

**POTTERY AND PIETY: A REASSESSMENT OF THE POTTERS AND
POTTERY OF MORAVIAN BETHLEHEM, PENNSYLVANIA, 1743-1768**

by

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A thesis submitted to the Faculty of the University of Delaware in partial
fulfillment of the requirements for the degree of Master of Arts in American Material
Culture

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Before entering the Winterthur Program in American Material Culture, I worked as a production potter at Berea College, primarily making salt-glazed stoneware. Armed with the knowledge of ceramic production, I contemplated a thesis topic exploring red earthenware, focusing on production in the mid-eighteenth century British Colonies of North America. My added interest in early American Germanic cultures drew my attention to southeastern Pennsylvania. A recommendation to look at the Pennsylvania Moravians took me to the doorstep of the Moravian Archives in Bethlehem, Pennsylvania and the Historic Bethlehem Partnership. I assumed I would find few records, a handful of intact objects, and maybe some archaeological material. No assumption was correct. I never fathomed the amount of material I would find, and after several trips, I was overwhelmed. This thesis is a record of my attempt to organize and master the material connecting the archival documents about ceramic production and the archaeological remains from Moravian Bethlehem, Pennsylvania. I will also reassess the place of ceramic production in the Moravian religious and economic structures, and attempt to elucidate characteristics of Bethlehem Moravian pottery ware.

I must give a note of gratitude to numerous individuals and institutions. Without the generous support of the Albert T. and Elizabeth R. Gamon Scholarship

presented by The Peter Wentz Farmstead Society, this project would not have been possible. I am forever grateful to the access curator Bonnie Stacy at the Historic Bethlehem Partnership has provided me to see and document the archaeological materials, the documents and databases on file at Historic Bethlehem, and the historic buildings of Bethlehem. Lanie Graf and Paul Peucker at the Moravian Archives in Bethlehem have been extremely supportive in helping me interpret the materials, learn the German script, and access to the original documents and materials related to the pottery and the community of Bethlehem.

I am deeply grateful for the assistance Nancy Sandercox at the Lititz Moravian Archives and Museum in Lititz, Pennsylvania, who provided by giving me access to original records from the Lititz community, and tracked down the biography of a potter. Wendy Weida was of great assistance at the Moravian Historical Society in Nazareth, Pennsylvania. She gave me a day of sifting through original and transcribed records of Nazareth and looking at intact objects in the collection. Clarence Martin and the staff at the Moravian Archives of the Southern Province were also generous in helping me find citations and original diary entries for the early North Carolina Moravian communities.

When I first thought that analyzing intact objects would give me a sense of the materials made in Bethlehem, I visited numerous collections. I am thankful for people such as Alexandra Kirtley at the Philadelphia Museum of Art; Donna Horst at the Landis Valley Museum; Patricia Edmonson, a Winterthur colleague at the Metropolitan Museum of Art in New York; Barbara Buckley, conservator with Ker

Feal; Michael Showalter at the Ephrata Cloister; Joshua Blay at the Historical Society of Berks County; and Greg Kramer of Greg Kramer & Co. Antiques. Their time and cooperation in showing me collections and setting out objects for analysis was wonderful.

When I realized that many intact objects did not have strong provenance or documentation, and that the attributions to Pennsylvania Moravians were speculative, I went underground. I decided that since I had archaeological materials from Bethlehem, comparing those materials to archaeology from other similarly dated sites would be more useful. It may have taken a little while for Janet Johnson to realize I had a method to my madness when I arrived at the Pennsylvania State Museum archaeology lab. She and her staff were incredibly welcoming and helped me understand the site context and methods of excavation. They also made recommendations for further research. I want to thank Juliette Gerhart at John Milner and Associates, and Deborah Miller at Independence National Historic Park and Stenton Historic Site for their unending assistance in access to collections and recommendations for further research. I also want to thank Robert Giannini at Independence National Historic Park; Laura Keim at Stenton Historic Site; Jennifer Garrison and Michael O. Hartley at the archaeological lab at Old Salem; student and scholar Lydia Garver with her research on Ephrata householders; and George Cress, Meta Janowitz, and Rebecca White at URS Corporation in New Jersey. Morgan McMillan and other staff members such as Dianne Cram at the Peter Wentz Farmstead were helpful in taking time from their day and giving me access to archaeological and

intact objects in their collections. I have to give credit to archaeologist George Miller for first telling me that if I wanted to research a pottery site with an eighteenth century context I had better find one with a “damn good archives.” Well, I did, and his assistance in reading some of my final edits has strengthened my use of archaeological concepts and terminology.

It was only through work on a separate project, completely unrelated to ceramics, that I came to know Clarke Hess, who conveniently mentioned during one of our meetings that he had some interesting slip-trailed ceramics he had discovered when putting an addition on his house. I am grateful for allowing me into his home. I imagine my excitement over small pieces of ceramics may have been amusing!

What at first seemed like a quixotic scheme to test the elements in archaeological fragments from North Carolina and Pennsylvania for comparative purposes actually had results! I am grateful for the cooperation and help of intern Marc Vermeulen, Catherine Matsen, and Jennifer Mass at the Winterthur Scientific Research Analytical Laboratory. And when x-ray fluorescence testing was inconclusive (see Appendix I) I was grateful for Dr. Victor Owen’s willingness to include the archaeological material from Bethlehem in his comparative work on North Carolina red earthenware.

Johanna Brown with the Museum of Early Southern Decorative Arts has been infallible in her support and constant diligence in returning my phone calls and e-mails. Her work with reassessing the North Carolina Moravian pottery has been useful in providing for captivating conversations regarding the likenesses and differences

between the North Carolina and Pennsylvania Moravian potters and pottery.¹ We have both concluded that the Moravian potters were a diverse and fascinating lot with lives which make it hard to relegate much of their biographies to footnotes!

There are many people to thank, such as Steven Lenik for information on the Virgin Islands excavations; Patricia Gible and Jeanette Lasansky for their insight into and scholarship on southeastern Pennsylvania pottery; Hollie Davis and Andrew Richmond for reading and editing early drafts; and Rosalind Beiler for understanding eighteenth-century merchant relationships through correspondence and phone calls. The Winterthur Program would not run smoothly without the help of Sandy Manno who always seems to be one step ahead in planning and organization. J. Ritchie Garrison, director of the Winterthur Program, keeps things moving forward. His enthusiasm for this project has kept my spirit up as the work has progressed.

Finally, I do not know how I would have been able to organize my thoughts and the breadth of this project without the help of Rosemary Krill, Leslie Grigsby, Dr. Cathy Matson, and Dr. Lu Ann De Cunzo. This dynamic team has been incredibly helpful and insightful throughout the whole project, and guided me toward what I hope is some synthesis of understanding.

¹ Luke Beckerdite and Johanna Brown, "Eighteenth-Century Earthenware from North Carolina: The Moravian Tradition Reconsidered," *Ceramics in America* (2009): 2-67; Johanna Brown, "Tradition and Adaptation of Moravian Press-Molded Earthenware," *Ceramics in America* (2009): 105-138.

DEDICATION

To my husband, Michael Heindl,
who has been my best support,
and fellow ceramicist, by default.

To my family, for a lifetime of support,
sarcasm, and giving me an ancestral
line which, through this project made me
discover our Moravian ties in early Pennsylvania.

To my classmates for two years of camaraderie,
and the realization that there are people
who similarly approach objects
and material culture.

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ABSTRACT

The Moravian community of Bethlehem, Pennsylvania, was organized as an artisanal community, to allow individuals to move in and out of the community as missionaries whenever necessary. Unhinged from a rigid agricultural schedule, Bethlehem thrived with upwards of forty different trades by the mid-eighteenth century. Among the many trades plied in Bethlehem was the pottery works, started as early as 1743. Despite apparent isolation of this frontier town, the community's Moravian potters supported the economic and missionary functions of the church. Just as importantly, although Bethlehem was a tightly woven economic religious settlement, its goods – including distinctive pottery – reached a great number of local, regional, and, perhaps, transoceanic consumers.

Though a part of Pennsylvania's frontier, Bethlehem operated as a center of commerce and manufacturing. The community was tightly woven into a network of traders from New York, Philadelphia, as well as Great Britain, Europe, and the West Indies. Archaeological evidence provides insight into the designs of the pottery likely made in Bethlehem. Through records and archaeological materials related to the pottery works of Moravian Bethlehem, Pennsylvania, this thesis is an attempt to explore the complexities of how trade, manufacture, community, culture, and religion interacted in eighteenth-century southeastern Pennsylvania.

INTRODUCTION

1.1 OVERVIEW

In 1742, the Moravians, a meticulously organized pietistic religious group, established their first American settlement of Bethlehem, Pennsylvania, fifty miles north of Philadelphia (See Figure 1).² This community was far from their site where the group was founded in an east-central German town called Herrnhut. This propensity to establish communities far afield in the Atlantic World was a key characteristic of the group. It strongly impacted the distribution of pottery produced in Bethlehem.

Bethlehem was an artisanal community, organized similarly to Herrnhut. This means that the community's economic growth and stability was based on artisanal products, not agricultural. As a religious group, Moravians organized their community structures and memberships based on principles of their faith. They were closed to non-church members outside of their community. This meant that unless one chose to adhere to their religious and community goals and the structure of their community, one could not live in Bethlehem. Visitors who came to Bethlehem were referred to as strangers. Strangers did not stay in the community, but rather at outlying taverns built

² This followed a failed attempt to establish a community in Georgia.

by the Moravians. The community of Bethlehem did not become open or allow those residents who were not Moravian or adhering to the community's structure until 1844.³ While this concept of closure may imply an inward looking community, nothing could be further from the truth. The strength and leadership of their community allowed them to operate a widespread missionary global network.

On the edges of the frontier, at a site which at first glance seems isolated, the artisans and congregants participated in a global economic network which supported the missionary efforts of the Moravian church. The materials produced by the artisans followed the missionaries to their various, often international, posts, or were sold to outlying communities and individuals in order to fund their missionary efforts. Their missionary ventures, artisanal efforts, and economic transactions were an intertwined web of religious belief and artisanal production. The documentary and archaeological evidence allows scholars to understand these connections. In addition to a wealth of archival records, there are numerous boxes of archaeological material from several excavations performed on the site of the colonial community.

³ Erbe, Hellmuth. *Bethlehem, Pennsylvania : A Communistic Herrnhut colony of the 18th Century*, unpublished English translation in the library collection of Moravian College, of *Bethlehem, Pennsylvania: Eine kommunistische Herrnhuter Kolonie des 18 Jahrhunderts* (Stuttgart: Ausland und Heimats, 1929), 147; Craig D. Atwood, *Community of the Cross: Moravian Piety in Colonial Bethlehem* (Pennsylvania: Pennsylvania State University Press, 2004), 224-225.

1.2 HISTORIOGRAPHY

One of the few widely distributed publications mentioning the pottery manufacture in Bethlehem is Joseph Levering's book, *A History of Bethlehem, Pennsylvania, 1741-1892*, published in 1903. Surviving archival documentation acts as counterevidence for Levering's assertion that Ludwig Hübner was the first potter in Bethlehem and the potter referred to in the community diary as "in the Swamp."⁴ While Levering does not insist that the potter produced few wares, or did not participate in a large network of trade, I will analyze his information regarding the history of the potters and pottery building (See Section 3.2).

In his 1903 publication entitled *Tulip Ware of the Pennsylvania-German Potters*, Edwin Atlee Barber described and analyzed many pieces of earthenware pottery made by eighteenth- and nineteenth-century potters in southeastern Pennsylvania. Barber's work, one of the earliest, but few, complete books on Pennsylvania German potters and pottery, adds to a preconceived notion of potters in early America being isolated and serving only their local communities. In describing the craft of the potters, their designs and forms, he wrote, "As they were practically isolated from other peoples in the community which they established, no extraneous influences penetrated to modify their homey but virile art."⁵

⁴ Joseph Mortimer Levering, *A History of Bethlehem, Pennsylvania, 1741-1892* (Bethlehem, Pennsylvania: Times Publishing Company, 1903), 145, 389.

⁵ Edwin Atlee Barber does not include the Moravians or their pottery production in his study of Pennsylvania German pottery. Another early author, Cornelius Weygandt, discusses Pennsylvania German pottery, describes his descendants as having been

Numerous publications since Barber's work have challenged the notion of isolationist potters working in southeastern Pennsylvania, reassessed the pottery forms and wares produced in southeastern Pennsylvania, and informed this thesis. Published studies are either strong on documents and documentation of potters or they are strong on identifying forms, glazes and wares. These studies do not tend to be strong on taking into consideration all possible sources of wares in the region, or attempting with precision to document what potters were producing what. The shortcomings of these publications are not a fault of the authors. It is a rare case to have a thoroughly documented eighteenth-century American pottery manufacture with supporting archaeological material. This thesis is able to bring these two kinds of sources together, due to amazing Moravian documentation and existing sherds.

Patricia Gible's dissertation entitled "Continuity, Change, and Ethnic Identity in 18th Century Pennsylvania Red Earthenware: An Archaeological and Ethnohistorical Study" places strong emphasis on the typography of red earthenware forms found archaeologically. Her work has greatly informed this thesis for identifying particular archaeological sites used as comparisons in chapter 4, through her descriptions of decoration found on the wares. Gible's work however, does not

Moravian, but never describes the notion that the Moravians in Bethlehem produced pottery. Edwin Atlee Barber, *Tulip Ware of the Pennsylvania-German Potters* (New York: Dover Publications, 1970), 27; Cornelius Weygandt, *The Red Hills: A Record of Good Days Outdoors and In, With Things Pennsylvania Dutch* (Philadelphia, Pennsylvania: University of Pennsylvania Press, 1929).

strongly document potters working locally to the archaeological sites she analyzed.⁶ In addition, she does not include the Moravians in her considerations of southeastern Pennsylvania pottery manufacturers. My interrelated study of an extraordinarily well documented pottery production and available sherds requires us to question where these pots were made and how extensively they were distributed.

Gibble states, “Philadelphia decorated and undecorated utilitarian wares met the high demand for everyday ceramic wares, supplying an expanding colonial market for redware. By the end of the 18th century, Pennsylvania utilitarian plain and decorated redwares were sold locally, regionally, and throughout the eastern seaboard of America” implying that it was not until the late eighteenth century that potters outside of Philadelphia were participating in larger economic networks outside of their local connections.⁷ I will address this subject in this project.

Jeannette Lasansky has written numerous articles focusing on particular

⁶ An example of this is Gibble’s section on Camp Security where she writes, “While no recorded pottery kiln sites or confirming documentary evidence affirming the origin of this redware assemblage has thus far been found, secondary historical texts suggest the likelihood of a local pottery source [uncited]...It is reasonable to assume that American officials in charge of billeting and supplying prisoner of war camps may have purchased cheap, locally produced pottery for captured British sympathizers and soldiers. However, it seems more probable that captured soldiers and their families may have been themselves responsible for pottery purchases with their own limited funds. Local craftsmen would have supplied the handicrafts necessary for the encampment residents.” Patricia Gibble, “Continuity, Change, and Ethnic Identity in 18th Century Pennsylvania Red Earthenware: An Archaeological and Ethnohistorical Study” (Ph.D dissertation. American University, 2001), 203.

⁷ Gibble, “Continuity, Change, and Ethnic Identity in 18th Century Pennsylvania Red Earthenware,” 46-47.

counties in southeastern Pennsylvania and the potters working there. These publications tend to focus on signed, intact objects for examples of wares produced. However, Lasansky's thorough documentation of tax lists which mention potters and an estimated timeline of potters working in those counties have been very helpful.⁸

Scholarship on the wares produced in Philadelphia primarily focus on the English-style black-glazed materials or the white slip trailing found on numerous wares archaeologically. Little scholarship focuses on multi-colored slip trailing, or the attributions of particular potters creating specific designs.⁹ Beth Bower's dissertation and her publication included in *Domestic Pottery of the Northeastern United States, 1625-1850* are incredibly resourceful in the breadth of material researched for documenting early Philadelphia potters.¹⁰ Her appendix with timelines and biographical information for each of the potters she identifies is an incredible resource.

⁸ Jeannette Lasansky, "A Pennsylvania Pottery in Berks County Collections," *The Magazine Antiques* 138 (October 1990): 810-19; Jeannette Lasansky, "A Berks County Redware Pottery, 1767-1909," *The Magazine Antiques* 137 (January 1990): 324-39; Jeannette Lasansky, *Central Pennsylvania Redware Pottery 1780-1904* (Lewisburg, Pennsylvania: Union County Oral Traditions Projects, 1979).

⁹ A forthcoming *Ceramics in America* article by George Cress on a Philadelphia potter named Hillegas will focus on a multi-colored slip-trailed technique found archaeologically in Philadelphia. Barbara H. Magid and Bernard K. Means, "In the Philadelphia Style: The Pottery of Henry Piercy," *Ceramics in America* (2003): 47-86.

¹⁰ Beth Anne Bower, "The Pottery-Making Trade in Colonial Philadelphia: The Growth of an Early Urban Industry" (Ph.D. diss., Brown University, 1975); Beth Anne Bower, "The Pottery-Making Trade in Colonial Philadelphia: The Growth of an Early Urban Industry" in *Domestic Pottery of the Northeastern United States, 1625-1850*, ed. by Sarah Peabody Turnbaugh (Orlando, Florida: Academic Press, Inc., 1985), 265-284.

She takes less time to address the visual characteristics of the wares produced, but does address the ceramics market in eighteenth century Philadelphia. While the Philadelphia potters were using a solid black glaze on many of their wares, the use of black slip for slip-trailed designs is unusual and rarely illustrated, and will be discussed further in chapter three.

Neglected in past scholarship, the potters and pottery of Moravian Bethlehem, Pennsylvania, produced functional and decorative wares for their community, and for a regional, and, perhaps, transoceanic market. This case study of the work of the Moravian potters in Bethlehem, Pennsylvania, supports a reassessment of the isolationism of at least some early American potteries. It analyzes one distribution network enfolded in a broad cloth of religious missionary efforts and economic transactions. This project proves that production of pottery in Bethlehem, Pennsylvania, should be considered and included in an analysis of southeastern Pennsylvania pottery.

1.3 TERMINOLOGY AND INTACT OBJECTS

There are a few notes with regard to language and organization of this thesis. While the congregations in North America were referred to as the *Brüdergemeine* in the eighteenth century, in this thesis, the term Moravian will refer to those living in the community of Bethlehem and other communities of North America.¹¹

¹¹ Atwood discusses the transition of the term from *Brüdergemeine* to Moravian whereas Erbe discusses the distinction of the term *Brüdergemeine* because there were not as many actual Moravians participating in North America as there were

In this thesis, the term “Pennsylvania German” will include the Moravians. The term will refer to all Germanic cultures primarily in Southeastern Pennsylvania prior to the early nineteenth century. Some scholars limit the use of this term to groups speaking and writing in a German dialect. The Moravians did not speak a dialect as many other Pennsylvania Germans did. The Moravians corresponded in High German, and held religious services in both German and English.

There are no intact pieces of pottery with firm attribution of manufacture in Bethlehem prior to 1770. One dish in the collection of the Philadelphia Museum of Art (Accession number 1903-355) is dated 1778, and has an unconfirmed attribution to Abraham Hübner, a potter in Bethlehem (See Figure 2). Because there are no intact objects for the focus dates of this project (1743-1768), and no firm characteristics to make attributions, intact objects will not take precedence in this project.

1.4 ARCHAEOLOGICAL MATERIALS AND METHODS

Archaeological collections in Bethlehem are mainly a result of digs completed in the 1960s and the 1970s in what is called the Industrial Quarter of historic downtown Bethlehem. The Industrial Quarter, a name applied to the area by the Historic Bethlehem Partnership, was the location of many artisanal enterprises including the tannery, the blacksmith, the pottery, the dye and water works, as well as an oil mill. Some original buildings or sections of buildings still stand (See Figure 3).

Much of the resulting excavated material never was catalogued. Documentation of the individuals from other religious groups who joined the communities. Atwood, *Community of the Cross*, 3-4, 225; Erbe, *Bethlehem, Pennsylvania*, 24-26.

digs either was never completed or is lost. Thus, it has become difficult to assess archaeological strata and to arrive at an exact date range of the material for each individual site.

This thesis primarily focuses on the archaeological materials, currently owned by the Historic Bethlehem Partnership, excavated in 1970 during a dig on the site where the pottery was produced in the eighteenth century. The first pottery on this site, a log building, was in use between 1743 and 1749. A second building, of stone, was built in 1749. The pottery moved from this site in 1767 or 1768.

The collection includes a large number of waster sherds, being vessels that broke or warped in firing and were discarded when the kiln was opened. Most of these were bisque fired, or fired once, and unglazed, which would have been the next step in production. There are also fragments of thrown cylinders called kiln saggars, used to contain wares in a kiln firing. These kiln materials exhibit heavy wear from repeated use, and the clay body has turned a gray color from being over fired. Some broken decorated wares are also found in the group.

In examining this collection the goal was to become familiar with the characteristics of the sherds in order to present a general description of those characteristics and provide readers an idea of the general characteristics of materials likely produced in Bethlehem. It is impossible to calculate the number of sherds in the collection, but estimation would be in the thousands. Taken together, in this project the documentary sources and visual examination of material remains are of equal weight in the overall interpretation.

The Moravian records state that their first pottery (a log cabin) was built in 1743 and that they later constructed a stone building for the pottery in 1749. Behind the second building was a waster pit, excavated in 1970.¹² There is also a possibility that this waster pit served the earlier log pottery building beginning in 1743. Therefore the waster pit probably was formed and in use between 1743 and 1768. Due to the constraints of the archaeological material, this thesis will focus on the period between the building of the first log pottery building on the site in 1743 and the end of pottery production on the site in 1768.

Multi-colored slip decorating appears to have persisted in Bethlehem throughout the pottery's production under discussion. Sherds are datable, in part, via comparisons with excavated slip-decorated earthenware found at other, more easily datable sites, primarily in the Philadelphia region, typically 1740-1770. These comparisons and analyses of decorated materials may also assist in analyzing and attributing unidentified materials which are intact or surviving above ground. This lack of identified intact objects prevents their usefulness for this project. Simple, white slip-trailed designs have, for the most part, been excluded from comparative analysis with other sites. Numerous potters in the Philadelphia region were employing this technique, and white slip-trailed sherds appear in a majority of the comparative archaeological material. For this thesis then, comparative visual analysis is limited to slip-trailed designs in multiple colors including white, green, and black.

¹² Historic Bethlehem, Inc. "Pottery Excavations." *Newsletter* 9 no.1 (November 1970): 3.

The section regarding the North Carolina connections (See Chapter 3) is intended to challenge the comparisons often made at archaeological sites in Pennsylvania with archaeological material that exhibits similarities to published archaeological material from North Carolina.¹³ This project does not deem these comparisons as incorrect, but rather, expresses the importance for considering the cultural and the religious perspectives, as well as the training and skills shared between the Moravians in North Carolina and Pennsylvania. Archaeological material found in Pennsylvania which is similar to published North Carolina examples may actually have been made in Pennsylvania by potters with a similar training background.

The limitations of the archaeological material used for this project deter the use of this thesis for identifying intact objects as produced in Bethlehem. This project is not intended to precisely define distinctive characteristics of pottery manufactured in Bethlehem. Rather it is meant to take into consideration the materials likely produced in Bethlehem (as exemplified through the visual analysis of surviving archaeological material) when compared with archaeological evidence from other sites, and when intact objects are analyzed. As mentioned previously, until another archaeological dig

¹³ This article illustrates a dish described as “Moravian-styled vessel” in figure 5, without considering any Moravian manufacturers in Pennsylvania. All too often slip-trailed wares unlike those likely produced in Philadelphia are compared to North Carolina Moravian pottery decorations. Magid and Means, “In the Philadelphia Style,” 49.

on the pottery site in Bethlehem is completed, a well-documented understanding of the pottery manufactured there cannot be determined.

1.5 DOCUMENTARY MATERIALS

Documentary evidence regarding the Bethlehem pottery abounds. Especially during the second half of the eighteenth century, the Moravians were very good record keepers. They even made special allowances for housing their archives when space was limited in the early establishment of Bethlehem. Each congregation kept a communal diary, detailing their daily works for God, their meetings, decisions, and economic activities, rather than their day-to-day activities. Individuals also kept detailed letters, reports, and catalogs of members and congregations.¹⁴ By the mid-eighteenth century in Bethlehem, yearly inventories were made of each building and trade located in the community.

With limited time for research, I have spent the most time with the ledgers and account books of the Bethlehem community that include the transactions, made for pottery wares, and the entries for the potters' accounts. I have also relied on research notes made by a Jans Joachim Finke who was an adjunct German professor in the 1970s at Moravian College who also helped with the archival research to accompany

¹⁴ Paul Peucker, "Moravian Archives as Repositories of Pietist Experiences" (paper presented at the annual meeting of the East Central American Society for Eighteenth Century Studies, Lehigh University, Bethlehem, October 9, 2009).

the 1976 pottery excavation.¹⁵ While Finke spoke and read German, it appears from re-translating some of his notes that his understanding of pottery techniques and specific words related to ceramics may have been faulty. It has been difficult to relocate some of the original records he was reading, however, because the organization of the archives since his research has changed. While, for this thesis, I learned to read eighteenth-century script and have a reading knowledge of contemporary German, language has also hindered a full-scale analysis of materials in the Moravian archives in Bethlehem.

In analyzing pottery references in such documents, I have attempted to use only references including the words “Earthen,” “Earthen Ware,” “Potter’s Ware,” or relating to material purchased directly from the pottery or listed with the individual potter’s names. There are many other references to pottery, not specific to earthenware. These were less useful in this study. There are also some ambiguous entries such as a May 23, 1750, reference for “48 Hand: half Pint Cups” purchased by Charles Fulk, referring to an unidentified pottery ware type.¹⁶

¹⁵ Finke’s research notes appear in files and documentation from the 1976 excavation. Historic Bethlehem, Inc. “Along the Monocacy: The Changing Face of the 18th Century Moravian Industrial Area in Bethlehem” (script for a slide talk, printed by Historic Bethlehem, Inc., undated).

¹⁶ Ledger of the Diaconat at Bethlehem C 1749-1755, Moravian Archives, Bethlehem (hereafter cited as MAB).

1.6 ORGANIZATION

Three major themes organize this thesis. Firstly, exploring the documentary records from numerous archives documents the well-developed inward and outward trade in Moravian Bethlehem, particularly related to crafts and materials produced in the community. This thesis will compare the documentary record to claims from secondary sources traditionally referenced for information regarding the pottery of Bethlehem. There is extensive documentation on Bethlehem in the Moravian Archives that go far beyond the parameters of this thesis. There is extensive research left to be done. Secondly, the reassessment of documentary evidence incorporates information from the archaeological material, as far as that is possible, given the lack of reliable archaeological field notes and reports. Much of the archaeological material has never been published. This thesis contains selected images and detailed descriptions of some of the pots and wasters from the 1970 excavations including profiles, glazes, and slip decoration of surviving archaeological material. If a particular form from the waster pit is mentioned in documentary evidence that is noted. The archaeological remains show several characteristics which may be particular to the Moravian pottery tradition. This will be explored further in chapter two. Thirdly, the pottery made in Bethlehem will be compared to remains from other archaeological collections from areas where Moravians traded and settled. These collections were excavated primarily in southeastern Pennsylvania, but also including the West Indies (Virgin Islands). Sherds from these sites outside of Bethlehem share certain characteristics with pottery likely made in Bethlehem, but are different from other wares produced in Philadelphia, or by

other known and identified potters from the same time period. These comparisons confirm that materials from Moravian Bethlehem were distributed through well-developed and extensive trade networks. These findings dispel the notion of localized pottery production in the eighteenth century in general and in Bethlehem in particular. Evidence from the Moravian pottery trade also adds to the scholarship about Atlantic trade and the extent of eighteenth-century trade networks.

In order to explain these themes, three chapters follow this introduction. Chapter 2 will give a brief history of the Moravian religion and the organization of missionary settlements worldwide. It describes the structure of the community of Bethlehem, the organization of production and distribution, and expectations of workers in the community. This chapter will also give the reader a glimpse into the industrious nature of the Moravians by enumerating and describing some of the trades other than pottery practiced there. Chapter 3 will focus on the potters and pottery of Bethlehem, laid out in four sections detailing the structure of the pottery house, the potters who worked in Bethlehem, the wares made by the potters, and the materials used by the potters. This chapter will also address several historical events which affected the community of Bethlehem as well as the production of pottery. The fourth and final chapter will build on the previous two chapters and will compare materials attributed to the Bethlehem pottery to remains from other archaeological sites. This chapter will also explore how the Moravians in Bethlehem interacted with those outside of their closed community, and how they navigated the market economy.

Numerous appendices support the conclusions about Bethlehem pottery in this

thesis. The first two appendices contain a list of the master potters, journeymen, and apprentices found in documents relating to the pottery, and a timeline in order to orientate the reader to events over the twenty-five years in this study. The third and fourth appendices will illustrate rim and foot profiles present in the archaeological record of Bethlehem. Again, this is not a concise detail of every profile found archaeologically, but rather, gives a sampling of the various designs executed. Several appendices contain tables to illustrate a variety of archaeological material from Bethlehem. This is not a catalog of all materials, but rather, it gives the reader examples of the forms, glazes, and slip decorations used in the production of pottery in Bethlehem. The final appendix will explore laboratory testing performed on archaeological material from Bethlehem, Pennsylvania, compared to archaeological material from Winston-Salem, North Carolina. The material from North Carolina was also produced by Moravian potters, in several communities in the same region first established in 1753. Results from several different modes of testing revealed chemical differences between the clay bodies used in the separate communities. This testing may eventually allow scholars and curators to differentiate Bethlehem-made pottery from North Carolina-made Moravian pottery and possibly identify Bethlehem vessels that have survived the trials of time. The materials analysis is important because the pottery cannot solely be reliably differentiated based on visual characteristics, such as slip decoration. Goods, church members, and potters traveled routinely among Moravian communities, partly as a result of the Moravian commitment to mission work as mentioned above.

The potters of Moravian Bethlehem were producing a large amount of pottery between 1743 and 1768 in order to support the missionary efforts of the Moravian church. These materials were consumed locally within the community but also widely in the region and perhaps further through Atlantic trade. This project is meant to provide the reader with characteristics of the pottery likely produced in Bethlehem as seen through the surviving archaeological material, to explore the surviving documentary evidence involving the pottery, broaden the possibilities of tradespeople participating in regional and Atlantic trade networks, and to encourage the inclusion of Bethlehem's potters in future analysis of southeastern Pennsylvania pottery.

CHAPTER 2

THE STRUCTURE OF MORAVIAN BETHLEHEM

2.1 “...Solemn and devout...”: The Moravians and the Moravian Church ¹⁷

In 1751 a New Jersey traveler to Bethlehem, Pennsylvania wrote that although the frontier settlement seemed small, “there is scarcely a trade carried on in the largest city in this country but it is also there and done in the best manner.”¹⁸ There, despite apparent isolation of this frontier town, the community’s Moravian potters supported the economic and missionary functions of the church. Although Bethlehem was a tightly woven economic religious settlement, its goods – including distinctive pottery – reached a great number of local, regional, and perhaps, transoceanic consumers.

The Moravian Church traces its roots back to the fifteenth-century with the founding of the *Unitas Fratrum* by Jan Hus, a Czech religious reformer whose

¹⁷ “This afternoon Mr. Horsly waited on the Company, and in the evening conducted us to see a meeting of the Society at their Church, Solemn and devout.” Entry dated Monday August 16, 1773. *Philadelphia to Bethlehem Journal, 1773*. Phi 1005, Historical Society of Pennsylvania. (Hereafter HSP)

¹⁸ Katherine Carté Engel, “On Heaven and Earth: Religion and Economic Activity Among Bethlehem’s Moravians, 1741-1800” (Ph.D. diss., University of Wisconsin-Madison, 2003), 269.

martyrdom inspired numerous religious groups.¹⁹ In the 1720s, refugees from Moravia (today the Czech Republic) settled the town of Herrnhut (“in the Lord’s care”) on property owned by Count Nickolas Ludwig von Zinzendorf in Saxony, Germany. Zinzendorf became the leader of the *Reformed Unitas Fratrum*, or the Moravian Church.²⁰ Called to missionary work, the Moravians began to search for settlements in other parts of the country as well as the world, including America. After a failed settlement in Georgia (begun in 1735), the Moravians sought a location in Pennsylvania. August Gottlieb Spangenberg, later a church leader in Bethlehem, participated in a scouting mission for land and missionary possibilities.²¹

Approximately fifty miles north of Philadelphia, the closed community of Bethlehem was begun with the purchase of the first tract of land in 1741.²² Bethlehem was connected to Philadelphia via land through an intricate network of roads. By 1740

¹⁹ Michele Gillespie and Robert Beachy, ed., *Pious Pursuits: German Moravians in the Atlantic World* (New York: Bergham Books, 2007), 4.

²⁰ Zinzendorf had originally planned to convert the refugees to his own form of pietism, but instead became the bishop of the Church of the Brethren, or the Moravians. Gillian Lindt Gollin, *Moravians in Two Worlds: A Study of Changing Communities* (New York: Columbia University Press, 1967), 4-5; Gillespie and Beachy, *Pious Pursuits*, 4-5.

²¹ Spangenberg began his trips to and from Georgia in 1736 and resided in Pennsylvania with another Moravian, Christopher Wiegner, or had land in Skippack, north of Philadelphia. Katherine Carté Engel, *Religion and Profit: Moravians in Early America* (Philadelphia: University of Pennsylvania Press, 2009), 27; William Cornelius Reichel, “Early History of the Church of the United Brethren (Unitas Fratrum), Commonly Called Moravians, in North America, A.D. 1734-1748,” *Transactions of the Moravian Historical Society* 3 (1888), 70-75.

²² Gollin, *Moravians in Two Worlds*, 6.

there were seventeen official roads in Pennsylvania, one of which was called the Durham Road, and by 1745 this road extended from Philadelphia to Bethlehem and also to Nazareth.²³ The name of Durham Road related to the connection of this roadway to the Durham iron furnace, which was located approximately fourteen miles from Bethlehem on the Delaware River. Between Philadelphia and Bethlehem was the town of Germantown, where Philadelphia merchants and merchants' families resided. Bethlehem was also connected to Philadelphia and other cities through river navigation.²⁴ The river networks also connected New York to Philadelphia, and in turn to Bethlehem. Bethlehem rapidly grew into an industrious town of Philadelphia's hinterland. The creation of Bethlehem Township took place in 1747, and existed until the creation of Northampton County in 1752. Moravians were recognized legally as a part of the British Empire in an Act of Parliament dated 1749.²⁵ Members of the

²³ Bethlehem traded locally with furnaces such as Durham and employed both Moravian and other laborers to haul pig iron and goods between Durham, Philadelphia, Bethlehem, and even New Jersey. Michael V. Kennedy, "The Wheels of Commerce: Market Networks in the Lehigh and Musconetcong Valleys, 1735-1800," in *Backcountry Crucibles: The Lehigh Valley from Settlement to Steel*, ed. Jean R. Soderlund and Catherine S. Parzynski, (Bethlehem, Pennsylvania: Lehigh University Press, 2008), 211, 213.

²⁴ As early as 1754, Bethlehem residents are purported to have constructed a boat in which they sailed to Philadelphia, only to leave both their cargo and boat in the city, as it could not navigate back up the river. They apparently tried a Delaware flat boat following this experiment. Levering, *A History of Bethlehem, Pennsylvania*, 287-288.

²⁵ Engel, *Religion and Profit*, 221.

Bethlehem community eventually served as a part of the Pennsylvania Assembly such as John Edmonds in 1755.²⁶

Nazareth, to the North of Bethlehem and also a closed community, was established shortly after Bethlehem. In concert with the church's missionary culture, open congregations in America were established in Pennsylvania at Oley (1741), Lititz (1756), Lancaster (1749), Philadelphia (1743), as well as in New York, New Jersey, Connecticut, and Western Maryland (See Figure 4).²⁷ These missionary outposts and congregations included Indian communities, such as Gnadenhütten and Shamokin in Pennsylvania, Pachgatgoch in Connecticut, and Shekomeko in New York. In 1753, Moravian migrants from Bethlehem traveled to a tract of land purchased in what is today North Carolina, called Wachovia (See Figure 5).²⁸ Additional missionaries were established in Suriname (1735), London (1728), the West Indies island of St. Thomas (1732), and Greenland (1731). Aaron Spencer Fogleman estimates that "From 1740 to 1754 the Moravians worked in at least 194

²⁶ Levering, *A History of Bethlehem, Pennsylvania*, 213, 257; Erbe, *Bethlehem, Pennsylvania*, 114.

