An Archaeological Examination of Weaponry at Otstonwakin, an 18th Century Native American Village in Montoursville, Pennsylvania

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Preface

Montoursville, Pennsylvania, bears the name of Madame Montour and her family, who lived in the area in the 18th century. In the summer of 2007, Professor Mary Ann Levine undertook excavations to define the location of Otstonwakin, an 18th century multi-national village governed by Madame Montour. As the Franklin and Marshall Archaeology Lab supervisor, I began to clean and process the artifacts that Professor Levine presented me from her excavation. During this process, I became quite interested in the weaponry artifacts. For this paper, I expand upon the work I performed as the Lab Supervisor. I begin by describing Eighteenth Century Pennsylvania to provide a context for where the artifacts were utilized. Next, I examine the history of Otstonwakin to show what individuals were living, visiting, and utilizing the resources of this site, as well as the significance of Otstonwakin in eighteenth-century Pennsylvania. Then, I analyze the weaponry artifacts from the site, attempting to see if they are from that time period, are more modern, or are too early. Finally, I draw conclusions regarding the significance of these artifacts. Overall, this paper represents the first step in the process of a thorough analysis of the artifacts from Otstonwakin and will, I hope, provide a greater understanding of Madame Montour’s Otstonwakin.
Introduction

The study of Native Americans in the era following sustained contact with Europeans has not been a simple task. A wide variety of academic disciplines can shed light on the era including historical archaeology. However, Patricia Rubertone (2000: 425) argues that “historical archaeology has given relatively scant attention to the study of Native Americans.” One of the largest challenges to the archaeological study of Native Americans in the historical period is the fact that Native Americans have been tied to written sources from the time period.

And there are other issues. The focus on Native Americans during the early period of historical archaeology was fueled by two theoretical approaches, the direct historical approach and the acculturation approach. Rubertone points out that neither has been used accurately. The direct historical approach assumes that for Native American groups living in certain regions of continental North America, “cultural continuity from the documented ethnographic (or historical) present to prehistoric times influenced the development of historical archaeology by focusing attention on historically known sites” (Rubertone, 2000: 427). This theory, embraced by Boasian anthropologists, as a result, promoted the idea of cultural stasis, which focused on ethnographic research and diverted importance away from archaeological research; therefore, a historical archaeology of Native Americans was not fully embraced.

The other approach to historical archaeology is that of acculturation, the process of one culture assimilating another. According to Rubertone (2000: 428), the acculturation approach “appealed to archaeologists whose own approaches to the study of culture history were rooted in the perception that cultures were units defined by
collections of traits and that change was the consequence of historical accidents resulting from diffusion or migration.” Such a perspective led to the study of Native American artifacts as clues to the acculturation process: artifacts provided a “way to gauge the extent to which Native American cultures had changed as a result of contact with Europeans” (Rubertone, 2000: 428). Thus artifacts were examined as “gauges” which were not fully analyzed, but which served as a way to measure the assimilation of Native American into western culture. Such analyses omit true evaluation of the uniqueness of Native American lifestyles and of why or why not certain artifacts are included in or omitted from an assemblage.

The two methods of approaching historical archaeology and Native Americans, the direct historical or the acculturation approach, were used for the first examination of Native Americans. Although researchers attempted to make historical archaeology more inclusive, neither approach accomplished anything more than skimming the surface of the full study of Native Americans during the historical period. But the studies have changed.

Early historical archaeologists dealt with how to include Native Americans into their studies, but today, many historical archaeologists have begun to acknowledge the significance of studying Native Americans, and they have refined their approaches and created a new direction in historical archaeology. Although a focus on Native Americans is more frequent since the 1980s, the language regarding the time period remains unclear. When studying Native Americans in the historical period, many archaeologists conflate and debate the difference between two terms: culture contact or colonialism. According to Stephen W. Silliman (2005a: 56), the conflation of “colonialism with contact
underwrites [the] misunderstandings of indigenous people in North American archaeology.” Specifically, he believes that the term “cultural contact” is a problematic phrase when discussing all “indigenous-colonial interactions in North America” (Silliman, 2005a: 57). First, the definition of “contact” is used differently by different groups. For many decades, cultural contact has been a general term used to discuss different cultural groups interacting for a day, a year, a decade, or even a century. The broad use of the term is the root of many problems. In contrast, non-archaeologists perceive “contact” as a short-term event: it happened and then it was over. This latter scenario omits the on-going and constant exchange of culture. Another issue stems from the fact that there is no such thing as an isolated culture and that all cultures are in contact with one another. Therefore, Silliman (2005a: 58) believes that the term cultural contact is an “uninformative” term.

Another option for scholars appears to be the use of the term colonialism. Silliman (2005a: 58) defines colonialism as “the process by which a city- or nation-state exerts control over people—termed indigenous—and territories outside of its geographical boundaries.” Direct colonization is not necessary for colonialism, but rather colonialism takes place through imperialism, such as the expansion of the Inca Empire. Thus, colonialism is a process that takes place over time. Colonialism is often conflated with colonization, which is a “vehicle” for the larger process (Silliman, 2005a: 58).

Both terms may apply to historical archaeology in North America. Throughout the 16th century, there was significant contact between the Native Americans and the Europeans; however, the use of the word contact should not be used in the context of an ongoing process. Rather colonialism is the word that better describes the ongoing
entanglement between the Native Americans and western explorers. However, even with the term colonialism, it is important not to conflate it with colonization, which is only one piece of the process.

Even with the clear understanding of the terminology, the historical archaeology of Native Americans remains complex. Often scholars look at Native Americans as “pure” and “pristine” prior to their entanglement with Europeans; whereas after entanglement, Native Americans are somehow thought to be different. But Rubertone (2000: 435) calls for a change in thinking:

Rather than insisting that many native American groups of the postcontact period are historically emergent phenomena whose cultural authenticity is questionable and whose local circumstances are the consequence of European contact and colonialism instead of deep historical roots, they might be more accurately described as peoples with remarkably complex histories of survival and enduring attachments to community and place.

Rubertone acknowledges the importance of not looking at Native Americans’ precontact as pure and their postcontact as tainted. Rather, Native Americans were active participants in their entanglement with the Europeans. They had choices and made choices that were rational, based on their cultural beliefs. The idea of Native Americans as active participants extends beyond the image that “Native Americans [were] naïve consumers of commoditized European Culture” (Rubertone, 2000: 430). Instead, Native Americans were “selective consumers” that had “preferences for certain foreign trade goods” (Rubertone, 2000: 431). Thus, entanglement cannot be viewed as completely thrust upon Native Americans: they did have some choice in the matter.
Entanglement did not completely change Native American lifestyles, so they should not be regarded as either a pre-entanglement culture or a post-entanglement culture, but as a continuum. Silliman (2005b: 292) writes, “The archaeology of North American colonial encounters provides the vital link between the deep, rooted history of Native Americans on the continent and their contemporary cultures and struggles in today’s world in the legacy of colonialism.” In addition, Silliman (2005b) creates an interesting metaphor for such studies: “The archaeological study of colonialism also serves as the disciplinary hinge that keeps the door between ‘prehistory’ and ‘history’ always swinging, so that archaeologists may move back and forth through it” (Pauketat and Loren, eds., 2005: 292). Consequently, a time of entanglement between the Europeans and Native Americans cannot be viewed as a single period. Instead it represents an indeterminate era when archaeologists must consider the unique issues raised at each site, in addition to understanding the common themes represented at each location.

Such an entanglement occurred at Otstonwakin, an 18th century Native American site in Pennsylvania. An analysis of Otstonwakin’s material culture requires an understanding of the progress of historical archaeology and how, as a result, sites such as Otstonwakin have often been omitted from full archaeological analysis prior to 1980 and even more recently. In addition, Rubertone’s (2000) discussion of direct historical and acculturation approaches to historical archaeology shows the significance of the historical texts which deal with 18th-century Native Americans and European colonists. Today archaeologists are just beginning to scratch the surface of historical Native American
archaeology, and this thesis provides one small piece of the growing literature on the subject.

Specifically, this research focuses on the weaponry artifacts found during archaeological excavations at Otstonwakin, at what is now Montoursville, Pennsylvania. First, I will examine the historical context of 18th-century central Pennsylvania. Once I have illustrated the background of the period, I will examine Madame Montour, the leader of the town. In addition, in this section I will investigate the historical records regarding Otstonwakin. Next, I will examine the weaponry artifacts found at Otstonwakin, including gunflints, musket balls, other forms of shot, and a brass projectile point. Finally, I will draw conclusions about what these artifacts can reveal about the lives of those who lived at Otstonwakin in the 18th century.
Section I: Eighteenth Century Pennsylvania

Converging Cultures

Christopher Columbus is given credit for being the first westerner to reach the Americas and the New World in 1492. But over one-hundred years passed before the first successful North American colony: Jamestown in 1606. From that time, almost every European power attempted to get a foothold in the Americas, including the Dutch, Swedes, English, French, and Spanish (Merrell, 1999: 19). By 1682, William Penn received a charter from the English government to begin his colony: Pennsylvania. Throughout the seventeenth century, despite not having an official colony, European explorers were visiting the Native Americans living in the area that is now Pennsylvania. However, the exact periods of relations between the Native American groups and European settlers are difficult to decipher (Custer, 1995: 301). Dates range from 1608, when Captain John Smith explored the Upper Chesapeake Bay and Lower Susquehanna Valley, to 1524 when Verrazzano journeyed along the Mid-Atlantic Coast.

Although researchers find it difficult to discern when these two groups first communicated, once the Commonwealth of Pennsylvania took hold, regular interactions between the Native Americans and the settlers took place. In the beginning, the colonists of Pennsylvania were comprised mainly of the English, the Germans, and the Scotch-Irish (Klein and Hoogenboom, 1973: 35). Scholars have continually argued over the pre-contact population of the Native Americans. Among the Native American tribes in Pennsylvania were the Susquehannocks, the Lenape, and the Iroquois, but the exact Native population of the early colonies is not absolutely known. Despite not having specific numbers, scholars understand that the colonial population was rising
exponentially, while the Native American population was declining dramatically. According to Klein and Hoogenboom (1973: 42), “Estimates list the [colonial] population [in Pennsylvania] at about 500 in 1681, 20,000 in 1700, 50,000 in 1720, 100,000 in 1740, 200,000 in 1760, and 300,000 in 1776.” Inverse to the colonial population, Grumet (1995: 207) believes that “only a fraction of the pre-contact Indian population remained along the middle Atlantic coast at the turn of the [eighteenth] century.” Disease is most likely the culprit for the population decline, which could account for “50 to 75 percent [of the decline] per century . . . and could have been even as high as 90 percent [of the decline] per century” (Custer, 1996: 303).

