Orange, Sullivan, Delaware, and Broome counties Pennsylvania: Monroe, Pike, and Wayne counties.”

Stewart, R. M., 2014, "American Indian Archaeology of the Historic Period in the Delaware Valley," In Veit, R. F., and D. Orr (eds.), *Historical Archaeology of the Delaware Valley, 1600-1850*, Knoxville, Tennessee: The University of Tennessee Press, 1-48.

Overview of the settlement patterns history of pre-contact and contact-era Indian groups in the Delaware River Valley. For the "contact period," relies heavily on written historical documents. When European trade goods are found in Indian sites, they are most often located in mortuary contexts. European trade goods have not been as readily documented in archaeological sites in the lower Delaware River Valley. There is a tendency to believe that a paucity of European trade goods means the site was abandoned during European contact era, as Cross (1956) proposed in her study of the Abbott Farm Site. However, later excavations showed this was not the case. Notes that an exhaustive review of NJ State Museum files has not been conducted since Pagoulatos (2007).

Stewart, R. M., 2007, Assessing Current Archaeological Research in the Delaware Valley, *Archaeology of Eastern North America*, 35:161-174.

Knowledge about what role European goods (found in Indian graves) played in Indian mortuary rituals is still not well known. Questions are also geared towards the way fishing shaped social structure - for instance, was it a large group activity? Did it shape the timing of settlement movements? Addresses developments in starch grain analysis and plant use, sediments, soils, and geomorphology in the Delaware Valley up to paper's publication. Scholars interested in more recent developments in botanical record should see Heinrich (2016), Grossman-Bailey et. al (2017), cited in this annotated bibliography.

Stewart, R. M., 1993, "Comparison of Late Woodland Cultures: Delaware, Potomac, and Susquehanna River Valleys, Middle Atlantic Region," *Archaeology of Eastern North America* 21:163-78, www.jstor.org/stable/40914371.

Study of Late Woodland environmental diversity and agriculture, and community patterns across three major drainage basins (Delaware, Susquehanna, Potomac). Sets date for maize in the Middle Atlantic Region as A.D. 900 / 1000, correlated with the erection of sedentary settlements within major floodplains. In the Delaware Drainage Basin, the earliest date of corn (AD 940) was found at Trenton. Discusses the overlap between the cultigens maize and cucurbita sp. with Clemson's Island and Owasco cultures in the middle and upper sections of the Susquehanna Valley (AD 700/800); these sites became more nucleated and ultimately fortified between 1200 and 1300 A.D. Less is known about the Late Woodland period in the Lower Susquehanna Valley, though it appears maize, bean, and squash were used by 1300 A.D., correlated with the Shenks Ferry occupation. Lack evidence to suggest that the Lower Susquehanna Valley was occupied prior to A.D. 1300. In the 1500s, Susquehannocks, coming from Southern New York,

settled in the lower valley of the Susquehanna River, trading across the three drainage basins in this study. Discusses settlement patterns in the Upper Delaware River during the Late Woodland period (Pahaquara culture) as small hamlets located close to floodplains, with networked hunting/gathering camps and stations, all which may have been occupied seasonally. This pattern can also be seen in the middle and some lower portions along the Delaware by A.D. 1200/1300. Regarding hamlet-like settlement pattern at Gruno Farm Site (Evesboro, NJ), it is “likely that this settlement and subsistence pattern dates as early as A.D. 900. Claims there is “uneven levels of social development throughout the region” with the Delaware basin exhibiting “slower rate of social and community development.”

Stewart, R. M., 1996 [1987], *Gropp’s Lake Site (28Me100G), Data Recovery*. Trenton Complex Archaeology: Report 2. Revised edition, The Cultural Resource Group Louis Berger & Associates, Inc., East Orange, New Jersey, Prepared for the Federal Highway Administration and the New Jersey Department of Transportation, Bureau of Environmental Analysis, Trenton.

Radiocarbon dates suggest the Gropp’s Lake Site (28Me100G) was sporadically occupied from at least 2420 BC until circa AD 1520. Susquehannock ceramic sherds (Shultz Incised Ware, 1575-1620), often attributed to the Susquehannock of the last quarter of the sixteenth century and the early seventeenth century were found in late deposits, suggests trade with Susquehannock and occupation beyond 1520. The most intensive use of the site probably occurred in Middle and Late Woodland, with a high frequency of triangular points and ceramics dated after AD 800. In Middle-Late Woodland, most activities centered around hearths, distributed in a small area. Suggests site was a “seasonally reoccupied upland camp” during the Middle and Late Woodland Period, for “generalized hunting and gathering” and related resource-processing activities (i.e. bone working, woodworking, and triangular biface and projectile production). Rejects the ethnohistorical model which suggests that the smaller camp was occupied by smaller (family) units in winter and fall following the breakup of a basecamp or macrosocial unit camp. Site falls within the minimal hunting/foraging range of major Late Woodland habitation sites in and near the Abbott Farm, the Watson House, and the Industrial Terrace Site. Possibly affiliated with Late Woodland village near Washington’s Crossing and macrosocial unit camps at Lambertville and Frenchtown upriver, and Savich Farm Site downriver.