²⁷ William Cornelius Reichel and Rev. A. Reincke, "Register of the Members of the Moravian Church in this Country and Abroad, Between 1727-1754," *Transactions of the Moravian Historical Society* 7, 8, and 9 (1872): 153-213; Aaron Spencer Fogleman, *Hopeful Journeys: German Immigration, Settlement, and Political Culture in Colonial America, 1717-1775* (Philadelphia: University of Pennsylvania Press, 1991), 115-124; Aaron Spencer Fogleman, *Jesus Is Female: Moravians and the Challenge of Radical Religion in Early America* (Philadelphia: University of Pennsylvania Press, 2007), 120.

²⁸ For this thesis, reference to the community of Wachovia will be in a modern context of the state of North Carolina for a clear distinction between Pennsylvania and North Carolina.

communities from Suriname to Greenland, of which 186 were on the North American mainland.”²⁹

Moravians divided the community by sex, age, and marital status. Called choirs, the divisions were a way to support community prayer and worship (See Figure 6).³⁰ Each member referred to one another as “Brother” and “Sister.” In 1742, the individuals residing in Bethlehem were divided into two separate groups. The divisions were designated as a pilgrim or itinerant congregation, called the *Pilgergemeine*, and a local congregation called the *Hausgemeine*. These divisions were impermanent, and often members from one congregation moved to another by personal choice or a decision made by the church.³¹ The *Hausgemeine* would essentially support the missionary efforts of the *Pilgergemeine*. As Spangenberg wrote, “for the *Pilgergemeine* to be productive, the *Hausgemeine* had to be profitable”³²

²⁹ Additionally, Fogleman continues, stating, “They labored primarily among Germans (in at least 127 communities), but also among ethnic English groups, Swedes, and other Europeans, as well as among Africans and Native Americans. During this period [1740-1754] 148 Moravians (111 men and 37 women) worked in 171 communities in the ‘Pennsylvania field’ (from New York to Virginia), and they heavily influenced the German Reformed and Lutheran congregations that were then expanding dramatically due to record levels of immigration.” Fogleman, *Jesus Is Female*, 113.

³⁰ Atwood gives a very good description of how the choir system worked following the life of a typical Moravian female from birth through death and the various choirs she would belong to. Atwood, *Community of the Cross*: 8; Erbe, *Bethlehem, Pennsylvania*, 37-38.

³¹ Levering, *A History of Bethlehem, Pennsylvania*, 129.

³² Engel, “On Heaven and Earth,” 54.

In terms of housing, the Moravians constructed single-gender dormitories for adolescents and adults, and boarding houses for young children from inside and outside of the community attending the Moravian schools. Until 1748, the Single Sisters resided in Nazareth while the Single Brothers resided in Bethlehem. Expansion in 1748 allowed for a Single Sisters' residence in Bethlehem.³³ It was not until 1761-1762 that the decision to build separate homes for married couples took place, which coincided with the dissolution of the communal economy.³⁴

Moravian church members readily accepted church authority regarding important decisions about their individual lives. For example, church authorities made arranged marriages (See Figure 7). Training for a trade was also a decision made by church leadership. However, Bethlehem differed from other Moravian communities, in that it became the only communally-based economy.³⁵

The communal economy was referred to as the *Oeconomy*. This term derives from the Greek meaning of "household" and as Katherine Carté Engel writes, "Oeconomy...meant both moral and practical organization..." in terms of both religious and economic endeavors.³⁶ Most scholars agree that the Bethlehem's Moravian Church community was living under the tenets of the *Oeconomy* between

³³ Reichel, "Early History of the Church of the United Brethren," 164.

³⁴ Erbe, *Bethlehem, Pennsylvania*, 124-125.

³⁵ Katherine Carté Engel, "The Stranger's Store: Moral Capitalism in Moravian Bethlehem, 1753-1775," *Early American Studies* (Spring 2003): 99.

³⁶ Engel, "On Heaven and Earth," 58.

1742 and 1762.³⁷ For an individual Moravian, living in the *Oeconomy* meant that in exchange for labor and devotion, “the church provided them with their daily needs, both material and spiritual.”³⁸ The Moravian church did not require members to turn over personal possessions, property, or money, but rather to devote themselves to the community in labor, missionary work, and the obedience of the church and its leaders.³⁹

The community was overseen by a variety of organized groups and boards. The highest board in Bethlehem was the Elder’s Conference led by the General Director. Each choir and trade had a separate board and kept individual records for their economic and daily activities. Other groups and boards were established to oversee the economy such as the Commercial Council, responsible for the business operations of the community, and the Diacony Conference, which supervised the economic affairs of the community.⁴⁰

³⁷ It was not out of a religious effort that Bethlehem chose to be communal, but rather, out of the organization of their town and the community members: “Our communal housekeeping is only out of need. It is no point of religion, much less of blessedness...it is advantageous for the servants and maids of Jesus that many a one can be used who otherwise through [the need to pursue] his own economy, would be hindered.” Engel, “On Heaven and Earth,” 58-59.

³⁸ Engel, “On Heaven and Earth,” 37.

³⁹ Levering, *A History of Bethlehem, Pennsylvania*, 181

⁴⁰ Katherine Carté Engel does a very good job of describing and differentiating between the various divisions which oversaw the community. Records in the archives are also evidence of the distinguished conferences, groups, and boards. There are separate records for building supplies, materials purchased from merchants, material consumed in the individual inns, but nearly all are reflected in the community ledgers. Engel, *Religion and Profit*, 40- 47; Erbe , *Bethlehem, Pennsylvania*, 27-32.

2.2 “...an Industrious Inoffensive people...”: Working in the Community ⁴¹

The economy of Bethlehem “combined profit-driven business endeavors...with a collective, religiously-motivated economic and social organization.”⁴² Both the work and profit of the town benefitted the religious goals of the Moravian church. Spangenberg, a leader in Bethlehem, defined the measures of the community members’ work and labor through both religion and its connections to outside networks. He wrote that diligent labor redeemed a good reputation with outside communities and through labor they would “avoid the reproach that we are idle, which is a disgrace to the Gospel, and robs us of our credit... it is the Savior’s order and is good for a person, not only for one’s body, but for one’s soul, when he works.”⁴³ Spangenberg envisioned a sixteen-hour workday and emphasized labor as a component of religious devotion. The work completed within the town had a shared purpose with missionary work outside of the community.⁴⁴ Rather than for personal profit or gain, the Moravians used the fruits of capitalism for their religious pursuits.

The Commercial Council oversaw the business operations of the community at various times. A comment in their minutes read, “Commerce, if it is not pursued precisely after the sense of Jesus, and if the spirit of the world comes into it, it is a

⁴¹ Entry dated Friday, 20 August 1773. *Philadelphia to Bethlehem Journal, 1773*. Phi 1005, HSP.

⁴² Engel, “On Heaven and Earth,” 37.

⁴³ *Ibid.*, 62.

⁴⁴ Engel, *Religion and Profit*, 48.

most dangerous thing, which can bring the fall of not only individual souls, but entire *Gemeine*.”⁴⁵ Income for Moravian communities not only relied heavily on the private fortune of Count Zinzendorf and wealthy congregants but the commerce of individual towns, particularly Bethlehem, and profit from the sale of artisan’s wares.⁴⁶

The pursuit of commerce was a necessary means to the support of their missionary affairs.⁴⁷ The Moravian missions provided many things to surrounding communities. They provided an opportunity for preaching, church buildings, education, and medical care. Whereas other ministerial missionaries such as the Lutherans charged their communities for their services, Moravians provided their

⁴⁵ “To support their work, the Moravians relied heavily on the profits from businesses like Dürninger and Co. and on financing from the private fortunes of the count and other wealthy congregants. Bishop John Ettwein, who led Bethlehem during the Revolutionary War, estimated in the early 1770s that the *Gemeine* had spent at least £1,000 Pennsylvania on missionary work each year since 1747. In addition, Ettwein figured they had spent a total of £7,300 for the schools that taught orphans and the children of missionaries during the same period. Taken together, these sums were greater than the capital value assigned to all the buildings in Bethlehem. From the perspective of the Moravian community, the profits from their businesses had a clear religious purpose that justified financially astute and profit-maximizing behavior as long as Moravian businessmen carried it out in the proper Christian spirit.” Engel, “The Stranger’s Store,” 90-91.

⁴⁶ Engel, “The Stranger’s Store,” 97- 98.

⁴⁷ Kristen Block, “Cultivating Inner and Outer Plantations: Profit, Industry, and Slavery in Early Quaker Migration to the New World” (paper presented at Markets and Morality, Seventh Annual Conference of the Program in Early American Economy and Society, November 7, 2008), [http://www.librarycompany.org/Economics/2008 Conference/papers.htm](http://www.librarycompany.org/Economics/2008%20Conference/papers.htm) (accessed May 17, 2009), 5-6.

services at no cost.⁴⁸ Through building structures and providing services, the Moravians provided the laity of numerous religions with the offer of religious community.⁴⁹

Spangenberg wrote in 1753, “[We should] cultivate all crafts, particularly those that are indispensable, and others that are useful, e.g., the tannery, wagonry, potters, etc., so that we will not only avoid paying money that we would otherwise have to, but also something will come into the coffers and we will incur all the fewer debts.”⁵⁰ By training craftsmen and supporting the trades necessary to outfit and supply the town with wares as well as repairs and tools, the community incurred less debt than if they purchased all of their materials from outside vendors. Pottery, the focus of this thesis, was only one of many trades developed at Bethlehem. Thomas Pownall, a British colonial administrator visiting Bethlehem in 1754 wrote,

There were, when I was there the Following Trades carried on by the Fratres [brothers] at this Settlement. Saddle-tree maker, Sadler, Glover, Shoemaker, Stocking-weavers, 4 frames going, Button maker Taylor & Women Taylor, Hatter, Ribband-weavers, Linnen-weavers, 6 looms in work, Woollen-weavers,

⁴⁸ Stephen Longenecker broaches the matter of financial pressure between the laity and ministers of Pennsylvania German communities, noting that “Sauer I (a printer) reminded Germans of Penn’s wish and law that no one need give ‘one penny’ to support a preacher of a denomination to which he or she did not belong.” However, he does not mention that the Moravians worked for no charge, and the tension this caused between the religious sects and the communities they served. Stephen L. Longenecker, *Piety and Tolerance: Pennsylvania German Religion, 1700-1850* (Maryland: The Scarecrow Press, Inc., 2000), 90; Fogelman, *Jesus Is Female*: 125.

⁴⁹ Fogelman, *Jesus Is Female*: 130.

⁵⁰ Engel, “On Heaven and Earth,” 79.

three looms at work, Wool-comber, Dyer, Fuller, Dresser, Tanner, Currier, Skinner, Butcher, Miller, Chandler, Oil-maker, Baker, Cooper, Joiner, Carpenter, Mason, Glazier, Brick maker Stone Cutter Turner Potter Stovemakers Wheelwright Blacksmith, Gunsmith Nail-Maker Lock-smith, Pewterer, Tinman Silver-smith, Clockmaker Harnes-maker, Hemp dresser, Boat-builder, Surgeon, Apothecary⁵¹

The trades within Bethlehem functioned as the core of the *Oeconomy*. This contrasted with many other communities outside of Philadelphia, which profited more from the sale of agricultural materials. Nazareth and other outlying towns such as Christiansbrunn were seen as plantations and supported the agricultural sustenance of the Moravian communities. Their fields of grain and vegetables were intended for subsistence rather than profit.⁵² Craftwork did not have as many seasonal demands as agricultural work. This allowed for all members of the community, including artisans, to participate in missionary work.⁵³

For the Bethlehem Moravians, artisans, and church, mission work were tightly connected. Production provided goods for the community, to use and to sell, in support of the church. Artisanal work, such as the pottery production, was a duty to the church community. Johann Friedrich Cammerhof was an assistant to Spangenberg

⁵¹ Thomas Pownall, *Topographical Description of the United States, [Being a Revised and Enlarged Edition of] a Topographical Description of Such Parts of North America as Are Contained in (Annexed) Map of the Middle British Colonies, & c. in North America* (Pittsburgh, Pennsylvania: Ayer Publishing, 1976), 107.

⁵² Erbe, *Bethlehem, Pennsylvania*, 54-60.

⁵³ *Ibid.*, 61-62.

in Bethlehem (1747-51).⁵⁴ In a 1748 letter between Cammerhof and Zinzendorf, Cammerhof wrote,

“In addition to making our Economy all necessary vessels, of which, as you can easily imagine, we need no small number, he has provided almost all of Bethlehem and Nazareth with tile stoves last fall...In addition he has made pottery and stoves for strangers in the amount of 21 Pounds, 9 Shillings, 8 Pence. If we only had time to give him more room and opportunity in his shop, and if we didn’t have to carry clay for such a long distance, he could produce much more.”⁵⁵

This letter is not only exemplifies the potting production rates of the potter, but Cammerhof’s comment of the “pottery and stoves for strangers in the amount of 21 Pounds, 9 Shillings, 8 Pence...” provides a window into the economic relationships that the pottery trade formed with Bethlehem and Nazareth community members, and with markets outside the communities.

⁵⁴ Ibid., 30-31.

⁵⁵ Camerhof’s Letters to Zinzendorf, Shelf 252 C, 7/13 March 1748. Moravian Archives Bethlehem. Translation by Hans-Joachim Finke. Finke’s translated notes are on file at Historic Bethlehem Partnership.

CHAPTER 3

THE POTTERS AND POTTERY OF BETHLEHEM

3.1 “In this country it is necessary to build a good foundation for all buildings”:

The Pottery⁵⁶

The first log structure in Bethlehem was built in 1741, and was soon replaced by a large stone building called the *Gemeinehaus* (community house). This held dormitories, a kitchen, a dining area, and the *Gemeinesaal* (place of worship).⁵⁷ The *Gemeinhaus*, the largest in the town, stood above the Lehigh River and represented both the presence of the Moravians and their early communal efforts (See Figure 8).

The earliest reference to a potter is found under October 20, 1742, in the diary kept by the Bethlehem community members, and relates to the *Gemeinesaal*. It states, “The *Saal* [Gemeinsall] stove is also to be put up (if the potter should come).” It is unknown if the reference is to a potter in Bethlehem or another one, perhaps a Moravian, from nearby.⁵⁸

⁵⁶ “In this country it is necessary to build a good foundation for all buildings, -- and more solid than in Germany—because of the loose soil.” Diacony Conferenz. BethCong 238. MAB. 17 November 1755. Translation by Hans-Joachim Finke.

⁵⁷ Engel, “The Stranger’s Store,” 99.

⁵⁸ Another early record reads “This week one wagon is to go to Philadelphia with the English brethren and sisters and another to the (Great) Swamp to fetch stoves.” Kenneth Hamilton, ed., *The Bethlehem Diary*, Vol. 1, 1742-1744 (Bethlehem,

Another community diary entry from 1745 reads that “When the Spangenberg’s were on their way from Nazareth to Bethlehem, such a storm came up that branches continually fell around them. The storm blew the roof off the pottery and blew down a tree near the Single Sister’s House.”⁵⁹ It is thought that this “pottery” was a log structure that at the time was located between several other log structures occupied by the carpenters and coopers, or across the Lehigh River and then later moved.⁶⁰ A more permanent building, one wall of which survives today, was

Pennsylvania: The Archives of the Moravian Church, 1971), 92; There is some controversy as to who the potter in “the Swamp” was. Joseph Levering in his publication of the *History of Bethlehem* wrote that “It had been brought from the kiln of Ludwig Huebner, the potter ‘in the Swamp.’” Levering, *A History of Bethlehem, Pennsylvania*, 145; Hamilton, *Bethlehem Diary* Vol. 1, 99; Several sources say that “the swamp” refers to Faulkner’s Swamp, an area south of Bethlehem. William J. Murtagh, *Moravian Architecture and Town Planning* (North Carolina: University of North Carolina Press, 1967), 92, footnote number 141; correspondence with Lanie Graf, archivist Moravian Archives Bethlehem. April 17, 2009; The reference to a potter “in the Swamp” may actually relate to Müller. Müller was described as “our own Brother” and there are many Müllers indexed in *The Bethlehem Diary* from 1742-1744 living in Faulkner’s Swamp; The Bethlehem diaries as well as Hübner’s Lebenslauf mention his having come to America in 1739, and then moving to Oley, but the diaries do not mention Hübner as specifically being the potter “in the Swamp.” A secondary source mentions another potter by the name of Huster (or Heister) working as early as 1735 in Upper Salford Township of Montgomery County, which is the same area as the Great Swamp. Barber, *Tulip Ware*, 107; Edwin Atlee Barber, *Pottery and Porcelain of the United States and Marks of American Potters* (New York: J&J Publishing), 51. Further research into potters operating in Southeastern Pennsylvania prior to 1760 needs to be done.

⁵⁹ Vernon H Nelson, et. al., ed., *The Bethlehem Diary*, Vol. 2, *January 1, 1744-May 31, 1745*, (Bethlehem, Pennsylvania: The Moravian Archives, 2001), 260.

⁶⁰ Murtagh, *Moravian Architecture and Town Planning*, 92; notes of Hans-Joachim Finke in the collection of the Historic Bethlehem Partnership; Robert Rau who researched the pottery and other trades in the early twentieth century wrote that “It was a log building, 10x25, located about 60 feet to the west of the junction of the old

constructed for the pottery in 1749 (See Figure 9). The Bethlehem Diary for July of 1749 states, “Today the groundbreaking for our new Pottery Building took place, which is located westerly from the Choir and *Gemein* (Common) Houses toward the Monocacy Creek, and conceived in such a way that the necessary future shops can be added in a row to form a pleasing [architectural] prospect.”⁶¹ A second source, confirming the groundbreaking, is in the diary of the Single Brothers in July, 1749: “The start in the construction of our new Pottery House was made today.”⁶² This building, made of stone, measured thirty-two by thirty-five feet in dimension.⁶³

road [Ohio Road] and Main Street.” Robert Rau Collection, Box “Papers on Trades and Industries,” File Folder “Potter.” Moravian Archives Bethlehem; Robert Alleman repeats this information in his master’s thesis written in 1939, but has no documented source for this information. Robert Alleman, “An Investigation of Moravian Pottery in Bethlehem, Pennsylvania” (Master’s thesis, Lehigh University. 1939); The junction of Ohio Road and Main Street would have been very near where the pottery was built in 1749, making the location of the first pottery unclear. Finke wrote in a small report on the pottery that, “The first Pottery for which we have definite records was located on the south bank of the Lehigh River, and may have been built as early as 1744.” He wrote that Robert Rau was insinuating a second pottery prior to the stone structure was the one at the junction of Ohio and Main streets. Notes and lecture entitled “The Pottery and the Metal Working Complex in 18th Century Bethlehem: A Bicentennial Lecture for Historic Bethlehem Inc.” (paper presented Sunday, June 27, 1976); Levering wrote “almost under the shadow of the Brethren’s House at the north-west corner, on the slope of the hill where the present Main Street makes the turn, was the log house built in 1742 for the carpenters and joiners, connected with the first little log cooper’s shop...on the hill side, Ludwig Hubener built his first oven and in a corner of that house, for a while, set up his first rude wheel to turn out pottery for the use of the settlement.” Levering, *A History of Bethlehem*, 389.

⁶¹ Bethlehem Diary, Wednesday 19/30 July 1749. BethCong 8. MAB. Translation by Hans-Joachim Finke.

⁶² Diary of the Single Brothers in Beth. Jan. 1, 1742-Apr. 5, 1762. BethSB1. Entry 30 July 1749. Translation by Hans-Joachim Finke.

⁶³ Murtaugh, *Moravian Architecture and Town Planning*, 92.

Changes to the structure took place over the next decade and included an addition and a second story to accommodate other crafts and workers. The pottery kilns (ovens) probably were constructed outside of the building and under a shed roof.⁶⁴ Between 1767 and 1768, the operations of the pottery were moved from the Industrial Quarter to Market Street, which restricts the archaeological evidence located at the site in the Industrial Quarter (See Figures 10 and 11).⁶⁵

⁶⁴ Several sources mention the kiln being within the building, but the notes regarding the building of a shed for a new kiln make references to fire hazards and the closeness of the kiln to the building. Minutes of the Jüngerkonferenz. (Sept. 24, 1755-December 6, 1756) March 31, 1756. BethCong 91 trans. Hans-Joachim Finke, MAB; In 1762 an entry for the Potter's House debits two thousand and ninety feet of "Plaister Laths" for the "Oven Room," which likely meant where the kiln was. In 1763 an entry in a book kept for the records of building supplies purchased and traded among the communities lists Michael Odenwald purchasing upwards of five hundred bricks and lime in July and September. On December 1, Odenwald is debited for "50 hard bricks," which may infer the brick needed to make or repair a kiln (kiln brick must be harder than construction brick). Finally, on December 29th he is debited for six-hundred and eighty-seven "little Laths for the Addition to his Shop." Haupt Buch vor die Bau Inspection in Bethlehem, 1762-1766. Box: Bethlehem: Bau Inspection, 1761-1766: 41, 93, MAB.

⁶⁵ Robert Rau wrote, in referring to one potter, Ludwig Hübner, that "His son Abraham was the last potter who plyed (sic) his trade in Bethlehem and there are those still living who remember the earthen pots, ensembles of his handiwork, displayed in array before his home and workshop on market street..." Robert Rau Collection, Box "Papers on Trades and Industries," File Folder "Potter." MAB. Hans-Joachim Finke notes that in the Helfer Konferenz for May 5, 1767 a decision for Brother Hübner (Ludwig) to take over Brother Hirte's house. The corresponding original document to this note has not been located. Unpublished notes of Hans-Joachim Finke. On file at Historic Bethlehem Partnership.

3.2 The Potters

Contrary to previous scholarship, pottery was being made in Bethlehem as early as 1743. Although the “Potter’s Shop” does not appear as a header in the ledgers until January 1744, one March 8, 1743 Bethlehem ledger entry lists a debit from for earthen dishes and pots under the heading “Nazareth,” implying that production in Bethlehem had begun earlier that year.⁶⁶ In addition to the pottery sales outside Bethlehem, listings for local inhabitants associated with the pottery trade suggest a 1743 beginning date for ceramics manufacture in Bethlehem. One Jacob Kohn arrived in Bethlehem in September, 1742, and, though no record directly lists him as a potter, he is often associated in later community records with several of the potters.⁶⁷

Philadelphia potter Daniel (David) Miller (Müller), did not move to Bethlehem officially until May, 1744. However, based in part on a January, 1744 ledger entry in Bethlehem for a purchase of tea, there is a possibility that Miller may have been making pottery in Bethlehem prior to his move in May, 1744; traveling back and forth from Philadelphia.⁶⁸ In March, 1748 Bishop Cammerhof wrote to Zinzendorf in

⁶⁶ Because the earliest record mentioning the pottery architecturally is dated 1744, many authors have written this as the beginning date for pottery production in Bethlehem. Ledger of the Diaconat at Bethlehem A , December 28, 1743- December 28, 1744, MAB.

⁶⁷ “Daniel Mueller and Jacob Kohn went again to their work in Gnadenthal and in the evening they will return,” 25 November 1745, Nazareth Diary. On file at the Moravian Historical Society, Nazareth.

⁶⁸ A record from 1745 reads, “When the Spangenbergers were on their way from Nazareth to Bethlehem, such a storm camp up that branches continually fell around them. The storm blew the roof off the pottery and blew down a tree near the Single

Herrnhut, Germany that, “The Pottery is being run by our dear Daniel Müller from Philadelphia...and Friedrich Antes who is learning the trade is his helper, and we thank the Savior that he has given him to us.”⁶⁹ A succession of master potters following Miller (Müller) included a man named Rubel, Michael Odenwald, Ludwig Hübner, and Ludwig Hübner’s son, Abraham.⁷⁰

Sister’s House...” This reference to a building designated as the pottery adds to the assumption that pottery was being produced in the town by 1744. Vernon H. Nelson, et. al., ed., *The Bethlehem Diary*, Vol. 2, *January 1, 1744-May 31, 1745* (Bethlehem, Pennsylvania: The Moravian Archives, 2001), 260; Daniel Miller’s name was apparently David Müller prior to his joining the Moravian church. After his baptism he was given the name Daniel, and his last name appear in various records both as Müller and Miller. Hamilton, *Bethlehem Diary* Vol. 1, 181; Miller is listed under the heading “names of Germans in Philadelphia, attached to, or in communion with the Moravians, June 1747.” Abraham Reincke, *A Register of Members of the Moravian Church* (Bethlehem, Pennsylvania: H.T. Clauder, 1873), 96-97.

⁶⁹ Camerhof’s Letters to Zinzendorf, Shelf 252 C, 7/13 March 1748, trans. Hans-Joachim Finke, MAB; Hamilton, *Bethlehem Diary* Vol. 1, 181, 195; Nelson, *Bethlehem Diary* Vol. 2, 102, 188; Heinrich Antes had lived in Falkner’s Swamp before coming to Bethlehem. Friedrich Antes was the son of Heinrich Antes, who was the vice syndic and director of the synod in 1742. Hamilton, *Bethlehem Diary* vol. 1, 14, 97.

⁷⁰ Robert Alleman wrote in his 1939 dissertation that in 1750 a man named Rubel became the potter prior to being replaced by Michael Odenwald in 1752. However, Rubel oversaw the tile and brick making works, which may have made it unlikely that he was also a potter. Notes made by Hans-Joachim Finke for “The Pottery and Metalworking Complex in 18th Century Bethlehem: A Bicentennial Lecture for Historic Bethlehem Inc.” Historic Bethlehem, Inc.; “Pottery Excavations.” Newsletter 9 no.1 (November 1970), 2-3. This newsletter also states that Rubel was the transitional potter between Miller and Odenwald beginning in 1750; Other than in the reference from Alleman and the Historic Bethlehem newsletter, no other sources or records could be located to substantiate Rubel’s position in the pottery. He does appear in the records relating to the brick manufacture. Hamilton, *Bethlehem Diary* vol. 1, 154; Abraham Hübner followed his father in the pottery trade and continued through the 1830s according to Alleman, “Moravian Pottery,” 2; There is little on the life of Michael Odenwald other than his position in the pottery as master from 1752-

Floor and masonry brick and roof tile production took place first in Nazareth and did not begin in Bethlehem until 1754 and were conducted separately from the pottery and tiled stove manufactories (See Figure 12).⁷¹ Recent research allow for differentiation between these types of manufacture in Bethlehem and help clear up an unsubstantiated statement repeated for over one hundred years. In his publication *The History of Bethlehem*, Joseph Levering states that Ludwig Hübner was the potter “in the Swamp” who made the early stoves brought to Bethlehem.⁷² This is unlikely. Ludwig Hübner, who eventually became the master potter in 1764, was a brick maker by trade and did not learn pottery making until 1750.⁷³ From the records, he does not

1764 and how he was removed from the community. On July 30, 1764 a committee was brought together regarding the affair of Michael Odenwald and the wife of Christian Anton. Michael Odenwald had conveniently “traveled away from here” when the committee met. Anton described that his wife had told him that Odenwald had been “compassionate, generous” and “would help her in her poverty. She would allow him to kiss her as often as he wanted, and even if he wanted to lie with her she would allow this; he would give her money for this.” BethCong 130, trans. Julie Tomberlin Weber, MAB; Odenwald did not return to Bethlehem and a credit appears on 31 May 1765 for profit and loss of 1 Pound, 10 Shillings, 9 ½ Pence for an unpaid debit that Odenwald had incurred in 1762 and 1763 (the last entry 31 May 1763); Odenwald is not mentioned as a potter as frequently as Hübner in texts, which may be due to this case.

⁷¹ Robert Rau Collection, Box “Papers on Trades and Industries,” File Folder “Potter,” MAB; Alleman, “Moravian Pottery.”

⁷² Levering, *A History of Bethlehem, Pennsylvania*, 145.

⁷³ The Bethlehem Diary notes that Ludwig Hübner was a brickmaker by trade. Hamilton, *The Bethlehem Diary*, Vol. 1, 1742-1744, 154; The House Conference Minutes for 1750 note that Ludwig Hübner was to learn the “Potter’s trade” from Müller. House Conference 7 January 1750, trans. Hans-Joachim Finke, unpublished notes of Hans-Joachim Finke. On file at Historic Bethlehem Partnership. Corresponding original records have not been located; Ludwig Hübner’s Lebenslauf describes him as born in 1717 near Herrnhaag Germany, in Philadelphia in 1739, and

seem to be involved in the brick making in Nazareth during his first years in Bethlehem, but rather, spent his time as a missionary. There is a distinction in Bethlehem between the potters who made stoves and stove tiles, and those who made bricks and roof tiles, and because Hübner was not initially trained to understand glaze making, which he did not need for making brick and roof tiles, it is unlikely that Hübner was the potter “in the Swamp” providing Bethlehem with their stoves.⁷⁴

Documentary evidence suggests that workers in the Bethlehem pottery were organized as masters, journeymen, and apprentices, in the manner that was typical for trade shops in eighteenth-century Pennsylvania (See Appendix B for list of potters).⁷⁵ References to “Master Potter” and apprentices in the shop are found in the documents related to the pottery works. An August, 1763, entry in the documents of the Conferenz Protocoll Committee, one of the many organizations overseeing the operations of the community, reported that a journeyman named Sturgis (Sturgins),

settled in Oley shortly thereafter. He went to Bethlehem in July of 1743 and joined the Moravian Brethren in 1744 (The Bethlehem Diary lists his joining the congregation in October of 1743). He served in several missionary positions both in New England and Surinam. It was not until 1763 that he returned to Bethlehem and took over the pottery. Ludwig Hübner, *Lebenslauf*, 1795, trans. Julie Tomberlin Weber, MAB.

⁷⁴ Further research into the records of the area where Falkner’s Swamp was located (near present-day Frederick, Pennsylvania) may reveal who this potter was. Additionally, correspondence with Robert Wood from the Goshenhoppen Historical Society which has ownership of the Henry Antes House, reveals that there may be references to this same potter in the records of Henry Antes. It was mentioned that Henry Antes also worked with a potter “in the Swamp,” or may have supported this potter financially. This has not been pursued or substantiated. Correspondence with Robert Wood. August 22, 2009.

⁷⁵ W.J. Rorabaugh, *The Craft Apprentice: From Franklin to the Machine Age in America* (New York: Oxford University Press, 1986).

under Michael Odenwald (the master potter), “left his shop and demands more salary.” Five days later, it was written that “It has been reported that Sturgis has returned to his master.”⁷⁶ A record book for the Single Brothers House lists several other individuals as working in the pottery such as Carl August Ludwig and Johann Heinrich Vollert.⁷⁷ Another community record documents a potter who requests to be moved: “Jungmann, who is in the pottery, has already mentioned a year ago that he will not be able to remain in the profession because of his chest... We will think about his removal.”⁷⁸

Apprentices during the *Oeconomy* were bound out to the Gemeinde’s trustees rather than directly to the masters. This allowed for ease in moving individuals in and out of the community for missionary work. If the master was sent for work outside of the community, the apprentice would not be bound to that master but could be reassigned to another master in that shop or moved to another trade.⁷⁹

The requirement for every member of the community to participate in

⁷⁶ Conferenz Protocoll Committee 1762-80, 17 August, 1763, 22 August 1763. BethCong 130, trans. Hans-Joachim Finke, MAB; Joseph Sturgis, Lebenslauf. Lititz Moravian Archives and Museum.

⁷⁷ Further investigation into the record books of the Single Brethren as well as the married men may reveal more names of the individuals working in the pottery during its operation. Catalogue Single Brethren 1743-1755. BethSB. MAB; Nelson, *Bethlehem Diary* Vol. 2, 90; The reference to the Single Brethren refers to the divisions of the community by sex, age, and marital status. A secondary source also lists Jacob Kohn as an assistant in the pottery; he arrived in Bethlehem from Europe in September of 1742. Robert Rau Collection, Box “Papers on Trades and Industries,” File Folder “Potter.” MAB.

⁷⁸ Minutes of the Elder’s Conference (Sept. 28, 1767-Aug. 15, 1774). May 1769. BethCong 49, trans. Hans-Joachim Finke, MAB.

⁷⁹ Engel, “On Heaven and Earth,” 291.

missionary work caused some impermanency in the operations of many of the shops, but, somewhat surprisingly, did not seem greatly to effect productivity or to the community cohesiveness. Bishop Cammerhof in Bethlehem, an assistant to August Gottlieb Spangenberg, wrote to Zinzendorf concerning the matter of shifting personnel in the missionary work of Bethlehem and its relationship to the financial as well as provisioning problems it presented. He stated, “It is always a wonder of the Savior to me, when I think of it, that it [the Bethlehem *Oeconomy*] still goes forward the way it does. The many changes of craft masters in this or that area that we have to make, due to missionary plans or also sometimes because of spiritual reasons, often leave large gaps in many shops.”⁸⁰

Bethlehem master potter Ludwig Hübner, spent many of his first years of association with the community as a missionary and traveled in the company of John Wade, another missionary, through the Delaware Valley, New England, and later, Suriname.⁸¹ A journal kept by Bethlehem’s Society for the Furtherance of the Gospel, which collected money for missionary work, records the pair’s efforts.⁸² A Saturday, November 5, 1748 entry reads, “Agreed that the Following Journey Expenses of our Brn [Brudern, or Brothers] be allowed” including “Wade & Hübner on a Land

⁸⁰ Engel, “On Heaven and Earth,” 77.

⁸¹ John Wade is listed as “itinerating in the Gospel among the Friends in the Great Swamp, North Wales, Neshaminy, Darby, Chester, Wilmington, Penn’s Neck, Pile’s Grove, Raccoon, Maurice river, Burlington, and Trenton.” Reincke, *A Register of Members of the Moravian Church*, 82, 84.

⁸² Engel, *Religion and Profit*, 103-104.

Visit.”⁸³ On Saturday, January 14, 1749 an agreement is met to cover the expenses of the brothers and sisters who participated in missionary work since the previous meeting. This included “Wade and Hübner to N. [New] England.”⁸⁴ Hübner’s continued missionary work following his employment in the pottery in approximately (c. 1751) is evidenced by another entry in the Society for the Furtherance of the Gospel journal. On December 12, 1754 an expense to Bethlehem is detailed as “1 pr [pair] Shoes for Ludwig Hübner when he went to Pachgatcock.”⁸⁵ The Society also listed potter David [Daniel] Miller as a member.⁸⁶ Michael Odenwald, another of Bethlehem master potters, was ordained as a deacon in 1761. He traveled to Suriname as a missionary in 1762, returning the following year.⁸⁷

Little evidence reveals the day to day labors of the potters nor their specific techniques and types and quantities of their daily production. Potters are, however, known to have been obligated to furnish necessary pottery for the community before selling any excess outsiders, or strangers. Within Bethlehem, earthenware appears in

⁸³ 5 November 1748. Society for the Furtherance of the Gospel, Bethlehem, Pennsylvania. Accounts and Minutes, 1745-1759. MAB.

⁸⁴ 14 January 1749. Society for the Furtherance of the Gospel, Bethlehem, Pennsylvania. Accounts and Minutes, 1745-1759. MAB.

⁸⁵ 12 December 1754. Society for the Furtherance of the Gospel, Bethlehem, Pennsylvania. Accounts and Minutes, 1745-1759. MAB.

⁸⁶ Monday, 30 December 1745. Society for the Furtherance of the Gospel, Bethlehem, Pennsylvania. Accounts and Minutes, 1745-1759. MAB.