Jay Custer (1996) also examines shifts in Pennsylvania’s Native population from 1550 until almost a century after Penn’s charter in 1682. Before Penn invited Europeans to settle in his “woods,” the Susquehannocks were moving into the central and eastern parts of the Commonwealth, and Custer (1996: 301-303) notes that the Native Americans were pushed out as more colonists arrived. He divides the early history of Pennsylvania into two periods: the Susquehannock Phase, which dates from 1550 to 1675, and the Refugee Phase, from 1675 to 1750. According to Custer (1996: 303), the earlier phase was strongly influenced by the Susquehannock Indians, who controlled the “Susquehanna and Delaware River valleys, and appear to have dominated the Lenape of the Middle and Lower Delaware Valley.” During this period, the Susquehannocks began a migration down the Susquehanna River into what is now eastern Pennsylvania. There are two main theories regarding this migration. First, many scholars believe that the Susquehannocks were experiencing growing hostilities with the groups to the north, mainly the Iroquois. The second notion is that there was an increase in the fur trade in the southern region, and
the Susquehannocks traveled south to increase their trade opportunities (Custer, 1996: 308). Thus the Susquehannocks became the first major Native American power in the area, and their success made them a target of European aggression. Ultimately, the Susquehannocks’ success led to their demise.

Next, Custer (1996) believes the “Refugee Phase” marks the beginning of the Europeans’ efforts to oust the Native Americans from Eastern Pennsylvania. Although this phase began in 1675, Custer points out the importance of 1682, when William Penn received his charter from the English government and began his Pennsylvania colony. Over the next few decades, European colonization rapidly increased, which resulted in the dispersal of the Native tribes who lived in the area (See Figure 1.1.) (Custer, 1996: 317).

Custer focuses strongly on the role the Susquehannock played in early Pennsylvania history, but the Lenape, who were later called the Delaware Indians by European colonists, were also a powerful group of Native Americans in Pennsylvania during the contact period. The Lenni-Lenape, as they called themselves, were Algonquian-speaking people who lived in what is now New Jersey and along the Delaware River in Pennsylvania. Due to their location, the Lenape had considerable contact with the European settlers. Herbert Kraft notes that most early accounts of the Lenape are from Dutch and Swedish travelers, and such accounts were not based upon ethnographic studies, but rather “casual” observations. In addition, Kraft laments the general misinformation about early native peoples:

[Early] reports, while apparently serving the needs of the author and the European readers of the day, are unfortunately deficient in their treatment of the native peoples, their material, spiritual, and social
conditions, and the natural environment and its resource. (Kraft, 1986: 11-12)

Kraft’s comments transcend the Lenape and apply to all native groups in Pennsylvania during the contact period. The first travelers were not interested in the culture of these groups, but rather the Europeans were exploiting them to gain economic supremacy and power.

Another Native American group that European settlers encountered and attempted to gain supremacy over were the Iroquois, often viewed as the most powerful Native Americans on the East Coast. Although their homelands are in upstate New York, their influence was certainly felt by the colonists and Native American tribes in Pennsylvania. The Iroquois were comprised of Five Nations: the Mohawk, the Oneida, the Onondaga, the Cayuga, and the Seneca. Their Confederacy was expanded when the Tuscarora joined after the Nation was formed. The Iroquois often exerted their influence into Pennsylvania. Such exertion of power was often violent since the Iroquois were masters of warfare: “They reduced war to a science, and all their movements were directed by system and policy” (Sipe, 1997: 24). Beginning in the 17th century and lasting through the mid-18th century, the Iroquois often stopped along the Susquehanna River on trips to wage war against southern Native Americans, such as the Catawbas and the Cherokees (Sipe, 1929: 86). Relentless warfare with the Catawbas resulted in the use of the Susquehanna River as a “highway” for war parties (Sipe, 1997: 26). But the Natives were not the only threat to the English-speaking colonists.

Although not a factor in the eastern portion of Pennsylvania, by the 18th century, the French also had a great influence on the history of Pennsylvania. The French colonial power was more northern, centered most prominently in Canada. However, the French
began to exert their power by attempting to lay claim to the Ohio Valley, and eventually they took possession of a half-finished fort in western Pennsylvania, which they named Fort Duquesne (Sipe, 1997: 199). Despite not having a strong foothold in Pennsylvania, the French presence was felt through their bitter rivalry with the English. The French and English alike used Native American groups as pawns to obtain an upper hand in trade and land deals. Therefore, the French played an indirect role in the relationship between the English and the Natives in Pennsylvania.

Pennsylvania in the 18th century was a diverse place. Many different groups of Native Americans, including the Lenape, the Susquehannocks, and the Iroquois, were interacting with the newly-arriving Europeans. Adding to the potential for stress among these groups was the fact that the Europeans were not a homogeneous group; many different nationalities, including the English, Dutch, Swedes, German, and French, all played a role in the settlement of Pennsylvania. Furthermore, each nationality was not homogeneous since each group had different sects of religious beliefs. For example, many English settlers were Quakers or Moravians (Moravians were usually of German descent, but many were English converts), and these two groups had quite different beliefs. Thus, Pennsylvania in the 18th century reflected many different cultures converging on one frontier.

Trade Between the Europeans and Native Americans

One of the main goals for colonists in the Americas was to gain riches from the bountiful land. Though plentiful, the American landscape was foreign to the European colonists. Without the assistance of the Native Americans, successful colonies would
have taken much longer to establish, if they were established at all. Native Americans taught the colonists how to plant, hunt, and trap, and most importantly, the Native Americans became willing trading partners. So ultimately, the colonists did become wealthy, and in the beginning of trade, the Native Americans found benefits in the relationship. Ruth Phillips (1998:3-4) notes how, during the beginning of trade between the Native Americans and colonists, the goods given to the Natives “enriched but did not seriously disrupt their accustomed modes of subsistence.” Over time, the Native Americans became more reliant on and desirous of European goods, while the colonists became dependent upon the Native Americans for trade as a source of income.

The fur trade provided great profits for traders in the early stages of colonialism. The “Swedish, Dutch, and English traders were drawn into the Delaware and Susquehanna drainage to participate” in the fur trade and to make considerable economic gains through Europe’s “insatiable market for furs” (Custer, 1996: 313). As colonial traders became wealthy selling pelts to the European market, Native Americans acquired a variety of new goods, such as metals, for pots, pans, and silverware, prefabricated metal knives and axes, and brass kettles. Other, mostly earlier, trade goods included non-utilitarian objects, such as glass beads and metals that were used as decorative items, such as brass rings, pendants, and ear rings (Custer, 1996: 314). In addition, weaponry, mainly guns, munitions, and gunpowder, became coveted items (Grumet, 1995: 205). Despite the influx of trade goods that were useful to Native American life, trade with the European colonists disrupted Native American cultures and lifestyles, resulting in problems, such as inter-tribal warfare, due to competition, and the European colonists’ ability to “play one native American group against another” (Custer, 1996: 314).
While at first colonial religious figures were missionaries to the Native Americans, soon the relationship between the two groups revolved around trade. Native Americans received goods completely novel to their culture. Some objects they willingly and immediately embraced; others took time for them to completely adopt. For the Native Americans, trade guns were among the most noteworthy, coveted items. Colonists traded out of necessity, but more often they were trading to become wealthy, mostly through the fur trade. During the 18th century, Europe had a growing demand for fur, so colonists in Pennsylvania gained much of their wealth through trade with the Native Americans; however, despite the accumulation of new goods, trade was occurring during a period when the European colonists were usurping Native American lands.

18th Century Treaties

To maintain peaceful trading relations, throughout the 18th century, many colonists sought treaties with the Native Americans. More importantly, in addition to these trade treaties, the Native Americans and the European colonists brokered many land treaties. Both the trade and land treaties created conflicts. Since the first colonists set foot in North America, they sought rightful ownership of the land, and, according to the European’s values, the Native Americans were the “owners” of the land. The Native Americans, however, had a different view of ownership. To Native Americans, “ownership” meant they enjoyed the use of the land, rather than absolute right and authority over it. Thus, Native Americans saw land treaties “as an invitation to the whites to share the hunting land with them” (Klein and Hoogenboom, 1973: 53). As a result of this misunderstanding, many Native Americans often “sold” the same parcels of
land more than once (Klein and Hoogenboom, 1973: 53). To add to the confusion, the land deeds were often vague, leading to disputes among the European settlers. Steven Harper uses an example of the agreements between the Lenape and the Dutch to show their differing views on land policy:

[A] written agreement, signed and remunerated, caused the Dutch to consider themselves in possession of the boundless landscape, which they ceremonially signified. [But] the Lenape simply consented to Dutch presence and gained desirable goods for doing so. (Harper, 2006: 22)

This example of a 17th-century agreement shows how cultural differences led to differing views of land ownership and how conflict eventually grew from such agreements.

Likewise, dealing with the Delaware Indians (Lenape) was difficult for William Penn and the Pennsylvania government, who sought to treat the Indians fairly. Penn had good intentions, but the European traders often did not share his high ideals. In 1681, when Penn’s charter was given, he “had rather unrealistically applied the same rules of trade to both Indians and white, but traders carried rum to the interior, got the Indians drunk and cheated them of their furs” (Klein and Hoogenboom, 1973: 53). Obviously, many colonists perceived the equal treatment of Native Americans as an unjust policy to the colonists; traders did not share Penn’s vision. Furthermore, dealing with the Lenape, who had a seemingly unorganized government (to the Europeans), made land transactions even more difficult. The Lenape’s system of authority made it difficult for Penn and his officials to determine which group had the right to certain land and therefore which chief needed to be sought out for land claim agreements.
The difficulty in relating to the Lenape led to one of the most unfair land claim treaties in colonial history: the Walking Purchase of 1737. Prior to that year, the Lenape were involved in many treaty agreements with the Pennsylvania colonists. For example, one of the original land deeds was drawn up in 1686, but Thomas Penn, the son of William Penn, claimed for many years that it was missing. According to Sipe (1929: 110-111), the alleged description of the original deed, composed in August of 1686, reads as follows:

All those lands lying and being in the province of Pennsylvania,
beginning upon a line formerly laid out from a corner spruce tree, by the river Delaware, and from thence running along the ledge or the foot of the mountains west northwest (west southwest) to a corner white oak marked with the letter P. standing by the Indian path that leadeth to an Indian town called Playwiskey and from thence extending westward to Neshaminy Creek, from which said line, the said tract or tracts thereby granted doth extend itself back into the woods as far as a man can go in one day and a half, and bounded on the westerly side with the creek called Neshaminy, or the most westerly branch thereof, and from thence by a line to the utmost extent of said creek one day and a half’s journey to the aforesaid river Delaware, and thence down the several courses of the said river to the first mentioned spruce tree.

Obviously, the language in the original deed is vague, compared to today’s standards. For example, the deed uses trees as markers, but trees are often cut down, or there can be discrepancies about which tree is the actual tree described in the agreement. What later would become the most important wording was the question of how far is “a day and a half’s” travel. Ultimately, the deed proved to benefit the colonists.
The deed from 1686 had never actually been walked. By the 1730s, however, Pennsylvania colonists began to pressure the Lenape into following through with the “walking” of the land to determine the size of the deed. After much considerate debate, the Lenape agreed to carry out the walking. Therefore, rather than a new land agreement, the Walking Purchase of 1737 was actually a fulfillment of a previous deed. The date set for the walk was September 19, 1737. The Pennsylvania colonists brought in three athletes to do the walking. The man who covered the most distance was to be rewarded with five pounds and five-hundred acres. At the onset of the walk, the Indians who accompanied the men often yelled at them to walk, not run, but to no avail. At the end of the day and a half, the winning man traveled approximately sixty-five miles, much further than the thirty miles that the Natives had anticipated (Sipe, 1929: 112-113).