Stewart, R. M., 1986, *Shady Brook Site (28Me20 & 28ME99) Data Recovery*. Trenton Complex Archaeology: Report 1, The Cultural Resource Group Louis Berger & Associates, Inc., East Orange, New Jersey, Prepared for the Federal Highway Administration and the New Jersey Department of Transportation, Bureau of Environmental Analysis, Trenton.

Phase II testing was part of the Cultural Resource Survey for Interstate Routes 195, 295, and New Jersey Routes 29 and 129. Shady Brook Site (28Me20 & 28ME99) is located in

the Arena Drive interchange area of I-295, and is connected to Abbott Farm. Site was intermittently occupied during Late Archaic through Late Woodland eras. Shultz Incised ceramics at Shady Brook Site represent an item received in trade, used and discarded. Author proposes the site was a satellite of a larger camp, used to exploit plant and animal resources or could be one of many small-group settlement movements. Perhaps associated with major Middle and Late Woodland habitation sites near Abbott Farm, and might suggest a possible Late Woodland village site near Washington's Crossing, upriver from the project area. Might also be associated with upriver Late Woodland macrosocial unit camps at Lambertville and Frenchtown. The ceramics at Shady Brook and Abbott Farm are most similar to assemblages from the Inner and Outer Coastal Plains and Piedmont Areas. Argues settlement patterns in Middle/Late Woodland era are markedly different with a dividing line at Philadelphia/Camden. South of this area, suggests a lack of villages.

Stinchcomb, G. E., Driese, S. G., Nordt, L. C., and P. M. Allen, 2012, A mid to late Holocene history of floodplain and terrace reworking along the middle Delaware River Valley, USA, *Geomorphology*, (169-170):123–141.

Thick environmental history of the Delaware River Valley, which may be useful for those looking to situate the seventeenth-century landscape in the *longue durée*.

Veit, R., 2002, *Digging New Jersey's Past: Historical Archaeology in the Garden State*, New Brunswick, New Jersey: Rutgers University Press.

Useful and expert overview of historical archaeology of New Jersey, focusing mainly on period of early European contact and later. Bibliography includes references to original archaeological reports. Counterpart to Mounier (2003).

Volk, E., 1911. *The archaeology of the Delaware Valley (Vol. 5)*, Cambridge, Massachusetts: Papers of the Peabody Museum of American Archaeology and Ethnology Harvard University.

Overview of archaeological research, especially in the Trenton area, up to 1911. Describes geology, human, and zooarchaeological findings. Features extracts from author's journals (1906-1910) and over 100 field photographs.

Wall, R. D., Stewart, R. M., United States Federal Highway Administration, Louis Berger and Associates Cultural Resource Group, and New Jersey Dept. of Transportation, Bureau of Environmental Analysis, 1996, *Sturgeon Pond Site (28Me114), Data Recovery* (Vol. 10), East Orange, New Jersey: Cultural Resource Group, Louis Berger & Associates.

Site 28Me114 (area of 5.5 acres) is the largest of six prehistoric archaeological localities all presumed to date from the late Middle Woodland and Late woodland Periods in the

vicinity of Sturgeon Pond and is part of the Abbott Farm National Landmark. The site is thought to have been used by small-groups or families as fishing camps, occupied during the spring to early summer, with more intensive occupation in the Late Woodland period. The site yielded information about tool manufacturing (local sources of chert, jasper, quartz), especially of triangular projectile points (bifacial reduction), micro-cores, and blade-like flakes (bipolar reduction) used in a composite tool industry. The stratigraphy of the site has also been useful for depositional histories of the Delaware Basin. The site likely dates to the early Middle Woodland, with the most major occupation in the Late Woodland Period. European goods (gunflint, glass beads, white clay pipes) were found in the uppermost strata, but the author suggests this represents only a brief occupation and that there was otherwise “no evidence of any substantial Contact period settlement.”

Wall, R. D., Stewart, R. M., Cavollo, J., McLearen, D., Foss, R., Perazio, P., and J. Dumont, 1996, *Prehistoric Archaeological Synthesis, Trenton Complex Archaeology: Report 15*, The Cultural Resource Group Louis Berger & Associates, Inc., East Orange, New Jersey, Prepared for the Federal Highway Administration and the New Jersey Department of Transportation, Bureau of Environmental Analysis, Trenton.

Overview of data recovery fieldwork investigations in the Trenton area, adjacent to the Abbott Farm National Landmark. Sites include: Shady Brook, Gropp’s Lake, Bordentown Waterworks, White Horse West, Carney Rose, Lister, Abbott’s Lane, Area B, Area D, and Sturgeon Pond. Synthesizes most compelling finds and provides relevant maps, tables, and figures.

Zink, C., 1987, Dutch Framed Houses in New York and New Jersey. *Winterthur Portfolio* 22/4:265-294.

Provides insight into Dutch architectural styles in New Netherland, usually featuring “long, narrow [frame] structure with gables facing the streets, one-and-one half stories high” (280).

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