⁸⁷ Entry for Johann Michael Odenwald. Richard Träger and Charlotte Träger-Große, *Dienerblätter. Biographische Übersichten von Personen, die im Dienst der Brüdergemeine standen, O-Re* (Universitätsarchiv Herrnhut, 1999).

the inventories of various houses and buildings and usually is separated from other ceramic wares. Such pottery is identified simply as “earthenware” or also as “Töpfer Geschirr,” or pottery ware.⁸⁸ Some 1757 community records allude to restrictions including, “There is to be a reminder that the potter’s work should be regulated in order to have the most important work done first.”⁸⁹

3.3 “We have to cart clay for the Potter”: the Pottery Wares⁹⁰

Because the potter was obligated to furnish the community with earthenware, most earthenware appearing in inventories for buildings in town could have been made by the Bethlehem pottery. Forms appearing on the inventory of the Crown Tavern in 1765 were likely made in Bethlehem. Listed under “Earthen Ware” on one laundry list are cream pots, butter pots, pots with handles, pots with handles and feet, milk dishes, flat dishes, soup dishes, skillets with covers, bowls, plates, chamber pots, a shaving basin, oil jugs, and both quart and pint mugs.⁹¹ Other identified forms from the records include pipe heads, bottles, earthen stoves, chamber pots, cups and saucers, earthen dishes, jugs, porringers, mugs, milk pans, large bowls, plates, bowls, cups, watering pots, mortars, soup dishes, lamps/lanterns, basins, sauce pans, and milk pots.

⁸⁸ Inventory of the Crown Inn, 1765. MAB; Inventory of the Stranger’s Store, 1765. MAB.

⁸⁹ Minutes of the ‘Haus Conferenz’ or House Conference (May 9, 1756-Aug. 23, 1760). 30 September 1757, trans. Hans-Joachim Finke, MAB.

⁹⁰ Minutes of the ‘Haus Conferenz’ or House Conference (May 9, 1756-Aug. 23, 1760). 28 April 1758, trans. Hans-Joachim Finke, MAB.

⁹¹ Inventory of the Crown Inn, 1765. MAB.

Distinctions are made between pots of various sizes and are detailed by price. One ledger entry dated January 3, 1744 that included one earthen pot at four pence, one at eight pence, and another at six pence.⁹² The type of pot form is not identified.

Different individuals also might use different terms for the same object type. For example, an entry of sales to the Indian community of Gnaden Thal, listed beside the debit of the “Potter’s Shop.” The following objects were included in the entry, “4 Milk Pans, 1 Cream Pot, 2 large Butter Tubs, 4 Milk Tubs, 1 Milk Pale, 1 Buttern Churn & 1 Lanthorn[sic].”⁹³ Was the lantern the same as a lamp?

Archaeological evidence from Bethlehem includes a wide range of ceramic forms. There are numerous sizes of pots or crocks of slightly ovoid shape, with large, rolled rims (See Figure 13). Single fired, unglazed ware include large, shallow dishes averaging three to four inches in height and twelve to sixteen inches in diameter. The marly of these low dishes are often two to three inches wide and rising from a shallow, flat bottom. The rims of these dishes are almost all thickly rolled (See Figure 14).⁹⁴ Varieties of lids, mostly unglazed and single fired, were made to fit flange-rimmed vessels, or would have been supported on a ledge at the top of the pot (See Figure 15). Excavated pulled (hand-formed) handles range from small, types for cups or mugs, to

⁹² 3 January 1744. Entry for John David Baringer. Ledger of the Diaconat at Bethlehem B, 1744-1748, MAB.

⁹³ 15 October 1744. Ledger of the Diaconat at Bethlehem B, 1744-1748, 63, MAB.

⁹⁴ John Bivins defined a marly as “the flat or slightly concave section of a plate or dish located on the upper surface between the cavetto and the rim.” Bivins, *Moravian Potters*, 281.

large ones measuring two to three inches across the top (See Figures 16 and 17). These larger handles are found on what seems to have been a deep basin. The same vessel form also features large strap handles which form an inverted cup on the side of the piece. Some of these deep basins also have lips for pouring, as a pitcher does.

Among other forms are small, very shallow dishes, averaging only one inch in height and having a defined foot and a wide marly, with a thickly rolled rim (See Figure 18). Fragmentary objects excavated from the site of the tannery include unglazed, low, rounded, shallow bowls which are unglazed, but exhibit burn marks around the rim and underside. Like some crudely thrown, rounded pots or crocks with glazed interiors from the same site, these exhibit burn marks around the rims and underside and presumably were used for heating their contents over a fire (See Figure 19). A form unique to fragments from the location of the 1749-1767 pottery may be the marly of a shaving basin, and is highly decorated (See Figure 20). There is also a fine example of a smoking pipe head found archaeologically (See Figure 21), as well as stove tile fragments coated in a range of glazes (See Figure 22).

The earliest items produced by the potters were the tile stoves for use within the community as well as sold to outsiders. Robert Rau, an early twentieth century scholar, insisted that the manufacture of stoves in Bethlehem did not take place until Ludwig Hübner took over the pottery in 1764. However, evidence from the ledgers and the potter's account book of 1752-1758 include entries for stoves and stove tiles being bought and sold, as well as repaired.⁹⁵ Henry Antes, a member of the Bethlehem

⁹⁵ Töpfer Buch in Bethlehem, 1752 bis 1758. BethBus 9. MAB; Robert Rau

Community who lived south of Bethlehem in Skippack, is listed in the ledger as purchasing an “Earthen Stove” on February 25, 1750.⁹⁶ The Bethlehem Diary, as previously mentioned, also frequently document the installation of stoves in various Bethlehem and Nazareth buildings. Prior to the development of stove piping in the late 1750s, potters made a form of jamb stove called a *Kachelofen*. This stove was constructed of clay tiles, often glazed on the exterior, would have been located against a wall in a room opposite from a fireplace, the fire in the stove being fed from the fireplace. At the end of the 1750s developments in the manufacturing of stove piping led to the creation of draft stoves, which could stand out from a wall.⁹⁷ A surviving stove at the Moravian Historical Society in Nazareth, Pennsylvania has an attribution of manufacture by Ludwig Hübner, one of the master potters from Bethlehem, and is an example of a freestanding draft stove, placing its manufacture after the development of stove piping (See Figure 23). A visitor to Bethlehem named John C. Ogden wrote in 1799,

Collection, Box “Papers on Trades and Industries,” File Folder “Potter,” MAB; An entry on December 31, 1751 in the Ledger C of the Diaconat 1749-1755 alludes to the likelihood of other books kept by the potters which no longer exist or have not been identified. The entry in 1751 reads, “Earthen Ware at several Times this Year besides what is before charg’d as per D.[Daniel] Miller’s Book.” The 1752-1758 book in the Moravian Archives, Bethlehem is likely the book kept by Odenwald as he had become the master potter by 1752 and Daniel Miller left for New York shortly thereafter.

⁹⁶ Entry for Henry Antes. At the cost of 50 shillings, 6 pence he also purchased numerous amounts of earthenware around the same time. Ledger of the Diaconat at Bethlehem C 1749-1755, 28, MAB.

⁹⁷ Kenneth R. LeVan, “Building Construction and Materials of the Pennsylvania Germans,” guidebook distributed at the meeting of the Vernacular Architecture Forum, 2004 (n.p., Kenneth R. LeVan, 2004): 49-50.

In the public buildings and most other houses, we find German stoves, made of tile, which are in general use. Some are totally formed of tile, while others are part of cast iron. These last are in greatest esteem on all accounts, as they are not so liable to be injured by putting in of wood by careless persons; the tiles on top are so placed as to form a species of flue, in perpendicular and horizontal forms, which retains the heat, while it circulates longer, and heats a room more pleasantly and more durably than sheet iron.⁹⁸

In making the stoves the potters appear to have worked closely with the blacksmith in town as well as local furnaces. There are debits in the ledgers of the community for the potter's account which list such items as "29 Iron plates" on March 31, 1761 and a debit on October 31, 1761 for the Blacksmith "for 5 Barrs."⁹⁹ Many of the iron plates were purchased from Durham furnace, a prominent establishment approximately fifteen miles east of Bethlehem, located on the Delaware River.¹⁰⁰

Both documentary and archaeological evidence from Bethlehem reveals that earthen water pipes were being made by the potters for the distribution and dispersal of water. Records as early as 1752 mention "earthen pipes" made for drainage off

⁹⁸ John Hill Martin, *Historical Sketch of Bethlehem in Pennsylvania* (Philadelphia: Orrin Rogers, 1872), 55.

⁹⁹ Ledger of the Diaconat at Bethlehem D, 1755-1762, 226, MAB.

¹⁰⁰ Various notes made in the House Conference mention retrieving plates from Durham. Hans-Joachim Finke, unpublished notes on file at Historic Bethlehem Partnership. Corresponding original records have not been located; Sources such as the 1977 archaeological report have noted that the potters of Bethlehem traded iron for pottery. City of Bethlehem, Pennsylvania, Bureau of Planning, *Bethlehem Pottery and Forge, an Archaeological Investigation*, National Heritage Corporation (1977); see pages 82-84 for a discussion of Philadelphia merchant William Logan, who had an interest in the Durham Furnace and traded in Bethlehem.

from houses.¹⁰¹ Many of the water pipes were likely made in conjunction with the operation of the water works, constructed in 1754, and pumping water into the town's reservoirs by 1755. The water works distributed water throughout the town in a series of intricate pipes.¹⁰² Whether all of the pipes for the waterworks were earthen may not be determined, but surviving archaeological earthen pipes attest to the potter's manufacture of these materials.¹⁰³ Archaeological evidence from the excavations at the tannery and the waterworks located near where the pottery was manufactured (1743-1767) reveals pipes of various sizes, having collars and sleeves for connecting to one another (See Figure 24). On the interior of the pipes are large lines, often called "throwing rings" because a potter makes these lines when the potter's fingers move through the clay while throwing.¹⁰⁴ Earthen pipes have also been excavated from the tannery with soot on the interior of the pipe. This evidence implies that the earthen pipes may also have been used for stove piping as well as water pipes (See Figure 25).

¹⁰¹ 2 February 1752. Hans-Joachim Finke, unpublished notes on file at Historic Bethlehem Partnership. Corresponding original records have not been located.

¹⁰² Murtagh, *Moravian Architecture and Town Planning*, 73-77.

¹⁰³ Image of connected water pipes found in situ. Historic Bethlehem, Inc. "Pottery Excavations." *Newsletter* 9 no.1 (November 1970): 3.

¹⁰⁴ Information on the throwing rings is from the author's personal experience with making pottery. While the pipes found archaeologically in Bethlehem could have been made elsewhere, the preponderance of clay water pipes found in Bethlehem compared to other eighteenth-century sites in southeastern Pennsylvania is perplexing. With the exception of a clay water pipe found near the Ephrata Cloister (see Chapter 4), there have been no sites in an eighteenth-century context with clay water pipes. Conversation with Janet Johnson, archaeologist at the State Museum of Pennsylvania, Summer 2009. Janet Johnson said that wooden water pipes are found more frequently archaeologically in an eighteenth-century context.

Archaeological and documentary evidence attests to the use of pottery materials manufactured in Bethlehem within the community, as well as outside the community in other Moravian and non-Moravian communities. The wide variety of forms show the potters' ability to cater to the needs of those around them and support the missionary goals of the Moravian church through selling to the outside.

3.4 Materials for the Pottery and Manufacturing Evidence

The Bethlehem potters would have had to provision themselves with a standard list of raw materials. This list would include earthenware clay, a supply of wood for firing the kiln, and an array of elements such as lead oxide (red lead) for glaze, and colorants for glazes and slips. In the community ledgers, the materials purchased for the potter may be seen in the debits. The debit list confirms that the potters supplied themselves with these necessary materials. There are multiple entries for loads of clay and wood occurring usually in May and November between the years 1755 and 1762.¹⁰⁵

Materials for the potter occur frequently throughout the year for "Red Lead" and "unground Black Lead." Identification of the vendor occurs infrequently in the documents. One entry for April 13, 1757 is written "Hen. V Vleck for "Red Lead & Carriage." Henry Van Vleck was a Moravian New York merchant with close ties to the Bethlehem community. A July 7, 1759 entry reads, "To James & Drinker for Red

¹⁰⁵ Ledger of the Diaconat at Bethlehem D 1755-1762: 7, 226, MAB.

Lead,” a prominent Philadelphia merchant firm.¹⁰⁶ This particular entry corresponds with a potter’s account book entry on July 13, 1759 showing that red lead was bought from James and Drinker (See Figure 26).¹⁰⁷ A debit in the community ledger lists a “Red Lead Mill” in 1758 for the potter. The red lead mill is in the pottery inventories.¹⁰⁸ Additionally, an entry in the account of the Single Brothers House notes “6 pounds of Spanish brown for the Potter’s use,” costing 5 pence.¹⁰⁹ The materials suggest glazes and slips for decorating and finishing the wares. The entries in the ledgers and account books also suggest that the potters were purchasing their supplies from at least two major cities, Philadelphia and New York, connecting them to the larger economic network created by the Moravian Church.

There are multiple entries for loads of clay and wood usually in May and November between the years 1755 and 1762.¹¹⁰ Records imply that the clay dug for the potter simply dried, cleaned, and sieved for fineness, then reconstituted with water.¹¹¹ Sieving of the clay is evident from an entry in a community record in 1752

¹⁰⁶ Ledger of the Diaconat at Bethlehem D 1755-1762: 7, 226, MAB.

¹⁰⁷ “Von Jam.s & Drinker 9 Ct. 2 qr. 23 # Red Lead gekauft.” 13 July 1759. Töpfer Buch in Bethlehem, 1752 bis 1758. BethBus 9, MAB.

¹⁰⁸ A “Red Lead Mill” is listed on 15 February 1758 as a debit. Ledger of the Diaconat at Bethlehem D 1755-1762, 226, MAB.

¹⁰⁹ Expenses, 27 September 1748. Ledger of the Diaconat at Bethlehem C 1749-1755, 92, MAB.

¹¹⁰ Ledger of the Diaconat at Bethlehem D 1755-1762, 7, 226, MAB.

¹¹¹ Personal experience with clay materials.

which reads, “Brother Müller to have a chest and sieve to clean his clay.”¹¹² The local clay fired to a red color, imparting a bright orange or red appearance under the clear lead glaze (See Figure 27). The clay likely came from a source near the community of Nazareth.¹¹³

Bethlehem potters used a fairly common technique of slip trailing using colorants and clay to decorate the wares with ornate floral motifs, lines, and numerous other patterns.¹¹⁴ Archaeological evidence, though not showing the entire range of materials that were being produced (cups and mugs are not as present as pans and dishes), gives an idea of the slip decorations and designs implemented by the potters of Bethlehem (See Figure 28 and Appendix E).¹¹⁵ While most of the slip-trailed designs are simple line decorations, there is some evidence that motifs such as birds and fish were also used to decorate the pottery (See Figure 29).¹¹⁶ Most of the pottery

¹¹² House Conference Minutes, 19 April 1752. Hans-Joachim Finke, unpublished notes on file at Historic Bethlehem Partnership, 6. Corresponding original records have not been located.

¹¹³ Historic Bethlehem, Inc. “Pottery Excavations.” *Newsletter* 9 no.1 (November 1970): 2.

¹¹⁴ This technique is not as strongly associated with a Germanic tradition as the Pennsylvania German technique of sgraffito decoration.

¹¹⁵ Bowls, milk pans, plates, and possibly mugs and pitchers appear to be the forms most decorated.

¹¹⁶ The most unusual design is a large sherd from the base of a dish with a sgraffito design of an ornate Georgian-style house and some floral decoration. Because the exact site location of this piece is unknown, other than its provenance archaeologically in the Industrial Quarter, it is difficult to assess the context of this piece. It is also unlike anything else in this study and therefore has been left out for future study. See Appendix D, Number 58.

was thrown on the wheel, undecorated, and coated with a black, brown, or clear glaze primarily on the interior (See Appendix F). The wheels used by the potters are distinguished in a 1762 inventory. The inventory lists two English wheels and two German wheels. The English wheel refers to a large vertical wheel with a rope which would drive the potter's wheel, operated by an additional person. The German wheel refers to an upright kick wheel, operated solely by the potter (See Figure 30 and Figure 31).¹¹⁷

Documentation of manufacturing techniques appear in various records in the community. Molds appear in the inventories of the pottery such as "cornice molds" and "tile molds," both likely used for stove manufacture (See Figure 32).¹¹⁸ A community ledger entry dated December 26, 1750 includes a purchase of "16 Stove corner Tiles" by the Indian community of Gnadenhütten.¹¹⁹

One of the most interesting items procured by the potter was a mold made by the forge in Bethlehem. In the records kept by the Diacony Conference, which oversaw the economic affairs of the community, refers to Brother Albrecht, who was the gunsmith, for making a "new machine to produce pipe heads and small cups."¹²⁰

¹¹⁷ John Bivins, *The Moravian Potters in North Carolina* (Chapel Hill, North Carolina: University of North Carolina Press, 1972), 89-90; Conversation with Don Carpentier, experienced potter researching and producing historical pottery, Eastfield Village, New York, January 2009; Inventory of the Pottery, 1762. MAB.

¹¹⁸ Inventory of the Pottery, 1758. MAB.

¹¹⁹ 26 December 1750 Ledger of the Diaconat in Bethlehem C, 1749-1755, 127, MAB.

¹²⁰ "Resolved: Br. Albrecht may make the new machine to produce pipe heads and tea cups (brass). However Br. Friis has to secure the machine, and he will receive a

This implies the use of press molding for making ceramic vessels such as pipe heads and cups, or a master mold of iron or brass used to make plaster molds (See Figure 33 and Figure 34).

Archaeological evidence indicates that some molded plates were produced in Bethlehem. The molds were probably from impressions taken from British-manufactured ceramics. Several sherds exhibit molded marlies, one appearing to be in the pattern of a “feather-edge” creamware dish, and the other in a diaper or barleycorn pattern salt-glazed stone ware (See Figure 35). Both of these sherds were made with red earthenware, slip decorated in black, green, and white colors, and then lead glazed. The Moravian potters in North Carolina are known to have been manufacturing wares similar to English creamware, and making molded plates from plaster molds (See Figure 36). No manufacturing tools or materials survive in Bethlehem.

A visual analysis of the Bethlehem archaeological collections reveals a set of characteristics. These same characteristics, if found on sherds from other sites, suggest

cupboard for it. And the model used to pour brass pipeheads will be under the security of the Diacony Conf.” Diacony Konferenz December 9, 1760. BethCong 238, trans. Hans-Joachim Finke; Finke misinterpreted some of the text. The text reads, “Es ist Resolviert werden, das br.[uder] Albrecht die neue Machine die er vor hat zu mache in an sehung der Tobacks Töpfe, u.[und] Thee shälchen, so waren wir im mü_tig Einig, das er sie machen kan, nur muß sie, Friis in verwahrung haben u.[nd] dazu mus er einen shranken bekommen, dan (?)t die Machine verwahrt kan werde und die Modelle, worin man die Messinge Tobacks töpfe giessen (Sc?)hut, vor die töpfe, die soll in die Diaconats Konferenz vovahrt bleiben.” Diacony Konferenz December 9, 1760. BethCong 238, MAB. It basically explains that Albrecht was to make a brass mold for pipe head and small cup manufacture, and Brother Friis was to take the mold, make a clay model of it, and, when he was done the brass mold would remain with the Diaconat Konferenz (likely stored somewhere safe in the community).

that the pottery could have been made at the Bethlehem pottery. The ware, red-bodied earthenware, appears as an orange or light red color beneath a clear, lead glaze. While a majority of the material from Bethlehem is glazed with clear, slightly yellow, lead glaze there are also wares glazed with dark brown, black, and green lead glazes. Many of the wares having a clear lead glazed are decorated beneath the glaze with slip trailed lines in white (yellow appearance), green, and black slip. The black slip is a defining characteristic of the Bethlehem pottery, and may distinguish it from Philadelphia-made pottery (See Figure 37). The black slip used in Bethlehem was likely made with the black lead that appears in the community ledgers as purchases under the heading of the pottery (See Figure 38).¹²¹ Black lead would have made a black colored slip unlike manganese, which turns a dark brown to purple color, and is likely what many potters in Philadelphia were using (See Figure 39).¹²² This will be

¹²¹ The reference to “Black lead” in the Bethlehem Moravian Archives cannot be identified as a specific element or mineral. ‘Black lead’ in the graphic arts is usually a reference to graphite. Graphite would not have made a useful slip for a potter, however, as the graphite would burn out in the kiln. In early documents about potting, “lead” often referred to any material that would produce a glaze or flux. The term ‘black’ may simply refer to its appearance in color as a raw material. Conversations with numerous potters and conservation staff, as well as personal experience with pottery materials.

¹²² Pottery sherds from the site of the Hillegas pottery on Second Street have both similar decoration and rim configuration to the pottery produced in Bethlehem. Perhaps the potters were emigrants, trained in similar areas of Germany. There is also a possibility, unsubstantiated, that Daniel Müller/Miller worked for Hillegas (1739-1742) prior to his joining the Moravian Church and moving to Bethlehem (1742-1743). A forthcoming article in *Ceramics in America* will highlight these materials as analyzed by George Cress of URS Corporation, New Jersey. Special thanks to George Cress for sharing the archaeological material from the Hillegas site.

discussed further in chapter four.

The most common form is a shallow dish having a wide marly (measuring up to two inches), and thick, rolled rim (See Figure 13). Nearly all of the wares have a rolled rim, either simply pressed to form an angle, or pressed with a tool in order to make a lobed edge. Other forms found archaeologically in Bethlehem are crocks or pots, small mugs, large mugs, large basins with strap bowls, plates, chamber pots, a shaving basin, pipe heads, bottles, pitchers, and stoves.¹²³

These characteristics of Bethlehem pottery must be confirmed by subsequent research and analysis. As has been mentioned, identification of this pottery is complicated. Not only is there a dearth of intact survivals and of documented archaeological collections from Bethlehem, but there is also significant influence shared by workers who trained in potteries in Germany and then worked in more than one Moravian site. Pottery produced at Moravian settlements in the current state of North Carolina, which post date the Bethlehem settlement, are an excellent example.

3.5 North Carolina Connections

There has been a great deal of material written on the Moravian pottery of North Carolina. This is in part due to the extensive well-documented archaeological work completed in North Carolina and the succeeding research and publications. Evidence shows the likely exchange of designs and techniques between the Moravian communities in North America and Herrnhut, Germany. The pottery traditions of the

¹²³ Inventory of the Crown Inn, 1765, MAB.

Moravian potters in Pennsylvania and North Carolina are distinctive from other Germanic potters, but similar to each other.¹²⁴ This similarity may be explained by the potters' training and work in various communities. Gottfried Aust, who became the master potter in the Moravian community of Bethabara, North Carolina, went to Herrnhut in 1742 and learned the pottery trade from the master potter there, Andreas Dober. After serving an apprenticeship he traveled to North America through the port of New York on the ship Irene in 1754, and then on to Bethlehem on November 24, 1754. He was placed in "interim employment" with Brother Odenwald in the pottery and worked there for at least ten months.¹²⁵ He went with a group of people in October, 1755 to settle in the new Moravian community of Bethabara, North Carolina. Pottery production began in Bethabara in 1756. Bethania was established in 1759, and Salem was established in 1766. In 1759, Bethlehem potter Michael Odenwald made a trip to North Carolina to deliver news and other materials to the community there. He spent approximately three months in North Carolina, but was only mentioned in the

¹²⁴ John Bivins wrote extensively on the topic of the Moravian potters in North Carolina. In his presentation entitled "Moravian Potters in North Carolina" he charges that "Surprisingly, the Moravian potters in Pennsylvania seem to have been quicker to shrug off European details than their contemporaries in North Carolina" failing to note at the time one in tact piece of pottery with provenance of having been made in Bethlehem existed, and adds that "a comparative study cannot be completed until the pottery shop in Bethlehem is excavated." John F. Bivins, "Moravian Potters in North Carolina" in *Ceramics in America*, edited by Ian M.G. Quimby, Winterthur Conference 1972 (Charlottesville, Virginia: University of Virginia Press, 1973), 282; Bivins, *Moravian Potters*, 16-17, 54-55.

¹²⁵ Coincidentally, Dober's brother, also a potter, may have resided at Herrnhag where Odenwald worked and lived before coming to Bethlehem. Reichel, *Early History of the Church of the United Brethren*; Bivins, *Moravian Potters*, 16-24.

diary of the Bethabara community as traveling with Brother Johannes Ettwein and observing a flood. However, one of the last entries in the diary mentions his going to Cape Fear with pottery prior to his return to Pennsylvania.¹²⁶ Other potters such as Joseph Müller (no relation to Bethlehem potter Daniel Müller/Miller) and Ludwig Möller traveled from Bethlehem to apprentice as potters in Bethabara. Because Odenwald, Hübner, and Aust were born in and trained as potters in neighboring regions of Germany, it is not surprising that their techniques in making various forms, and decorations would be similar (See Figure 40).

3.6 Internal and External influences

There were two important events in Bethlehem which impacted the pottery production, one internal and one external. The internal dissolution of the Oeconomy structure of the community did not affect the production of pottery. The external French and Indian War, or Seven Years War, did affect the production of pottery.

Plans were proposed and drawn in 1752 for the dissolution of the *Oeconomy*.¹²⁷ Community members, under the new plan, would obtain their own clothes and food, and Bethlehem's craftspeople would operate their businesses independently. The transition to this change in community began in 1761 and was

¹²⁶ 31 December 1759. Bethabara Diary, 1759. B: 50:7. Moravian Archives Southern Province (hereafter MASP); 24 January and 31 January 1760. Bethabara and Bethania Diary, 1760. B: 50:8. MASP.

¹²⁷ Erbe, *Bethlehem, Pennsylvania*, 97-99.

official by the spring of 1762.¹²⁸ This change was not driven by any consideration of economic freedom or by the Moravians' desire to engage further in the market economy. It was largely motivated by the weak financial position of the Moravian Church both in Germany and in North America.¹²⁹ The French and Indian War, or Seven Years War, was a great financial toll on the American settlements and will be discussed further. To make matters worse, Count Ludwig von Zinzendorf, the leader of the Moravian Church, died in 1760. The funds he had once provided were no longer available. His creditors even approached the Moravian settlements, asking for payments of debts.¹³⁰

The Single Brothers and Single Sisters choirs remained a part of the church and the community following the termination of the *Oeconomy*. Some of the more profitable businesses, such as the pottery, continued to be operated through the church, but the workers received wages.¹³¹ The pottery and the blacksmith were managed by the Single Brothers house. Those trades deemed most profitable to the community in order to continue supporting the missionary work were to remain a part of the Church. Those considered to be less profitable were turned over to the craftsperson and

¹²⁸ Engel, "On Heaven and Earth," 192.

¹²⁹ Ibid., 265.

¹³⁰ Beverly Prior Smaby, *The Transformation of Moravian Bethlehem* (Philadelphia: The University of Pennsylvania Press, 1988), 32-33. Good description of the concerns surrounding the necessity to turn the community over from a communal economy to a market economy.

¹³¹ Engel, "On Heaven and Earth," 182.

privatized.¹³² Master potter Michael Odenwald and his journeymen, Carl Ludwig, Sturgins, Peter Stuz, and Joseph Hübsch, are listed as pottery workers during this transition.¹³³ They were told as a part of the new economic organization that from that date they were working for the Brothers House and would henceforth earn wages. After eight days of free room and board the Brothers House would start its own economy.¹³⁴ However, the master potter and the blacksmith were apparently not satisfied that their businesses would be profitable to them as part of the Church, while those of their neighbor were privatized. The potter and the blacksmith apparently would have preferred to try their luck as independent tradesmen. An entry in the Commonplace Book of the Single Brethren [Brothers] for 1762 confirms their dissatisfaction,

The yearly salary for the two masters in the pottery and smithy has been set at 40 Pounds per year and after payment of all expenses they are to share half the profit with the Economy. However, since the masters got it into their head to run their professions independently, and they saw that such could not be allowed, they demanded 50 Pounds yearly. Both Odenwald and Steph. Blum [blacksmith] were in such a state of mind, that one thought they would up and leave. Thus it was resolved that each profession would be responsible for its own costs, house rent, interest on tools and stock in trade. They shall take their

¹³² Ibid., 182.

¹³³ Memorandum book, kept by John Arbo, warden of the Single Brothers, relating to the dissolution of the General Economy, especially in regard to the Choir of the Single Brothers. BethSB 7, trans. Hans-Joachim Finke, MAB; Arbo was in charge of Single Brethren. March 30 1762, trans. Hans-Joachim Finke, MAB.

¹³⁴ March 25 and 30, 1762. Diary of the Single Brothers in Beth. Jan. 1, 1742-Apr. 5, 1762. BethSB1, trans. Hans-Joachim Finke, MAB.

yearly salary of 40 Pounds, and from whatever is left, the masters shall have 20 per cent, the rest is to be divided between the Brethren's [Brothers] House and the Economy.¹³⁵

These new arrangements were put into place and Bethlehem's pottery remained part of the Moravian Church, affiliated with the Single Brothers House. Bethlehem remained a town based on artisanal work after the dissolution of the *Oeconomy*. Directors in Herrnhut, Germany wrote that turning their focus to agriculture as the communities surrounding Bethlehem subsisted, "would be a mistake" and "the professions would earn much more, while farming could be better handled by [non-Moravians]." Their land could, he envisioned, provide family subsistence, but their crafts were to continue to be the basis of their income and the lifeline of the community.¹³⁶

Changes in the economic organization of Bethlehem between 1761 and 1762 motivated the master craftsmen in the shops to seek more traditional relationships with their apprentices. The masters decided that parents would bind their children directly to the shop masters, rather than to the Church as had been done previously.¹³⁷ For example, following the transition in 1762, master potter Ludwig Hübner's accounts reflect that the potter was both a part of the Single Brothers House and in charge of the

¹³⁵ Memorandum book, kept by John Arbo, warden of the Single Brothers, relating to the dissolution of the General Economy, especially in regard to the Choir of the Single Brothers. BethSB 7. MAB.

¹³⁶ Engel, "On Heaven and Earth," 186-187.

¹³⁷ Ibid., 264-265.

shop. Hübner's debits include interest charged for the "shop and shed," the stock in the pottery, and housing for his children, including his daughter Rachel. Credited to Hübner's account are cleaning stoves, mending stoves, mending stoves at the brick kilns, as well as entries for "The Kitchen," "The Girls *Oeconomy*," "Children at y^e Br^s House," and "Expences for earthen Ware."¹³⁸

Bethlehem was not untouched by war and conflict involving its missionary work with the Indians. The Seven Years War, or French and Indian War, engulfed Bethlehem in the tangle over the possession of land, and the displacement of Indian communities, and slowed the production of pottery in Bethlehem. As historian Katherine Carte Engel describes, in the conflict of the Seven Years War, "Bethlehem was not just on the frontier, it was on the front line."¹³⁹ During the war Bethlehem hosted nearly two hundred and fifty refugees, both Indian and neighbors from the region.¹⁴⁰ They were housed wherever space could be found, "You may ponder: where have you been really able to place so many refugees? We indeed: in the pottery, the wagon shop, the cabinet shop, among other shops, and the handcrafts have meanwhile stood [at a standstill] and not without considerable loss."¹⁴¹ An entry in the community ledger for November 1, 1756 lists a cash expense from the store run by the Bethlehem

¹³⁸ Ledger of the Diaconat at Bethlehem E 1762-1771, 176, MAB.

¹³⁹ Engel, *Religion and Profit*, 136

¹⁴⁰ Erbe, *Bethlehem, Pennsylvania*, 106-110.

¹⁴¹ Quoting a letter from Spangenberg to Zinzendorf. Erbe, *Bethlehem, Pennsylvania*, 108.

Moravians as “Tavern by Nazareth for Cash paid to 9 Soldiers for Watching.”¹⁴² A stockade was built around Bethlehem, and arms and ammunition were purchased.¹⁴³ Small companies of men were formed for the protection of the community; one was led by the master potter Michael Odenwald.¹⁴⁴ The war challenged the missionary basis the Moravians had founded in creating settlements and outposts specifically for Indians. The town of Gnadenhütten, one of the Moravian’s largest Native American missionary posts northwest of Bethlehem, was burned.¹⁴⁵ When the Seven Years War was declared to be over in 1763 it had taken a large financial toll on Bethlehem as well as the Moravian Church, and added to the financial need for dissolving the *Oeconomy*.

3.7 Dissolution of the Community-based pottery

The move of the pottery in 1767 to Market Street corresponds with Ludwig Hübner’s purchase of the stock of the pottery for 90 pounds, 17 shillings, and 7 pence. Hübner was the master potter at the time of this transaction, and had received permission to purchase and move the operations of the pottery to Market Street.¹⁴⁶ This transition followed a decision made in 1766 to turn all of the trades remaining as

¹⁴² Entry under the heading of the Stranger’s Store. Ledger of the Diaconat at Bethlehem D, 1755-1762, 281, MAB.

¹⁴³ Engel, *Religion and Profit*: 221

¹⁴⁴ Conferenz Protocoll Committee 1762-1780. BethCong 130, 10 August 1763, trans. Hans-Joachim Finke, MAB.

¹⁴⁵ Engel, *Religion and Profit*, 54, 140-145.

¹⁴⁶ Alleman, “Moravian Pottery,” 8.

a part of the church over to the artisans. The mills, store, inns, and apothecary would remain as financial support for the congregation.¹⁴⁷ There is some implication that the trades did not bring in enough income to supplement the economy. A footnote cited in Helmuth Erbe's dissertation entitled, "Bethlehem, Pennsylvania: A Communitistic Herrnhut Colony of the 18th Century", notes the Unity Director's Board reported that "the pottery, in which 5 Brethren[Single Brothers] had plenty of work during the Economy Era but 'one master artisan hardly had enough work with one apprentice' at the beginning of the sixties[1760s]."¹⁴⁸

¹⁴⁷ Erbe, *Bethlehem, Pennsylvania*, 140-141.

¹⁴⁸ Ibid., 141, footnote citation number 717.

CHAPTER 4

THE ECONOMICS OF BETHLEHEM AND TRADE WITH STRANGERS

4.1 “We have had a Cutting Box bought at Bethlehem”: Economic Trade and Networking¹⁴⁹

Though they formed a closed religious community, Moravians did not oppose trade and interaction with outsiders. Neighboring communities and individuals near Bethlehem frequently did business there. Bethlehem not only welcomed outside local purchasers, but it also attracted an incipient tourism and regional trade. Bethlehem was also connected to outside communities through the purchases of newspapers printed by Christopher Sauer in Germantown, the Lancaster Gazette of Lancaster, and Benjamin Franklin’s Pennsylvania Gazette.¹⁵⁰ Bethlehem’s potters also participated in a lively trade for supplies with distant port cities.

Located approximately fifty miles north of Philadelphia, Bethlehem was

¹⁴⁹Henry Drinker to Jacob Stroud 18 November 1772, Henry Drinker, Letterbook, 1762-1786, Phi 176, HSP.

¹⁵⁰Entries for the year 1753 under the heading of “News Papers” lists “Sower [Sauer] for 1 Year,” Ledger of the Diaconat at Bethlehem C, 1749-1755, 207, MAB.

connected to Philadelphia via land through an intricate network of roads. Between Philadelphia and Bethlehem was the town of Germantown, where some Philadelphia merchants and merchants' families resided. West of Philadelphia Lancaster hosted an early Moravian community and outpost for missionary work in the Oley Valley. Lititz, a Moravian community established in 1753, was located just north of Lancaster. Ephrata Cloister, another closed religious community had early economic ties with Bethlehem (See Figure 41).

From their earliest days, the Moravians of Bethlehem welcomed and accommodated those from outside of the community. In writing the *The Crown Inn* in 1872, William Reichel mentioned that settlers moving steadily north stopped in Bethlehem frequently. But because of their monastic living arrangements, the Moravians were unable to house people in their buildings, so The Crown Inn, built by the Moravians in 1745 at the edge of the King's Road from Germantown, provided visitors with food and accommodations.¹⁵¹

Visitors came to Bethlehem from New York and from Philadelphia specifically to see the town, for various reasons. Many came to see the industry of the town, and they were given tours of the Industrial Quarter to view the trades plied there. Hannah Callender, of a prominent Philadelphia and Barbados Quaker family, kept a diary between 1758 and 1762 that recorded a journey with Anna Pole, Betsy Bringham, James Bringham, and Samuel Sansom to Bethlehem. They were given tours through

¹⁵¹ William Cornelius Reichel, *The Crown Inn, Near Bethlehem, Pennsylvania, A History* (Philadelphia: King & Baird, 1872), 23, 27.

the buildings of the town and spent time in the countryside visiting other Moravian communities such as Nazareth. Hannah Callender and her acquaintances walked in the area of the pottery.¹⁵² Individuals may have also been coming to know more about religious and ethnic difference. Prior to her visit to Bethlehem Hannah Callender wrote on November, 1758 that she read the journal of the Moravian missionary Frederick Post who had gone to Ohio. Others visiting the town attended services, given in both English and German.