Throughout the 18th century, Pennsylvania colonists engaged in numerous land transactions with the Native American tribes. Such deals were often vague and general, so that the colonists could exploit the Natives. Many deals were created throughout the 18th century as Pennsylvania took the shape it has today (Figure 1.2). Over time, the Native Americans grew discontented with the agreements that they had been making with the colonists. Eventually, such discontent developed into violent actions.

*Warfare in 18th Century Pennsylvania*

Conflict among the Native American tribes was undoubtedly present before the contact period; however, little is known about how such “wars” looked. In addition, relying on the information provided by the first European explorers may not provide an accurate view of Native American conflict. The standard portrayal is that of “Indian
warriors . . . relying heavily on ambush, surprise, and raid . . ., whose battles tended to be small in scale and low in casualties” (Lee, 2001: 273). Unquestionably, the way the Native Americans fought among themselves shaped the warfare that developed between the Europeans and the Native Americans.

The Europeans and Native Americans had been in contact for over two centuries and much trade had taken place between the groups; however, the 18th-century European colonists and the 18th-century Native Americans fought differently. Many historians portray the warfare between the colonists and the Native Americans as savage conflicts, “more brutal than contemporary European conflicts” (Starkey, 1998: 25). The rationale for such observations was that the Indians were savages and therefore fought ferociously. The notion that the Native Americans were barbaric arose because they did not “adhere to European military conventions that provided protection for the wounded, prisoners, and non combatants” (Starkey, 1998: 26). But Armstrong Starkey (1998: 26) argues that the tactics utilized by the Native Americans actually “spared civilians from the ultimate peril of the sack and the massacre.” Regardless of how the Europeans viewed the morality of the Native American warriors, it is evident that the Indians practiced what today’s military experts know as guerrilla tactics.

First, the Native Americans greatly associated warfare with hunting. Starkey (1998: 27) asserts an association between Indian warfare and Indian hunting practices: “Some aspects of Indian cruelty towards captives which included torture, scalping, beheading and cannibalism may be explained by their close association of war with hunting.” Europeans often beheaded their game, such as deer, and mounted the head on a wall. Similarly, a hunter also removes the skin from an animal. Such hunting practices
were common among the Europeans and the Native Americans, but the Native Americans transferred such hunting practice into their warfare practices.

Secondly, the method of war was different for the two groups. In the 18th century, the Europeans “had yet to discard totally their concept of ‘true war’ as manly hand-to-hand conflict” (Starkey, 1998: 27). For this reason, they viewed the Native Americans’ methods of attack as “unfair.” These unfair tactics included ambushing, surprise attacks, sharp-shooting to “pick off” the European military leaders, and raiding civilian towns. Therefore, the methods imposed by the Indians were seen as cowardly and unfair; whereas the more “civil” and less stealthy tactics of the Europeans were idealized and deemed honorable.

Thus, the differing tactics in 18th-century Pennsylvania were a factor that was a part of a turbulent period. Many different cultural groups were coming together and hostilities inevitably erupted. Following the Walking Purchase of 1737, hostilities between the Lenape and the Pennsylvania colonists escalated. In addition, the Iroquois to the north were incessantly waging wars with the Indians to the South, the Catawbas and Cherokees. At the same time, the perennial European powers, France and England, were constantly fighting. Soon the Native Americans joined the French against the English. By the middle of the 18th century, global tensions between the French and the English crossed the Atlantic Ocean as the North American continent became the focal point of the French and Indian War.

The French and the English were the two greatest European powers in the world and they often exerted their power onto the Native American continent. Tensions grew in North America as the English and the French competed for land rights along the eastern
portion of the continent. In 1753, hostilities were growing between the French and the English, and by 1754 armed conflict had arisen. Pennsylvania became a center stage for the conflict. Indian groups, who for the first half of the 18th century had been subjected to fraudulent land claims and constant frustration from the English, were eager to avenge the loss of their homelands. With the support and encouragement from the French, groups such as the Delaware and the Shawnees began to raid the Pennsylvania settlers (Klein and Hoogenboom, 1973: 62). During this period, many forts arose throughout central Pennsylvania as the colonists attempted to defend themselves from constant raids from the Native Americans (See Figure 1.3).

The French and Indian War also led to Pontiac’s War in 1763. Chief Pontiac of the Ottawas created a military confederacy from many Indian tribes with the goal of “destroy[ing] the entire British colonial establishment and repossess[ing] by force the Indian homeland on both sides of the Alleghenies” (Klein and Hoogenboom, 1973: 67). The band of Indians saw early success, pushing the Pennsylvania militia eastward, past Fort Pitt. However, in the end the colonists were able to defeat Pontiac and his confederacy.

The French and Indian War and Pontiac’s War dramatically changed the landscape of Pennsylvania and of North America. When peace was declared in 1764, a large majority of Native Americans had migrated out of Pennsylvania towards the Ohio Valley. In addition, the French, one of the most powerful European nations, no longer had a substantial force on the continent. Many Native Americans who remained in Pennsylvania past 1764 were Christian converts, seeking refuge in white settlements.
Despite William Penn’s vision, the 18th century was a violent period for Pennsylvania, and its Native American population was stripped of influence and power.
Section II: Otstonwakin, Montoursville, Pennsylvania

Madame Montour and the History of Otstonwakin:

Pennsylvania, like many of the other original thirteen colonies, was for a long time a vast frontier. During the 1700s, Pennsylvania’s frontier began to expand to the Susquehanna River, which served as a main artery for trade and travel (Merrell, 1999: 35). Throughout the 18th century, western travelers relied heavily on Native American villages as rest stops on their long journeys. For the traveler, Central Pennsylvania in the 18th century was a diverse and complicated place: it was the connecting route from the Iroquois longhouse to the north and European settlers in eastern Pennsylvania. Thus the Susquehanna Valley served as a part of a “fault line” or “cultural divide” (Boudreau and Pencak, 2000: 83). As a part of a “cultural divide,” Central Pennsylvania took many different forms of a frontier. One such frontier was a “linguistic frontier,” not only between “Indians and Europeans, but also between [the] Algonquian and Iroquoian languages, and between [the] French and English” (Boudreau and Pencak, 2000: 11). Furthermore, this area became a “religious frontier,” where the different sects of Christianity attempted to convert Native Americans, who had their own unique religious beliefs (Boudreau and Pencak, 2000: 111). The Christians faced a challenge because many Indian villages occupied Central Pennsylvania, including Otstonwakin, which was a multi-national village overseen by Madame Montour. The population of Otstonwakin, with its variety of languages and religions, most likely “expanded and shrank with the seasons, as relatives and other traders came and went” (Boudreau and Pencak, 2000: 97).

Otstonwakin, like the rest of Central Pennsylvania, developed as a frontier of linguistic and religious divisions, due to its location, “where [the] Loyalsock Creek flows...
into the West Branch of the Susquehanna” (Boudreau and Pencak, 2000: 97). As with many other Indian villages, Otstonwakin probably had a variety of inhabitants prior to the village becoming governed by Madame Montour in 1727. Otstonwakin was an ideal location for a village for many reasons. First, it was located on “an important junction of Indian paths and waterways” (Boudreau and Pencak, 2000: 97). The village was situated along the Great Shamokin Path, which served travelers heading to and from the Ohio country. The Great Shamokin Path also led to the village Shamokin, another extremely important Native American town. In addition, many travelers followed the Sheshequin Path, which utilized the Susquehanna River, the Loyalsock Creek, and the Towanda Creek for northern travel to Onondaga (Boudreau and Pencak, 2000: 97-98). Figure 2.1 depicts the Onondaga Trail, which originates west of Reading and north of Lancaster, and travels through Shamokin, Otstonwakin, and further north into New York and the Iroquois country. Secondly, Otstonwakin’s location on major travel routes made it a place of trade. Due to the constant traffic of travelers to and from Otstonwakin, a significant amount of trade took place. Thirdly, the area near Otstonwakin supplied its inhabitants with food from farming and hunting. Travelers described the area as “show[ing] indications of extreme fertility” (Reichel, 1870: 94). According to General John Burrows, who in 1812 purchased the land adjoining Otstonwakin, there were large “patches of ground that had been cleared and worked by the Indians in the midst of the forest” (Meginness, 1968: 75). Moreover, the area provided game from the creeks and river in addition to game, such as bears and deer, which were hunted in the surrounding woods (Reichel, 1870: 98).
Physically, Otstonwakin was split onto the two sides of the Loyalsock Creek. According to Donehoo (1977: 140), a scholar who recorded information about Indian names and places in Pennsylvania, Otstonwakin was “marked on the early maps as on the west side of the creek, at its mouth. [But] it was probably on both sides of the creek, with the home of Madame Montour on the west side.” Donehoo also notes that the name Otstonwakin is probably derived from the word “Ostenra,” which means “a rock,” referring to the one which rose high across from the village (Donehoo, 1977: 140).

_Madame Montour’s Early Life and Arrival at Otstonwakin_

To understand Otstonwakin, it is important to understand Madame Montour, an enigmatic character in the history of Pennsylvania. There are many discrepancies regarding her life and her nationality. The reasons for these discrepancies sometimes stem from Madame Montour herself. When asked about her life, Montour often “gave various answers to the European men who recorded her story” (Boudreau and Pencak, 2000: 82). Although she was fluent in many different languages, Montour could not write, not even her own name; therefore, she was never able to write her story for posterity.

Despite not having written her story, the pieces of her life can be put together through the accounts of the English and the French with whom she interacted. Madame Montour’s exact birthday is debated, but many scholars suggest she was born in Quebec in 1667 (Boudreau and Pencak, 2000: 84). As the child of a French and Indian interracial marriage, Montour learned the Algonquin language from her mother and the French language from her father. Throughout the course of her early life, she also learned a
variety of additional Algonquin and Iroquoian languages, as well as English. Montour left Quebec in the 1690s to join family members at Michilimakinac, a multi-national, polyglot community in Michigan. There she participated in the fur trade and began to serve as an interpreter. She later moved to Albany, where she acted as a translator for Governor Robert Hunter. Montour and her husband, Carandowana, an Oneida Chief, came to Pennsylvania around 1727 and settled in Otstonwakin. By 1727, Madame Montour was attending meetings between Pennsylvania’s Provincial Council and a variety of multi-national Indian delegations, translating for Governor Patrick Gordon as land settlements were taking place with the Iroquois (Levine, 2008).