Land speculation also brought individuals such as Abel James and Henry Drinker, of the merchant firm James & Drinker in Philadelphia, to Bethlehem. From Abel James' diary, it seems he owned land near Bethlehem, and in 1773 Henry Drinker wrote to an individual north of Bethlehem that James "longs much to be in that Country and flatters himself he shall yet be there this Fall."¹⁵³ Henry Drinker also wrote of a mortgage deed he had sent to Jacob Stroud "via Easton," which is northeast of Bethlehem, and reported that "probable purchasers" will soon inquire about tracts of land in the same area.¹⁵⁴

¹⁵² George Vaux, ed., "Extracts from the Diary of Hannah Callender," *The Pennsylvania Magazine of History and Biography* 12, No. 4 (January 1889), 434, 448.

¹⁵³ Letter in October 1773 to Jacob Stroud stated that A. James (Abel James) "longs much to be in that Country and flatters himself he shall yet be there this Fall." Jacob Stroud is apparently north of Philadelphia as another letter mentions when his wagon will next come *down* to Philadelphia. Henry Drinker, James & Drinker letter books, 1756-1786, Phi 176, HSP.

¹⁵⁴ Letter on 26 January 1774. Land speculation states that the road from "Delaware to Shawhollow" has been repaired and that "probable purchasers" will soon offer tracts of land in the same area as Jacob Stroud. A mortgage deed sent to Stroud from Drinker

Visitors also came out of sheer curiosity. The Moravian communal living and division by choirs attracted those outside of the community.¹⁵⁵ Visitors often saw the Single Sisters House as well as the Single Brothers House, guided on tours by Church members. Many took note of multiple beds in one room or the paintings on the wall depicting religious scenes, and they sometimes met the leader of the house. One visitor in 1773 wrote, “The unmarried of both Sexes have separate [*sic*] houses and have no intercourse with each other; sure it never was the design of the Wise disposer of all things, that the Loveliest part of the Creation should thus be Cloistered up, as they were undoubtedly given to smooth the rugged path of Life, and to soften the turbulent temper of the other Sex: To be without their agreeable Company and Conversation is not to live.”¹⁵⁶

Outsiders also commented on the distinguishing characteristics of Moravian speech. Johann David Schöpf in the early 1780s criticized the German dialect used in areas outside of Philadelphia, but wrote that “The purest German is heard in the

was sent “via Easton,” which is northeast of Bethlehem. Henry Drinker, James & Drinker letter books, 1756-1786, Phi 176, HSP.

¹⁵⁵ Reactions to the possibility of dissolving the *Oeconomy*. Engel, *Religion and Profit*, 148-153.

¹⁵⁶ Friday, 23 August 1773. *Philadelphia to Bethlehem Journal*, 1773, Phi 1005, HSP; This is not to say that sexual practices were not recognized. Quite the opposite, some of the sexual practices of the Moravians, especially in the 1730s and 1740s were quite controversial, and the structure of their community was considered to be against the patriarchic structure of society. Aaron Spencer Fogleman, “Jesus Is Female: Moravians and the Challenge of Radical Religion in Early America,” *The William and Mary Quarterly* 60, no. 2 (April 2003): 295-332.

Moravian colonies.”¹⁵⁷ Because members of the Moravian church were not all from Germany, it may have been that they spoke High German as opposed to a dialect in order to communicate with one another.¹⁵⁸

4.2 The Stranger’s Store

Prior to the opening of the Stranger’s Store in 1753, sales for the community and non-Moravians were done through a craftsperson’s shop. Bishop Cammerof wrote in 1748 that artisans in Bethlehem had more work than they could attend to, and they had to turn away “turning, carpentry, wagon, weaving, tailors, coopers, and other work, because all of our neighbors would so much like to have their work done in Bethlehem.”¹⁵⁹ Early economic ledgers and records for the community attest to this direct selling from the craft shops to outsiders. The pottery shop sold to communities such as Nazareth, for “earthen dishes” and to Gnadenthal, a missionary outpost northwest of Bethlehem. There are also individual names such as John Baker, John David Baringer (a shoemaker), and John Cook.¹⁶⁰ One entry even details Samuel Barron as “in the Irish Settlement” (See Figure 42).¹⁶¹ These individuals were not

¹⁵⁷ Johann David Schöpf, *Travels in the Confederation, 1783-1784*, ed. Alfred Morrison, (Philadelphia, Pennsylvania: William J. Campbell, 1911), 108.

¹⁵⁸ Bethlehem Chamber of Commerce. *Bethlehem of Pennsylvania, the First One Hundred Years, 1741-1841* (Bethlehem, Pennsylvania: Bethlehem Book Committee), 141.

¹⁵⁹ Engel, “On Heaven and Earth,” 226.

¹⁶⁰ Ledger of the Diaconat at Bethlehem A , December 28, 1743- December 28, 1744, 22, MAB; Ledger of the Diaconat at Bethlehem B, 1744-1748, 51, 29, MAB.

¹⁶¹ Ledger of the Diaconat at Bethlehem B, 1744-1748, 120, MAB.

members of the Moravian Church for church members received their goods through the *Oeconomy* and their names in the ledger are not preceded with the prefix “Brother” or “Sister.” Goods for individuals outside of the community were frequently exchanged for other goods such as wheat, potatoes, flax, hogs, shoes, clothes, or hides. Exchanges at the Indian community of Gnadenhütten included tar, flax, baskets, and brooms.¹⁶²

By 1753, the Moravians realized that their model of *Oeconomy* produced more commodities than were necessary to meet their own needs. They designated a space to begin an exchange with non-Moravians.¹⁶³ Opening the store that year removed the distraction of marketing and sales from the craftsperson and centralized the retail operations of the community with the outside world.¹⁶⁴ Spangenberg laid out the guidelines for the community’s business endeavors. Storekeepers were to be in charge of watching that Bethlehem’s artisans “deliver good work and at the going rate; i.e., neither too much or too little, as both are damaging to someone.” For prices, storekeepers were not to trade in the “way of the world” by negotiating a price, but to remain firm on a single price.¹⁶⁵ Like the sale of local foodstuffs, prices were largely based on prices in Philadelphia, and wares such as the pottery were not to be sold for

¹⁶² Entry for Gnadenhütten credits and debits. Ledger C of the Diaconat 1749-1755, 56, MAB.

¹⁶³ Engel, “On Heaven and Earth,” 226.

¹⁶⁴ Engel, “On Heaven and Earth,” 232; Engel, “The Stranger’s Store,” 105.

¹⁶⁵ Engel, “On Heaven and Earth,” 230.

more than the price of a “city shop.”¹⁶⁶ A report made by the Bethlehem Synod in 1757 affirmed that, “in Bethlehem everything is cheaper than in New York or Philadelphia.”¹⁶⁷

Despite the predominance of Bethlehem-made products for sale, the Stranger’s Store, like other backcountry stores, stocked goods imported from regional, European, and Asian markets. The store offered imported cloth in a wide variety of colors, qualities, and designs. Merchants also obtained objects such as porcelain and silver for local inns and for direct purchase by community members.¹⁶⁸ Potters also were aware of the quality of pottery in distant places. In preparation for a celebration in the late

¹⁶⁶ Ibid., 230.

¹⁶⁷ Erbe, *Bethlehem, Pennsylvania*, 63; Bethlehem Moravians did not rely on selling agricultural goods for profit in their community, but rather on the artisanal goods produced by the various trades in the town. The Moravians also did not extend large credit to individuals outside of the community. Cash or other commodities served as payment for purchases in the Stranger’s Store. The Store Conference for 5 April 1757 recorded: “It is necessary that we hold to our plan not to lend to anyone, because this makes our neighbors, who are our friends, into our enemies.” Engel, “The Stranger’s Store,” 110; The store was overseen by Church committees during the *Oeconomy*, and although a Moravian merchant operated the store, decisions about his operations were made by the church. Engel, “The Stranger’s Store,” 103; Because the store was overseen by the committees of the church it allowed for the religious values of the Moravians to be closely adhered to. The dissolution of the *Oeconomy* in 1762 changed how the Stranger’s Store was run. It did not, however, change the business ethics of “moral capitalism.” Engel, “The Stranger’s Store,” 108; After 1762 a Moravian merchant was paid to operate the store, but the profits still went to support the church. The merchant had more choice in what items were procured for sale, and the merchant and craftspeople had decisions in setting the prices placed on each item, which reduced the daily role of the church. However, Church committees still acted on complaints or conflicts in relation to the store. This shifted the economic ventures of Bethlehem toward a controlled market economy. Engel, “The Stranger’s Store,” 116.

¹⁶⁸ Inventory of the Crown Inn, 1758, MAB.

1750s called a Love Feast the potter was asked to create drinking vessels for the ceremony (See Figure 43). His reaction was that he thought “one could buy them better in Philadelphia than what he could make.”¹⁶⁹ However, such attitudes did not lead to a large rising consumption of externally made good. Rather, the store merchants made the goods readily available mostly to customers outside the town. Imported goods furnished the town’s public buildings, such as the inns and taverns, enhancing the reputation of the town among visitors and neighbors, but households and buildings for the Single Brothers and Single Sisters did not rush into a consumer revolution.¹⁷⁰

The Moravians developed commercial relationships in Philadelphia and New York in order to maximize their trade networks. Entries in various ledgers and account books show an intricate network between the cities and the participation of the Moravians in economic trade. For example, Thomas Bartow worked along with Henry Van Vleck in New York City to charter ships and secure goods for Moravians in

¹⁶⁹ March 15, 1756, “There is demand for Love Feast pots. The potter thinks one could buy them better in Philadelphia than what he could make.” Evidence has not been found to determine whether wares were purchased in Philadelphia. Minutes of the Gemein Konferenz, (Nov. 1755-Dec. 1756), BethCong 98, trans. Hans-Joachim Finke, MAB.

¹⁷⁰ The store inventories reflect the increasing imports coming in through Philadelphia and creating the ““empire of goods”” that existed in America by the mid eighteenth century. T.H. Breen, *The Marketplace of Revolution: How Consumer Politics Shaped American Independence* (New York: Oxford University Press, 2004), xv; Helmuth Erbe also describes the accommodations particularly made for merchants visiting Bethlehem. Erbe, *Bethlehem, Pennsylvania*, 72.

Bethlehem.¹⁷¹ Several members of the Bethlehem Moravian community appear in Thomas Bartow's ledger. William Edmonds, a merchant operating the store in Bethlehem is described as "for Bethlehem Store" and is listed in an account header in Bartow's debits for April, 1762. An account for John Arbo, head of the Bethlehem Single Brothers house in 1762, appears under the account heading of J. Francis Oberlin of Bethlehem, as a debit on April 16, amounting to 10 Shillings, 6 Pence.¹⁷² One of the potters, Daniel Miller, moved to New York City in 1753.¹⁷³ Whether he produced pottery there is unknown.

Philadelphia merchants also acted as the economic link between the city's hinterland and overseas markets.¹⁷⁴ They readily participated in the economy of Bethlehem. Henry Drinker's letterbooks are sprinkled with entries about the business

¹⁷¹ This account book was used as a scrap book by W.S. Crothers in the year 1825, leaving few pages of the account book visible or legible. Nonetheless, the entire book, scrapbook and account book, is fascinating. A debit on March 28th, 1761 notes that he paid 5 Pounds "cash for my Expenses to Bethlehem" An account header at the top of page thirteen lists the "General Deacons" at Bethlehem for a debit of 106 Pounds, 13 Shillings, 4 Pence. This may have been an advance to the Diacony as the same amount is listed as a credit on 21 May 1762 by cash in full and interest. Thomas Bartow "Accounts commencing in New York March the 1st 1759." Crothers Family, Thomas Bartow ledger, 1759, with receipt book, 1760-1766, Phi 2084, HSP.

¹⁷² Crothers Family, Thomas Bartow ledger, 1759, with receipt book, 1760-1766, Phi 2084, 15, HSP.

¹⁷³ Miller's name appears in various records in the 1740s. He was listed in 1753 with the congregation of New York. General Catalog, 1753, BethCong 360, MAB.

¹⁷⁴ Thomas M. Doerflinger, *A Vigorous Spirit of Enterprise: Merchants and Economic Development in Revolutionary Philadelphia* (North Carolina: University of North Carolina Press, 1986), 76.

“in the Country” that he and Abel James managed and provisioned.¹⁷⁵ Moravian pottery “enjoyed unexcelled renown and was well known as far away as Philadelphia.”¹⁷⁶ People purchasing items from Bethlehem include Biddle & Company, Benezet & Bachman, Sam & Hudson, and James & Drinker, as well as individuals such as Phillip, John, James, and Daniel Benezet, George Emlen, Tench Francis, Matthias Bush, and William Fisher. While some entries are detailed, frequent entries for “Sundries” or “Sundry items” are difficult to interpret. “Sundries” could mean any number of materials. Abel James’s (of James & Drinker) diary lists a purchase of “1 doz pipe Heads & Stems,” likely the ceramic pipes being made by the potters.¹⁷⁷ Daniel Benezet’s account book also has a debit on November 13, 1759 “To the Moravian Bretherin in part, 12 Pounds.”¹⁷⁸

¹⁷⁵ Henry Drinker to Pigou and Booth, 2 January 1773. Drinker comments about the fall in interest of Rupier Sheetings and Bleached Rupier in “the Country” Also that they (James & Drinker) have been in “the Country” on business. Henry Drinker, Letterbook, 1762-1786, Phi 176, HSP.

¹⁷⁶ Murtagh, *Moravian Architecture and Town Planning*, 92; “Large demands for the useful earthenware there produced, came from the Durham furnace where the Brethren bought much iron, and from farmers about the country, and some orders, even from Philadelphia, were filled.” Levering, *A History of Bethlehem*, 389.

¹⁷⁷ It is unclear as to which month or year this entry follows as the diary is out of order. The entry appears to follow a series of entries (similarity of handwriting, indentation) following Abel’s arrival to Bethlehem and his payment at the Tavern. Abel James Diary Aug. 17-Oct. 30, 1768, Memoranda 1766-1769, HSP.

¹⁷⁸ Crothers Family. Thomas Bartow ledger, 1759, with receipt book, 1760-1766: 57, Phi 2084, HSP.

4.3 Coupling Trade and Craft

Coordination between the businessmen of the store and the craftspeople in the community was a necessity. Supplies were generally purchased for the craftspeople through the store. When needed, supplies had to be purchased and received in good time and order to avoid “great hardship” for the *Oeconomy*.¹⁷⁹ Credits for the potter or the community were redeemed through payment for both individual wares, by bulk or singly, as well as firing wares or materials in the potter’s kiln. Many entries in the ledger for the credits to the potter are for “firing,” or the firing of a pottery kiln.¹⁸⁰ An entry in the day book of the Crown Inn November 22, 1762 reads, “to the Pottery for payment of a kiln firing” (See Figure 44).¹⁸¹ Additional entries for the Crown Inn include specified wares and charges such as “Paid to Odenwald (the master potter) for 2 qt. & one Pint Mug.”¹⁸² Charges for burning (or firing) pipe heads occur frequently and usually occur in conjunction with the Stranger’s Store.¹⁸³ In the ledger for the Crown Inn of 1762 the inventory lists numerous debits for “Töpfer Geschirr,” or

¹⁷⁹ Engel, “On Heaven and Earth,” 239.

¹⁸⁰ Töpfer Buch in Bethlehm, 1752 bis 1758. BethBus 9, MAB.

¹⁸¹ Entry reads, “an den Töpfer vor ein Ofen auß zu lautzen bezalht” Day book of the Crown Inn, 1762-1764, MAB.

¹⁸² Entry reads, “an Odenwald vor 2 qt. & ein Pint Krug bezahlt” 4 July 1763. Michael Odenwald was the master of the pottery shop at the time of this transaction. Day book of the Crown Inn, 1762-1764, MAB.

¹⁸³ Ledger of the Diaconat at Bethlehm D, 1755-1762: 226, MAB.

“Pottery Ware”. Specified wares range from Pint and Quart bowls to tumblers¹⁸⁴

Merchants in other towns commissioned wares from local potters to sell in their stores.¹⁸⁵ Prior to the end of the *Oeconomy* in 1762, Bethlehem’s potters provided wares directly to each place in the community (i.e. Crown Inn) but when selling to strangers or outside communities, they processed merchandise through the Stranger’s Store. Potters in Bethlehem did not make a commission because the money made would go back to the community, and prior to 1762 the store had on hand a steady inventory of goods from the potter. There is no evidence of orders placed at the pottery by the managers of the Stranger’s Store, indicating that the materials sold through the Stranger’s Store were excess production of the pottery after community needs were met. Further, the potter was the decision maker in the design of the materials; customers did not “bespeak” particular designs.

Regular deliveries were made by potters to the Stranger’s Store, as when debits were recorded for “Str^s Store for 2 Jugs” on March 31, 1755. Other listing “Str^s Store” occur frequently, with amounts ranging from two shillings to eleven pounds, confirming that the potter supplied the Stranger’s Store with wares for purchasers

¹⁸⁴ Ledger for the Crown Inn, 1762, MAB.

¹⁸⁵ Diane E. Wenger, “Creating Networks: The Country Storekeeper and the Mid-Atlantic Economy.” (Ph.D. diss. University of Delaware, 2001), 107-114. Section of Commodities I: Manufactures.

outside the community.¹⁸⁶ Other Moravian community buyers include the “Tavern over y^e Lehigh,” the “Tavern by Nazar [Nazareth],” “do. [Tavern] near Bethl^m [Bethlehem],” the “Sun & Crown Tavern,” the Apothecary, and the Locksmith (presumably in Bethlehem).¹⁸⁷ The community of Nazareth bought seven “earthen dishes” and one earthen pot March 7, 1743.¹⁸⁸ Moravians from a “Farm in Lititz” in October, 1759 and “Choir Houses in Lititz” on February 26, 1761, as well as John Becker owner of the store in Lititz, also shopped at Bethlehem. An entry in the store ledger also includes a Brother Horn “in Lititz” purchasing 540 pipe heads at 1 shilling per dozen, totaling 2 pound, 4 shillings.¹⁸⁹

Missionaries also shopped at the Stranger’s Store. The Society for the Furtherance of the Gospel, a Moravian organization that collected money for missionary work, was one such customer in 1761 and 1762.¹⁹⁰ A journal for the Society of the Furtherance of the Gospel kept between 1745 and 1759 includes an entry from 1746 stating “Paid to Bethlehem for the undermentioned things for the

¹⁸⁶ Ledger of the Diaconat at Bethlehem D, 1755-1762, 226, MAB; This is also supported by yearly entries for goods from the potter recorded in the Haupt Buch vor den Store der Oconomie in Bethlehem, 1763-1765, MAB.

¹⁸⁷ Ledger of the Diaconat at Bethlehem D, 1755-1762, 226, MAB.

¹⁸⁸ March 7, 1743. Ledger of the Diaconat at Bethlehem A, December 28, 1743-December 28, 1744, MAB.

¹⁸⁹ Entry for 3 June 1763. Ledger of the Store in Bethlehem B, 1763-1768, MAB.

¹⁹⁰ Engel, *Religion and Profit*, 103-104.

Indians,” which included earthenware priced at 11 pence.¹⁹¹

Wares also may have been purchased directly from the potter in order to supply the Moravian missionary workers.¹⁹² The potter’s book covering the years 1752 to 1761 lists other communities being served with wares or services (such as stove repair), by the potter including Gnadenthal, Nazareth, Friedensthal, Gnadenhütten, Christians Brun, and Maguntschy School.

4.4 Evidence of Trade Beyond the Community

Local and regional consumption of the Bethlehem potter’s goods is also revealed from archaeological fragments from various sites.¹⁹³ Because of the extensive trade network created by the Bethlehem community, it is expected that the materials produced by the Bethlehem potters be found outside of the community. While exact matching sherds are not present in Bethlehem, the visual similarities between the sites’ sherds’ rims, slip colors, and decorative patterns are near to each other, and may shed light on what *was* being produced in Bethlehem, rather than casting this evidence

¹⁹¹ Wednesday, 22 October 1746. Society for the Furtherance of the Gospel, Bethlehem, Pennsylvania. Accounts and Minutes, 1745-1759, MAB.

¹⁹² Ledger of the Diaconat at Bethlehem D, 1755-1762, 226, MAB.

¹⁹³ Especially in the case of the Herr House, these materials are strikingly similar to archaeological material from Bethlehem, and to decorative elements from the Bringham yard. An effort has been made to bring these materials to light; however, further research is needed. Joseph Sturgis/Sturgins, who trained as a potter in Bethlehem, moved to the Moravian community of Lititz in the 1780s to produce pottery there. The similarity in the decorative techniques may be through this connection. Joseph Sturgis, Lebenslauf. Lititz Moravian Archives and Museum.

aside because of the lack of documentation or evidence. Comparing archaeological information from these sites with Bethlehem may provide better insight into the wares likely produced in Bethlehem. Few text records for these places outside of Bethlehem survive, and there are few documented potters of southeastern Pennsylvania from southeastern Pennsylvania from the second quarter of the eighteenth century (outside of Philadelphia) who produced multi-colored, slip-trailed earthenware.¹⁹⁴

Archaeological materials from these sites correspond with identifying visual characteristics previously mentioned in chapter two.

Peter Wentz Farmstead

Christopher Wiegner, a Moravian who settled outside of Philadelphia in the 1730s in an area called Skippack, mentioned a man named Peter Wentz several times in his diary. In one account he “went to Peter Wentz to talk the matter over about his hired girl. He and she insisted on their own righteousness.”¹⁹⁵ Wentz, also located in

¹⁹⁴ It is interesting to note however, that the majority of potters producing sgraffito wares are purported to be from the Palatinate area of Germany, or the southern regions of the German states. This area in Germany has a distinctly different appearance in the decoration of pottery as compared to northern Germany or the southern Dutch slip trailed wares. Many of the potters that can be documented that worked in Bethlehem came from the northern regions of Germany, and would have likely learned a different tradition of pottery decoration than those potters from southern Germany. David Gaimster, *The Historical Archaeology of Pottery Supply and Demand in the Lower Rhineland, AD1400-1800*. British Archaeological Reports, Studies in Contemporary and Historical Archaeology 1 (2006); John G. Hurst, David S. Neal, and H.J.E. Van Beuningen, *Pottery Produced and Traded in North-West Europe, 1350-1650* (Rotterdam: Stichting, 1986).

¹⁹⁵ Entry on 8 May 1737. Peter Erb, *The Spiritual Diary of Christopher Wiegner* (Canada: Wilfrid Laurier University Press, 1978).

Skippack since 1711, purchased hundreds of acres and his son, Peter Jr., built a home on the family land. The house, built in 1758, is still standing, and is a museum open to the public.¹⁹⁶ It is located in Lansdale, Pennsylvania, approximately thirty miles south of Bethlehem. The early documented interaction with the Moravians and location of the household near a major corridor between Philadelphia and Bethlehem adds to the possibility of archaeological material from the Peter Wentz Farmstead having been manufactured in Bethlehem.

Archaeological excavations began in 1970 when the Commissioners of Montgomery County inherited the site.¹⁹⁷ Numerous pieces excavated are visually similar to materials from the Hess House, Stenton, Brighthurst House, and Bethlehem (See Figure 45 and Figure 54). The majority of the materials are multi-colored slip-decorated dish rims with profiles similar to those found at Bethlehem. The colors of the slips include white, green, and black. The visual characteristics and similarities with Bethlehem's archaeological material suggest these materials as likely being manufactured at Bethlehem. However, an exact context date is unable to be identified for these materials due to a lack of documentation, identifiable strata, or the lack of surviving records from the original digs.

Johannes Hess/Christian Hess House, Lititz

¹⁹⁶ John L. Cotter, Daniel G. Roberts, and Michael Parrington, *The Buried Past: an Archaeological History of Philadelphia* (Philadelphia: University of Pennsylvania Press, 1993), 393-397; Morgan McMillan, curator, Peter Wentz Farmstead, conversation with author, February 4, 2010.

¹⁹⁷ Cotter, *The Buried Past*, 395.

The Johannes Hess/Christian Hess house site in Lititz, Pennsylvania was originally owned by Hans Hess, but he never developed the surveyed land. His son, Jacob Hess settled on the tract around 1730 and built a one-story log cabin. When he died in 1741, the house passed to his son Johannes, who owned the house until he died intestate in 1778. The stone house now standing was likely built before 1755.¹⁹⁸ Johannes Hess secured water rights from his neighbor George Klein in 1758. George Klein was a Moravian convert who gave his land to the Moravians for the establishment of Lititz in 1756. Johannes Hess built a hemp or oil mill around 1768. His probate inventory from 1778 includes a note that "The young womans at Lititz" owed his estate 5 pounds and 1 shilling, and may have been for a purchase of oil from his mill. These "young womans" were likely either the Single Sisters or the Linden Hall School, which was a girl's school run by the Moravians. Incidentally, Johannes's probate inventory also includes "for Earthen Ware 5 shillings."¹⁹⁹ Johannes Hess' brother Christian inherited the house and property in 1784.²⁰⁰

As previously mentioned, the community of Lititz was supplied many of their goods through Bethlehem. A Moravian store was also in Lititz as early as 1774,

¹⁹⁸ Vernacular Architecture Forum, *Guidebook for the Vernacular Architecture Forum Annual Conference. Architecture and Landscape of the Pennsylvania Germans, May 12-14, 2004*. Harrisburg, Pennsylvania (n.p.: Vernacular Architecture Forum, 2004), 124-125.

¹⁹⁹ Clarke Hess, correspondence with author, Friday, March 12, 2010.

²⁰⁰ Clarke Hess, correspondence with author, Friday, March 12, 2010.

operated by John Becker.²⁰¹ It appears from entries in the Bethlehem ledgers that John Becker purchased materials from Bethlehem on commission to sell in Lititz. Christian Hess specifically appears in the ledgers of Lititz in 1784 as taking a payment to Gottfried Haga, a Moravian merchant in Philadelphia.²⁰²

The material was excavated during construction of an addition to the original stone house. In excavating for the addition, part of an original filled cellar revealed a large collection of highly slip-decorated red earthenware sherds. Rim profiles and shapes are very similar to archaeological evidence from Bethlehem and Stenton. Archaeological material excavated from the house site owned by Jacob and then Christian Hess bear striking visual resemblances to material excavated from Stenton, the Peter Wentz Farmstead, Ephrata Cloister, North Carolina, and Bethlehem (See Figure 47). Unusual slip decorations in what appears to be a blue color, accented by white, green, and black appear infrequently and may only be compared to material from Dock Street in Philadelphia (See Figure 48).²⁰³ As described in chapter two, the

²⁰¹ This date is based on a Lititz Moravian store inventory dated 1774. Limited documentation on the store in Lititz exists. John Becker, Folder 209, Records 1774-1792. The Winterthur Library: Joseph Downs Collection of Manuscripts and Printed Ephemera; It is possible that this store was operating earlier than 1774 as a complaint was made in Bethlehem on Monday, December 9, 1771 that Brother Becker in Lititz was supplying another man with inferior stoves. Conferenz Protocoll Committee 1762-80, BethCong 130, trans. Hans-Joachim Finke, MAB.

²⁰² Ledger of the Community of Lititz. Lititz Moravian Archives and Museum.

²⁰³ The author was unable to obtain permission to publish images from the Dock Street archaeological excavation. These materials are in the collection of the Atwater Kent Museum in Philadelphia. Similar decoration was also seen in the archaeological

presence of black slip on many of the excavated sherds may be able to distinguish it from a Philadelphia manufacture (See Figure 49 and Figure 60).

Even if the wares are from a later date, or presumably made closer to the Hess house, it is also likely that a former potter of Bethlehem made the wares. Joseph Sturgins/Sturgeus/Sturgis first trained in Bethlehem as a potter from 1756 to 1766. Having escaping the massacre at Gnadenhutten, he moved to Bethlehem where he learned to make pottery. When he left Bethlehem in 1766 he first went to Reading (1766) and then to Lititz (1782) where he settled and resumed making pottery.²⁰⁴

Ephrata Cloister

There is strong archaeological evidence that while the Ephrata Cloister may have had religious disputes with the Moravians, they had economic ties.²⁰⁵ Located in Lancaster County, approximately sixty-five miles southwest of Bethlehem, the Ephrata Cloister was a closed religious community. Stove tile fragments from the Ephrata Cloister are visually identical to the glaze colors and mold decoration of the stove tiles likely produced in Bethlehem (See Figure 50). There is little evidence of other stove tile manufacturers in southeastern Pennsylvania other than the potters in

collections from Franklin Court, in the collection of the National Park Service at Independence National Historic Park in Philadelphia.

²⁰⁴ This house is still standing. No known archaeological digs have been done on this site. It would be an interesting exploration as it is known he made pottery there. It could reveal his kiln, as well as the kind of wares he produced, and whether his material was slip decorated.

²⁰⁵ Jeff Bach, *Voices of the Turtledoves: the Sacred World of Ephrata* (University Park, Pennsylvania: The Pennsylvania State University Press, 2003), 21, 52, 110.

Bethlehem.²⁰⁶ Many of the archaeological materials similar to archaeological evidence from Bethlehem were excavated from a site with a Mean Ceramic Date of the mid to third quarter of the eighteenth-century for a closing date.²⁰⁷ Reconstructions from the 1995 investigation include large dishes with visually identical slip decorations and similar rim variations. The Mean Ceramic Date for this site was identified as 1735 due to the large amount of Westerwald stoneware, however the range of wares found extended the estimate of production through 1800.²⁰⁸

Most interesting from this site is a small dish with a marbled decoration in the center and German script slipped onto the rim. Though no evidence of rims with German script are evidenced in Bethlehem, there are several sherds from the site of the North Carolina Moravian potters in Bethabara, also similar to this decoration (See Figure 51). Numerous wares from the Ephrata excavations share visual characteristics

²⁰⁶ Kenneth R. LeVan, *Building Construction and Materials of the Pennsylvania Germans*. Vernacular Architecture Forum Annual Meeting, 2004 (Kenneth R. LeVan, 2004); It was mentioned to the author a possibility of stove tiles being manufactured in Philadelphia. However, the archaeological material from the Omni Hotel and Bourse Garage Site could not be located to see any supporting materials. Conversation with Bob Giannini, Museum Curator, Independence National Historical Park, February 18, 2010.

²⁰⁷ Stephen G. Warfel, *Historical Archaeology at Ephrata Cloister Report on 1994 Investigations* (Harrisburg, Pennsylvania: Pennsylvania Historical and Museum Commission, 1995), 12-13.

²⁰⁸ Stephen G. Warfel, *Historical Archaeology at Ephrata Cloister Report on 1994 Investigations*, (Harrisburg, Pennsylvania: Pennsylvania Historical and Museum Commission, 1995), 10-13; An additional dish with German script was uncovered in 1996. Warfel, *Historical Archaeology at Ephrata Cloister Report on 1996 Investigations*. (Harrisburg, Pennsylvania: Pennsylvania Historical and Museum Commission, 1997), 17-18.

with sites other than Bethlehem including the Peter Wentz Farmstead, Stenton, Market Street, and the Vine Street Expressway digs in Philadelphia (See Figures 52, 53, and 64). Red earthenware clay water pipes were also excavated from an eighteenth-century site at Ephrata. The householders there were considered a part of the Cloister, but owned independent farms, raised families and did not live an ascetic life. Their farms supported the Cloister members.²⁰⁹ These water pipes are visually similar to the red earthenware water pipes excavated at Bethlehem (See Figure 54).

Stenton, North Philadelphia

William Logan, merchant of Philadelphia, appears in the ledgers with a rather large order of “6 Earthen 6 Qt. Jugs,” “6 Earthen 6 Qt. Bottles,” “7 Earthen 12 Quart Do.(Bottles),” “26 Pint Porringers,” “6 Quart Mugs,” “6 Milk Pans,” and another entry for “Earthen Ware” in 1753.²¹⁰ His home during the 1750s was Stenton, located between Philadelphia and Germantown, along the old Germantown Road, which went from Philadelphia to Bethlehem. Stenton was built between 1723 and 1730 for James Logan, William’s father. William Logan moved to Stenton in 1753.²¹¹ He was also

²⁰⁹ Everett Gordon Alderfer, *The Ephrata Commune, An Early American Counterculture* (Pittsburgh: University of Pittsburgh Press, 1983), 52-53.

²¹⁰ 31 December 1750. Ledger of the Diaconat at Bethlehem C 1749-1755, 82, MAB; 18 July 1753. Ledger of the Diaconat at Bethlehem C 1749-1755, 211, MAB; Preliminary archaeological reports from Stenton, Logan’s home from 1751-1776 reveal that these wares may have been for his personal use at this residence.

²¹¹ Deborah Miller, “‘Just imported from London’: The Archaeology and Material Culture of Stenton’s Feature 14” (Master’s Thesis. The Pennsylvania State University at Harrisburg, 2006), 10, 19.

the proprietor of Durham Furnace, which supplied Bethlehem's blacksmith with iron and bar iron.²¹² Bethlehem was tightly connected to numerous furnaces and iron works in southeastern Pennsylvania including the Union Iron Works, located in what is today High Bridge, New Jersey.²¹³

Archaeological evidence from a fill site at Stenton dated from the late 1750s revealed ornately as well as plainly slip-trailed dishes, bowls, and pans.²¹⁴ The archaeological evidence comes largely from a small brick-lined vault located approximately fifty feet from the house. The majority of the material excavated had a mid-eighteenth century context.²¹⁵ This vault was likely a cistern, and was capped and likely filled between 1765 and 1770. The earlier date of some of the materials excavated however suggests a fill date during the 1750s, possibly following William

²¹² Frederick Barnes Tolles, *Meeting House and Counting House: the Quaker Merchants of Colonial Philadelphia, 1682-1763* (Chapel Hill, North Carolina: University of North Carolina Press, 1948), 99; Ledger of the Diakonaton at Bethlehem C 1749-1755, 211, MAB.

²¹³ Entries in the account of Travel Expenses for individuals with wagons to travel to Union Iron Works. Ledger of the Diakonaton at Bethlehem C 1749-1755, 210, MAB.

²¹⁴ Stenton is also the site where a contested red earthenware archaeological pan was unearthed having a slip trailed Native American on the interior. While there is no archaeological evidence at Bethlehem for other slip-trailed motifs in the design of a Native, it would not be unusual for such a design to have been made by the potters in Bethlehem. Bethlehem was a center of missionary work for Native Americans on Pennsylvania's frontier, and frequently had numerous Natives living in and around the community. Laura C. Keim and David G. Orr, "Indian at Stenton: A Trail Left in Slip on a Redware Bowl," *Ceramics in America* (2008), 294-300.

²¹⁵ Miller, "'Just imported from London,'" 1, 19.

Logan's inheritance of Stenton.²¹⁶ Archaeological evidence has similar shape, rim profiles, and decorative techniques compared to archaeological material from Bethlehem. Highly slip decorated dishes having large floral designs, interlocking 'S' and foliate designs on the rims. Small, marbled slip-decorated dishes were also excavated. These sherds and reconstructed objects have no comparisons to materials likely produced in Philadelphia. However, these materials are comparable to archaeological evidence from the Deschler/Morris Bringhurst House, the Peter Wentz Farmstead, and the Ephrata Cloister (See Figure 55 and Figure 64).

Bringhurst

Wares similar to the archaeological material at Stenton have also been excavated at the Bringhurst home in Germantown, Pennsylvania. The Bringhursts were a Quaker family who lived on Germantown Avenue, the main thoroughfare previously mentioned which ran from Bethlehem to Philadelphia. The original structure on the property was likely built by either George Bringhurst who died in 1752, or his son, George Jr. who died in 1813. While these Bringhursts were saddle makers by trade, members of the family were prominent Quaker merchants in Philadelphia, traveling to Bethlehem as exemplified by the extract from Hannah Callendar's diary.²¹⁷

²¹⁶ Ibid., 24.

²¹⁷ George Vaux, ed., "Extracts from the Diary of Hannah Callendar," *The Pennsylvania Magazine of History and Biography* 12, No. 4 (January 1889), 432-456.

The archaeological material was excavated from a Phase III dig focused on the eighteenth-century occupation of the yard of the Bringhurst house. The archaeological fragments and sherds sharing the greatest characteristics with other sites were from feature 66, which was given a date estimate from 1762 to 1775 based on the presence of a collection of English creamware fragments.²¹⁸ From this site are a small collection of sherds, likely parts of dish bases, with finely slip-trailed designs in white and black (See Figure 46). These designs are similar to archaeological material from Bethlehem and the Peter Wentz Farmstead (See Figure 45). A rim sherd slip-trailed with green and white slip shares visual characteristics with numerous sites in and around Philadelphia (See Figure 53).

There were also two dishes almost completely extant. The results were lavishly decorated dishes with floral and foliate motifs in black, white, and green slip-trailed designs (See Figure 56 and Figure 58). One dish with three large tulips in the center has half-circle designs on the rim of the dish similar to a rim sherd of a shaving basin from Bethlehem and decorative designs on material from the Johannes Hess/Christian Hess House (See Figure 57). The rim and foot profiles of the dishes are also similar to the Bethlehem archaeological material, having thickly rolled rims on a nearly two inch marly, and a slightly defined foot (Compare Figures 56 and 58 with Figure 14). These

²¹⁸ Rebecca Yamin, Grace H. Ziesing, and Juliette Gerhardt, *The Bringhurst Yard, Phase III Archaeological Data Recovery: Deschler-Morris and Bringhurst Houses Utility and Exhibit Rehabilitation, Independence National Historical Park, Philadelphia, Pennsylvania*. Archaeological report prepared by John Milner and Associates for Independence National Historical Park, 2009: 13.

visual characteristics are similar to the dishes found at Stenton and suggest that these materials were likely made in Bethlehem (See Figure 55).

Philadelphia

In addition to their interactions with Philadelphia merchants who traded with Bethlehem, Moravians Church members made frequent trips to and from Philadelphia as well. Missionaries from Bethlehem moved through Philadelphia on their way to their destination. Carriages and wagons between Philadelphia and Bethlehem appear to have made weekly trips, carrying Church members on missionary assignments, supplies for the various trades, and finished goods from Philadelphia. In addition to the regular infusion of people and goods from Bethlehem, there were also Moravians settled in Philadelphia, either temporarily or in residence. The Moravian Church in Philadelphia, founded in the early 1740s, was located on Race Street between Second and Third Streets., and Gottfried Haga, a Moravian merchant in Philadelphia, was also located on Race Street (See Figure 59).²¹⁹

This frequent connection between Philadelphia and Moravians from various settlements including Bethlehem complicates the interpretation of archaeological sherds that appear to be Bethlehem Moravian, found in a Philadelphia context. In

²¹⁹ Abraham Ritter, *History of the Moravian Church in Philadelphia*. (Philadelphia: Hayes and Zeil, 1857). Online. <http://books.google.com/books?id=ddwRAAAIAAJ&printsec=frontcover&dq=Moravian+church+philadelphia&cd=2#v=onepage&q&f=false>. Accessed January 15, 2010; Haga is described as “In Race Street near Third Street” in a newspaper advertisement. “Genuine Rhinish [sic.] Wine,” *Independent Gazetteer*, published as *The Independent Gazetteer*, August 24, 1787, Advertisement; “Biographical: Godfrey Haga [obituary],” *The Moravian: Weekly Journal of the American Moravian Church*, front page, 26 April 1860, MAB.

Philadelphia archaeological collections, there are a small number of sherds of wares highly slip-decorated with floral motifs and slip trailing. These are similar to documented Bethlehem archaeological materials, but distinctive from local Philadelphia wares. These objects suggest that the Bethlehem potters were not selling large quantities to Philadelphia. Rather they may have been supplying individuals, either the Moravian missionaries or individual merchants who traveled from Philadelphia to Bethlehem, and purchased single items in Bethlehem. What appears to be a distinguishing characteristic between the pottery produced in Bethlehem and the pottery produced in Philadelphia is the use of a black slip as previously described in chapter three (See Figure 60). Other than in a brown glaze, a brown (likely manganese) color is not found on slip-trailed wares archaeologically in Bethlehem (See Figure 37 and Figure 39).

A few general observations regarding the differences between the archaeological material in Bethlehem and the material, albeit limited, from Philadelphia. The lines on the materials found in Bethlehem appear to be more controlled, often with more even spacing, than the slip-trailed designs found on Philadelphia made wares. Where green slip is present on the archaeological material in Bethlehem, the oxide used is blended into the slip in a consistent manner as opposed to many Philadelphia wares which have the appearance of a speckled green oxide where green slip-trailing is present (See Figure 61). This may also have something to do with how the oxide was ground, or how the slip was made, or even if the oxide was sprinkled on top of the white slip, which in some instances appears likely on

Philadelphia wares. There are no large splotches or splashes of green oxide found on the wares in Bethlehem, as seen on English slip-trailed earthenware, or wares likely produced in Philadelphia which mimic an English style (See Figure 62). There is no manganese flecking, or brown spots smattered across the wares, on Bethlehem materials, but is found on wares in Philadelphia (See Figure 63).

Several large plate marlies (2-3 inches) with similar profile to bisque (unglazed) sherds from Bethlehem have been excavated from a dig during the installment of the Vine Street Expressway (36PH64 between Second and Third Streets), and at the National Constitution Center (See Figure 60).

The materials found at the Vine Street Expressway site share similar rim profiles with the Bethlehem archaeological material, but have an unusual glaze pattern that does not occur in large amounts in the archaeological material at Bethlehem that has been studied to date. The wares, mostly bowls and shallow plates, are decorated with a marbled slip in black, white, and green. This decoration does not appear with frequency at other sites in Philadelphia, although it appears that similar sherds were unearthed at the New Market site in the area of the eighteenth-century Philadelphia city.²²⁰ However, this decorative technique is found at other sites outside of Philadelphia such as the Ephrata Cloister, and Stenton. Both Ephrata Cloister and

²²⁰ The New Market site is a block located historically between Pine Street and Lombard, 2nd and Front Streets. This site was slated in the early 1740s as a marketplace for Philadelphia. An archaeological dig was completed there prior to 1978. The resulting materials were studied in images only, from an exhibition catalog about the dig. Barbara Liggett, *Archaeology at New Market Exhibit Catalogue*. (Philadelphia, Pennsylvania: The Atheneum of Philadelphia, 1978).

Stenton have documented connections to the Moravians in Bethlehem. (See Figure 64). Moravian potters in Bethabara and Bethania, North Carolina used this decorative technique, known to be Germanic, in the 1750s and 1760s (See Figure 65).²²¹ Further archaeological work at Bethlehem may reveal a better context for the possibility of this decorative technique used there.

The West Indies

Most interesting is an entry in the ledgers of Bethlehem with a credit to the potter for the “St. Thom^s Brethren” listed on October 15, 1759 (See Figure 66).²²² Moravian missionaries were in the West Indies (modern Virgin Islands) as early as 1732 (See Figure 5 and Figure 67). St. Thomas and St. John were a part of the Danish West Indies at the time of the Moravian settlement, and the Danish West India and Guinea Company purchased St. Croix from the French in 1733.²²³ One of the first missionaries sent to St. Thomas was a potter from Germany, Andreas Dober. He was unable to make pottery there and returned to Germany three years later in 1735.²²⁴ Moravian missionary efforts would eventually spread to all three islands. Records

²²¹ Beckerdite and Brown, “Eighteenth-Century Earthenware from North Carolina,” 12-13.

²²² Ledger of the Diaconat at Bethlehem D, 1755-1762, 226, MAB.

²²³ C.G.A. Oldendorp, *History of the Mission of the Evangelical Brethren on the Caribbean Islands of St. Thomas, St. Croix, and St. John* ed. Johann Jakob Brossard. Original Publication 1770. (Michigan: Karoma Publishers, Inc., 1987), 27.

²²⁴ Stephan Lenik, “Considering Multiscalar Approaches to Creolization Among Enslaved Laborers at Estate Bethlehem, St. Croix, US Virgin Islands.” *International Journal of Archaeology* 13, no.1 (March 2009): 12-26. Oldendorp, 285-286.

from the ledgers in Bethlehem have numerous entries for the Brethren in Saint Thomas, but no particular exchange of pottery vessels.²²⁵ As previously mentioned, one of the master potters, Daniel Miller, belonged to the Society for the Furtherance of the Gospel, which collected money for missionary work. In a journal kept by the Society for the Furtherance of the Gospel, a small song sung in January, 1748 demonstrates the Moravian's global missionary efforts which included the West Indies:

“O may we safe & well
In that his Hearts-Wound dwell,
Here in West Indies bound
The Northern Pole untill,
On Asia, Africks Ground
An in Europe, there:
Jesus still be near!”²²⁶

Recent archaeological evidence from a plantation called Lower Estate Bethlehem on St. Croix Island and in Cinnamon Bay on St. Thomas Island, has revealed pottery sherds likely made in America or Germany. The material from St. Croix is in the context of an enslaved laborer village. Comparing the strata dating of the material from St. Croix to St. John, the materials are likely from the second half of

²²⁵ Ledger of the Diaconat at Bethlehem C, 1749-1755, 85, 215, 281, MAB; Ledger of the Diaconat at Bethlehem D, 1755-1762, 68, 103, MAB; Ledger of the Diaconat at Bethlehem E, 1762-1771, 69, MAB; Ledger of the Diaconat at Bethlehem F, 1771-1779, 149, MAB.

²²⁶ Entry on Sunday 15th January, 1748/9. Society for the Furtherance of the Gospel, Bethlehem, Pennsylvania. Accounts and Minutes, 1745-1759, MAB.

the eighteenth century.²²⁷ The material is dissimilar to aboriginal pottery made on the island, and is a red earthenware body with slip trailing in white, green, and black under a lead glaze. There are simple slip-trailed designs as well as foliate motifs. The excavated materials are similar in shape to the materials from Bethlehem, and visually similar to materials excavated at the Johannes/Christian Hess house (See Figure 68 and Figure 69). Because these materials are also dissimilar in some ways, further archaeological work on the Islands may reveal a wider range of comparative evidence.

4.5 Conclusion

In 1776, John Edmonds, storekeeper near Gnadenhütten, northwest of Bethlehem, wrote to William Edmonds, a Bethlehem storekeeper, “it is really a lively place here.”²²⁸ He may not have been exaggerating the bustling economy of Philadelphia’s frontier. John Adams, who was in Bethlehem in 1777, was fascinated with the Moravian’s industrial pursuits, noting that they “had carried the mechanical Arts to greater Perfection here than in any Place which I have seen.”²²⁹ He was also aware of their economic design: “Christian Love is their professed Object, but it is said they love Money and make their public Institutions subservient to the

²²⁷ Lenik, “Considering Multiscalar Approaches to Creolization,” 21.

²²⁸ The author notes that Edmonds “dealt through Bethlehem with Philadelphia merchants.” John F. Walzer, “Colonial Philadelphia and Its Backcountry” *Winterthur Portfolio* 7 (1972), 166.

²²⁹ Letter to Abigail Adams, Baltimore, February 7, 1777. L.H. Butterfield, *Adams Family Correspondence, Volume II: June 1776-March 1778* (Cambridge, Massachusetts: Belknap Press, 1963), 155.

Gratification of that Passion.”²³⁰ These observers readily noted Bethlehem’s balance between capitalist ventures and religious missionary efforts. Bethlehem actively participated in markets in which the craftspeople—including the potters—were intimately involved. I believe we have underestimated the extent to which individuals purchased goods, merchants networked, and artisans participated in global and regional markets. Through archaeological and economic evidence, we may better understand the extensive networks of trade in early America. The case study of pottery production and distribution shows Bethlehem as an example of religious and economic ties in eighteenth-century southeastern Pennsylvania and beyond. Though Bethlehem was seemingly isolated on the outskirts of Philadelphia’s trading region, it was in fact a city commercially driven and a component of local, national, and perhaps, transoceanic trade.

²³⁰ Ibid., 155-156.

APPENDIX A

LIST OF POTTERS

OVERVIEW

The intention of creating a list of names associated with the pottery manufacturing in Bethlehem is not as a definitive source of the only people who were working between 1743 and 1768. These names were collected from sources such as the Nazareth Diary in the collection of the Moravian Historical Society; translations of the Single Brothers Diary in the collection of the Historic Bethlehem Partnership; and numerous records including the Bethlehem Diary, Minutes of the Aufseher Collegium, Single Brothers Catalogs, and House Conference minutes in the collection of the Moravian Archives, Bethlehem. Names were also found in the store ledgers and store inventories when referring to stock credited to the pottery. Many of the potters mentioned were only by last name (indicated by ----- in list) and a Lebenslauf or further information could not be located. As mentioned in the introduction, a more concentrated study of the records may reveal more information regarding the potters of Moravian Bethlehem, Pennsylvania.

LIST OF POTTERS

Master Potters

Daniel (David) Miller (Müller) 1743/1744-1752

Michael Odenwald 1749-1752 (Laborer in pottery shop)
1752-1764 (Master potter)

Ludwig Hubner 1748-1767 (Laborer in pottery shop)
1764-1767 (Master potter, located on Main Street)
1767-1796 (Owner of the pottery shop, located on Market Street)

Abraham Hubner ? – 1833

Journeymen (those listed specifically as journeymen)

Sturgins 1756-1766 (in Bethlehem)

Other Potters (apprentices, or those listed as potters)

Jacob Kohn 1742- ?

Friedrich Antes 1748- ?

Carl August Ludwig 1748- ?

Friedrich Pfieffer ca. 1755- ?

Johann Heinrich Vollert ca. 1755-?

Peter Stutz ca. 1762- ?

Joseph Huebsch ca. 1762- ?

----- Friis/Frees/Fries ca. 1765

----- Weber ca. 1760- ?

----- Oekeli ca. 1763- ?

----- Wiesinger ca. 1763- ?

----- Schaf ca. 1763- ?

----- Hermann ca. 1763- ?

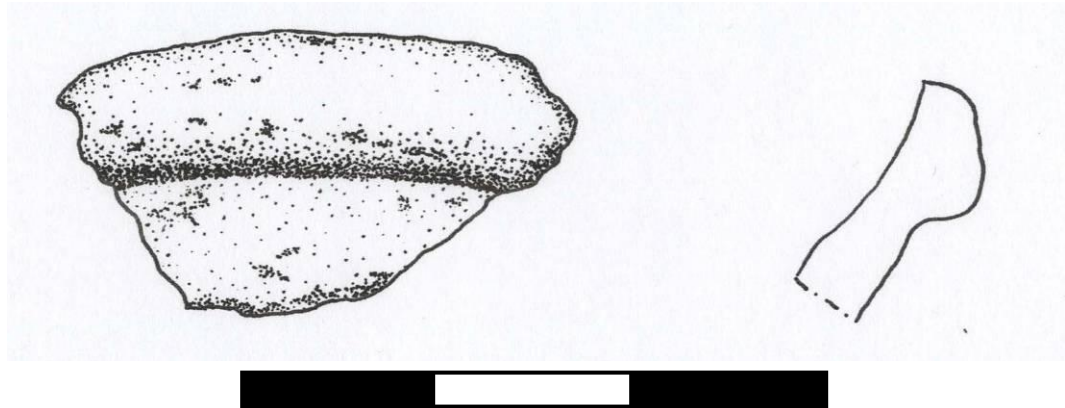
----- Jungmann ca. 1769

APPENDIX B
ARCHAEOLOGICAL ILLUSTRATIONS:
RIM PROFILES

OVERVIEW

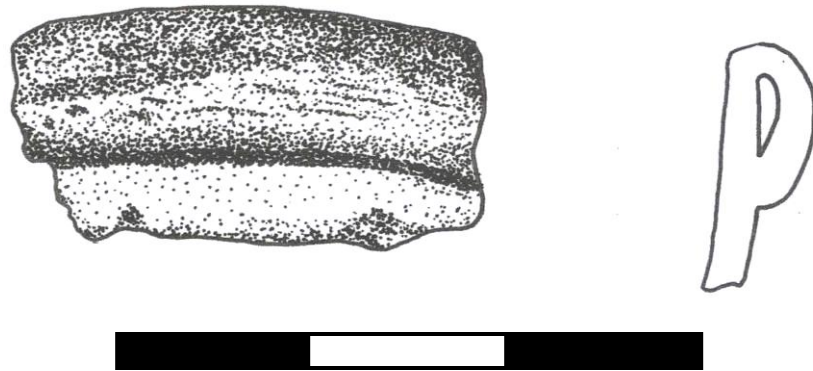
Illustrations were made in order to provide the reader with a three-dimensional image of a range of archaeological ceramic sherds. The rim profiles chosen represent the majority of rim profiles found archaeologically in Bethlehem. They do not represent all of the rim profiles in the collection of the Historic Bethlehem Partnership, as there are a preponderance of rim variations. In general, however, the majority of rims appear to be a folded layer of clay, often pressed or tooled to create a pattern or shape, but leaving a gap between the body and exterior of the rim (for example, see Rim Profile 2). Folding the clay makes the rims thick and heavy. Each illustration includes a one-inch scale. All illustrations were made by the author.

RIM PROFILE 1



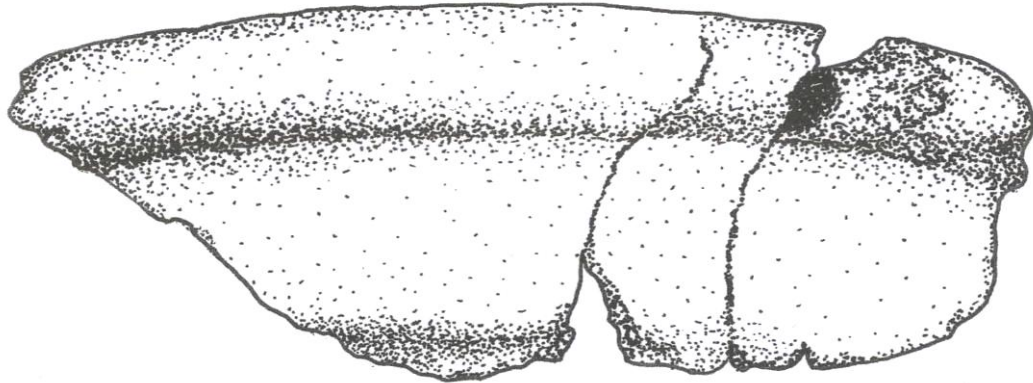
RIM PROFILE 1: Sherd numbered 2831. Rolled rim pressed to create shape on side.

RIM PROFILE 2



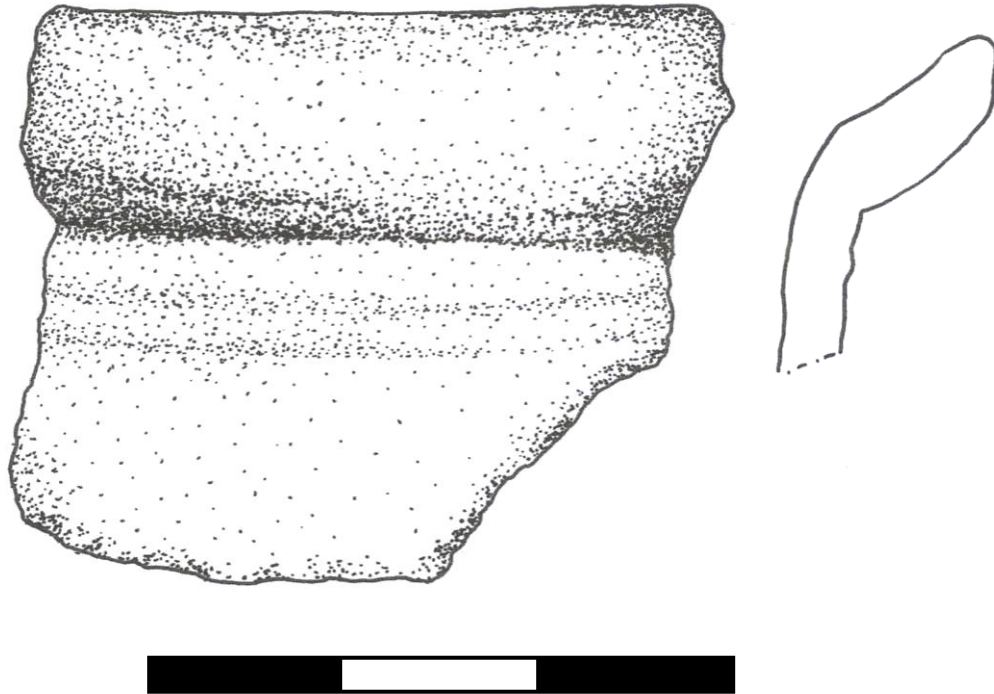
RIM PROFILE 2: Sherd numbered 2930. Rolled rim with evident gap between the exterior edge and interior wall.

RIM PROFILE 3



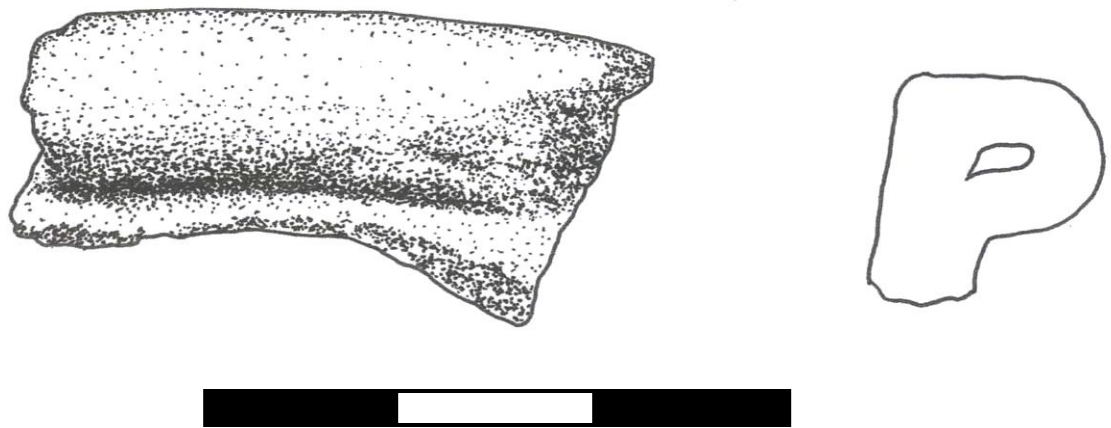
RIM PROFILE 3: Sherd numbered 2942. This profile is one of the most prominent profiles found archaeologically in Bethlehem. It is often associated with large, shallow dishes or milk pans. The rim is rolled creating a thick, round profile. The interior profile has a 2-3 inch marly before dipping inward to the rounded part of the base.

RIM PROFILE 4



RIM PROFILE 4: Sherd numbered 2942. Rolled rim with interior pressed to likely accommodate a lid. Exterior is tooled below the edge of the rim.

RIM PROFILE 5



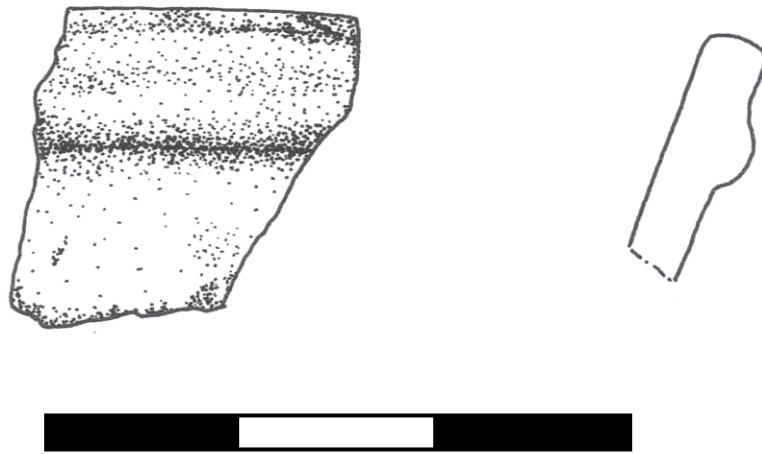
RIM PROFILE 5: Sherd unnumbered. Thickly rolled rim with evident gap between exterior edge of rim and interior wall of vessel. Flattened on top to create a level surface.

RIM PROFILE 6



RIM PROFILE 6: Sherd unnumbered. Rolled rim, tooled on the edge to create a lobed profile. Exterior edge and interior glazed with a dark brown glaze.

RIM PROFILE 7



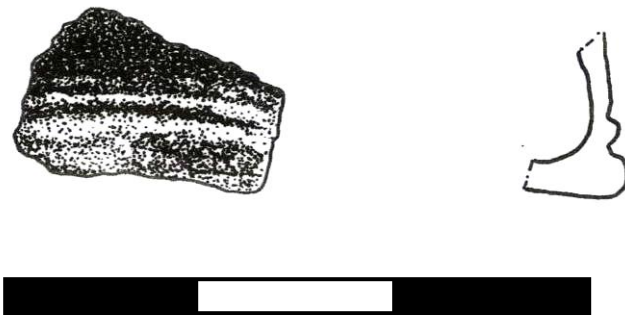
RIM PROFILE 7: Sherd numbered 2604. Rolled rim, tooled on the exterior of rim to create profile. Slightly flattened on the upper edge.

APPENDIX C
ARCHAEOLOGICAL ILLUSTRATIONS:
FOOT PROFILES

OVERVIEW

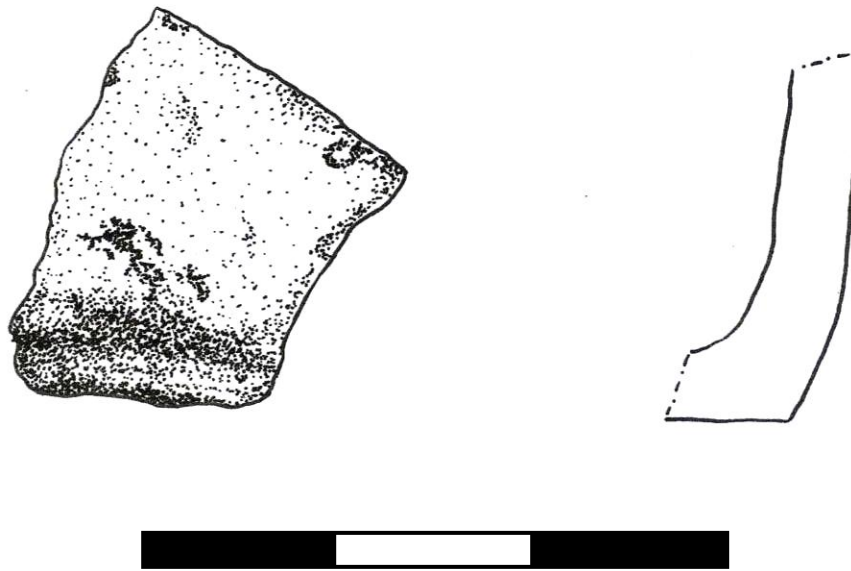
Illustrations were made in order to provide the reader with a three-dimensional image of a range of archaeological ceramic sherds. The foot profiles chosen represent the majority of foot profiles found archaeologically in Bethlehem. They do not represent all of the foot profiles in the collection of the Historic Bethlehem Partnership. In general, however, the majority of foot profiles are undefined and a simple cut such as Foot Profile 2. Profiles such as Foot Profile 4 are found with some frequency, but often associated with what were likely small dishes and shallow vessels. Each illustration includes a one-inch scale. All illustrations were made by the author.

FOOT PROFILE 1



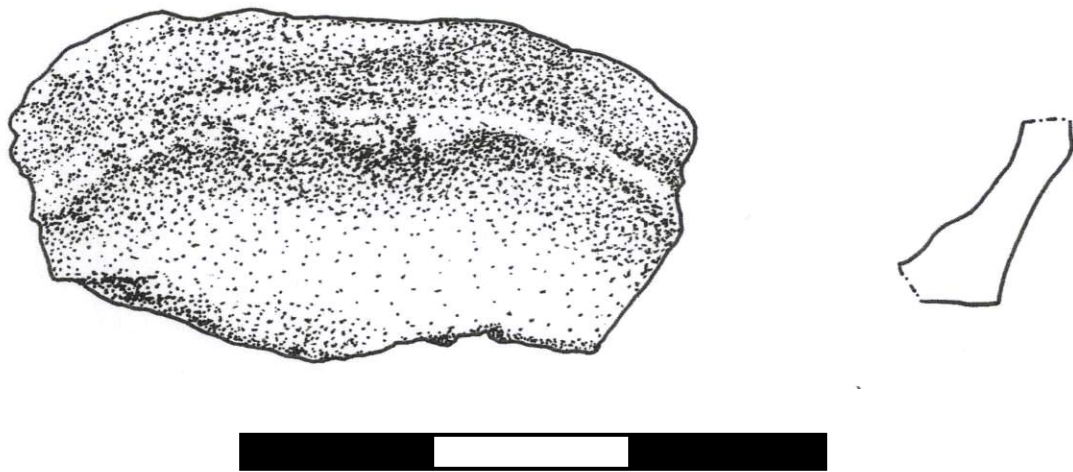
FOOT PROFILE 1: Sherd numbered 2916. Likely base of mug or tankard. Exterior edge has been tooled to create profile. Interior and exterior glazed with a dark brown glaze.

FOOT PROFILE 2



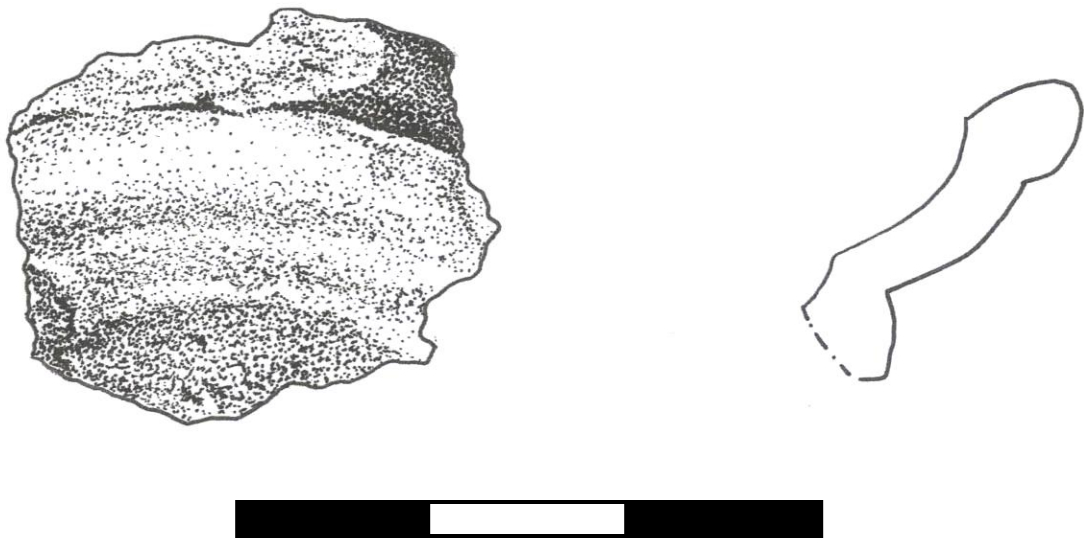
FOOT PROFILE 2: Sherd numbered 2956. Undefined foot profile with evenly thick wall and base.

FOOT PROFILE 3



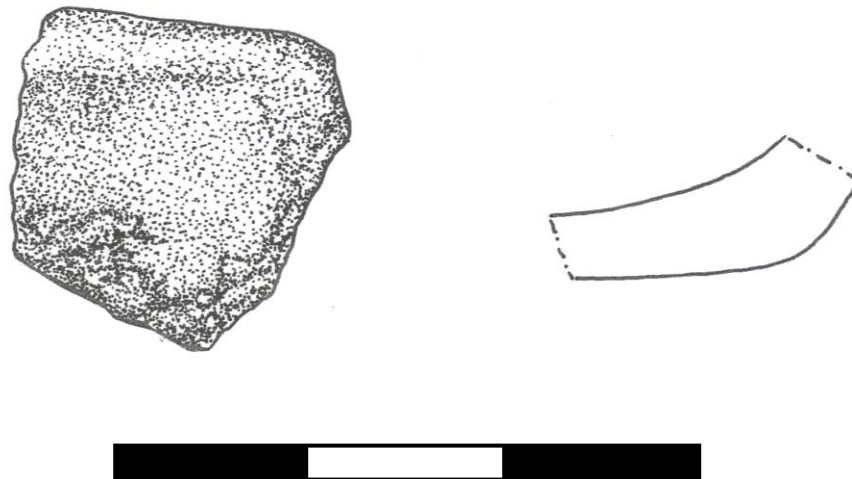
FOOT PROFILE 3: Sherd numbered 2907. Undefined foot, slightly flared outward from base.

FOOT PROFILE 4



FOOT PROFILE 4: Sherd numbered 2825. Profile found with some frequency in the archaeological collection of the Historic Bethlehem Partnership. Defined foot profile which has been tooled to create a rounded edge. Rim profile is thickly rolled. Exterior edge and interior glazed with a dark brown glaze. Likely fragment of a small dish.

FOOT PROFILE 5



FOOT PROFILE 5: Sherd numbered 2907. Found commonly in the archaeological materials of the Tannery, clay is often tempered for heating purposes. Fragment likely from low, shallow dish. Slightly rounded rim profile.







APPENDICES D, E, F, G, H

TABLES







OVERVIEW

The tables were created in an effort to provide the reader with a range of the archaeological materials in the collection of the Historic Bethlehem Partnership. These materials in the tables are a fragment of the collections. Many of the excavated materials are not cataloged, and several collections have lost the context of their excavation. The tables are divided into groups in order to provide concentrated glimpses of forms, glazes, and decorative techniques.