Visitors to Otstonwakin

One of the first visitors to Otstonwakin was Conrad Weiser, who recorded his observations beginning on the 22nd of March, 1737. During this period, the Iroquois in New York and Canada were at war with the Southern Indian Tribes of the Cherokees and Catawbas, located in Virginia. To ease the tensions between the different nations, the governors of Virginia and Pennsylvania wanted to hold a peace conference in Williamsburg in the spring of 1737. Weiser was selected personally to send the message north to the Onondagas. On his journey to Onondaga country, Weiser stopped at Otstonwakin. In his journal, Weiser provides a brief description of his stay:

The 22nd we came to a village called Ostuaga, from a high rock which lies opposite. However, before we came in sight of the village, we reached a large creek . . . After repeated firing of our guns, two young Indians came from the village to see what was to be done . . . We quartered with Madam Montour, a French woman by birth, of a good
family, but now in mode of life a complete Indian. She treated us very
well according to her means. (Wallace, 1996: 80)

Weiser was forced to stay until the 24th “on account of rainy weather” (Wallace, 1996:
80), as well as melting snows, which were flooding the Loyalsock Creek (Boudreau and
Pencak, 2000: 104). Although his stay was brief, Weiser was obviously impressed with
Madame Montour and the convenient location of Otstonwakin for travel to the
Onondagas, for he stopped there on his later journeys along the Onondaga Trail (See
Figure 2.1).

In 1742, Count Zinzendorf, a Moravian missionary, “applied to Conrad Weiser to
accompany him to Onondago, and introduce him to the Six Nation Indians” (Walton,
1900: 52). Weiser agreed to accompany Zinzendorf to the Onondaga country; however it
seems that he did so reluctantly and despite the fact that “Governor Thomas [wished] him
not to go” (Walton, 1900: 52-53). But they received a friendly welcome. Zinzendorf,
Weiser and the rest of their party arrived in Otstonwakin on September 21, 1742, and
with the arrival of the party, the Indians at Otstonwakin “discharged their firearms by
way of salute” (Reichel, 1870: 96). In his journal, Count Zinzendorf notes how Madame
Montour wept. In addition, Zinzendorf notes that Andrew Montour, her son, shot a bear
and a deer upon which “he [Andrew] certainly intends to feast us” (Reichel, 1870: 98).
In his journal, Weiser also makes note of the warm reception the party received (Wallace,
1996: 139).

Weiser seemingly returns in June of 1745 with a different group of Moravian
missionaries. Among the missionaries was August Gottlieb Spangenberg, who was
traveling north to Onondaga to “seek permission from the Great Council to remove their
Mohican converts from the exposed mission at Shecomeco to Wyoming” (Wallace, 1996:
In addition to Weiser and Spangenberg, the party consisted of John Joseph Bull, a Moravian convert, and David Zeisberger, who would later be recognized as a great North American missionary. Little of this journey is recorded; however it is documented that the party made a detour to Otstonwakin specifically to meet with Madame Montour (Reichel, 1870: 97). As in previous visits, the traveling party was treated “very well” (Meginness, 1968: 106).

The next and possibly final account of Otstonwakin appears in the journals of Zeisberger and John Martin Mack. Their party set out in July of 1748. On July 10th, they reached “Otstonwakin, which [they…] found deserted.” The group of travelers later encountered a hut where they found “an old woman and some others down with the small-pox.” The Indians revealed that smallpox had ravaged the area, and most of the Native Americans had been “driven by famine to the white settlements” (Zeisberger and Mack, 1892: 430). The brief report by Zeisberger and Mack shows what might have been the end to Madame Montour and her multi-national village of Otstonwakin.

Archaeological Work at Otstonwakin

Otstonwakin is located in today’s Montoursville, Pennsylvania. The town is aptly named after the Montour family, who occupied the area throughout much of the 18th century. The original town most likely consisted of two discrete areas, a village and a cemetery. The first recorded evidence of artifacts that may relate to Otstonwakin were recorded by Harry L. Schoff in 1936, who published his findings in the article “Report of Archeological Investigations Carried on at the J. T. Roberts Property, Montoursville, Lycoming County, Pennsylvania.” Schoff was testing for Indian graves that he believed
to be present on the Roberts’ property, and unearthed the body of an Indian girl who “had been buried in a coat of fine wool heavily decorated with brass braid.” In addition, in the girl’s grave Schoff found a brass kettle and an iron trade axe. Other artifacts included brass bracelets on her “left wrist and two brass rings on her index finger.” Although Schoff was unsure of the girl’s nationality, he projected that “it may be that she was part white and that this plot was the burial place of Madame Montour’s village, Otstonwakin” (Schoff, 1936: 8). Many of these mortuary artifacts are held at the Thomas T. Taber Museum of the Lycoming Historical Society in Williamsport, Pa, and will be analyzed in the summer of 2008.

Following Schoff’s brief work in what was likely Otstonwakin’s cemetery, little more was reported until William A. Turnbaugh performed surveys in the 1970s. Turnbaugh (1977: 244) notes how “the site of the village of Otstonwakin has never been strictly defined.” Despite the lack of definition to the site, Turnbaugh reported that some artifacts that relate to 18th century Native and European life had been found in the area. These items include a “small number of musket-balls, gunflints, and a George I (?) medal, pewter spoon dated 1754, and similar items.” These artifacts were found by a local collector. This collection, temporarily on loan to Mary Ann Levine at Franklin and Marshall College, also consists of a brass projectile point, a brass thimble, brass pendants, brass mouth harps, glass beads, and numerous other 18th century objects. Besides the artifacts, Turnbaugh notes that there is a possible cemetery “on a rising hillside a short distance to the north” (Turnbaugh, 1977: 244). His comment is most likely referencing the same one excavated by Schoff.
On the basis of this limited information, Turnbaugh concluded that the exact boundaries of Otstonwakin remained “undefined.” Thirty years later, Mary Ann Levine undertook an archaeological reconnaissance project in the summer of 2007 designed to locate the village of Otstonwakin. Test excavations yielded an impressive artifact assemblage that unequivocally dates to the early 18th century. The artifacts that were uncovered include worked brass kettle fragments, a brass finger ring, a brass mouth harp, a lead brooch, musket balls, grapeshot, kaolin pipe fragments, hand wrought nails, and an amber glass trade bead. Excavations are expected to resume at the site in July of 2008.
Section III: Material Culture from Otstonwakin: Weaponry

Weaponry Artifacts

Throughout the 18th century, intercultural exchange between Pennsylvanian colonists and Native Americans increased. The legacy of such an exchange is evident in the archaeological record, which reveals numerous European goods adapted by Native Americans. Certain items preserved better than others. Many 18th-century weaponry artifacts, which are associated with warfare and hunting, preserve well because they are constructed from materials such as metal and stone that can withstand weathering. As noted earlier, warfare was prevalent throughout the century, and artifacts of that war can include weaponry, such as hatchets, guns, and arrowheads. The 18th-century muskets were complex instruments with many pieces, including gunflints, musket balls, barrels, breeches, muzzle fragments, flint locks, iron butt plates, trigger guards, ram pipes, and more, and all of which tend to remain intact (Brain, 1979:206). Another common firearm used especially by the Native Americans was the tradegun.

Tradeguns

Native Americans had been involved in trade with the European colonists since initial contact. Guns were a trade item that Native Americans were particularly interested in acquiring. For example, according to Starkey (1998: 20), Samuel de Champlain “is generally credited with introducing the Mohawks to firearms in 1609; [and] by the end of the century the eastern Indians of North America were well supplied with muskets.” Although guns were introduced early during the contact period, the “Indians were selective in adopting European material culture”; therefore, the early tradeguns, called matchlocks, which were clumsy and inefficient, did not become
assimilated into Native American culture (Malone, 1973: 48). Once a more efficient gun, the flintlock musket, became available to the Native Americans, they quickly became “dependant” on European traders for powder and balls (Worcester and Schilz, 1984: 106).

The selectivity of the Native Americans led to a gun designed specifically for trade. These guns were produced “at a price that would permit a pleasingly exorbitant profit” (Peterson, 1962: 113). These guns tended to be shorter and lighter than standard firearms, which made them more desirable for the Native Americans, who lived in the dense woodlands of the Northeastern colonies. Native American dependence on these guns, specifically tradeguns, was fed through two common transactions. The first way a Native American could acquire a musket was through trade with the Europeans: usually Native Americans would exchange fur for muskets. The second manner for them to acquire a musket was by signing a land deal with the colonists.

Regardless of how they were acquired, there are many reports of Indians using and desiring this form of weaponry. In addition, there is also evidence of Native Americans learning how to fashion pieces and repair imperfections in the guns that they already owned. Such evidence is also visible in the archaeological record.

*Projectile Points: An Overview*

The bow and arrow is the typical weapon associated with Native Americans. However, Native Americans also utilized the atlatl, another weapon that utilizes projectiles. The arrowheads, or projectile points, from the bow and arrow and the atlatl usually preserve well, so they are often found at archaeological sites. Projectile points were an important part of the earliest weapons, and as with every technology, humans
modified them, so that the weapons became more advanced. Early projectile points, for instance, were created from stone, but other lighter materials, such as bone and metals, slowly came into use.

The history of the bow and arrow, along with the projectile point, extends for thousands of years. The first projectile points appear in the archaeological record in North America between A.D. 200 and A.D. 450 (Nassaney and Pyle, 1999: 253). However, prehistoric peoples utilized unifacial points (those with one side of the point altered) as early as 3000 B.C. (Nassaney and Pyle, 1999: 256). The projectile points that many people recognize today as bifacial (with two sides worked) were common around 500-600 A.D. (Nassaney and Pyle, 1999: 256). Moreover, the bow and arrow is probably considerably older. Eastern Native Americans were among the latest groups in North America to adopt the bow and arrow, but its history may be longer than previously thought (Nassaney and Pyle, 1999: 259). Finally, around 700 A.D., during the Late Woodland period, widespread adoption of the bow and arrow occurred in the Eastern portion of the continent (Nassaney and Pyle, 1999: 259).

The primary projectile weapons for the Native Americans prior to association with the Europeans were the bow and arrow and the atlatl. Prior to contact, the main projectile points were stone, but there was a drawback with the stone projectile point; it was inaccurate. Harry Andrew Wright (1940: 618) cites Captain John Underhill’s discussion of problems with Native American stone projectile points in 1638:

\begin{quote}
The Pequeats, Narragansets and Mohigeners, exchanging a few arrows together, after such a manner as I dare boldly affirm, they might fight seven years and not kill seven men. They came not near one another, but shot remote and not point-blank, but at rovers and then they gaze up\end{quote}
in the sky and see where the arrow falls and not until it is fallen do they
shoot again.

The Native Americans fired their arrows in this manner because the projectile points
themselves were bulky and could not accurately be aimed over long distances. So when
lighter substitutes became available, they alleviated the problem.

The alternatives included bone and metals. Bone could be readily found
throughout the North American continent; however, it decays quickly, which explains
why so few bone-made projectiles have been found at archaeological sites. In contrast,
metals can withstand the forces of nature and can be found readily at many historic
Native American sites. Native Americans procured the metals in various ways. Metals
used for projectile points included copper and brass. Native copper could be found in
North America throughout the Eastern Woodlands (Levine, 1999), but brass required the
combination of copper with zinc. Making brass required heating the copper and zinc at a
high temperature, a technology that Native Americans did not possess, so they depended
on metals from Europe.