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
1			Lead glazed red earthenware, base fragment, white slip trailing, small pattern on front side– possible floral or animal figure (fish?), bottom has two trimming lines near edge	4 ¼” x 4 ½”	Pottery Site (1970) Box L-70-II Numbered 3045
2			Lead glazed red earthenware, rim sherd, slip trailed decoration in white, slightly curved profile and slightly tucked inward rim profile, thin	2 ½” x 2”	Pottery Site (1970) Box L-70-II Numbered 2704
3			Lead glazed red earthenware, rim sherd, slip trailed decoration in white, slightly curved profile and slightly tucked inward rim profile, thin, similar to above	2 ½” x 1 ½”	Pottery Site (1970) Box L-70-II Numbered 2680







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
4			Lead glazed red earthenware, base sherd, slightly curved profile, foot profile is not sharp, white slip-trailed decoration	1 ½" x 1 ¾"	Pottery Site (1970) Box L-70-II Numbered 2680
5			Lead glazed red earthenware, likely the rim of a shaving basin, slip trailed in green, white, and black lines and half circles	3 ¼" x 2"	Pottery Site (1970) Box L-70-II Numbered 3045
6			Lead glazed red earthenware, white slip-trailed decoration, dark coloration around white slip trailing, possible secondary slip color?	1 ½" x 1 ½"	Pottery Site (1970) Box L-70-II Numbered 3048





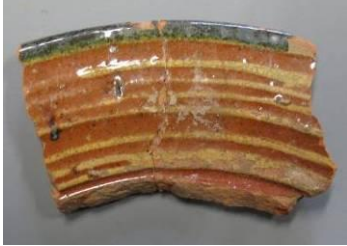

Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
7			Lead glazed red earthenware, rim sherd, white slip-trailed decoration with some green, slightly flared-out rim profile	2 ¼" x 2 ½"	Pottery Site (1970) Box L-70-II Numbered 2633
8			Lead glazed red earthenware, white slip-trailed decoration with some green	1 ½" x 1 3/8"	Pottery Site (1970) Box L-70-II Numbered 2739
9			Lead glazed red earthenware, rim sherd, white slip traileed decoration, slightly flared-out rim profile, tool marks on exterior below rim edge	1" x 1 ½"	Pottery Site (1970) Box L-70-II Numbered 2671







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
10			Lead glazed red earthenware, white slip-trailed decoration, streaking in remaining lead glaze—possible running in firing	1 ½" x 1 3/8"	Pottery Site (1970) Box L-70-II Numbered 2711
11			Lead glazed red earthenware, white slip-trailed decoration, curved profile	1" x 2 ¾"	Pottery Site (1970) Box L-70-II Numbered 2739
12			Lead glazed red earthenware, rim sherd, white slip-trailed decoration, curved profile with slightly flared-out rim profile	2 ¾" x 2 1/8"	Pottery Site (1970) Box L-70-II Numbered 2823




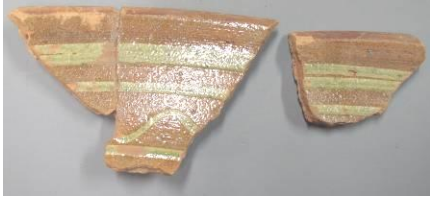

Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
13			Lead glazed red earthenware, rim sherd, white slip-trailed decoration, small rolled rim, slightly tucked inward rim profile	1 ½" x 1"	Pottery Site (1970) Box L-70-II Numbered 2704
14			Lead glazed red earthenware, rim sherd, white slip-trailed decoration, slightly flared rim profile	2 ½" x 2"	Pottery Site (1970) Box L-70-II Numbered 3045
15			Lead glazed red earthenware, mend of small dish rim, marly, and foot, slip-trailed decoration in white and black, rolled rim, overall angled profile	3 ¾" x 2 ½"	Waterworks Site (1966) Box B-66-I Numbered 595







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
16			Lead glazed red earthenware, MOLDED rim sherd with a "feather edge" pattern, slip trailed with white and black slip	4 1/2" x 3 3/4"	Tannery Site Box E-69-1 Numbered 1865
17			Lead glazed red earthenware, MOLDED rim sherd with a possible salt-glaze diaper pattern, slip trailed with black slip	1 3/4" x 2"	Tannery Site Box E-69-1 Numbered 1335
18			Lead glazed red earthenware, base of dish with white slip trailed decoration	3 1/8" x 4"	Tannery Site Box E-69-1 Numbered 1323






Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
19			Lead glazed red earthenware, marly of low dish, slightly flared rim profile, slip trailed with green and white slip	4 ¾" x 3 ½"	Tannery Site Box E-69-1
20			Lead glazed red earthenware, slip trail decoration in white and green slip	2 ¾" x 2 ¼"	Tannery Site (1969) Box E-69-1 Numbered 2071
21			Lead glazed red earthenware, two mended rim sherds, rounded profile with slightly flared rim profile, green slip-trailed decoration	3" x 4" 1 ½" x 1 ½"	Tannery Site (1969) Box E-69-1 Numbers include 1341, 1456, 1353







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
22			Lead glazed red earthenware, mend of dish fragment, slip-trailed decoration in black and green	3 7/8" x 5"	Tannery Site (1969) Box E-69-1 Numbered 1351
23			Lead glazed red earthenware, rim sherd, slip-trailed decoration in white and green, slightly flared-in rim profile	2 1/2" x 1 1/4"	Tannery Site (1969) Box E-69-1 Numbered 1548
24			Lead glazed red earthenware, rim sherd, slip-trailed decoration in white and green, slightly flared rim profile	2 3/4" x 2"	Tannery Site (1969) Box E-69-1 Numbered 1341







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
25			Lead glazed red earthenware, rim sherd, black slip-trailed decoration, slightly flared rim profile	1 3/4" x 2 1/2"	Tannery Site (1969) Box E-69-1 Numbered 1357
26			Lead glazed red earthenware, rim sherd, white slip-trailed decoration	2 1/2" x 1 7/8"	Tannery Site (1969) Box E-69-1 Numbered 3246
27			Lead glazed red earthenware, rim sherd, green slip-trailed decoration, slightly flared rim profile	3 1/4" x 2 1/4"	Tannery Site (1969) Box E-69-1 Numbered 1341


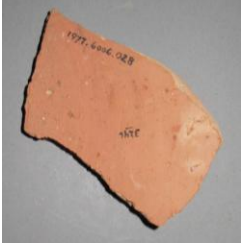




Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
28			Lead glazed red earthenware, rim sherd, green and white slip-trailed decoration	3 1/4" x 2 1/4"	Tannery Site (1968) Box E-68-3 Numbered 2348
29			Lead glazed red earthenware, rim sherd, evidence of slip-trailed decoration	2 1/8" x 2 1/4"	Tannery Site (1968) Box E-68-3 Numbered 2387
30			Lead glazed red earthenware, rim sherd, white slip-trailed decoration, thick rolled rim with impression on top of rim profile	2 1/4" x 4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 406


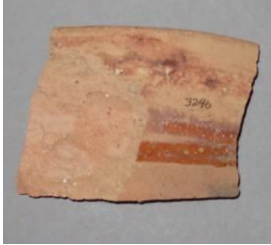




Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
31			Lead glazed red earthenware, rim sherd, white and green slip-trailed decoration	2" x 1 3/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1341
32			Lead glazed red earthenware, rim sherd, white and green slip-trailed decoration, thick rolled rim with impression on top of rim profile	1 1/4" x 1 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1246
33			Lead glazed red earthenware, rim sherd, green slip-trailed decoration, slightly flared rim profile	3" x 2 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1341







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
34			Lead glazed red earthenware, base fragment, white slip trailing, small pattern on front side—possible floral or animal figure	3 ½" x 2 ¾"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246 Accession number 1977.6006.028
35			Lead glazed red earthenware, base fragment, white slip trailing, small pattern on front side—possible floral or animal figure	2" x 2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3214 Accession number 1977.6006.110
36			Lead glazed red earthenware, base sherd, white and black slip-trailed decoration	2 ¾" x 5"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
37			Lead glazed red earthenware, rim sherd, white and black slip-trailed decoration	3" x 2 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246
38			Lead glazed red earthenware, rim sherd, white and black slip-trailed decoration	1 3/4" x 2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246
39			Lead glazed red earthenware, rim sherd, white slip-trailed decoration	3 1/2" x 2 1/8"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
40			Lead glazed red earthenware, rim sherd, rounded profile, white and green slip-trailed decoration	3 1/2" x 2 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246
41			Lead glazed red earthenware, rim sherd, white and green slip-trailed decoration	2 1/2" x 2 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246
42			Lead glazed red earthenware, rim sherd, white slip-trailed decoration	3 1/8" x 2 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246

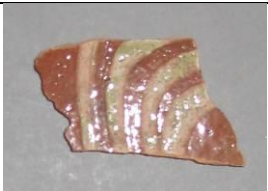
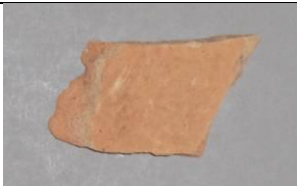




Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
43			Lead glazed red earthenware, base of dish, green and white slip-trailed decoration in a sunray pattern	2" x 1 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246
44			Lead glazed red earthenware, base of dish, green and white slip-trailed decoration in a sunray pattern	2 3/4" x 2 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3271
45			Lead glazed red earthenware, base of dish, black and white slip-trailed decoration	3"x 1 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
46			Lead glazed red earthenware, base, side, and rim sherd, green and white slip-trailed decoration, rounded profile, slightly flared-in rim profile	5" x 4 1/2" Height: 3 1/8"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3437
47			Lead glazed red earthenware, likely base sherd, white and black slip-trailed decoration	2 1/4" x 2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3426
48			Lead glazed red earthenware, rim sherd, green slip trailing and white dots for decoration	7 1/4" x 4 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1426







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
49			Lead glazed red earthenware, likely base of dish, green slip-trailed decoration	3 1/8" x 4 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1937
50			Lead glazed red earthenware, rim sherd, white and green slip-trailed decoration	3 1/2" x 3"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1731
51			Lead glazed red earthenware, mended base, side, and rim of dish, slightly flared rim profile, white slip-trailed decoration	Height: 3 3/4" Width: 6"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246





Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
52			Lead glazed red earthenware, small dish fragment (app. 1" in height), slightly flared rim profile, green and black slip-trailed decoration	4" x 2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1353
53			Lead glazed red earthenware, rim sherd, green and white slip-trailed decoration	2 1/4" x 2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 337
54			Lead glazed red earthenware, mended dish, white, black and light brown ornate slip-trailed decoration	5" x 3"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 398 and 365







Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
55			Lead glazed red earthenware, likely base of dish, white slip-trailed decoration		Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246
56			Lead glazed red earthenware, mend of dish base, slip decorated with the image of a bird in black and white slip	4" x 3"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246 Accession Number 1977.6006.034
57			Lead glazed red earthenware, mended dish marly and rim, green and white slip-trailed decoration, rolled rim profile, impression on top of rim profile	7 1/4" x 4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbers include 291, 378, 297, and 394 Accession Number 1990.500.28



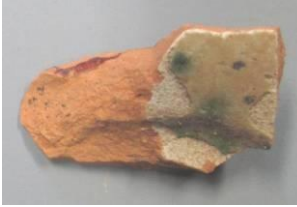



Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
58			Lead glazed red earthenware, mend of base of large dish, unusually decorated with sgraffito design of an ornate house, white and green slip were used	Large fragment: 6 3/4" x 5 1/4" Small fragment: 1 3/4" x 1 3/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbers include 3246, 3291, and 3214 Accession Number 1977.6006.037
59			Lead glazed red earthenware, partially mended large dish base, white slip trailed decoration with images of fish, 1977.6006.027 is the slightly flared-in rim profile of dish	1977.6006.031: 5 3/4" x 3" 1977.6006.032: 6 1/2" x 4" 1977.6006.029: 2" x 2 1/4" 1977.6006.027: 3 3/4" x 1 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbers include 3246, 3291 Accession Numbers 1977.6006.031, 1977.6006.032, 1977.6006.029, 1977.6006.027

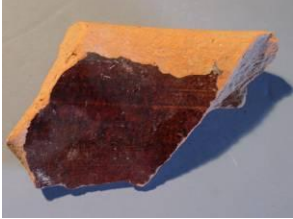





Appendix D, Slip-Decorated, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
60			Lead glazed red earthenware, likely base sherd, white slip-trailed decoration	2 ½" x 2 ½"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246 Accession Number 1977.6006.033
61			Lead glazed red earthenware, rim sherd, white slip-trailed decoration, thin rolled and slightly flared rim profile	3 ¼" x 3 ¾"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3296 Accession Number 1977.6006.043
62			Lead glazed red earthenware, likely base sherd, black and white slip-trailed decoration	1 ¾" x 2 ½"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3441 Accession Number 1977.6006.109

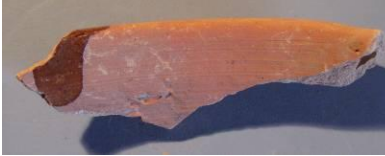

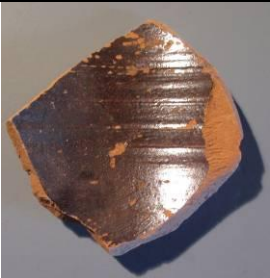



**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
1			Lead glazed red earthenware, half of fragment face with green glaze	1 3/4" x 1 1/4"	Pottery Site (1970) Box L-70-II Numbered 2718
2			Lead glazed red earthenware, base sherd with defined foot profile, brown glazed exterior with interior slipped in white with green spots	1 1/2" x 1 3/4"	Pottery Site (1970) Box L-70-II Numbered 2760
3			Lead glazed red earthenware, rim sherd, brown glaze on interior, thickly rolled rim profile with tool marks below rim on front of sherd, rim flange to likely accommodate lid	3 1/4" x 3 3/4"	Pottery Site (1970) Box L-70-II Numbered 2942







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
4			Lead glazed red earthenware, rim sherd, brown glaze remnants on front and back of sherd, thickly rolled with tooling rim profile	2 ¾" x 4"	Pottery Site (1970) Box L-70-II
5			Lead glazed red earthenware, rim sherd, brown glaze on back of sherd, slightly over edge of front, rim flange to likely accommodate lid, tooling below rim on front	3 1/8" x 3"	Pottery Site (1970) Box L-70-II Numbered 2739
6			Lead glazed red earthenware, rim sherd, dark brown glaze on back, rolled rim with tooling profile	2" x 1 ¾"	Pottery Site (1970) Box L-70-II Numbered 2604







**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
7			Lead glazed red earthenware, rim sherd with glaze remnant, thickly rolled rim with angled profile	1 3/4" x 4 1/2"	Pottery Site (1970) Box L-70-II Numbered 2939
8			Lead glazed red earthenware, brown glaze on front, curved profile	4 1/2" x 4"	Pottery Site (1970) Box L-70-VII Numbered 2699
9			Lead glazed red earthenware, dark brown glaze on front, tool marks on back	2 3/4" x 1 3/4"	Pottery Site (1970) Box L-70-VII Numbered 2521







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
10			Lead glazed red earthenware, likely marly of dish, having an impression of dish interior, brown glaze on front	2 ½" x 1 ¾"	Pottery Site (1970) Box L-70-VII Numbered 2905
11			Lead glazed red earthenware, rim sherd, thin, slightly rolled rim profile, dark brown glaze on front	1 ½" x 2 ¾"	Pottery Site (1970) Box L-70-VII Numbered 2972
12			Lead glazed red earthenware, rim sherd, black glaze on front, thickly rolled rim profile, curved profile on front	1 ¾" x 2 ¾"	Pottery Site (1970) Box L-70-VII Numbered 2831







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
13			Lead glazed red earthenware, dark brown glaze on front, slightly rolled rim profile, tool marks below rim	4 1/4" x 4"	Pottery Site (1970) Box L-70-VII Numbered 2972
14			Lead glazed red earthenware, likely dish sherd, heavy use marking, brown glaze on front, foot profile rises app. 1/4" then flares out		Pottery Site (1970) Box L-70-VII Numbered 2930
15			Lead glazed red earthenware, rim and foot of small dish, brown glaze on front, rounded foot profile rises app. 1/2" then flares out, overall height of dish 1 1/2"	2 3/4" x 2 1/2"	Pottery Site (1970) Box L-70-VII Numbered 2825


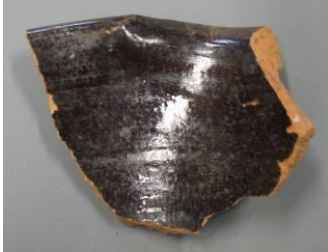




Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
16			Lead glazed red earthenware, foot of straight-sided vessel, brown glaze front and back, tooled foot profile	1 1/8" x 1 1/2"	Pottery Site (1970) Box L-70-VII Numbered 2916
17			Lead glazed red earthenware, likely shallow dish or pan, brown glaze on front, overall profile very rounded, clay appears to be tempered	5 3/4" x 6 1/4"	Pottery Site (1970) Box L-70-VII Numbered 2900
18			Lead glazed red earthenware pulled handle, brown glaze on front and back	1 1/4" x 1/2"	Pottery Site (1970) Box L-70-II







**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
19			Pulled red earthenware handle cross mend, brown glaze at break points, fingerprint at terminal	2 ¼" x 6"	Pottery Site (1970) Box L-70-II Numbered 2942
20			Lead glazed red earthenware, dish marly and rim, thick rolled rim profile, brown glaze on inside with splash of glaze outside	3 ½" x 7 ½"	Waterworks Site (1966) Box B-66-II Numbered 2942
21			Lead glazed red earthenware, base fragment, brown glaze on front, incised number 4 on back	4" x 4 ½"	Waterworks Site (1966) Box B-66-II







**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
22			Lead glazed red earthenware, rim sherd with lip for pouring, thick rolled rim, black glaze	4 ½" x 3 ¾"	Waterworks Site (1966) Box B-66-II Numbered 2663
23			Lead glazed red earthenware, likely base of tankard or other straight-sided vessel, black glaze front and back, base has spiraled texture	3" x 1 ½"	Waterworks Site (1966) Box B-66-II
24			Lead glazed red earthenware, small vessel cross mend, brown glaze interior and exterior, slightly flared rim profile	3 ½" wide, 3" tall	Waterworks Site Bag Marked 1964 Waterworks Numbered 293







**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
25			Lead glazed red earthenware, curved profile, brown glaze on front, incised wavy and straight lines on back		Waterworks Site (1971) Box E-71-7 Numbered 3271
26			Lead glazed red earthenware, dark green glaze on front, foot profile is slightly flared	3" x 4"	Waterworks Site (1971) Box E-71-6 Numbered 3214
27			Lead glazed red earthenware, base fragment, slip trailed decoration in a spiral pattern	5" x 3 1/2"	Waterworks Site (1971) Box E-71-6 Numbered 1725







**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
28			Lead glazed red earthenware, side of large vessel with applied lug handle on side, tool marks below rolled, slightly flared rim profile	4 ½" x 6 ½"	Waterworks Site (1971) Box E-71-6 Numbered 1341
29			Lead glazed red earthenware, thick strap handle with brown glaze remnant	6 ½" x 2 ¾"	Waterworks Site (1971) Box E-71-6 Numbered 1725
30			Lead glazed red earthenware, thin pulled handle with terminal, brown glaze remnant	2 ½" x ¾"	Waterworks Site (1971) Box E-71-6 Numbered 3214






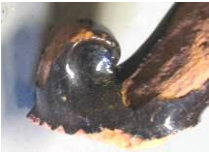
Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
31			Lead glazed red earthenware, possible base of mug or cup, brown glazed front and partially glazed to 1/2" from base, defined, bi-lobed foot profile	2 1/2" x 2 1/2"	Waterworks Site Box Marked 1964 Waterworks Excavation – Redware Numbered 226
32			Lead glazed red earthenware, cross mend of dish base, white slip-trailed decoration in circular pattern	8" x 8"	Tannery Site (1968) Box E-68-3 Numbered 1753
33			Lead glazed red earthenware, cross mend of rim sherd, brown glaze on front, thick rolled rim profile	9 1/2" x 4"	Tannery Site (1968) Box E-68-3 Numbered 2046







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
34			Lead glazed red earthenware, side and rim of vessel, brown glaze on front, lower half of back has blacking, rounded profile, rolled rim profile with flange, likely to accommodate a lid, clay appears to be tempered	5 3/4" x 4 1/3"	Tannery Site (1968) Box E-68-3 Numbered 2548
35			Lead glazed red earthenware, side and rim of vessel, brown glaze on front, base of back has blacking, rounded profile, rolled rim profile, angled out, clay appears to be tempered	3" x 4 1/2"	Tannery Site (1968) Box E-68-3 Numbered 2348
36			Lead glazed red earthenware, base, side, and rim profile of shallow dish, brown glaze on front and rim, rounded profile, slightly flared-in rim profile	6 1/2" x 5"	Tannery Site (1968) Box E-68-3 Numbered 1731







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
37			Lead glazed red earthenware, rim profile, protruding lip for pouring, black glaze on front and rim, blacking on back	3" x 2 3/4"	Tannery Site (1968) Box E-68-3 Numbered 2966
38			Lead glazed red earthenware, base of vessel, brown glaze on front and back, defined, single-lobe foot profile	3" x 3"	Tannery Site (1968) Box E-68-3 Numbered 2348
39		Detail: 	Lead glazed red earthenware, handle terminal with curled end at terminal (detail), black glaze	2 1/4" x 1 1/8"	Tannery Site (1968) Box E-68-3 Numbered 1866







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
40			Lead glazed red earthenware, rim sherd with app. 1 1/2" marly, thick rolled rim profile	3" x 2 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2825 Accession number 1977.6006.047
41			Lead glazed red earthenware, rim sherd with ruffled edge decoration, white and green glaze on front	1 5/8" x 1 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 69
42			Lead glazed red earthenware, cross mend of vessel, brown glaze in inside, rolled rim	Height: 10" Diameter: 10"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3505







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
43			Lead glazed red earthenware, cross mend of vessel, black glaze on inside, thick rolled rim profile with tooled decoration	Height: 6 $\frac{3}{4}$ " Diameter 7 $\frac{3}{4}$ "	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2551
44		Detail: 	Lead glazed red earthenware, cross mend of vessel base and side, brown glaze on inside, "4." marked on bottom (detail)	7 $\frac{3}{4}$ " x 5 $\frac{3}{4}$ "	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2624 Accession number 1977.6006.057
45			Lead glazed red earthenware, cross mend of vessel, black glaze on inside, thick rolled rim profile	Height: 6 $\frac{1}{4}$ " Diameter: 7 $\frac{1}{4}$ "	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1538 Accession number 1977.6006.008





**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
46			Lead glazed red earthenware, likely base to water cistern or cooler, opening at base for spigot or pipe, brown glaze on front	7 ¾" x 2 ¾"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3246 Accession number 1977.6006.025
47			Lead glazed red earthenware, MOLDED pipe head, molded decoration on bowl with face	Stem length: 1 ¼"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1776 Accession number 1977.6006.013
48			Lead glazed red earthenware, rim sherd with thick pulled handle and thumbprint at terminal, black glaze on front, thick rolled rim, angled down to outside(forms a triangle)	4 ½" x 5 ¼"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 709 Accession number 1977.6006.003







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
49			Lead glazed red earthenware, rim sherd with lug handle, thick, rounded rolled rim profile	4" x 6 3/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2716 Accession number 1977.6006.092
50			Lead glazed red earthenware (overfired), base of vessel, black glaze on front, "4." marked on bottom	Diameter: 5 3/4" Height: 1 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 221
51			Lead glazed red earthenware, base fragment, brown glaze on front, half of a signature on base (indecipherable)	Diameter: 9" Height: 4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 410



**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
52			Lead glazed red earthenware, cross mend of rim of vessel, incised decoration below rim, rolled rim profile, glazed front and back	3" x 4 1/2"	Waterworks Site (1964) Bag labeled "1964 Waterworks" Numbers include 274, 285, and 182
53			Lead glazed red earthenware, cross mend of rim of vessel, incised decoration below rim, rolled rim profile, glazed front and back	1 1/2" x 5 1/2"	Waterworks Site Box labeled "decorated water works" Numbered 274 and 380





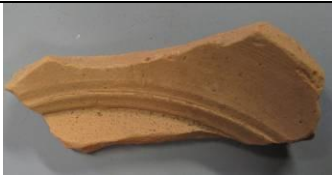



**Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
54			Lead glazed red earthenware, cross mend of basin fragment with large strap handle, brown glaze on front and rim, thickly potted	Height: 3 $\frac{3}{4}$ " Width: 9"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1315 and 1341 Accession Number 1977.6006.051
55			Lead glazed red earthenware, base, side, and rim of shallow dish, black glaze on front, rim profile shaped to likely accommodate a lid, blacking on bottom	Width: 9 $\frac{1}{2}$ " Height: 3 $\frac{1}{4}$ "	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Accession Number 1977.6006.017
56			Lead glazed red earthenware, dish marly and rim, brown glaze on front, thick rolled rim, marly measures app. 2"	3 $\frac{1}{4}$ " x 3 $\frac{3}{4}$ "	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2930 Accession Number 1977.6006.049







Appendix E, Glazed Sherds, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
57			Lead glazed red earthenware, base, side, and rim of small, shallow dish, clear lead glaze on front and back, incised lines on back, defined foot, overall profile is fairly straight, undefined, thin rim profile	Length: 4 $\frac{3}{4}$ " Height: 2 $\frac{1}{4}$ "	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2585 Accession Number 1977.6006.048







Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
1			Unglazed bisque fired red earthenware, mended dish marly, thickly rolled rim profile	7 3/4" x 2 1/2"	Pottery Site (1970) Box L-70-II Numbers include 2928, 2942, and 2942
2			Unglazed bisque fired red earthenware, base sherd, rounded interior profile, foot profile rises app. 1/4" then flares out	2 1/4" x 1 1/2"	Pottery Site (1970) Box L-70-II Numbered 2825
3			Unglazed bisque fired red earthenware, marly and base sherd, likely a low, shallow dish, foot profile rises app. 1/4" then flares out, tooled interior toward base	2 3/4" x 1 1/4"	Pottery Site (1970) Box L-70-II Numbered 2942
4			Unglazed bisque fired red earthenware, rim sherd, thickly rolled rim with flattened top	1 3/4" x 4"	Pottery Site (1970) Box L-70-III Numbered 2940







**Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
5			Unglazed bisque fired red earthenware, rim sherd, rolled rim with angled profile	2" x 5"	Pottery Site (1970) Box L-70-III Numbered 2942
6			Unglazed bisque fired red earthenware, rim sherd mended, thickly rolled rim profile with flattened top	2 1/2" x 7"	Pottery Site (1970) Box L-70-III Numbers include 2740 and 2942
7			Unglazed bisque fired red earthenware, rim sherd, likely from a dish with wide rim (2") on front, thickly rolled rim profile	3" x 5"	Pottery Site (1970) Box L-70-III Numbered 2940







Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
8		Detail 	Unglazed red earthenware bottle neck, detail of opening and lip	2 3/4" x 1 1/2"	Waterworks Site (1966) Box B-66-II
9		Detail 	Unglazed bisque fired red earthenware, likely side of crock or other vessel, detail of a wavy incised line with other straight incised lines	3" x 2 1/2"	Waterworks Site (1966) Box B-66-II Numbered 2633
10			Unglazed bisque fired red earthenware, misshapen thrown lid form	2 3/4" x 2 1/2"	Waterworks Site Bag Marked 1964 Waterworks Numbered 3271





Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
11			Unglazed bisque fired red earthenware, thrown dish with rounded profile, slightly flared rim, interior shows heavy wear marks and blacking	6" x 3 3/4"	Waterworks Site (1971) Box E-71-7 Numbered 3296
12			Unglazed bisque fired red earthenware, thrown dish with rounded profile, slightly flared rim	4 1/2" x 2 1/2"	Waterworks Site (1971) Box E-71-7 Numbered 3246
13			Unglazed bisque fired red earthenware, lid with rounded knob thrown on top of lid	3 1/4" x 2 3/4"	Waterworks Site (1971) Box E-71-7 Numbered 3246







Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
14			Unglazed red earthenware, shallow bowl rim and base, rounded profile, no defined foot	3 ½" x 4 ½"	Tannery Site (1968) Box E-68-3 Numbered 1426
15			Unglazed red earthenware, mended shallow bowl rim and base, front and back of rim has blacking, slightly flared and flattened(top) rim profile, clay appears to be tempered	6 ¾" x 5"	Tannery Site (1968) Box E-68-3 Numbers include 1426 and 1468
16			Unglazed red earthenware, mended, large shallow dish, marly measures app. 2", thick rolled rim profile	Height: 3 ¼" Diameter: 14"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2942 Accession number 1977.6006.053





Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
17			Unglazed red earthenware, mend of lid with knob thrown on top, rounded profile	6" x 2 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1353 Accession number 1977.6006.001
18			Unglazed red earthenware, mend of lid with knob thrown as part of lid (open on bottom), flat profile	4 3/4" x 1"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 750 Accession number 1977.6006.010





Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
19			Unglazed red earthenware, small loop handle	1 ¾" x ½"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2942 Accession number 1977.6006.085
20			Unglazed red earthenware, base and side of vessel, marks on bottom from kiln furniture, also marked on bottom with possible "VJ" or Roman numeral	4 ¼" x 6"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2942 Accession Number 1977.6006.061
21			Unglazed red earthenware, likely a drainage pipe, collar for connecting other pipe, visible throwing rings	Length: 12 ¾" Widest at base: 6" Narrow at top: 4 ¾"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Accession Number 1977.6006.055







Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
22			Unglazed red earthenware, likely a drainage pipe, collar for connecting other pipe, visible throwing rings	8 ¼" x 2 ¾"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2695 Accession Number 1977.6006.0058
23			Unglazed red earthenware, likely a stove pipe, collared to accommodate another pipe, blacking on interior	Diameter: 9" Length (fragment): 5 ½"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1108 Accession Number 1977.6006.007







Appendix F, Unglazed Sherds, Bethlehem Pottery
Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
24			Unglazed red earthenware, likely a drainage pipe, collar for connecting other pipe, visible throwing rings	Length: 15"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Accession Number 1977.6006.054
25			Unglazed red earthenware, likely a drainage pipe, collar for connecting other pipe, visible throwing rings	Length: 15"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Accession Number 1977.6006.055
26			Unglazed red earthenware, base, marly, and rim of dish, marly measure app. 2", thick rolled rim profile	Length: 11 1/2" Height: 3 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2942 Accession Number 1977.6006.126







Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
1			Unglazed red earthenware, stove tile fragment, molded decoration on front, blacking on back	5" x 3 1/2"	Tannery Site (1969) Box E-69-1 Numbered 1865
2			Unglazed red earthenware, stove tile fragment, molded decoration on front, blacking on back	5 1/2" x 4 1/2"	Tannery Site (1969) Box E-69-1 Numbered 1753
3			Unglazed red earthenware, stove tile fragment, molded decoration on front, blacking on back	3 1/2" x 3 1/2" Depth 2 1/4"	Tannery Site (1969) Box E-69-1





**Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
4			Unglazed red earthenware, mended stove tile fragment, molded edge decoration on front, blacking on back	7 3/4" x 3 1/2"	Tannery Site (1969) Box E-69-1 Numbered 1731
5			Unglazed red earthenware, stove tile fragment, molded decoration on front, blacking on back	5 3/4" x 4 1/2"	Tannery Site (1969) Box E-69-1 Numbered 1868
6			Unglazed red earthenware, stove tile fragment, molded decoration on front, blacking on back	6" x 5"	Tannery Site (1969) Box E-69-1 Numbered 1721





**Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
7			Unglazed red earthenware, stove tile cornice fragment, molded edge decoration on front	4 1/4" x 7 1/4"	Waterworks Site (1966) Box B-66-II Numbered 669
8			Unglazed red earthenware, stove tile fragment, molded edge decoration on front, blacking on back	4" x 3 1/2"	Waterworks Site (1966) Box B-66-II Numbered 644
8			Unglazed red earthenware, stove tile fragment, molded edge decoration on front, blacking on back	4" x 3 1/2"	Waterworks Site (1966) Box B-66-II Numbered 644





Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
9			Unglazed red earthenware, mended of stove tile, molded decoration on front, blacking on back	8 ½" x 6 ½" Depth: 2 ¾"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3256 Accession number 1977.6006.026
10			Unglazed red earthenware, stove tile cornice fragment, molded decoration on front	11 ¾" x 5"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1865 Accession number 1977.6006.023







**Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
11			Lead glazed red earthenware, mended stove tile, green glaze on front, blacking on back	6" x 5 1/4" Depth: 2 1/2"	Waterworks Site (1972) Archaeological report "part of pottery cache in the East Face Trench" Numbered 3795 Accession number 1990.500.30
12			Unglazed red earthenware, stove tile fragment, molded decoration on front, blacking on back	6 3/4" x 3 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3782







Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
13			Lead glazed red earthenware, stove tile fragment, molded decoration on front, brown glaze on front, blacking on back	8" x 4" Depth: 2 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1753
14			Lead glazed red earthenware, stove tile fragment, molded edge decoration on front, brown glaze on front, blacking on back	8 1/2" x 6 1/2" Depth: 2 1/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3795



Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
15			Unglazed red earthenware, mended stove tile, molded decoration on front, blacking on the back	4 1/4" x 3"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3782
16			Unglazed red earthenware, mended stove tile, molded decoration on front	3 1/8" x 3"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3758
17			Unglazed red earthenware, mended stove tile, molded decoration on front	3 1/4" x 2 3/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3795







Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
18			Unglazed red earthenware, mended stove tile cornice, molded decoration on front	12 ¾" x 4 ¼"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1865
19			Unglazed red earthenware, mended stove tile, molded decoration on front	8" x 8"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3256 Accession Number 1977.6006.026
20			Unglazed bisque fired red earthenware, stove tile cornice, molded decoration on front	6 ½" x 5"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1725 Accession Number 1977.6006.024







Appendix G, Stove Tiles, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
21			Unglazed bisque fired red earthenware, stove tile, molded decoration on front	8" x 3 1/2" Depth: 2 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1725 Accession Number 1977.6006.026







Appendix H, Kiln Materials, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
1			Unglazed bisque fired red earthenware, possibly saggar fragment with hole and incised line on front of sherd	3" x 3 1/4"	Pottery Site (1970) Box L-70-II Numbered 2689
2		Detail 	Red earthenware kiln setting tile, appears to be fragment of roof tile, detail of several vessel remains on the tile	3 1/2" x 4 1/2"	Pottery Site (1970) Box L-70-X Numbered 2942
3		Detail 	Red earthenware kiln setting tile, appears to be fragment of roof tile, detail of vessel remains on the tile	3 1/2" x 3 1/8"	Pottery Site (1970) Box L-70-X Numbered 2650





**Appendix H, Kiln Materials, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
4		Detail 	Red earthenware kiln setting mended tile, appears to be fragment of roof tile, detail of several vessel remains on the tile	5 ¼" x 5 ¾"	Pottery Site (1970) Box L-70-X All numbered 2820
5			Unglazed red earthenware kiln saggar mend, thick rolled rim with angled profile, hole on side	5" x 9"	Pottery Site (1970) Box L-70-IX Numbered 2942
6			Unglazed red earthenware kiln saggar, thick rolled rim with angled profile, hole on side	8 ½" x 6 ½"	Pottery Site (1970) Box L-70-IX Numbered 2942





Appendix H, Kiln Materials, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
7			Unglazed red earthenware kiln saggar foot, wall thickness measures $\frac{3}{4}$ "	$2 \frac{1}{4}$ " x $3 \frac{1}{2}$ "	Pottery Site (1970) Box L-70-IX Numbered 2930
8			Lead glazed red earthenware, thrown remnant of a possible piece of kiln furniture, black glaze remnant (waterworks is directly downhill from pottery site)	$2 \frac{1}{4}$ " x $\frac{3}{4}$ "	Waterworks Site (1966) Box B-66-II Numbered 2942
9			Unglazed red earthenware, likely a kiln saggar fragment, pierced hole on side		Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2825



**Appendix H, Kiln Materials, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania**

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
10			Unglazed red earthenware, mend, likely a rim of a kiln saggar, pierced hole on side, thick rolled rim profile, flattened on top of rim	10 1/2" x 3 3/4"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Accession Number 1977.6006.105
11			Lead glazed red earthenware, rim sherd, likely a kiln saggar, thick rolled rim profile, rim profile flattened on top	5 1/4" x 3"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2908 Accession Number 1977.6006.102

Appendix H, Kiln Materials, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
12			Unglazed red earthenware, likely a kiln saggar or sitter, remnant of brown glaze and foot or base of vessel, flat profile	4" x 2 1/2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 2825 Accession Number 1977.6006.096
13			Unglazed bisque fired red earthenware, likely part of a stove tile, or possibly a kiln sitter (visually similar to kiln sitters from Bethabara), textured on front, likely molded	5 3/4" x 2"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 1731

Appendix H, Kiln Materials, Bethlehem Pottery
Collection of Historic Bethlehem Partnership, Bethlehem, Pennsylvania

#	Front of Sherd	Back of Sherd	Description	Measurement (Approx.)	Archaeological Number
14			Unglazed red earthenware (over fired), likely kiln furniture (sitter/stilt/trivet)	3 ½" x 2 ¾"	Unknown Site Provenance of archaeological removal from industrial quarter (waterworks, tannery, or pottery) Numbered 3025 Accession Number 1977.6006.092

APPENDIX I

COMPARATIVE LABORATORY TESTING OF CLAY BODIES

Because the archaeological material found in Bethlehem was likely produced there from clay from a relatively local source, scientists conducted two types of analysis in order to identify the clay body. The goal was to do comparative analyses of archaeological material from Bethlehem and of documented archaeological material from the pottery manufacture in Bethabara and Salem, North Carolina.²³¹ The initial hypothesis was that the sherds, if produced at different sites in different states, were made from clay from different sources. Therefore, there would be a significant compositional difference between the archaeological materials of both sites.

Three scientists at the Scientific Research and Analysis Laboratory at Winterthur Museum conducted the first test. They were intern Marc Vermeulen, Associate Scientist Catherine Matsen, and Senior Scientist Dr. Jennifer Mass. They performed non-destructive analysis with qualitative energy-dispersive x-ray fluorescence (ED-XRF) spectroscopy using two different XRF spectrometers, the ArtTax μ XRF spectrometer and the handheld KeyMaster TRACeR III-V XRF.²³²

²³¹ Generally for intact and even archaeological evidence, the precise area of location is unknown, making the area where the clay was from unknown. Because the manufacture of pottery is known to have been produced and the clay source to have likely been near Nazareth (see chapter 3), the materials were more useful for creating an elemental typology of the clay body.

²³² Analytical Report no. AL5258 and AL5261 specifies that the ArtTAX μ XRF spectrometer used a molybdenum tube (600 μ A current, 50kV voltage, 300 seconds live time irradiation, approximately 70 micron circular-shaped spot size) and the

They used two different instruments to provide information from different sample area sizes.²³³

With XRF technology an x-ray beam is “focused on the surface of an object, causing the elements to produce their own characteristic fluorescent x-rays – an identifiable fingerprint.”²³⁴ The elements that are found through the x-ray reading are displayed as an “energy spectrum” on a computer.²³⁵ XRF spectroscopy provides elemental analysis of the surface of a material only, it is not a bulk analysis technique which would require sampling. The elements of interest in the archaeological materials are rubidium (Rb), strontium (Sr), yttrium (Y), and zirconium (Zr). These elements have proven to distinguish between clay body sources in several other instances, however, these tests pertained to porcelain rather than red earthenware.²³⁶

The data generated from the two XRF instruments is summarized as bar graphs in Figures 70 and 71: “the red bars on each of the graphs represent the standard deviations (the measure of how much the values cluster around the average) of the

handheld KeyMaster TRACer III-V XRF spectrometer used a rhenium tube (40kV voltage, 2.4 μ A current, 300 seconds live time irradiation, approximately 1cm x 0.5 cm oval-shaped spot size with Cu (5mil)/Ti (1 mil)/Al (12 mil) filter). Matsen, unpublished report AL5258 or 5261, 2.

²³³ Different Excitation sources were also used; a molybdenum and rhenium source respectively. Ibid., 2.

²³⁴ Kate Duffy and Janice Carlson, “Science and Your Collection,” in *The Winterthur Guide to Caring for your Collection* edited by Onie Rollins (Winterthur, Delaware: The Henry Francis Du Pont Winterthur Museum, Inc., 2000), 21.

²³⁵ Ibid., 21.

²³⁶ Dr. Jennifer Mass, conversation with the author, 12 March 2010.

measured values.”²³⁷ Because the standard deviation overlaps for each site, the analysis was considered inconclusive. The graph shows that there are no significant differences between the rubidium (Rb) element in the clay, and very little difference in the strontium (Sr), yttrium (Y), and zirconium (Zr).

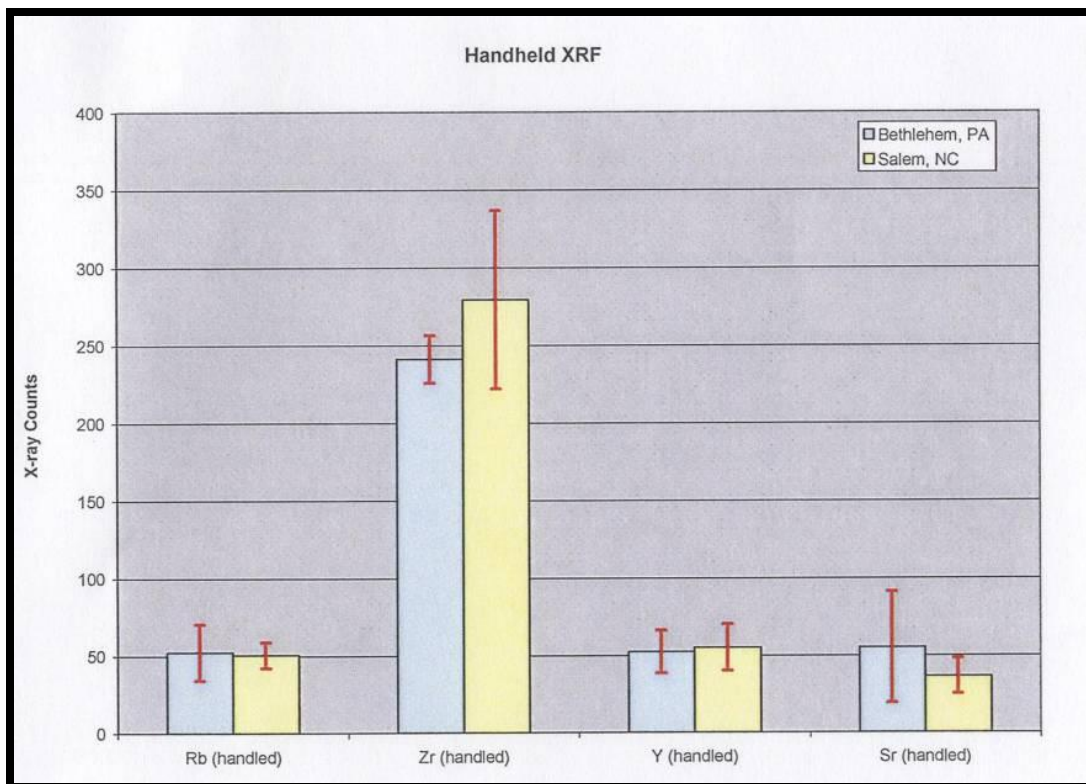


Figure 70 Bar Graph showing Handheld XRF readings from testing at Winterthur. Matsen, unpublished report AL5258 and 5261, 3.

²³⁷ Matsen, unpublished report AL5258 and 5261, 2.

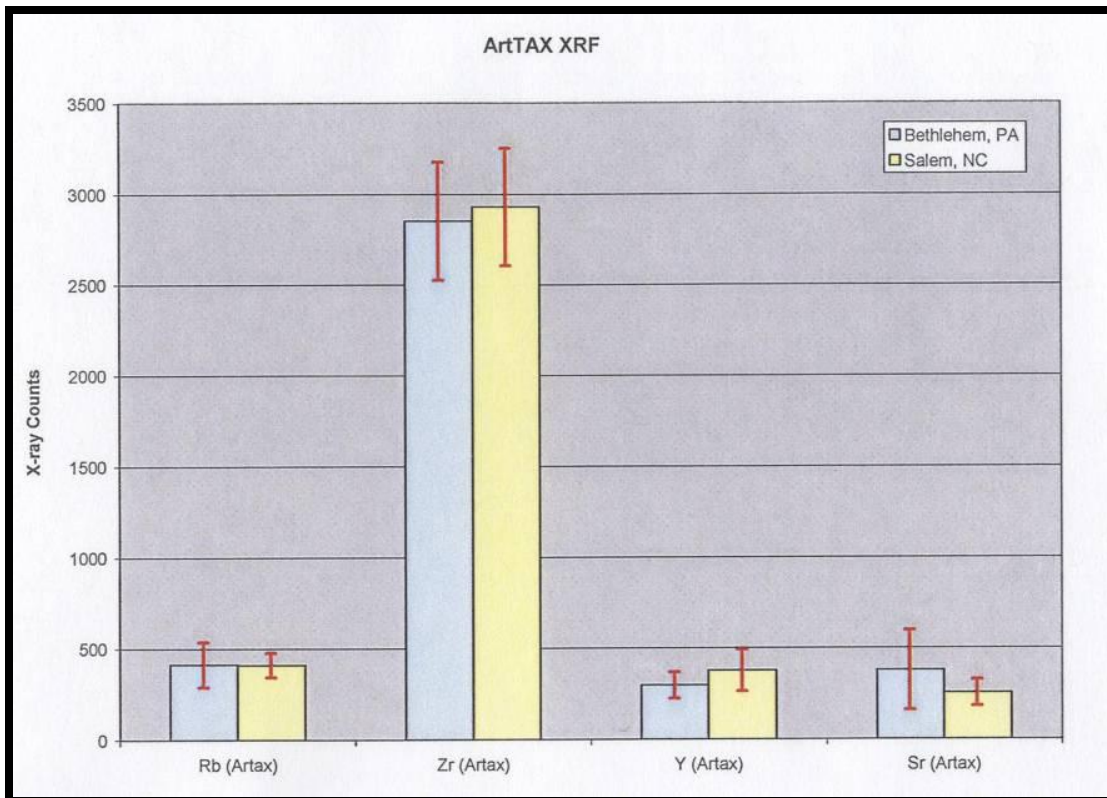


Figure 71 Bar graph showing ArtTAX XRF readings from testing at Winterthur. Matsen, unpublished report AL5258 and 5261, 3.

The relative elemental compositions of the clay bodies as analyzed with XRF spectroscopy did not show a difference between the two clay sources. Another step, however, was possible through the recommendation of Robert Hunter, editor of *Ceramics in America*. With the permission of the Historic Bethlehem Partnership, the author sent archaeological materials from Bethlehem to Dr. J. Victor Owen, professor and scientist at St. Mary's University in Nova Scotia. Dr. Owen was conducting analyses on clay bodies for a forthcoming article in *Ceramics in America*.²³⁸ Dr. Owen

²³⁸ This will be in the forthcoming publication of *Ceramics in America*, edited by Robert Hunter (Milwaukee, Wisconsin: The Chipstone Foundation, 2010).

tested the sherds through inductively coupled plasma optical emission spectrometry (ICP-OES) analysis for small samples of the clay bodies and through inductively coupled plasma mass spectrometry (ICP-MS) for trace elements.²³⁹ ICP-OES and ICP-MS are essentially methods by which the electromagnetic field created by the machine is able to extract minute information from the elements in the sample tested. This analysis compared more elements in the two samples than the XRF analysis at Winterthur.

Dr. Owen's analyses revealed that red earthenware from the Winston-Salem area of North Carolina and red earthenware from Bethlehem, Pennsylvania "can be distinguished on the basis of both major (Si, Ti, Al, Mn, Mg, K) as well as trace elements (Rb, Cs, Be, Y, Zr, Hf, Nb, Ta, U, Ga, V, Sn, W, Cu, Pb and the Rare Earth elements)." ²⁴⁰ Through the destructive analysis differences in the elemental compositions were identified and clearly defined.

ICP-OES and ICP-MS analysis provided more elemental data for the two groups of sherds, the results for each group are documented and an elemental 'profile' for each set of sherds is available. The elements that are different in the two bodies are identified. This data could prove useful in using non-destructive XRF for analysing

²³⁹ The ICP-OES testing was completed following a lithium tetraborate fusion and dilute nitric acid digestion. J. Victor Owen and John D. Greenough, "Mineralogical and Geochemical Characterization of 18th Century Moravian Pottery from North Carolina," preliminary draft provided by authors for forthcoming article in *Ceramics in America*, edited by Robert Hunter (Milwaukee, Wisconsin, 2010), 22-23.

²⁴⁰ Ibid., 11-12.

intact pots and sherds. Similar elemental 'profiles in intact pieces will suggest similar clay sources for the raw materials. In particular, it may help in differentiating objects in collections with attribution to either North Carolina or Pennsylvania. Testing intact pieces with XRF and comparing their spectra to the results of the ICP-OES and ICP-MS testing may help researchers attribute a piece of pottery to North Carolina or Pennsylvania. Further analyses are required.

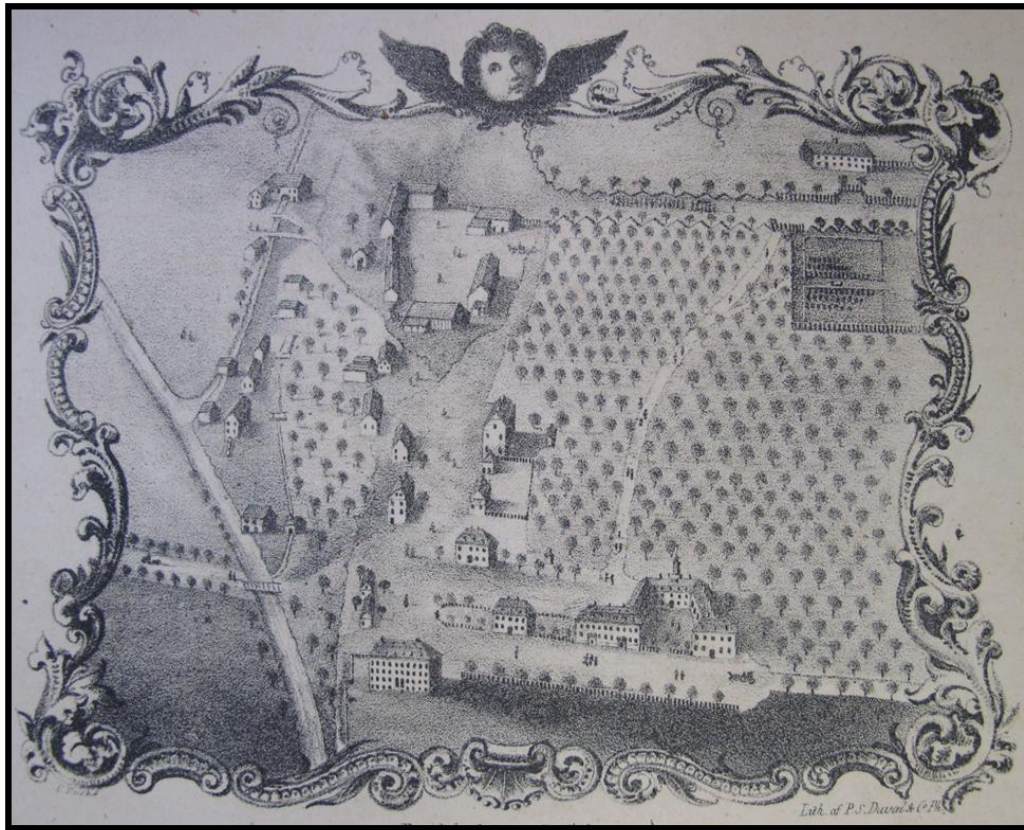


Figure 1 Lithograph of Bethlehem, 1755. Made by P.S. Duval & Co., Philadelphia. Printed in David Cranze's *Kurze, zuverlässige Nachricht von der, unter dem Namen der Böhmisch-mährischen Brüder bekanten, Kirche Unitas Fratrum* [Zeremonienbüchlein] (Halle, Germany, 1757). Courtesy, Moravian Archives, Bethlehem.



Figure 2 Slip and sgraffito decorated dish attributed to Abraham Hübner. Dated 1778. Gift of John T. Morris, 1903, Philadelphia Museum of Art, Accession Number 1903-355. The rim profile, width of the body of the dish and overall visual characteristics of the form are similar to what was likely made in Bethlehem.



Figure 3 The remaining wall of the original 1749 pottery building is on the right with the reconstruction of the blacksmith shop on the left. Courtesy, Historic Bethlehem Partnership. Photo taken by the author.



Figure 4 Map of the Mid-Atlantic showing the location of Moravian settlements.
Map made by the author.

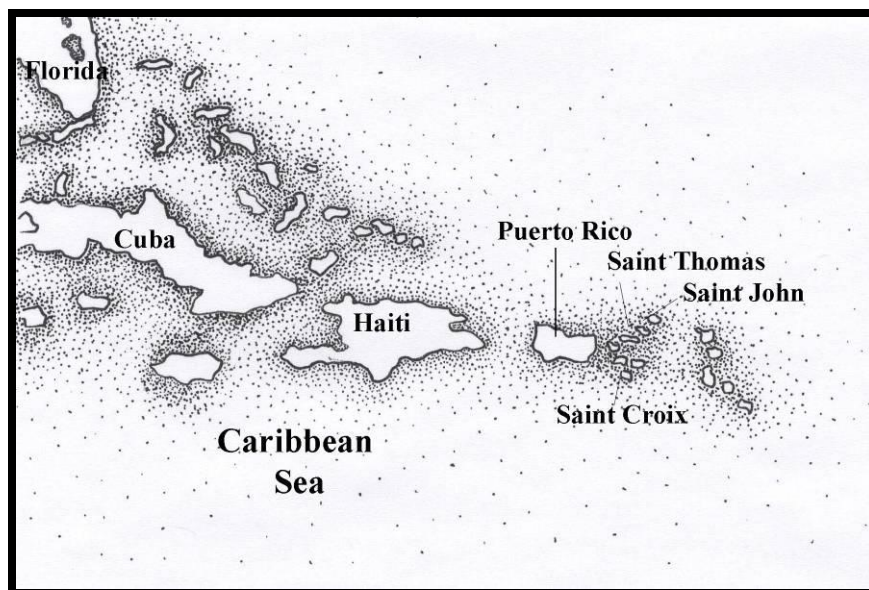
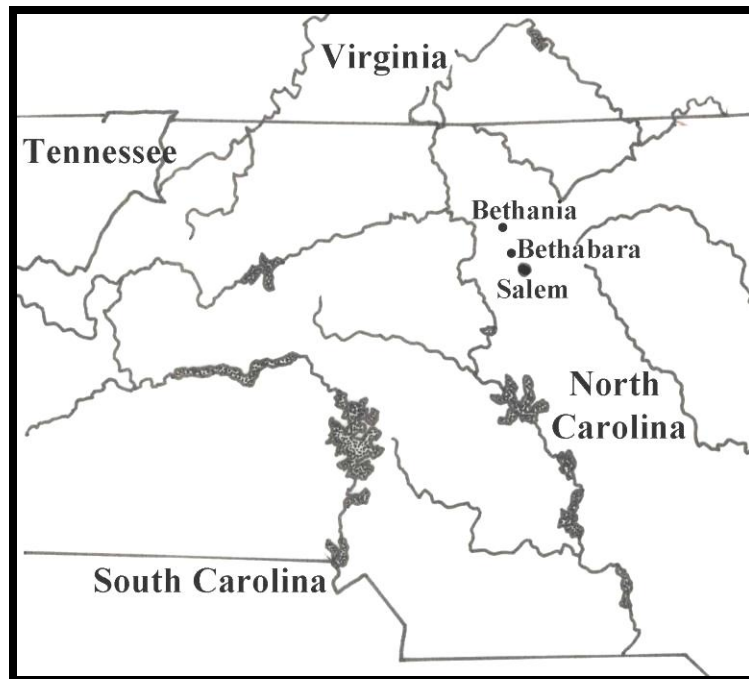


Figure 5 Above, map showing Moravian settlement in North Carolina. Below, map showing the location of islands in the West Indies.
Maps made by the author.



Figure 6 Printed Lithograph showing the distribution of communion during a service. The Moravian congregation is divided by sex, the women are shown on the right, and the men on the left. Printed in David Cranze's *Kurze, zuverlässige Nachricht von der, unter dem Namen der Böhmisch-mährischen Brüder bekanten, Kirche Unitas Fratrum* [Zeremonienbüchlein] (Halle, Germany, 1757). Courtesy, Moravian Archives, Bethlehem.



Figure 7 Printed lithograph showing the Moravian practices of multiple marriages. These arranged marriages were decided by the church and observed by the community. Printed in David Cranze's *Kurze, zuverlässige Nachricht von der, unter dem Namen der Böhmischemährischen Brüder bekanten, Kirche Unitas Fratrum* [Zeremonienbüchlein] (Halle, Germany, 1757). Courtesy, Moravian Archives, Bethlehem.

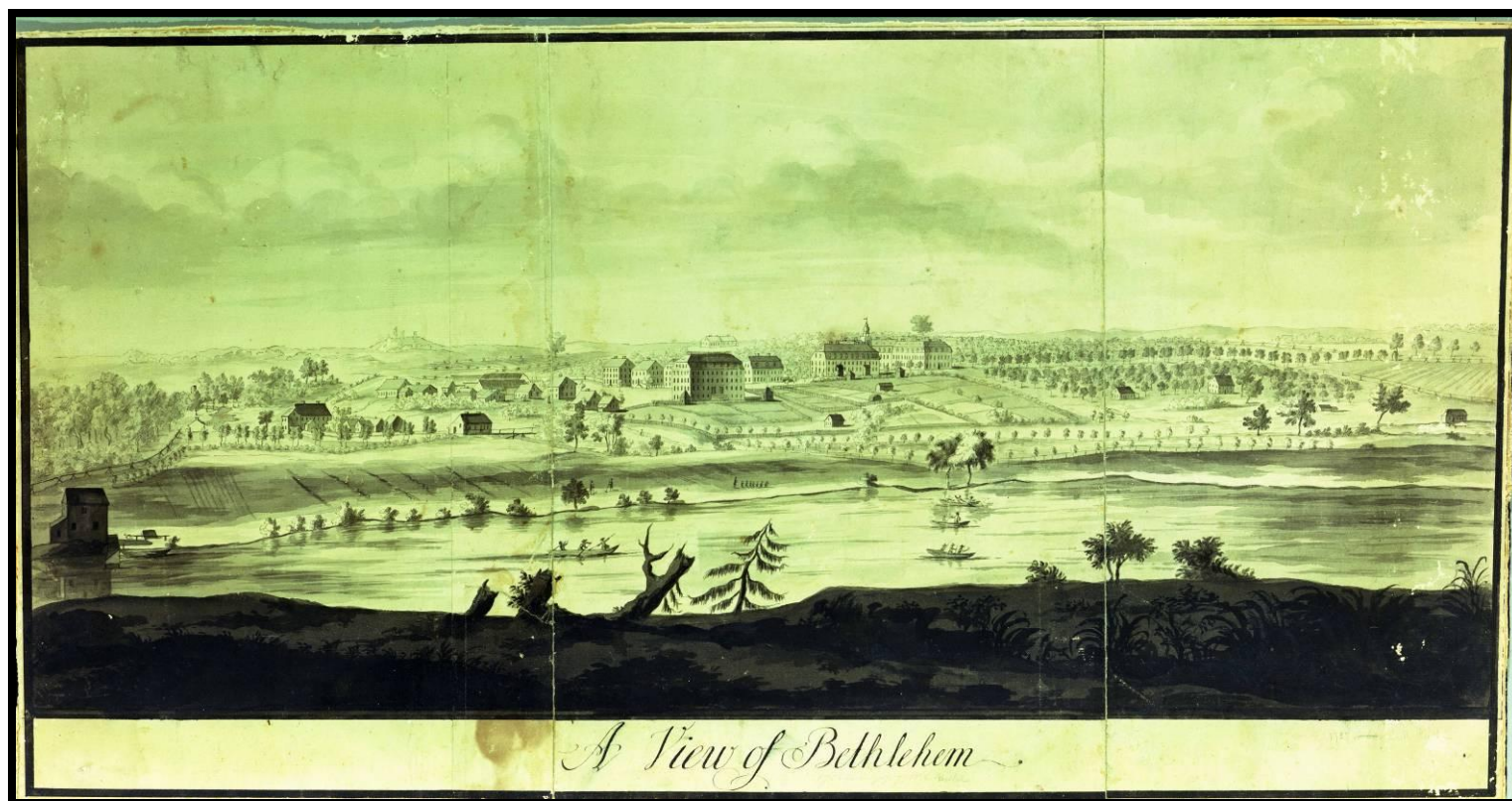
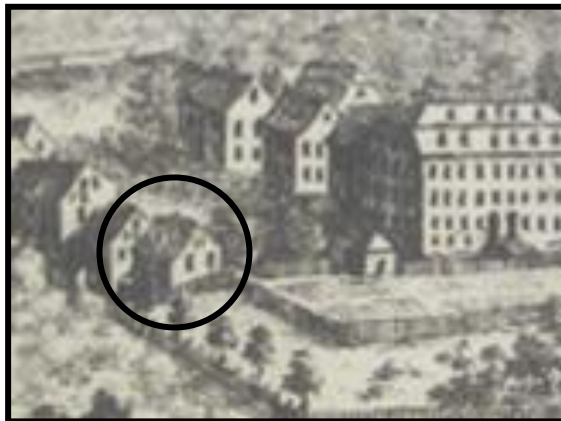


Figure 8 “A View of Bethlehem” by Christian Gottlieb Reuter, made in 1758. The large building in the center of the page is the Single Brother’s house, with the *Gemeinehaus* to the right. Courtesy, Moravian Archives, Bethlehem.



Figure 9 Showing a view of Bethlehem. The Single Brothers House is the large building in the center of the print, and the pottery is to the left of the Single Brothers House. Below is a magnified view of this image with the location of the pottery encircled. Printed in David Cranze's *Kurze, zuverlässige Nachricht von der, unter dem Namen der Böhmisch-mährischen Brüder bekanten, Kirche Unitas Fratrum* [Zeremonienbüchlein] (Halle, Germany, 1757). Courtesy, Moravian Archives, Bethlehem.



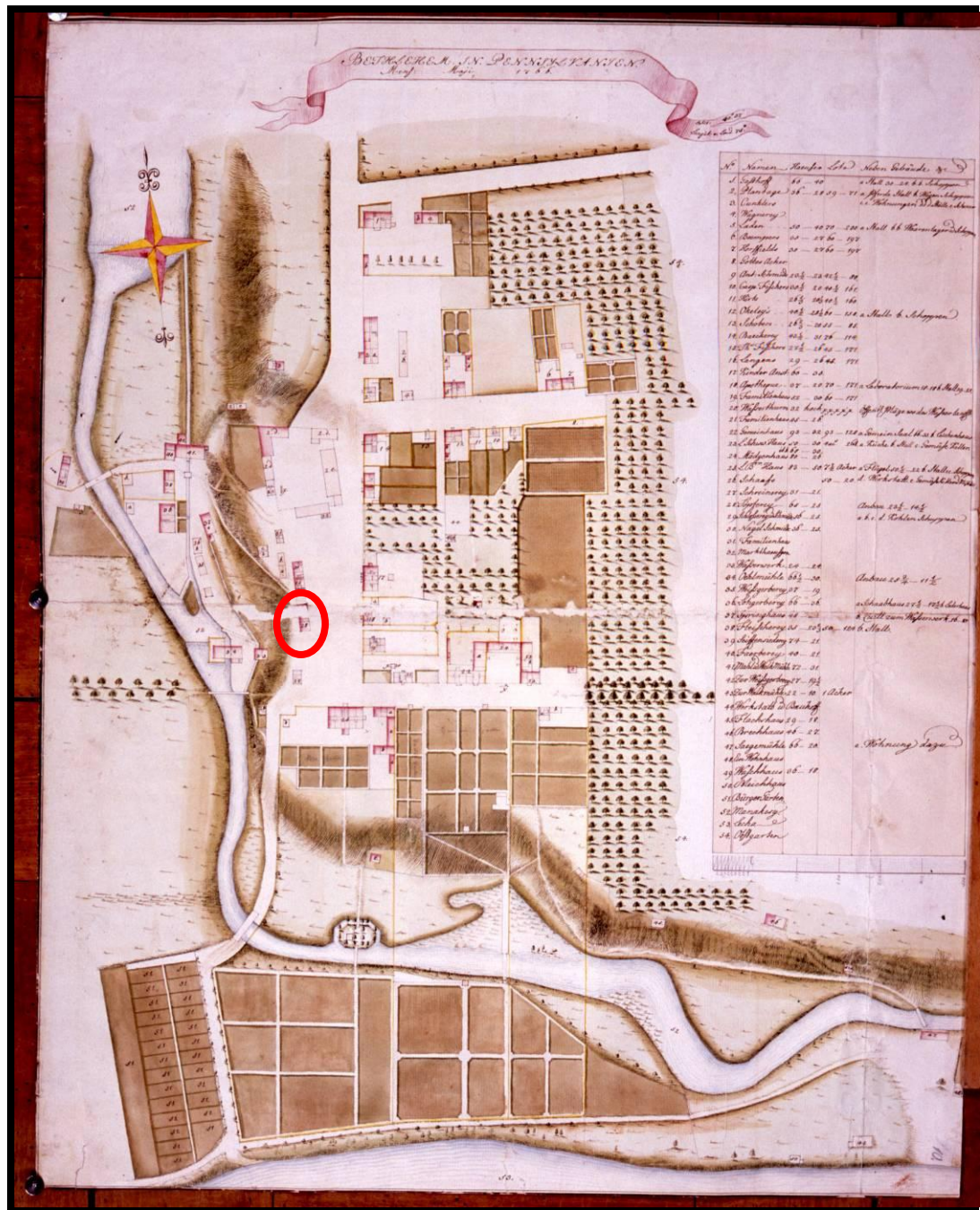


Figure 10 1766 map of Bethlehem. The location of the pottery has been highlighted in red. Courtesy, Moravian Archives, Bethlehem.



Figure 10 1768 map of Bethlehem. Courtesy, Moravian Archives, Bethlehem. The red circle reflects the location of the pottery which is identified on a 1771 map in the collection of the Moravian Archives, Herrnhut.



Figure 12 Front and back of roof tile. Measures approximately 15 ½" x 8". Collection of the Historic Bethlehem Partnership.



Figure 13 Two reconstructed crocks or pots found archaeologically in the Industrial Quarter of Bethlehem. Collection of the Historic Bethlehem Partnership.

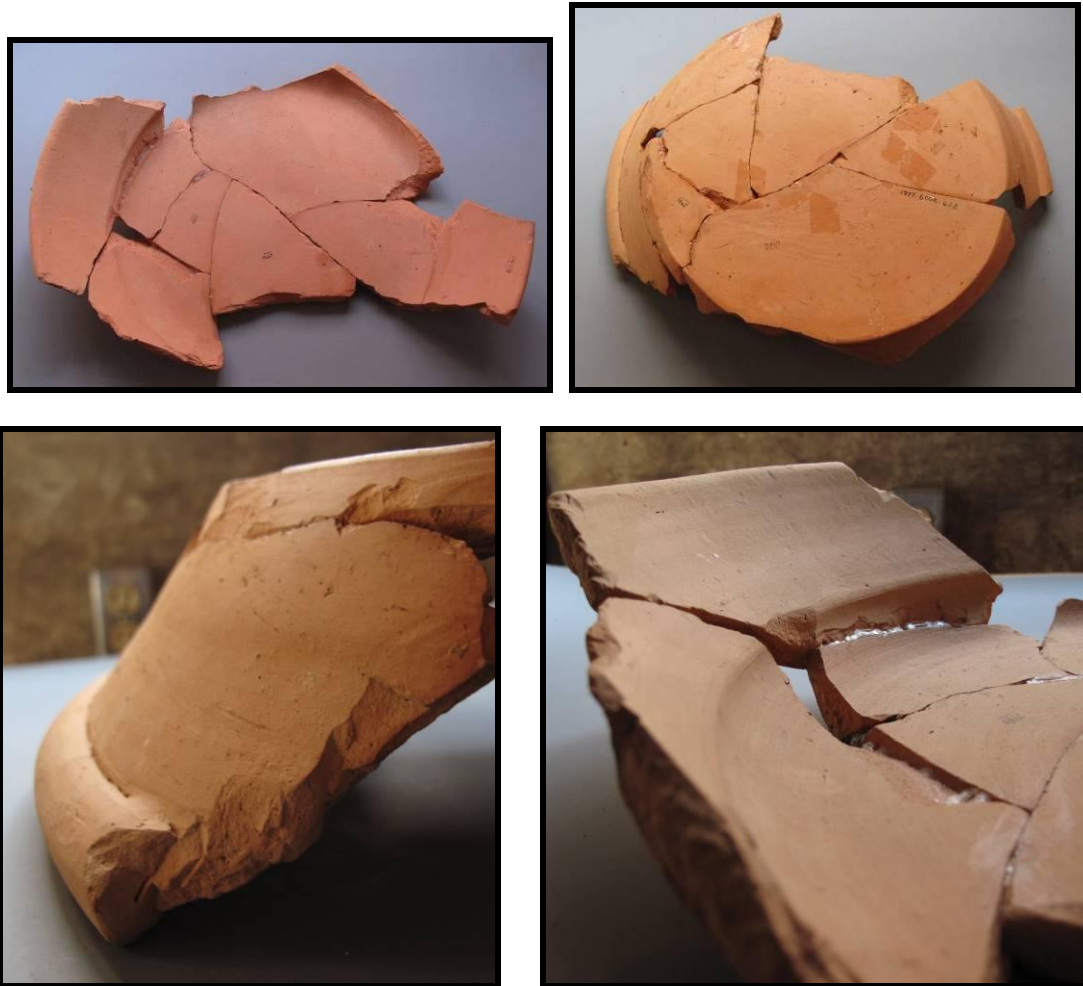


Figure 14 Large dish. Measures approximately 15" in diameter, marley is approximately 2". Thickly rolled rim is show on bottom left. Interior profile of the dish on bottom right shows the defined marly and rounded interior. Collection of the Historic Bethlehem Partnership. See Rim Profile 3 in Appendix B.



Figure 15 Two lids. Design of the lid is made specifically for a flange on a vessel. However, both lids were made differently from one another. The top lid has the knob thrown as a part of the lid, it is flat and shows no sign of trimming. The bottom lid is slightly rounded, the knob was thrown on top of the lid and the sides were trimmed. Collection of the Historic Bethlehem Partnership.



Figure 16 Variety of handles. The handles pictured at the top were found archaeologically in the Industrial Quarter of Bethlehem. They show a wide range of sizes and styles, including a small (1 ½") cup handle. Handles pictured on the bottom were excavated from the site of the Tannery and measure from 1" to 2 ½" across the top. They are all pulled (hand-formed) and exhibit a variety of ways the potters finished them with finger marks and lines. Collection of the Historic Bethlehem Partnership.



Figure 17 Lug and strap handles. Handle pictured at the top was excavated from the Tannery. The sherd measures approximately 4 ½" x 6 ½". The handle is a pulled (hand-formed) lug handle which creates the shape of an inverted cup on the side of the vessel. The handle pictured at the bottom was found archaeologically in the Industrial Quarter. It measures approximately 3 ¾" in height and is 9" wide. The handle is a pulled (hand-formed) strap handle made at the same level as the rim of the vessel. Collection of the Historic Bethlehem Partnership.

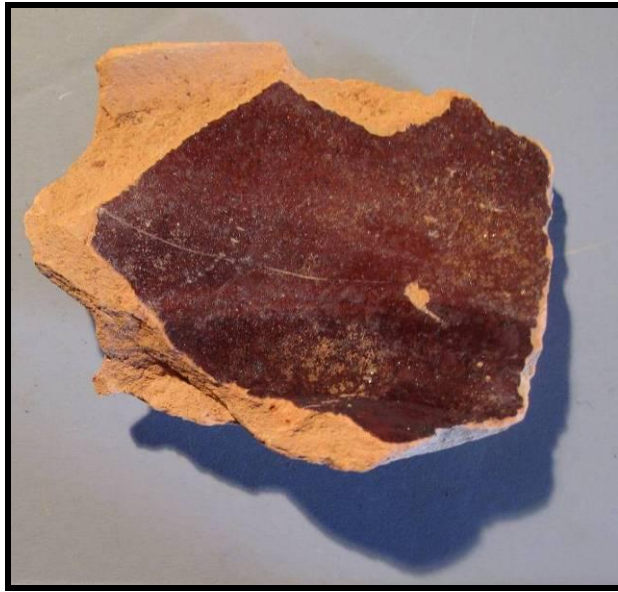


Figure 18 Small dish sherd. Excavated from the site of the Pottery. Similar profile to Figure 13, except that the overall height of this dish is approximately 1 ½". The foot profile on this dish also rises approximately ½" and then flares out. Courtesy, Historic Bethlehem Partnership. Collection of the Historic Bethlehem Partnership. See Foot Profile 4 in Appendix C.



Figure 19 Sherds with blacking. Excavated from the site of the Tannery. Clay may have been tempered with sand or other material, the clay body appears to be coarse, but is a red earthenware. Both are crudely manufactured and exhibit burn marks or blacking on the rims and underside of the vessels. Sherd pictured on the bottom measures approximately 5 $\frac{3}{4}$ " x 4 $\frac{1}{3}$ " and is glazed on the interior with a brown glaze. Sherd pictured on the top has no glaze, and measures 6 $\frac{3}{4}$ " x 5". Collection of the Historic Bethlehem Partnership.



Figure 20 Marly of Shaving Basin. Highly decorated with black, green, and white slip-trailing. Exterior edge is decorated with a half-circle design. Excavated from the site of the Pottery. Collection of the Historic Bethlehem Partnership.



Figure 21 Smoking Pipe Head. Length of stem measures 1 $\frac{1}{4}$ ". Collection of the Historic Bethlehem Partnership.



Figure 22 Stove tiles. Showing a variety of glazes, sizes, and decoration. Collection of the Historic Bethlehem Partnership.



Figure 23 Stove. Attributed to Johann Ludwig Hübner. From the Collection of the Moravian Historical Society, Nazareth, Pennsylvania.



Figure 24 Water Pipes. Collection of the Historic Bethlehem Partnership.



Figure 25 Possible Stove Pipes. The fragments at the top are from the tannery, fragments at the bottom are archaeologically found in the Industrial Quarter. Collection of the Historic Bethlehem Partnership.

(226)

1759. *Potter* D. S. S. D.