Throughout the 18th century, Native Americans traded for metal goods, such as
brass kettles. The first half of the 17th century saw “the frequency of lithic projectile
points drops sharply” (Bradley 1987: 125), and by the end of the century, the process of
creating projectile points from European metal-goods became commonplace. Metal
projectile points were not the only products of reworked European goods. According to
Ehrhardt (2005: 75), the “purpose of most of the early reworking appears
overwhelmingly to have been to produce nonutilitarian items.” Native Americans were
able to cut, fold, roll, or cold hammer kettles to form whatever item they desired
(Ehrhardt 2005: 75).
The ability for Native Americans to alter European metal goods created a new market. Wright (1940: 623) argues that as early as 1630 “the market for sheet metal among the natives was then noted by the merchants and traders of England.” The Europeans were the best source for metal. According to Wright (1940: 624), there were four sources for metals accessible to the Native Americans: “from native copper, from scrap metal, from new sheets of metal, and as complete points purchased from the English.” From these sources Native Americans created both utilitarian and nonutilitarian items, but among the utilitarian items were projectile points. Initially, there was “little uniformity and perhaps some experimentation with shapes. Stemmed, barbed, and even pentagonal-shaped points were made along with triangular ones” (Bradley, 1987: 134). Thus, metal projectile points were established in the 17th century when trade with Europe began, and their use continued as long as the bow and arrow and the atlatl were utilized.

Brass Projectile Point from Otstonwakin

To date one brass projectile point has been recovered at Otstonwakin. The projectile point is nearly isosceles: the base of the triangle is 2.2 cm in length; one of the longer edges measures 3.2 cm; and the other long edge measures 3 cm. From base to tip, the projectile is 2.9 cm long. The point weighs 2.27 grams. The point lacks any notches that might have been used to connect it to the shaft of a projectile. The point also lacks any serration along the edges. The point is not completely flat, but reveals small, gentle bends, or ripples, throughout. These waves could have resulted during its creation, when it was hammered into its shape. The projectile point lacks other distinguishing
characteristics, which makes dating the point difficult. However, Wright’s (1940) analysis of metal projectiles indicates they were prevalent by the middle of the 17th century and continued to be used through the next century. Therefore, this projectile point is most likely from the late 17th or 18th century.

**Gunflints: An Overview**

The gunflints found at the Otstonwakin site are from muskets with a flintlock firing mechanism. These muskets were an improvement on the earlier forms of muskets, called matchlocks. The matchlock was a “clumsy weapon” that “was fired by pressing a lighted slow-match into the powder in the priming pan.” The complex nature of the weapon prevented it from being aimed accurately (Peterson, 1947: 201-202). The matchlock system had other problems. For example, the system required that a slow-match be lit, which therefore prevented the weapon’s use in damp, rainy, or windy weather. In addition, at night, the glow of the match eliminated the element of surprise (Peterson, 1947: 202). Therefore, there was a need to improve the matchlock system.

An improvement came in the form of the flintlock system. T. M. Hamilton and K. O. Emery provide a detailed description of gunflints, and they note that the first gunlock to use flint was the “snaphance, invented about 1600” (Hamilton and Emery, 1988: 4). After the snaphance came the flintlock in 1625, which Hamilton and Emery (1988: 5) describe as a “natural evolution” that simplified the mechanism. The flintlock works by striking a piece of flint against metal, which in turn creates sparks that ignite the gunpowder, inducing the shot of the weapon. The flints used for the flintlock were composed of either flint or chert, and they were first invented by the French, but later
incorporated by the British (Hamilton and Emery, 1988: 5). These flints could be well worked and precise, called blades; or they could be more roughly created, called spall. Rob Mann (1999: 416) describes blade gunflints, also known as flake gunflints, as being “made by separating individual gunflints from long flint blades removed from prepared polyhedral cores.” In contrast, Mann (1999: 416-417) describes the spall gunflints as being “made by removing individual spalls from flint nodules or cores.”

The French were at the forefront of flintlock technology; whereas the British lagged behind, and the Native Americans emulated the European ideas. In the production of their flints, the French used a “glossy translucent yellowish flint… [that was] usually singled edged.” The British flakes, on the other hand, were made “without gloss and [were] dark gray to solid black in color.” These British flakes also do not show evidence of more finely worked edges (Hamilton and Emery, 1988: 13). Native Americans created a third type of flint. According to Hamilton and Emery, the Native Americans transferred their knowledge of flint-knapping to the creation of very “beautifully made” gunflints. The Native Americans also often created gunflints “from broken projectile points.” Hamilton and Emery note, however, that later Native American “gunflints were crude, as though the Indians had lost their flint-knapping abilities through having abandoned stone-tipped arrows in favor of iron arrowheads or guns and lead balls” (Hamilton and Emery, 1988: 14). Hamilton and Emery examine the common dimensions of the gunflints produced by these three groups, which will be discussed later.

Most flints found in North America came from European developers and European flint deposits. Gunflints required the “purest and most uniform” deposits of flint. Such deposits were found in “quiet marine waters distant from shores” (Hamilton
and Emery, 1988: 35). However, the actual location of such sources today is “unknown because mining had ceased at a date before good records were made or before the span of living memory” (Hamilton and Emery, 1988: 49). Despite not knowing the site of their production, investigators know that French gunflints arrived in North American prior to the British gunflints, which did not arrive until 1800 or later (Hamilton and Emery, 1988: 14).

Besides the early examples coming from Europe, there is evidence that North America did provide flint that was used in gunflints. Hamilton and Emery (1988: 53) describe how European trade vessels used flint as ballast during their voyages, and following their trips, the ballast was dumped on the shores. Native Americans and their predecessors utilized these deposits to “make points for spears, darts, and arrows and for knives and other artifacts and weapons” (Hamilton and Emery, 1988: 57).

The history of the flintlock and gunflints is important. It shows who invented the weapons, who was using the weapons, and where they were obtaining the flint for those weapons. This information can aid in the description of the gunflints found at Otstonwakin.

*Gunflints from Otstonwakin*

For this thesis, three gunflints were examined, and names have been assigned to each gunflint. Gunflint A is a grey gunflint with the number “170” written on it by the collector who found it. Next, Gunflint B is a grey gunflint with the number “169,” also produced by the collector. Finally, Gunflint C is a yellowish gunflint with a green dot, used by the collector to determine where he found it. Each gunflint is unique and
provides a glimpse into its history. To learn about the significance of the gunflints at Otstonwakin, I have adopted the methodology described by Hamilton and Emery to examine the collection.

To determine how each flint was used, Hamilton and Emery recommend measuring the flints. Hamilton and Emery categorize the size of the flints according to their use:

- Musket Flints are more than 34mm from side to side.
- Fowler or carbine flints are between 34 and 28 mm from side to side.
- Tradegun flints are between 28 and 20 mm from side to side.
- Flints that are less than 20 mm can be from either tradeguns or pistols. Of course, some tradegun flints have been used in large pistols or rifles. (Hamilton and Emery, 1988: 21-22)

Since the size affects the identification of the gunflints, each gunflint was measured. First, Gunflint A is 20 mm long, 20 mm wide, and 6 mm thick; therefore it fits into the category of an Indian-constructed gunflint. In addition, Hamilton and Emery describe Indian flints as “square and usually pillow-shaped in cross section,” which is a fair description of Gunflint A. Thus, Gunflint A is most likely a Native American fashioned flint.

Gunflint B measures 18mm long, 18 mm wide, and 4 mm thick. Applying these dimensions to Hamilton and Emery’s classification indicates that this flint was most likely used in a tradegun or pistol. It is difficult to deduce more information about this gunflint. Its grayish color is not unique to any location or style of creation. It is rather square, which, as Hamilton and Emery note, is indicative of the late 18th century. However, little more can be inferred.
Gunflint C is the largest of the three gunflints. It measures 38 mm across, 21 mm wide, and 5 mm thick. Therefore, using Hamilton and Emery’s categorization, this gunflint was most likely a musket flint. In addition, Gunflint C has a yellowish color, which is indicative of the French military style, so Gunflint C is most likely from a French military musket.

**Gunflints at Other Archaeological Sites**

Gunflints like those discussed here are not unique to Otstonwakin. Many other archaeological sites throughout the Eastern Woodlands and the rest of North America contain gunflints. One such site is Fort Michilimackinac in Michigan. Hamilton and Emery consider Fort Michilimackinac, which was established in 1715 and surrendered to the British in 1761, as the “most thoroughly studied site for French gunflints in North America” (Hamilton and Emery, 1988: 156). This site had an abundance of gunflints, weighing in total over 20.8 pounds. Despite the British takeover of the fortress, Hamilton and Emery note that French gunflints were still the most abundant. In their examination of these flints, Hamilton and Emery ran different tests to determine which type of flint provided the greatest efficiency.

Hamilton and Emery also describe Revolutionary Colonial Gunflints from the Anthony Hay’s House and Furniture Shop in Williamsburg, Virginia, which was occupied from 1760-1781. This site yielded 61 gunflints and fragments, of which “44 [were] French flakes, 4 French spalls, 4 probably English spalls, 1 English musket spall, 4 ‘colonial’ musket spalls, and 4 unidentified fragments” (Hamilton and Emery, 1988: 224). Hamilton and Emery are not surprised by this distribution because “French gunflint
trade dominated North America during the 18th century, especially with flakes” (Hamilton and Emery, 1988: 224). In addition, British flakes were not available until after 1800, and the “French flakes were very popular” (Hamilton and Emery, 1988: 229).

Hamilton and Emery also note another Native American site that held a variety of gunflints. The Gilbert, Texas, site is located east of Dallas and is “from a period when the Indians were trading actively with Europeans.” The site revealed “32 spalls, 13 French flakes, and 69 Indian gunflints” (Hamilton and Emery, 1988: 242). The Gilbert site has a wide array of Indian gunflints that were well manufactured, especially considering that the site dates to the second quarter of the 18th century, as noted earlier, a period when some scholars believe the knapping skills of the Natives had deteriorated.

These three sites examined by Hamilton and Emery show the wide range of gunflints in North America, revealing that Native Americans and Europeans used gunflints. However, only at the Native American site examined by Hamilton and Emery was there an of abundance Indian-made gunflints. Thus the Native Americans were dependent on the Europeans for certain technologies, but they were also capable of adapting and expanding upon the European devices. In addition, these three 18th-century sites have larger distributions of gunflints than does Otstonwakin, but this site has yet to be fully excavated. However, the same types of flints are found, which can aid in the dating our collection to the 18th century.

Musket Balls: An Overview

When first introduced to the Native Americans, the musket was complex and clumsy. As the technology progressed, the musket still possessed problems with misfires
and time-consuming reloading processes, but the one attribute that the musket had since it was first brought to North America was “shock power.” The “shock” of muskets derived from its loud noise, smoky output, and also literally the “shock” of a musket ball hitting flesh. According to James Hicks (1937: 24), a musket ball that hit “almost anywhere knocked a man down.”

According to Hamilton (1980: 125), lead bullets are commonly found on historical archaeological sites, but often do not receive the proper analysis. Investigation of lead bullets is important because many archaeological sites yield large numbers of these artifacts, and lead balls provide great insight to the site. Common terminology for bullets today is actually quite different from the terminology used to classify projectiles in the 18th century and the centuries preceding. For instance, the common term used today when discussing bullets is “caliber”; however, this term has no relationship to the 18th-century French word “calibre” (Hamilton, 1980: 125). Today, a 32-caliber gun refers to the diameter of the bore of the gun (the hollowed-out portion of the barrel). On the other hand, in the 18th-century French context of the word “caliber,” a “32 calibre” gun refers to a “smoothbore designed to shoot balls 32 of which would weigh one livre” (Hamilton, 1980: 125). Table 3.1 displays 18th-century French musket ball diameters. The “calibre” classification, though, corresponds with only French-made musket balls; little is known about the scale and nomenclature used by the English gunsmiths or colonial gunsmiths.

In addition to the lack of categorization in the 18th century, musket ball makers and users experienced other problems: the inconsistent size of bores and maintaining the bores. First, since the muskets used during the colonial period were hand made, there
was a slight variation between each weapon. Each weapon was therefore unique, and the transfer of parts required significant modifications. Also, since each weapon was unique, the size of similar weapons had small degrees of variation.

In addition, weapons in the 17th and 18th centuries utilized black gunpowder to ignite and propel bullets. However, each time the weapon was fired, the black powder left a deposit, called fouling, and these deposits built up until “the effective bore was finally reduced to the point where no more balls could be forced down the barrel” (Hamilton, 1980: 125). Obviously, muskets needed to be cleaned often to fire properly, but minimal fouling could build up after a single shot. Therefore, to account for the accumulation of fouling, and to create easier loading, smoothbore muskets used balls significantly smaller than the bore. The difference in size between the bore and the ball diameters is called “windage” (Hamilton, 1980: 125). If the windage was too great, then the gases which were ignited upon firing would pass around the ball, and it would not be propelled with great velocity. Inversely, if the windage was too small, the ball could not be easily rammed down the barrel. Thus, there were many issues with finding musket balls that would work properly in a given weapon. The creation of the musket balls became an important factor in the shooter’s success.

To make lead bullets, a mold must be used. The type of mold and the process under which it is used produces different anomalies and traits in each bullet. In the early years of bullet production, balls were never exactly the same, which was a result of the method used to create them. Usually balls were created from a mold, but the creation of the molds was very imprecise. Molds were made by a router, called a “cherry,” which “was a small rotary file in the shape of the proposed bullet, mounted on a slender neck, or
shaft, narrow enough to extend through the two halves of the mold” (Hamilton, 1980: 128). The cherry was spun as the two sides of the mold were forced together, creating a space into which the lead was poured, resulting in a musket ball. This method seems simple; however, the process could be undertaken in a cheaper manner, which produced cruder bullets. Often times the cherry was too thick, which resulted in a mold that did not form a tight bond when pressed together. Another result of a thick cherry was that the bullet “was not as deep from front to back as it was wide from side to side” (Hamilton, 1980: 128).

Molds did not have to be used to form single bullets; large manufacturing did occur. Such production used multi-cavity molds, called “gang-molds,” for large-scale manufacturing. More often than not gang-molds produced the finest bullets because the molds were “held in exact alignment by pins on one half and corresponding holes into which the pins fit on the other” (Hamilton, 1980: 128). In addition, the balls produced from these molds were usual perfectly round and lacked mold lines, which were common on single bullet molds. Hamilton (1980: 128) summarizes how the characteristics of a molded bullet can indicate where is was made:

If a bullet has prominent mold lines or is lopsided with one half out of register with the other, the chances are that it was cast on the frontier, either from imported lead pigs or from locally mined lead. If the ball is perfectly round with faint mold lines, it was made in a production mold and, if in an early or mid 18th century context, was most likely cast in Europe and shipped over in kegs.

Molded bullets were common throughout the 18th century, but there were also other methods of creating lead projectiles. Shot is similar to lead bullets in that it is fired
from a weapon; however, shot is much smaller than most bullets and packed together and used as an exploding projectile. Shot was originally used in bird hunting, as it was found that “a large number of small lead balls widely scattered when fired, increase[d] the chance of success when hunting wildfowl and other small game” (Brown, 1980: 63). Originally, shot was created by cutting sheet lead into small cubes which were tumbled in a machine, resulting in rounded edges.

Another common method of creating shot was through the process called “Rupert shot.” Rupert shot required the quick heating and cooling of the lead. Hamilton (1980: 132) describes the process:

Rupert shot was made by placing a brass colander-like dish, but with a heavy rim to hold the heat some ten inches or so above a pan of water. Live coals were placed in the colander to heat it; and melted lead, fluxed with arsenic, was then poured into the colander, trickled down through the coals and through the holes, falling as droplets into the water.

This process did not create round bullets, but rather an “ovoid” shaped bullet, with a small dimple on the more flattened side (Hamilton, 1980: 132). Rupert shot was one of the most-used types of shot in the first half of the 18th century.

Musket balls from Otstonwakin

Many lead projectiles were found at Otstonwakin. Musket balls were collected with a metal detector prior to 2007, and during excavation in the summer of 2007, Professor Levine uncovered many examples of musket balls. The collections found by the local collector and Levine include examples of discharged and unfired musket balls,
some of these artifacts preserved better than others. For analysis, the artifacts were divided into the following groups: musket balls, fired (impacted) musket balls, shot, grapeshot, and others.

Nine intact musket balls were recovered from Otstonwakin. Six of these balls were found by a collector. Two of the remaining musket balls were discovered during the 2007 archaeological excavations using metal detection. The last ball was recovered from Test Pit 7 in an April 2007 survey of the area. Each musket ball was measured, using a digital caliber (millimeters), and weighed using a digital scale (grams). The sizes of the musket balls ranged from 5.35 grams and 9.86 mm to 19.22 grams and 15.82 mm. Table 3.2 shows the nine musket balls, their weight, and their diameter.

Table 3.2: Musket balls from Otstonwakin

<table>
<thead>
<tr>
<th>Musket ball Number</th>
<th>Weight (Grams)</th>
<th>Diameter (Millimeters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.38</td>
<td>9.86</td>
</tr>
<tr>
<td>2</td>
<td>8.36</td>
<td>11.34</td>
</tr>
<tr>
<td>3</td>
<td>8.99</td>
<td>11.9</td>
</tr>
<tr>
<td>4</td>
<td>13.25</td>
<td>14.01</td>
</tr>
<tr>
<td>5</td>
<td>15.83</td>
<td>13.86</td>
</tr>
<tr>
<td>6</td>
<td>17.53</td>
<td>15.47</td>
</tr>
<tr>
<td>7</td>
<td>17.71</td>
<td>14.96</td>
</tr>
<tr>
<td>8</td>
<td>19.57</td>
<td>15.05</td>
</tr>
<tr>
<td>9</td>
<td>19.22</td>
<td>15.82</td>
</tr>
</tbody>
</table>
These musket balls obviously portray a variety of sizes, which is understandable for 18\(^{th}\)-century weaponry. Since no two muskets were exactly alike and each musket, after being fired, built up fouling from the use of gunpowder, it is not surprising that the musket balls from Otstonwakin represent a variety of diameters and weights.

Many of the musket balls have distinctive qualities that provide insight into how they were created. Ball Number 3 is an interesting artifact. It is one of the smaller musket balls, weighing just under 9 grams and having a diameter of almost 12 millimeters. This diameter, though, represents its largest diameter. This ball has a flat surface with a smaller circumference of 11.34 mm. This surface is much smoother than the rounded edges of the ball. Hamilton (1980: 128) describes how the use of a large cherry can create a musket ball that is not perfectly round and that has two different diameters. It is possible then, that this musket ball was created using a cherry that was too thick, resulting in the mismatched diameters.

Musket ball Number 5 is also unique. This musket ball has two halves that are offset. Musket ball 5 is an example of a lopsided bullet. Hamilton (1980: 128) believes lopsided bullets were molded on the frontier. During the 18\(^{th}\) century, while many musket balls were created through molds, those molded in Europe used a more exact procedure, and those created on the frontier often had imperfections, such as lopsidedness. Therefore, musket ball Number 5 was most likely molded in the colonies.

Distinctive characteristics are also found on musket ball Number 6. Musket ball 6 has two unique characteristics: a flattened depression on one side and a thin mold line across the circumference. First, the mold line is helpful in determining how this particular musket ball was created. Since the mold line is quite faint, this musket ball
was most likely created in a gang mold in Europe and then shipped to North America. The depression on the rear of the musket ball is more puzzling. Due to the fact that the rest of the bullet appears to be perfectly round, it is unlikely that the depression resulted from the molding process. So the depression may be evidence that this musket ball was fired; however, it is not as deformed as other fired musket balls that are believed to have impacted a target. Therefore, this musket ball most likely was fired, creating the depression on the rear of the ball, but it never hit a target at a velocity great enough to cause further deformation.

Musket ball Number 9 has a unique characteristic. First, this ball is among the heaviest found at Otstonwakin. In addition, musket ball Number 9 has a 2 mm impression along one part of the circumference. The fact that the impression is across the middle portion of the musket ball may be due to the molding process; however, there are no other characteristics that would classify it as a molded ball. It is not regular in its spherical shape, and there is no evidence of mold lines other than the impression. Musket ball 9 is interesting because it is unique from the others, but its classification is difficult to assess.

Impacted musket balls represent the greatest number of artifacts related to weaponry found at Otstonwakin thus far. In all, fourteen different impacted musket balls have been found. Nine of these artifacts were found by a collector, while the remaining five were discovered using a metal detector during the excavations conducted by Professor Levine in the summer of 2007. These artifacts are characterized by their oval shape. Some of the artifacts are flattened completely on one side. It is difficult to say what size bore they were fired from; however, Table 3.3 displays their diverse weights.
Table 3.3: Fired Musket Balls

<table>
<thead>
<tr>
<th>Impacted Musket Ball</th>
<th>Weight (grams)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.06</td>
</tr>
<tr>
<td>2</td>
<td>13.90</td>
</tr>
<tr>
<td>3</td>
<td>14.89</td>
</tr>
<tr>
<td>4</td>
<td>18.40</td>
</tr>
<tr>
<td>5</td>
<td>18.34</td>
</tr>
<tr>
<td>6</td>
<td>21.00</td>
</tr>
<tr>
<td>7</td>
<td>22.44</td>
</tr>
<tr>
<td>8</td>
<td>26.25</td>
</tr>
<tr>
<td>9</td>
<td>15.93</td>
</tr>
<tr>
<td>10</td>
<td>15.66</td>
</tr>
<tr>
<td>11</td>
<td>23.01</td>
</tr>
<tr>
<td>12</td>
<td>17.70</td>
</tr>
<tr>
<td>13</td>
<td>14.30</td>
</tr>
<tr>
<td>14</td>
<td>19.07</td>
</tr>
</tbody>
</table>

The weight of each of these artifacts can indicate what type of weapon it was fired from. Obviously, without also considering the diameter of the musket balls, it is difficult to determine what size bore the ball was likely shot from; however, comparing the weight of the impacted musket balls to the weight of the intact musket balls also found at Otstonwakin can be useful.
A comparison of Table 3.2 and Table 3.3 shows a few striking differences. The artifacts from Table 3.3 tend to be heavier than the artifacts from Table 3.2. The average weight of musket balls in Table 3.2 is 13.98 grams; the average weight of the impacted musket balls from Table 3.3 is 17.71 grams. Thus, the difference between the fired and the unfired musket balls is nearly 4 grams. It seems illogical that a fired round weighs more than an unfired round, especially after an impact so traumatic that it flattens the bullet. Reasons for this discrepancy may be due to the mislabeling of certain artifacts as impacted bullets when in reality they are the remains of lead scrap. However, it is wiser to classify such an artifact as “impacted,” so that it will undergo further analysis than if it were labeled as “others.” Later if it is found that certain impacted bullets are actually scrap, no evidence is lost, so it is better to include all the possibilities in the “impacted” category.