July 7.	259.	To James & Drinker for Red Lead	£20..7..7½	
13.	260.	Cash spent to Philad	15..—	
31.	266.	Copper	1..3.	
Aug. 31.	281.	Togner	5..—	
Sept. 29.	291.	Locksmith	1..—	
Octbr. 30.	307.	Togner	3..—	
Nov. Apr. 21.	370.	Cash for a Sieve	7..6.	
May. 31.	391.	C. Cordis Wood & Freight of Clay	6..3.	
—	400.	H. V. Week for 1. Cash Red Lead	4..11..10½	
			33. 14. 3.	176
		Ballance earned this Year	50. 19. —	
			£. 84. 13. 3.	

1759.

July 13.	Novu	Jam. & Drinker	9. 2. 23.	Red Lead	20..7..7½
		gekauft	42½.		
Juni	Jedw. fünf Hon				✓ 1
Julij	Jedw. fünf Hon				✓ 1

Figure 26 Corresponding Entries for Red Lead. Top, entry on July 7, 1759 which reads “To James & Drinker for Red Lead.” Ledger of the Diaconat at Bethlehem D 1755-1762, 226. Bottom, entry on July 13, 1759 which reads, “Von Jam.s & Drinker 9 Ct. 2 qr. 23 # Red Lead gekauft.” Töpfer Buch in Bethlehem, 1752 bis 1758. BethBus 9. Courtesy, Moravian Archives, Bethlehem.



Figure 27 Bisqued and Glazed Sherds. Top, unglazed, reconstructed fragment found at the site of the Pottery. Bottom, clear lead-glazed reconstructed fragment found at the site of the Waterworks. Collection of the Historic Bethlehem Partnership.

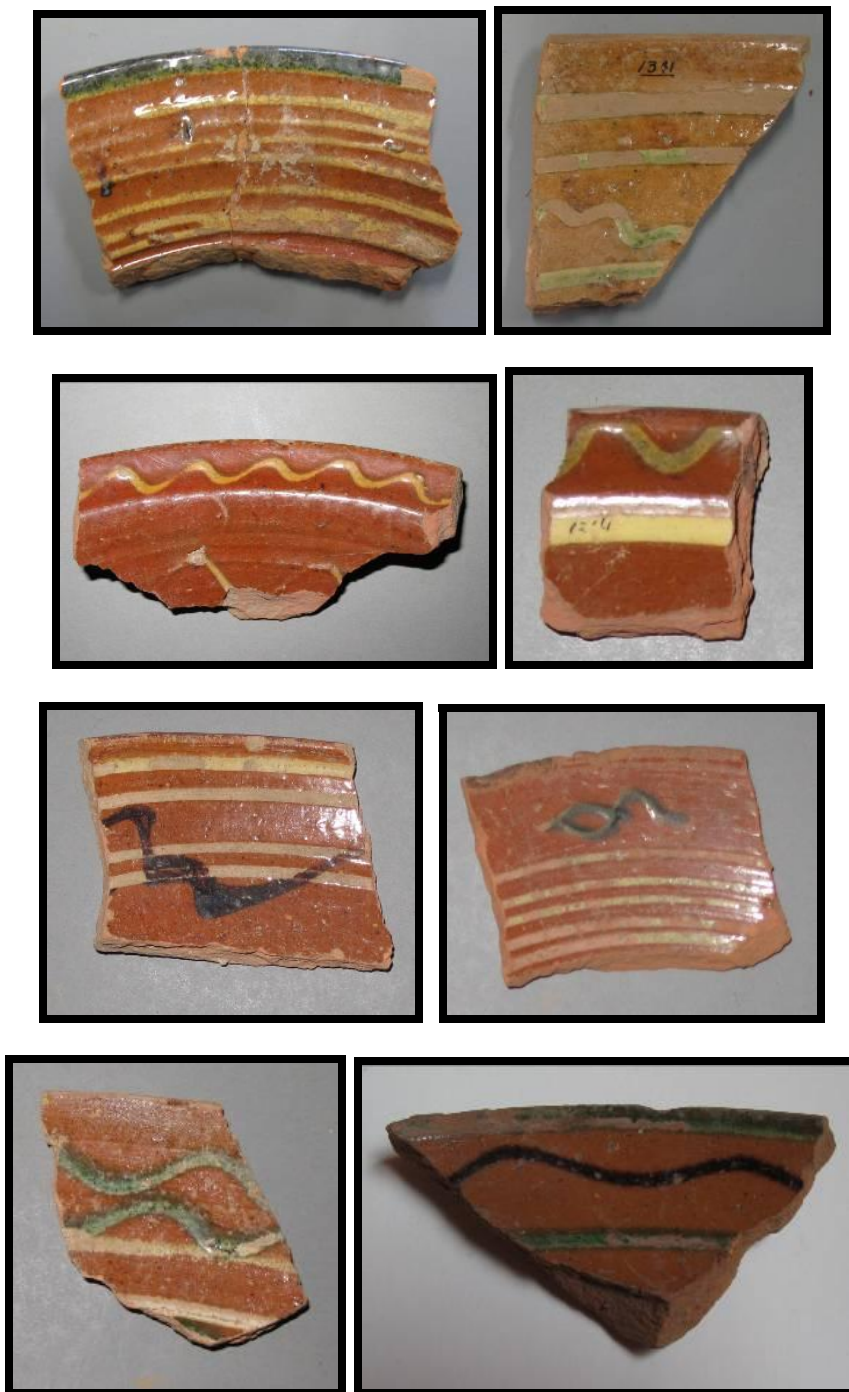


Figure 28 Slip-Trailed Designs. Showing a variety of patterns and colors used. Collection of the Historic Bethlehem Partnership. See Appendix A.



Figure 29 Slip-trailed designs with animals and fish. Collection of the Historic Bethlehem Partnership.



Figure 30 German and English Wheels. Above, image showing a German wheel. From *Kupfersammlung zu J.B. Basedows Elementarwerke für die Jugend und ihre Freunde* by Johann Bernhard Basedow (Berlin, Germany, 1774). Courtesy, the Colonial Williamsburg Foundation. Below, image showing an English wheel. From *A representation of the manufacturing of earthenware: with twenty-one highly finished copperplate engravings, and a short explanation of each, shewing the whole process of the pottery* (London: Ambrose Cuddon, 1827). Plate 4. Courtesy, The Winterthur Library: Printed Book and Periodical Collection.

Inventarium

L. S. D.

Unsern lieben Lesern, welche am 30^{ten} Mart:
1762. von Johann Arbo, Gentleman,
im Namen des Signaturnat Nathanael
Seidels, Clerk, von Michael Odenwald
Bürger in Bethlehem, zu seiner
Güter, ausserhalb voran. Viz!

Handwerks Beräthe

2 Engl. Räder	@ 24	48
2 Deutsch. Räder	@ 20	40
1 Glas. Mühl		12
10 Gyps. Räder		17
2 Räder		5
3 Leinwand. Räder		1. 6.
1 Leinwand. Räder		3
2 Leinwand. Räder		1
1 Quab. Räder		1. 6.
2 All. Räder		3
2 Räder		2
1 Gyps. Räder		1. 8.
1 Leinwand. Räder		2
1 Leinwand. Räder		6
2 Räder. Räder und 2 Leinwand. Räder		4
4 All. Glas. Räder		1. 10.
5 Gyps. Räder		1. 10.
6 Räder. Räder		3
1 Räder		1. 9
1 Räder und 1 Räder		1. 5
1 Räder		20. 7. 5
2 Leinwand. Räder	@ 10	20
6 Leinwand. Räder	@ 20	120
4 Leinwand. Räder		5. 17
2 Leinwand. Räder	@ 40	80
3 Leinwand. Räder	@ 2	6

20. 7. 5

10. 11. 9

Transported 38. 10. 2

Figure 31 1762 Inventory of the Pottery. The English and German wheels in the inventory have been highlighted. Courtesy, Moravian Archives, Bethlehem.



Figure 32 Tile Mold. Accession # M-180. Collection of the Wachovia Historical Society, Courtesy of Old Salem Museums and Gardens.



Figure 33 Pipe Molds. Top, two part mold. Accession # M-37. Collection of the Wachovia Historical Society, Courtesy of Old Salem Museums and Gardens. Bottom, one part of a mold. Accession #1070.2. Collection of Old Salem Museums and Gardens.



Figure 34 Press for Pipe Molds. Accession # M-36. Collection of the Wachovia Historical Society, Courtesy of Old Salem Museums and Gardens.



Figure 35 Molded Plate Marlies. Feather edge on top. Salt-glaze pattern on bottom. Collection of Historic Bethlehem Partnership.



Figure 36 Mold for Making Plates. Collection of the Wachovia Historical Society, Courtesy of Old Salem Museums and Gardens. Photo by Gavin Ashworth.



Figure 37 Black Slip-Trailed Designs. Collection of Historic Bethlehem Partnership.

1756			
June 30	298	To Sadler for 1. Apron	1. -
	303	- Cash, for 6. lb. Mennig, 6. lb. Brown	6. 6. -
July 15	309	- 4. 1. 4. lb. Red Lead 4. 7. 12. 9.	
		- Carriage of 10. from Philad.	10. -
Aug. 20	331	- Cash spent by fetching some	9. -
			8. 19. 3
Sept. 21	345	- 10. for keeping the Cash	
Nov. 29	383	- 10. for Unground Black Lead & 2. 10.	4. 10. -
Jan. 31	413	- Jasp. Payne for 2. Days Boat	2. -
		- Blacksmith	5. -
April 13	443	- Hen. V. Week for 2. 1. 9. 1. 1. 2.	
		- of Red Lead & Carriage	6. 9. 2.
May 31	468	- Strang. Store	5. -
	469	- 6. Loads Clay & 2. Loads of Wood	3. 16. -
			10. 17. 2
Ballance earned this Year			29. 14. 11.

Figure 38 Ledger Entry for Black Lead. Ledger of the Diaconat at Bethlehem D 1755-1762, 226. Courtesy, Moravian Archives, Bethlehem.



Figure 39 Comparison of slips. Comparison of black slip on Bethlehem pottery (above) with a manganese slip from Philadelphia (below). Above, collection of the Historic Bethlehem Partnership. Below, slip trailing on dish excavated at Market Street in Philadelphia (36PH5). Courtesy, Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology.



Figure 40 Backs of Rim Sherds from North Carolina. Showing visually similar profile characteristics when compared to the archaeological material in Bethlehem. Collection of Old Salem Museums and Gardens. Photographed by Gavin Ashworth.



Figure 41 Map of southeastern Pennsylvania. Map showing archaeological site locations in southeastern Pennsylvania. Map made by the author.

1745		Sam: Barron. in the Irish Settlement			
Sept 11		To Medicines	94	2	6
		Sharpening a plow	90		6
13		To Cash as p ^{re} ced	10	6	
		Medicines	94	3	
Oct. 20		Potters Shop for Sundrys	130.		9
15.		Tannery 1 horn	116.		2
25.		Cash as p ^{re} ced.	20.	4	7
				17	6

Figure 42 Ledger Entry for Samuel Barron. Ledger of the Diaconat at Bethlehem B, 1744-1748, 120. Courtesy, Moravian Archives, Bethlehem.



Figure 43 Love Feast. Printed in David Cranze's *Kurze, zuverlässige Nachricht von der, unter dem Namen der Böhmischemährischen Brüder bekanten, Kirche Unitas Fratrum* [Zeremonienbüchlein] (Halle, Germany, 1757). Courtesy, Moravian Archives, Bethlehem.

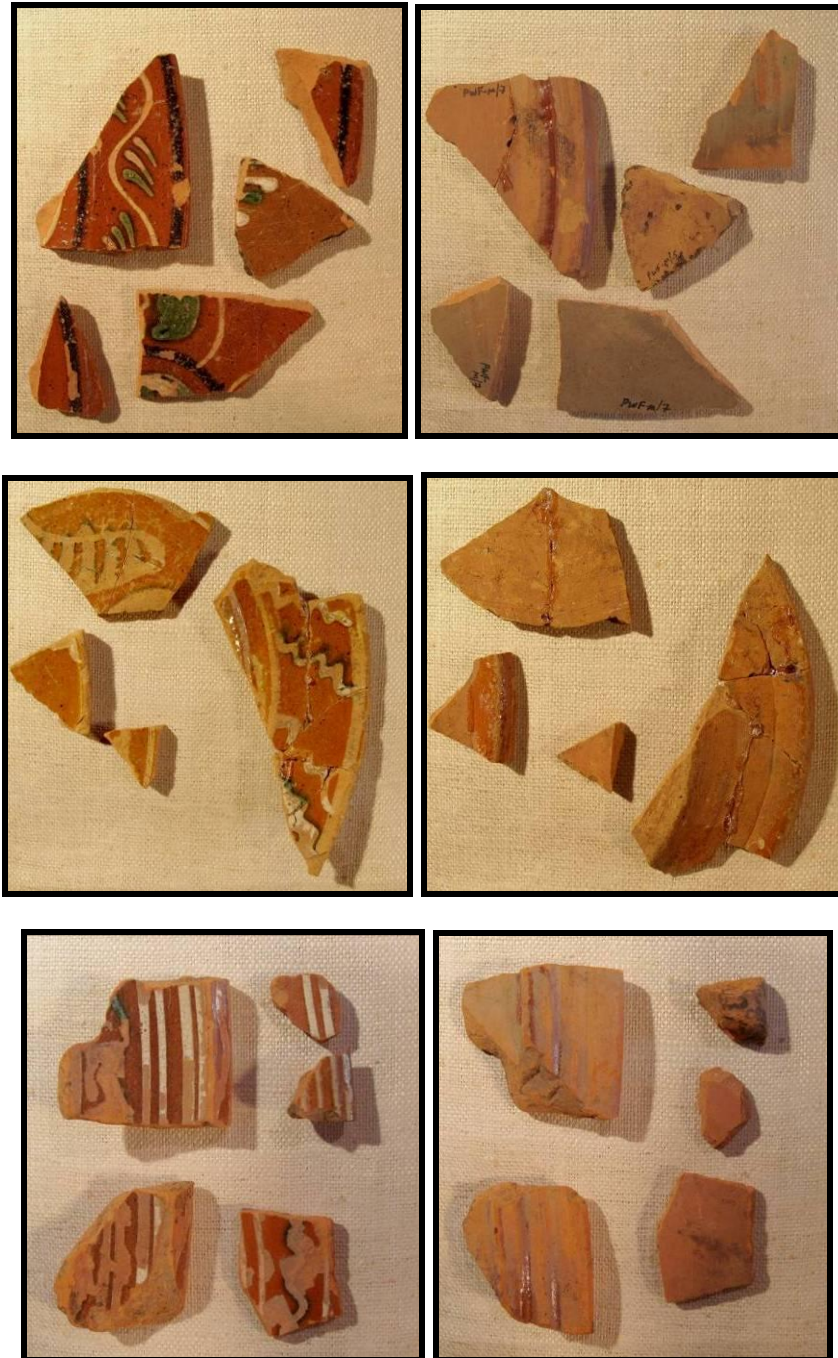


Figure 45 Sherds from the Peter Wentz Farmstead. On the left side are the front of the sherds, and on the right are the back of the sherds showing the rim profiles. Courtesy of the Peter Wentz Farmstead, Montgomery County Department of Parks and Heritage Services, Worcester, Pennsylvania.

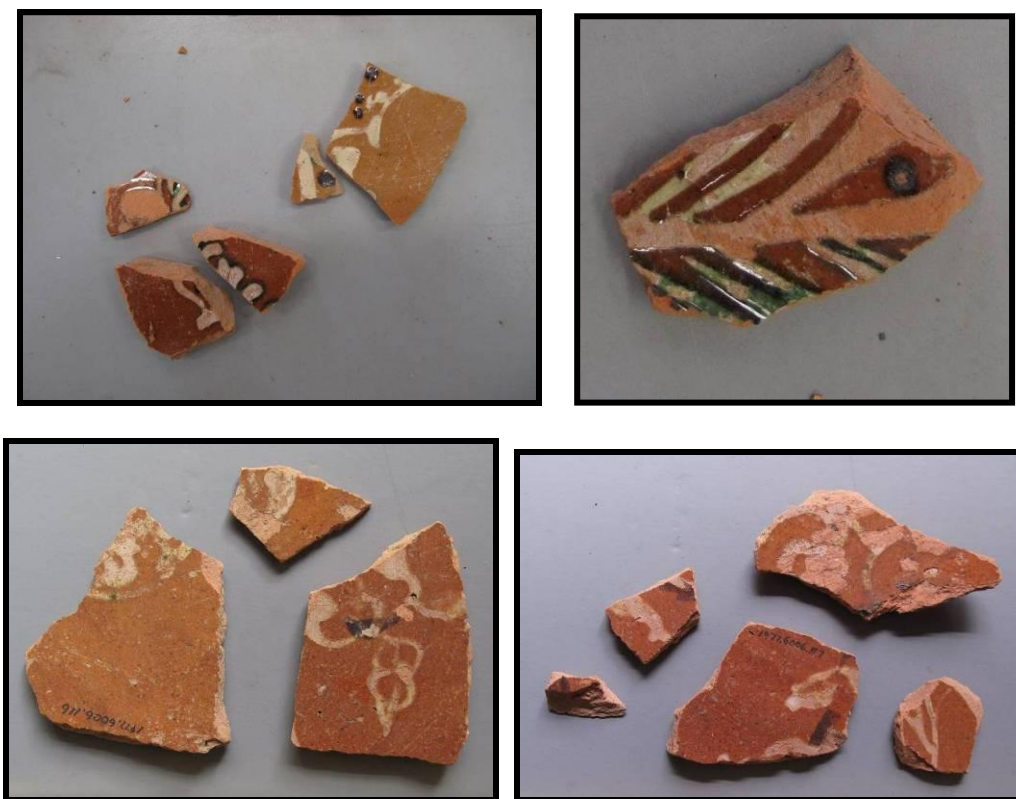


Figure 46 Sherd Comparison of Bringhurst and Bethlehem. Sherds from Bringhurst are on top, sherds from Bethlehem are on bottom. Collection of the National Park Service, Independence National Historic Park, Philadelphia, Pennsylvania.



Figure 47 Sherds from Hess House compared to Bethlehem. Sherds from the Hess House are on the left, sherds from Bethlehem are on the right. Showing similarities in slip colors and decoration, rim profiles, and form. Collection of Historic Bethlehem Partnership and courtesy, Clarke Hess, owner of the Johannes Hess House/Christian Hess House.



Figure 48 White slip under lead glaze with blue slip trailing. Similarly slip-trailed materials were seen at John Milner and Associates while they were cataloging the material from an excavation done at Front and Dock Streets in Philadelphia. These materials are permanently curated by the Atwater Kent Museum in Philadelphia. Permission could not be obtained for photo publication. Courtesy, Clarke Hess, owner of the Johannes Hess House/Christian Hess House.



Figure 49 Sherds with black slip. From the Johannes Hess/Christian Hess House. Courtesy, Clarke Hess, owner of the Johannes Hess House/Christian Hess House.



Figure 50 Stove Tile Comparison with Ephrata Cloister (on right). Compared with material from Bethlehem (on left) The stove tiles excavated in Ephrata were from the 1738 Brothers' Convent on Mount Zion in Ephrata (36LA981/2602 and 36LA981/2574). Courtesy, Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology.



Figure 51 Comparison of Sherds with German Lettering. Compare with material from NC Top image, collection of Old Salem Museums and Gardens. Photographed by Gavin Ashworth. Middle image, from the collection of the Ephrata Cloister, Pennsylvania Historical and Museum Commission. Bottom image, courtesy, Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology.



Figure 52 Showing a slip-trailed rayed pattern. Top two sherds were excavated from the Ephrata Cloister. Courtesy, Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology. Bottom left sherd was excavated at Stenton. Courtesy of The National Society of the Colonial Dames of America in the Commonwealth of Pennsylvania at STENTON. The bottom right set of sherds were excavated in the Industrial Quarter of Bethlehem. Collection of the Historic Bethlehem Partnership.



Ephrata Cloister



Market Street (36PH5)



Vine Street Expressway



Bringham



Bethlehem

Figure 53 Comparison of green and white slip-trailed designs. These sherds are not to assert that all of these materials were made in Bethlehem, but rather, to show the visual similarities between the various sites. Plain slip-trailing is difficult to attribute to one particular site manufacture. The top four fragments are courtesy of the Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology. Bottom fragment is from the collection of the Historic Bethlehem Partnership.



Figure 54 Water Pipe from Ephrata Cloister. On display at the Ephrata Cloister, from the collection of the Ephrata Cloister, Pennsylvania Historical and Museum Commission



Figure 55 Large floral decorated dish excavated at Stenton. Middle images show a similar profile to the dishes made in Bethlehem. Bottom images show decorative similarities between the dish at Stenton and a sherd excavated at the Peter Wentz Farmstead. Courtesy of The National Society of the Colonial Dames of America in the Commonwealth of Pennsylvania at STENTON. Courtesy of the Peter Wentz Farmstead, Montgomery County Department of Parks and Heritage Services, Worcester, Pennsylvania.



Figure 56 Large Floral dish excavated in Brighthelm yard. Collection of the National Park Service, Independence National Historic Park, Philadelphia, Pennsylvania.



Figure 57 Detail of large floral dish and profile. Profile is similar to dish profile from wares made in Bethlehem. The bottom left image is a sherd from the Johannes Hess House/Christian Hess House in Lititz, Pennsylvania. The bottom right sherd is from a rim of a shaving basin excavated at the site of the pottery in Bethlehem. Collection of the National Park Service, Independence National Historic Park, Philadelphia, Pennsylvania. Courtesy, Clarke Hess, owner of the Johannes Hess House/Christian Hess House. From the collection of the Historic Bethlehem Partnership.



Figure 58 Foliate dish excavated at Brighthelm. Rim profile is similar to rim profiles from Bethlehem. Collection of the National Park Service, Independence National Historic Park, Philadelphia, Pennsylvania.

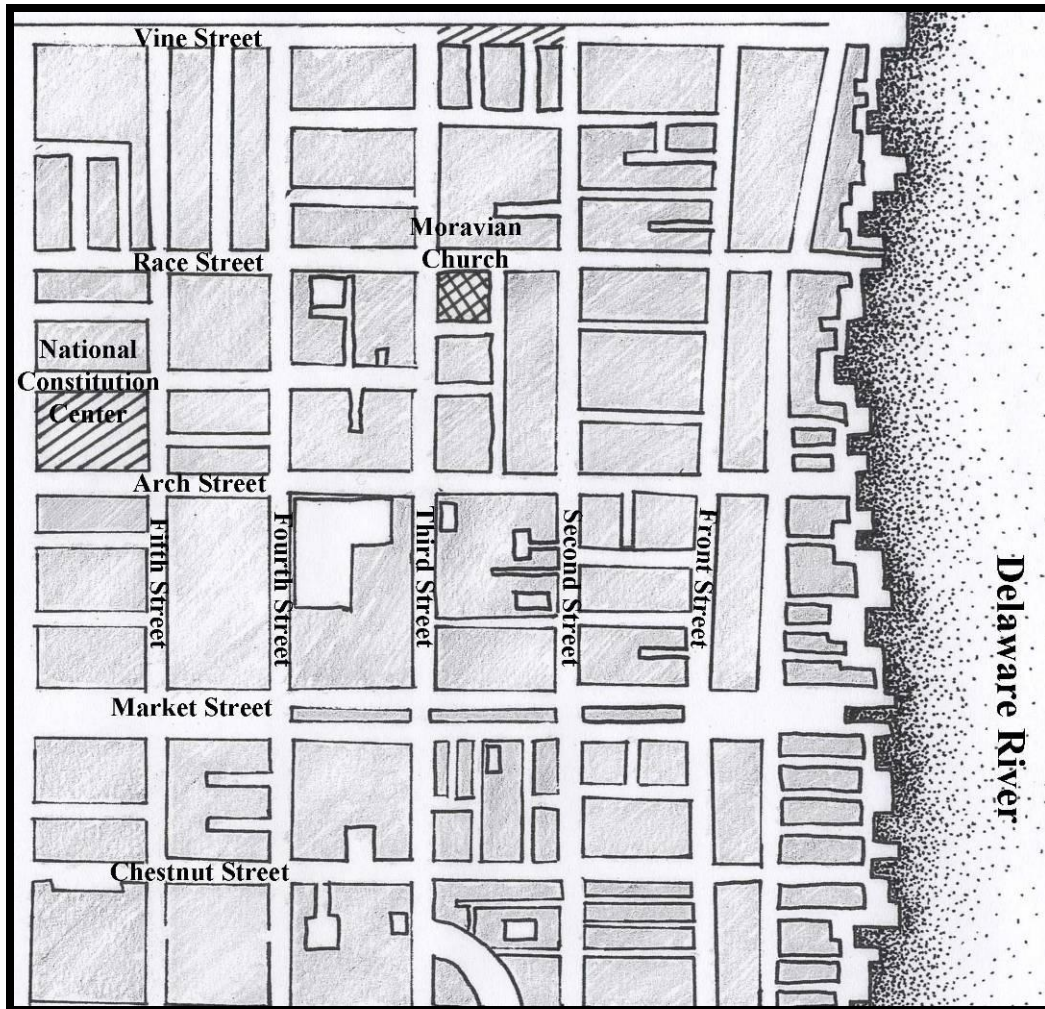


Figure 59 Map of Philadelphia. Modified from William Russell Birch's *The City of Philadelphia, in the State of Pennsylvania, North America: as it appeared in the year 1800*. Map made by the author.



Location of the Moravian Church



Archaeological sites



Figure 60 Black slip trailing in Philadelphia. Top, archaeological fragments excavated at Market Street (36PH5). Courtesy of the Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology. Bottom, archaeological fragments found in feature 192, National Constitution Center excavation. Collection of the National Park Service, Independence National Historic Park, Philadelphia, Pennsylvania.



Figure 61 Comparison of Green Oxide. Top image is a sherd from Market Street (36PH5) in Philadelphia. Courtesy of the Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology. Bottom image is from the Industrial Quarter of Bethlehem. From the collection of the Historic Bethlehem Partnership.



Figure 62 Green splashes on combed dish sherd. Excavated from Stenton. Courtesy of The National Society of the Colonial Dames of America in the Commonwealth of Pennsylvania at STENTON.



Figure 63 Brown flecking. Excavated from Market Street (36PH5) in Philadelphia. Courtesy of the Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology. Bottom fragment is from the collection of the Historic Bethlehem Partnership.



Figure 64 Marbled decoration found archaeologically in Pennsylvania. Top, archaeological fragments excavated at Ephrata Cloister. Courtesy of the Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology. Bottom fragment is from the collection of the Historic Bethlehem Partnership. Middle, archaeological fragments excavated at Stenton. Courtesy of The National Society of the Colonial Dames of America in the Commonwealth of Pennsylvania at STENTON. Bottom, archaeological fragments excavated at the Vien Street Expressway. Courtesy of the Pennsylvania Historical & Museum Commission, The State Museum of Pennsylvania, Archaeology. Bottom fragment is from the collection of the Historic Bethlehem Partnership.



Figure 65 Marbled slipped bowls from North Carolina. Bowl on left, Private Collection, Courtesy of Old Salem Museums and Gardens. Fragment on right, Collection of Old Salem Museums and Gardens. Photographed by Gavin Ashworth.

1759 *Con* *Cr*

June 30	257	By the Strang. Store	29	—	—
July 13	260	Geo. E. Schloffer for Cash	0	—	—
Aug 31	279	Strang. Store	0	11	—
Sept 29	291	J. & Locksmith	0	—	—
Octob 15	296	St. Thom. Brethren	—	15	—
20	297	Cash	1	10	—
26	305	Farm in Litz	5	2	—
Dec 31	331	Sundry Acc ^{ts}	9	4	5
1760 Feb 29	351	Strang. Store	0	15	5
— 352 353	—	Sundry Acc ^{ts}	3	10	0
March 31	364	Strang. Store	7	17	0
April 30	375 376	D & Expenses	17	14	9
May 31	397	Apothecary	—	6	0

Figure 66 Credit for the St. Thomas Brethren. Credit listed under the heading “Potter.” Ledger of the Diaconat at Bethlehem D, 1755-1762, 226. Courtesy, Moravian Archives, Bethlehem.



Figure 67 Image of New Herrnhut, St. Thomas. Printed in David Cranze's *Kurze, zuverlässige Nachricht von der, unter dem Namen der Böhmischo-mährischen Brüder bekanten, Kirche Unitas Fratrum* [Zeremonienbüchlein] (Halle, Germany, 1757). Courtesy, Moravian Archives, Bethlehem.



Figure 68 Sherds from St. Croix. Archaeological materials from Lower Estate Bethlehem on St. Croix Island. Courtesy, Stephen Lenik, Department of Anthropology, Syracuse University.



Figure 69 Sherds from St. Thomas. Archaeological materials from Cinnamon Bay on St. Thomas Island. Courtesy, Stephen Lenik, Department of Anthropology, Syracuse University.

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Love Feast
Image of New Herrnhut, St. Thomas

Map of Bethlehem, Pa., 1766

Map of Bethlehem, Pa., 1758, Reuter

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Images of Day Book of the Pottery in Bethlehem, Pa., 1752-1758

1762 Inventory of the Pottery, Bethlehem, Pa.

1758 Inventory of the Pottery, Bethlehem, Pa.

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d_30535_f Marbled slipped bowls
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Johanna M. Brown
Curator of Moravian Decorative Arts
Director of Collections

The Historic Town of Salem • The Museum of Early Southern Decorative Arts • The Old Salem Children's Museum • The Old Salem Toy Museum

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April 13, 2010

Brenda Hornsby Heindl
Winterthur Program in American Material Culture
Winterthur Museum and Country Estates
Winterthur, DE 23187

Phone: 513-292-0618

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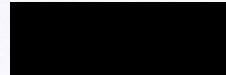
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31 March 2010

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Winterthur Museum and Country Estates
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Re: FW: Ind. Hall material

Deborah_Miller@nps.gov <Deborah_Miller@nps.gov>

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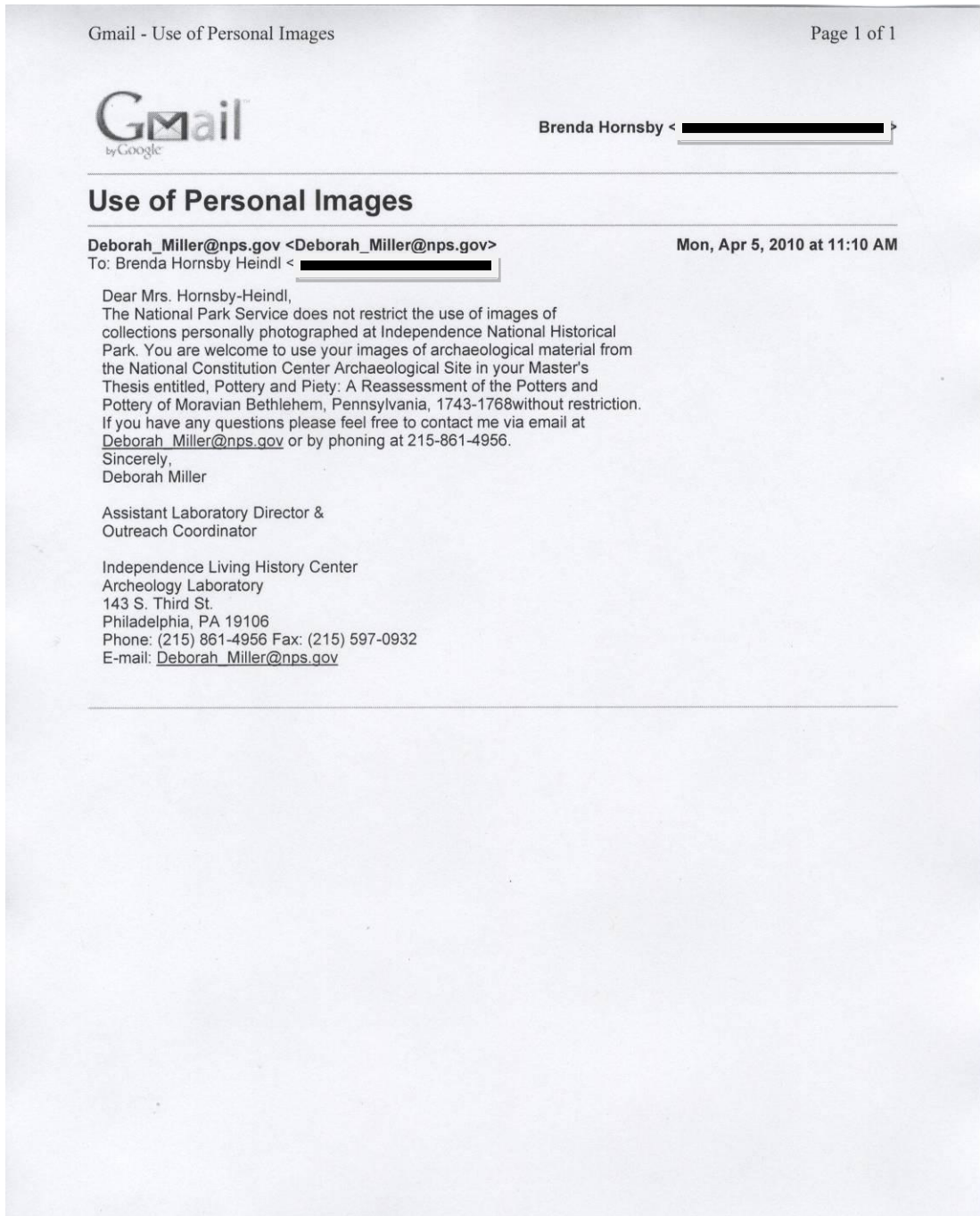
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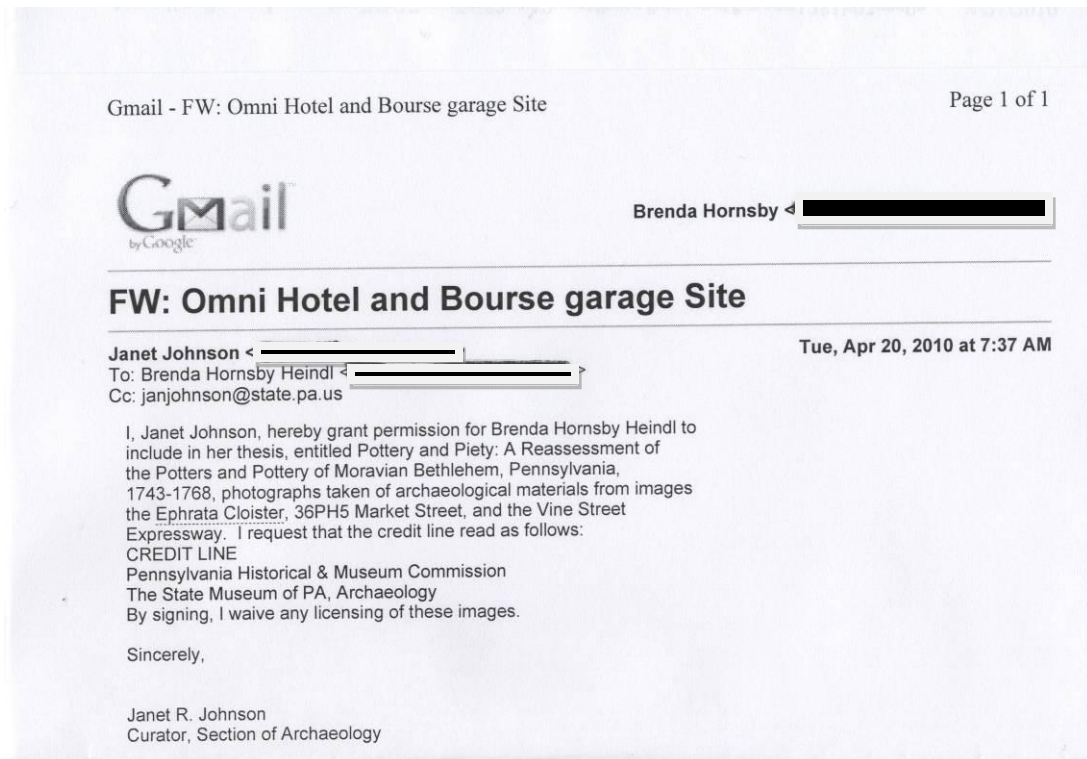
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{Plate 4}

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Footnote:
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April 12, 2010

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Lois F. McNeil Fellow
Winterthur Program in American Material Culture
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Winterthur, Delaware 19735

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