Although some of the impacted bullets may be questionable, Numbers 1, 3, 4, and 9 are clear examples of ovular musket balls. These musket balls are also among the smallest in the category of “impacted musket balls,” weighing 7.06 g, 14.89 g, 18.40 g, and 15.93 g respectively. These weights are closer in comparable weight to the musket balls that have not been fired. In addition, these balls appear to be flattened, which is indicative of a bullet that has been fired. The firing of the weapon flattens one side of the musket ball, and its hitting the target flattens the other side.

The next category of musket balls found at Otstonwakin is shot. Only three examples of shot have been found so far at the site. These three items were found by a collector. In addition, these artifacts are the smallest examples of musket balls, which makes sense because they would have been packed together in a musket. These small
balls were packed together and they diverged when they exited the muzzle of the weapon to increase the effectiveness of the shot. Table 3.4 shows the three shot pellets, their weight in grams, and their diameter in millimeters.

Table 3.4: Shot Pellets

<table>
<thead>
<tr>
<th>Shot Pellet</th>
<th>Weight (Grams)</th>
<th>Diameter (millimeters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>3.14</td>
<td>8.43</td>
</tr>
<tr>
<td>2</td>
<td>2.28</td>
<td>7.68</td>
</tr>
<tr>
<td>3</td>
<td>0.47</td>
<td>4.71</td>
</tr>
</tbody>
</table>

These artifacts are much smaller both in diameter and in weight, compared to the larger musket balls.

Shot pellet Number 1 is the most unusual of the three because it has a protrusion on one end and faint mold lines around the circumference. Often times molded bullets created in gang molds had similar protrusions that were filed off after production. The fact that the protrusion is still present on this artifact shows that it was never fired from a weapon. Also, the small size, only a 8.43 mm diameter, indicates that this projectile was too small for a musket. It is possible that it was intended for use in a pistol; however, Hamilton (1980: 127) believes that pistol bullets are as large as 0.541 inches, or 13.74 millimeters. Even though 13.74mm is a larger pistol bullet, 8.43 mm, the diameter of shot pellet Number 1 is much smaller, so it appears to be an example of a gang-molded ball.

Shot pellet Number 2 is less extraordinary than Number 1. It is much smaller and lacks the protrusion. Despite the lack of protrusion, the pellet does have what appears to
be two flattened surfaces that come together at an angle. Although these surfaces are slight, it is possible that these surfaces reflect the process that was used to make it. Early forms of shot were made by cutting cubes from lead sheet; these cubes were then tumbled in a machine that rounded the edges. The tumbling process may not have worn away the two flat surfaces.

Shot pellet Number 3 is the smallest of the three artifacts. Unlike the other two shot pellets, pellet Number 3 does not have any unique characteristics. Its size and weight clearly make it shot, but it is difficult to infer how it was made.

Another category of musket balls found at Otstonwakin is grapeshot. Grapeshot is similar to musket shot in that many smaller projectiles are packed together and explode when fired, but rather than being fired from a handheld weapon, grapeshot was fired from small, anti-personnel cannon. This larger shot was fired against attacking armies from a range of 400 to 200 yards (Mahon, 1961: 60). Archaeological work at other sites have yielded examples of grapeshot. For instance, Westbury and Sampson (1993) performed archaeological excavations in the Seacow Valley in South Africa that yielded examples of grapeshot. One artifact was 25 g piece of grapeshot that they were able to date to 1810-1840, due to glass trade beads found at the same depth (Westbury and Sampson, 1993: 29). Thus, archaeological evidence shows grapeshot spreading from Europe to other continents in the early 19th century.

Grapeshot gets its name from its appearance. When packed together and bound with cloth and string, the projectile looked like a bunch of grapes. Grapeshot diameters range from about 25.4 mm, or one inch, up to sizes of 76.2 mm, or three inches. There are two examples of grapeshot found thus far at Otstonwakin. The first example was
found by a collector; Professor Levine uncovered the other example during the summer of 2007 excavations. Table 3.5 displays the weight in grams and diameter in millimeters of the two examples of grapeshot.

<table>
<thead>
<tr>
<th>Grapeshot</th>
<th>Weight (grams)</th>
<th>Diameter (millimeters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>42.93</td>
<td>22.31</td>
</tr>
<tr>
<td>2</td>
<td>58.77</td>
<td>26.28</td>
</tr>
</tbody>
</table>

These two artifacts are much larger than the other lead projectiles found at the site in both weight and diameter, but they have not been preserved as well as the other forms of bullets. Grapeshot Number 2 has actually split in half, and flakes continue to slowly break off from it. In addition, both artifacts are more corroded than the other musket balls, so there is less evidence to point to how they were made. Thus the importance of these artifacts is their location at the site.

The final classification of musket balls is the “others.” These eleven artifacts come solely from the Schmidt collection. Some of these artifacts may be significant, but may be misclassified. They may be just lead scrap, but it is possible that the scrap is left over from the production of lead bullets. Four of the “others” (Number 1 through Number 4) fall into the subcategory of artifacts including scrap from production. Numbers 5, 6, and 7 are possible forms of Rupert shot that were not created properly. One of the qualities of Rupert shot is that it appears in a teardrop shape. These artifacts resemble teardrops. Another characteristic of Rupert shot is that they tend to be smaller pieces. But Numbers 5, 6, and 7 are larger than the typical examples of Rupert shot. It is
possible that these artifacts are not examples of malformed Rupert shot, but it is also likely that their large size is part of the reason why they are abnormal examples of Rupert shot. Nonetheless, these three examples are unique from simply scrap, but do not fall into another classification.

Artifact Numbers 8 through 10 in the “other” category possess the qualities of musket balls, but they lack enough definition to classify them as either a musket ball or a fired and impacted musket ball. Number 9 especially appears to be in a spherical shape, similar to a musket ball; however the surface of the artifact is pitted and shows no evidence of molding. Number 8 has characteristics similar to a fired musket ball, but it lacks a spherical shape. Artifact Number 10 is also similar to an impacted musket ball, but it is flatter and smoother than the other impacted musket balls.

Finally, artifact Number 11 from the “other” category is an intriguing artifact. It is a lead rectangle with a “U”-shaped form on top. So artifact Number 11 closely resembles the rear sight for a musket. A rear sight is located on the barrel near the stock of the gun. The shooter uses the “U” shape to line up with a front sight, which is a small metal ball on the front of the barrel. The shooter aims by lining up the ball at the front of the musket so that it is “cupped” by the “U”. This artifact Number 11, though, may be too small for a long musket, but it is possible that it might have been used on a pistol.

**Future Tests**

Professor Rob Sternberg, of Franklin & Marshall College’s Earth and Environment department, recommended two additional tests on the musket balls. First, he notes that the density of the musket balls may be determined through simple
mathematical equations. Knowing the density of the musket balls could provide insight into the materials used to create the musket balls, whether they are pure lead or an amalgamation of many metals. However, such calculations would be based on the assumption that the musket balls are perfect spheres, which the 18th-century production methods did not easily, or often, attain. Therefore, the extent of the information that would be valuable from such tests is unsure. In addition, Professor Sternberg recommended possibly testing the volume of the musket balls by dropping them into a graduated cylinder of water and seeing how much water each of the musket balls displaces. However, placing the musket balls into water would damage the balls and could lead to corrosion. These tests may prove to be useful in the future, but the literature on the subject makes no mention of such tests. Thus, it is not productive to examine the density or the volume of the musket balls for this thesis.
Analysis

Significance of the Artifacts to Otstonwakin

The gunflints, musket balls, grapeshot, and other miscellaneous weaponry artifacts unearthed during the summer of 2007 date to the 18th century. These artifacts shed interesting light on Otstonwakin. For example, Section II describes how Otstonwakin was located on a convergence of several trade routes, including the Great Shamokin Path and the Sheshequin Path. Many travelers and traders stopped at Otstonwakin for a few nights. Since Otstonwakin had many different ethnicities residing at the village, it makes sense that travelers from different backgrounds, such as French, English, German, Dutch, Algonquin, Iroquois, or other Native Americans and European ethnicities, would find themselves welcomed at the village.

The weaponry artifacts reflect the diverse background of the inhabitants as well as the many different people that were coming and going to the site. For example, the three gunflints reflect three different means of manufacturing. The first gunflint, Gunflint A, was most likely created by Native Americans. This gunflint could have been created at Otstonwakin, or it may have been brought by a traveler from another Native American site. On the other hand, Gunflint C reflects French military manufacturing. Therefore, this gunflint was not created at the site, but rather was brought in via trade or by a traveler who left it at the site. Gunflint B has fewer distinguishing characteristics and its origin is difficult to discern. However, its presence exemplifies another instance of diverse artifacts on the site. Thus, the three gunflints were created in three different manners by three different cultures. Therefore, each gunflint had to be brought to Otstonwakin, possibly even by three different cultural groups. Consequently, these
artifacts back up the literature that describes how many travelers were coming and going to Otstonwakin.

The musket balls found via excavation also shed light on Otstonwakin. The assemblage of musket balls is diverse. There are many different sizes of musket balls. In addition, the musket balls represent diverse manufacturing techniques. As described in Section III, muskets in the 18th century had varying bore sizes. Bore sizes varied from gun to gun, especially between guns manufactured in different countries. The diverse size of musket bores resulted in different sizes of musket balls. The fact that there is a wide range of sizes at Otstonwakin provides evidence that there were many different types of muskets being used or handled at the site. Like the gunflints, the different musket balls confirms that many travelers were coming and going from the Otstonwakin, and while these travelers were at the site they were trading and exchanging goods. Thus, the weaponry artifacts confirm that Otstonwakin was a site of trade and travel.

I have classified gunflints and musket balls as weaponry, but I do not believe that the artifacts are representative of a conflict or warfare that occurred within Otstonwakin. Section I and Section II discuss the history of central Pennsylvania and Otstonwakin. Through my research, I was unable to find any evidence that cited a battle took place at Otstonwakin. Despite the lack of historical evidence of warfare at Otstonwakin, there is evidence of conflicts in the central Pennsylvania region throughout the 18th century. Yet, simply stating that warfare occurred in Pennsylvania in the 18th century is not concrete enough to make broad claims about a few artifacts found at Otstonwakin.

Rather than being used for warfare, the weaponry found at Otstonwakin was utilized for hunting purposes. The historical narratives regarding Otstonwakin do refer
to hunting taking place. For example, in Section II, Count Zinzendorf writes in his journal regarding his stay at Otstonwakin. Zinzendorf describes how Andrew Montour shot a bear and deer for a feast with the guests. Although Zinzendorf does not mention the manner in which Andrew Montour killed the animals, the word “shot” provides a clue: the animals were slain either with a musket or a bow and arrow. Archaeologically, evidence of muskets and arrowheads are present. A second example of weaponry used at Otstonwakin also comes from Section II, when Weiser records his first visit to the village. In his journal Weiser notes, “After repeated firing of our guns, two young Indians came from the village” (Wallace, 1996: 80). This account is also reflected in the archaeological record: thus far fourteen “fired” musket balls exist. A third account of weaponry present at Otstonwakin comes from Zizendorf and Weiser’s journey to the village in 1742, described in Section II. Upon the travel party’s arrival at the town, the Indians “discharged their firearms by way of salute” (Reichel, 1870: 96). This quote shows how Native Americans living in the village had weaponry and used it as a form of communication. The historical record illustrates three examples of weaponry present at Otstonwakin. In the first case, Native Americans used the weapons to hunt for game. In the second instance, European travelers brought muskets and used them as a signal. Finally, the third reference mentioned Native Americans using the weapons as a greeting. Thus, the archaeological record supports the historical record, and these records show that both Native Americans and European travelers had weapons and were utilizing them.

Although the historical and archaeological records lack true evidence of warfare at Otstonwakin, the grapeshot artifacts are peculiar to this site. Grapeshot is a form of
anti-personnel weaponry which was fired from cannons into swarms of raiding warriors. Only a few examples of grapeshot were found, and there is no evidence excavated thus far that has placed a cannon at Otstonwakin. Then how did these artifacts arrive at the site? There are many possibilities. First, as previously stated, Otstonwakin was a center for trade. It is possible that these artifacts were brought in and never exported. Another possibility is that a trader or traveler accidentally dropped the grapeshot from his bag. A third and equally plausible possibility is the artifacts are not associated with Otstonwakin, but are from a later time period. I do not feel that the grapeshot can be completely omitted from analysis, but at the same time I do not feel that simply the presence of two grapeshot artifacts can represent an entire period or simply one skirmish of warfare. Moreover, grapeshot is packed tightly together when used in a cannon, so in order to associate grapeshot with warfare, I feel that more than two examples would need to be present. The conclusion most likely for the grapeshot is that it probably fell from a traveler’s bag and was left at Otstonwakin.

In sum, the weaponry artifacts shed light on Otstonwakin. The fact that the gunflints and musket balls came from different cultures exemplifies how Otstonwakin was a site of cultural exchange. Despite ongoing conflicts during the 18th century in Pennsylvania, I do not believe that there is substantial evidence to show that the weaponry found at the site was involved in on site conflict. Rather, the artifacts were most likely used in hunting, which is supported by the historical record. In all, these few artifacts are only scraping the surface at Otstonwakin, but they do provide a first step in understanding the life ways of those who lived and visited the site.
Madame Montour was the face of Otstonwakin in the 18\textsuperscript{th} century. The artifacts from Otstonwakin provide evidence that the village was a site of trade and multi-national travelers. Obviously, a single gunflint or a single musket ball cannot be assigned as Madame Montour’s personal possession or as a utility that she in particular handled. Yet the artifacts shed light upon how Madame Montour led her village. The fact that the artifacts were created by different cultures reflects upon Madame Montour’s willingness to engage in cultural exchange. Montour could easily have prohibited foreigners from staying at the site or her villagers from trading with travelers. However, the fact that these artifacts are present displays Montour’s willingness to accept other cultures.

Moreover, Section II describes Madame Montour as a frontier diplomat, who had a strong understanding of many different languages. The historical record shows her importance as a translator to the Pennsylvania colonial government. Therefore, it is not surprising to see a variety of artifacts from different nationalities at Otstonwakin. Due to Montour’s multi-national background Otstonwakin was a village of trade and travel by many; consequently, many weaponry artifacts represent different nationalities methods of manufacturing.
Conclusion

The various types of weaponry found at Otstonwakin reflect an 18th-century multinational site. Three main classes of warfare artifacts were examined: gunflints, musket balls, and a projectile point. The three gunflints, one French, one Native American, and one of another European-manufacturing technique, exemplify the different methods used by three cultures to produce gunflints. The nine intact musket balls found at Otstonwakin were of different sizes, which represent the imprecise manufacturing methods used to produce the balls. Also, the different-size musket balls reflect how the balls were not easily interchangeable between guns; the gun bores were of different sizes, creating a need for different-size musket balls.

In addition to the nine intact musket balls, “fired” musket balls and some shot pellets were examined. Not all of the musket balls were as pristine as the nine mentioned above: the collection also included fourteen musket balls classified as “fired” and “impacted.” These other musket balls tend to be flattened, a result of each one either exploding out of the musket or impacting its target. The fourteen “fired” musket balls show that muskets were not only being carried through Otstonwakin as trade goods, but they were also used on the site, most likely for hunting purposes. Visitors to Otstonwakin mention hunting, but no record exists of a major battle fought there. Also in the musket-ball category were three shot pellets. Although small, these artifacts are important. Shot pellets are packed together within the bore of a musket and then scatter upon firing. Typically, shot was used in hunting fowl, a practice that probably occurred at Otstonwakin.

Another classification of musket balls is grapeshot. Grapeshot is similar to a shot
pellet insofar as several balls are packed together for one firing. Grapeshot, though, are much larger than shot pellets. (The two examples from Otstonwakin were 22.31mm and 26.28mm respectively.) The grapeshot were large because they were used in cannons as anti-personnel weaponry. Grapeshot is most commonly associated with warfare during the 18th and 19th centuries (Britannica online, 2008). It is possible that the grapeshot found at Otstonwakin were used at the site, but with the lack of historical record, and the lack of more artifacts showing evidence of cannonry at the site, it is unlikely that the two examples of grapeshot were used for warfare. However, the grapeshot found at other sites (Westbury and Sampson, 1993) does date closely to the period of occupation at Otstonwakin. Therefore, the artifacts are from the appropriate time period, but they were more likely associated with trade than warfare.

The final category of weaponry artifacts from Otstonwakin is projectile points. Only one projectile point has been recovered thus far; however, it is unique. The point found at Otstonwakin is made of brass, a material that requires combining different metals. Since Native Americans did not produce brass, the projectile was likely cut from a brass kettle or other object they acquired from the Europeans. Ehrhardt (2005: 75) describes how Native Americans reduced and reworked metals through “cutting, folding, rolling, [and] cold hammering.” Thus, the projectile point found at Otstonwakin indicates trade between the Native Americans and Europeans, and the Native Americans’ ability to alter European goods.

The artifacts found at Otstonwakin help to place the village in the 18th century. Moreover, the artifacts represent what travelers said was the success of Otstonwakin as a multinational village. The diversity of the weaponry’s origins shows how many
nationalities were coming together at Otstonwakin to associate with one another. The history of 18th century Pennsylvania describes the colony as a cultural and linguistic frontier: many religions, cultures, and national communities converged throughout the central portion of the state; however, from the accounts of travelers to the village, for a time it seems to have been removed from some of the problems associated with frontier life.

While historians have been successful in preserving European travelers’ accounts of their visits to Otstonwakin, archeologists studying 18th century Pennsylvania have not reached consensus on how to apply their findings. Rubertone (2000) notes that historical archaeologists continue to debate the theoretical approaches to the material culture of Native Americans. As one approach, historical archaeologists are beginning to closely examine the lifeways of Native Americans, yet more work needs to be done. Silliman’s (2005b) metaphor of a swinging door provides a reminder that historical archaeologists cannot be blind to “prehistory” and “history,” but they should understand that the line between the two is blurred, so that both “history” and “prehistory” can be incorporated into one study. In doing so, they can examine the multinational Native American sites, such as Otstonwakin, without considering them “tainted,” or not “pristine.”

The more recent archeological work in Pennsylvania has attempted to apply these theories, namely the 2007 excavations by Levine, on which this paper is based. Archaeological work at the site first began in the early 20th century. Specifically in 1936, Schoff tested the area for Native American graves. His work was brief, but resulted in the discovery of a Native American girl’s grave. Then Turnbaugh expanded the work done at the site in the 1970s when he performed surveys of the area. In addition to his
surveys, Turnbaugh noted artifacts found by a local collector, finding that many of them date to the 18th century. Turnbaugh concluded that the site’s exact location was undefined. Otstonwakin was not investigated again until 2007 when Levine began her studies of the area. Basing her excavations on the research completed by Schoff and Turnbaugh and the narratives from the 18th-century travelers who stopped at Otstonwakin, Levine believes she has located part of the Otstonwakin village.

The archaeological work by Levine is in its early stages and Otstonwakin will be the focus of extensive archaeological investigation in coming years. The analysis of only the weaponry artifacts found thus far provides helpful information about the multinational site. However, further excavation would provide more artifacts and thus more valuable insight into the 18th-century multinational village, Native Americans, and life in central Pennsylvania. Likewise, historical archeology at other locations in Pennsylvania and elsewhere would provide new insights into Native American cultures and their relationship with new settlers on the frontier.
Figure 1.1: Colonial Pennsylvania Indian Migration

Merrell, 1999: 21
Figure 1.2: Pennsylvania Land Deals

Wallace, 1989: 132 and 137
Figure 1.3: 18th Century Pennsylvania Forts

The French and Indian War in Pennsylvania. Symbols for British Forts between the Delaware River and Fort Bedford show the major defense posts built by Pennsylvania after the Indian raids of 1755-1756.
Figure 2.1: The Onondaga Trail

Wallace, 1996: 78
Table 3.1:

18th CENTURY FRENCH BALL DIAMETERS.

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Musketoon ball. Post 1800 Infantry ball

French Infantry ball, 18th Century

1 pouce = 27.063885 mm
1 ligne = 2.36500 mm
1 point = .1879858 mm
1 centimeter = .3937 inch
1 livres = 489.50 grams
1 pound avoirdupois = 453.6 grams

* Interpolated.

Hamilton, 1980:
Image 1: Gunflints (B, A, and C)
Image 2: Musket Balls (Numbers 1-9)
Image 3: Fired Musket Balls (Numbers 1-14)
Image 4: Shot Pellets (Numbers 1-3)
Image 5: Grapeshot (Number 1 (two halves) and 2)
Image 6: “Others” (Numbers 1-11)
Image 7: Brass Projectile Point
Bibliography


Wallace, Paul A. Conrad Weiser: Friend of Colonist and Mohawk. Lewisburg,


