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Lead Seals from Fort Michilimackinac, Mackinaw City, Michigan

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LEAD SEALS FROM FORT MICHILIMACKINAC, MACKINAW CITY, MICHIGAN

by

Diane L. Adams

A Thesis
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Master of Arts
Department of Anthropology

Western Michigan University
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Archaeologists have routinely identified small lead seals found on sixteenth- to eighteenth-century sites in North America as "bale seals." An analysis of the lead seals from Fort Michilimackinac, Mackinaw City, Michigan, (1715-1781) was conducted to determine whether the seals are actually cloth seals from individual textiles.

Four lines of evidence were examined in order to clarify the function(s) of lead seals: documentary sources, quantitative analysis of archaeological data from Fort Michilimackinac, comparative data from site reports, and cloth imprint analysis.

Available evidence supports an interpretation that most lead seals are cloth marks. Lead seals served as indicators of quality, ownership, and taxation of cloth. Documentary sources mention the existence of lead bale seals, and a small number of seals from Fort Michilimackinac may have served to seal or identify the contents of bales of trade goods.
ACKNOWLEDGEMENTS

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I gratefully acknowledge the encouragement of my parents during this project. My special thanks go to Mr. Mark Cravalho for his friendship and for his useful editorial comments.
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CHAPTER I

INTRODUCTION

French and British lead seals are a class of artifacts found on numerous colonial-era sites in North America, including such widespread locations as a canoe wreck on the "Voyageur's Highway" in northern Minnesota, a Bayagoula village in Louisiana, and a Spanish mission in Arizona. These seals are circular cast lead objects, generally 30 millimeters or less in diameter, with names, numbers, or symbols cast, stamped, or scratched into them. Stone (1974:281) classifies the seals from Fort Michilimackinac into three series based on method of attachment: (1) Series A, two disks connected by a flange; (2) Series B, one disk with a flange; and (3) Series C, one disk, perforated to allow wire or cord to be passed through it (Figures 1-7).

Lead seals are frequently referred to in archaeological literature as "bale seals." For example, Stone (1974:281) states they were "used to seal and identify the contents of packaged goods." Similarly, Steer (1977:122) explains that:

Seals . . . were used to show the trade mark of the supplier, as well as to assure the receiver of the bale that the goods within were not tampered with in any manner during transportation. Once the bale was received, and the seal broken, the seal was usually discarded.

Others, however, have suggested they were used as cloth marks. Cotter (1958:191) states that "they were used for attaching to bales of woolen cloth. The numbers on the clips attested to the quality
Figure 1. Unused Series A Seal. This Seal Would Have Been Inserted Into a Slit Near the Edge of a Cloth, the Disk With the Opening Folded Against the Disk With the Projection, and the Two Disks Pressed Together With Special Stamping Pliers Which Would Impress Symbols Into Them.


Figure 2. Series A Seal Showing the Projection of One Disk Flattened Against the Opposite Disk.
Figure 3. Inner Disk of a Series A Four-Disk Alnage Seal. Four-Disk Seals Were Attached in the Same Manner as Two-Disk Seals; the Two Inner Disks Are Flat and Would Not Have Been Clamped Together. Scale Is in Centimeters.

Figure 4. Series B Seal. This Seal Would Have Been Attached to a Cloth by Passing the Flange Through the Edge of a Cloth, Folding the Flange Against the Disk, and Clamping the Two Together With Stamping Pliers.
Figure 5. Unused Series C Seal. String or Wire Passed Through the Edge of a Cloth Would Have Been Inserted Through Openings Parallel to the Face of the Seal. The Seal Would Then Have Been Clamped Tightly Around the String or Wire With Stamping Pliers.

Figure 6. Series C Seal With Two Openings Parallel to the Face.
Figure 7. Series C Seal Showing Stamped Design and Wire Remnant.

and length of the cloth being shipped." Quimby (1942:549) refers to them as "fabric seals," and South (1977:70) includes seals in a "tailoring" category.

Fort Michilimackinac (1715-1781) was a major center of the fur trade of the Upper Great Lakes region (Figure 8). Trade goods either were brought to Michilimackinac from Montreal and then repacked and sent to traders operating north of Lake Superior and around Lake Michigan, or they were held at the fort and exchanged for furs brought in by natives. At some point during repacking or trading at Michilimackinac many lead seals became separated or were removed and discarded. Because they were small and of little value, seals were left where they fell and eventually became part of the archaeological record.
Figure 8. Map of the Straits of Mackinac Showing the Location of Fort Michilimackinac.
Probably the largest single collection of lead seals in North America is that curated by the Mackinac Island State Park Commission in Lansing, Michigan. Some 279 seals in that collection exhibit a wide range of markings. The study of these marks could result in knowledge about kinds of trade goods, or at least kinds of cloth, which were traded and used at Fort Michilimackinac.

It is generally believed by those unfamiliar with historical archaeology, as South (1979:216) has noted, that in researching a particular kind of artifact, "we can find out all we need to know about it simply by reference to a good encyclopedia." Nothing is further from the truth; historic artifacts can be as enigmatic as prehistoric ones. South uses the Jew's harp to show how difficult it is to research the history of an artifact, even one still in use. He concludes that "the archaeologist must take what few 'sherds' of information he finds . . . and simply treat them as additional clues to accompany those literal sherds he has found in the archaeological record" (South 1979:216).

All of which raises the question of the purpose of studying lead seals. What may be learned by such a study? The answer lies in the attempt by archaeologists to understand cultural process (Flannery 1967). In recent years some historical archaeologists have attempted to explain the process of Native American acculturation as it occurs in trade relationships (Deagan 1982:153, 162). North American natives, as consumers, selected goods from an array offered to them by fur traders. We may understand more about the fur trade as a business and as communication by knowing what kinds of goods were
being traded and to whom. In the absence of explicit written records, information provided by lead seals should aid researchers in understanding the fur trade.
CHAPTER II

OBJECTIVES AND METHODOLOGY

Beyond brief description in site reports, little has been written about lead seals in North America. Noël Hume (1982a:269-271) gives some treatment to them in his book, A Guide to Artifacts of Colonial America. Although he states that "very little is known about them" (1982a:269), he believes their primary function was as cloth marks. He suggests that lead seals may also have served to mark or seal packages of general merchandise.

Calver and Bolton (1950) attribute a different purpose to lead seals. Although they regard lead seals as "direct descendants" (1950:264) of cloth seals, they claim lead seals of the Colonial period served as cloth marks only in "rare instances" (1950:266).

Two comprehensive studies of lead seals, one British (Endrei and Egan 1982) and one French (Sabatier 1908), further suggest that at least some specific types of British and French seals in North America functioned as cloth marks; although both allow for the possibility of their use as bale seals.

Because so few studies of lead seals have been done, and because the studies disagree about the function of seals, further study is warranted. Specific questions to be addressed in this study are (a) are these artifacts cloth marks, bale seals, or both; and (b) can any of the marks on them be identified to aid in a more detailed and specific explanation of their function(s)?
Four sources of information are used for this study:

(1) seventeenth- and eighteenth-century documents and more recent scholarship on the subjects of cloth production, lead seals, and the fur trade; (2) references to lead seals in site reports; (3) cloth imprints present on some of the seals; and (4) archaeological data recovered from Fort Michilimackinac.

Documentary Sources

A literature search was conducted to find research which touched upon the subjects of lead seals; the fur trade and fur traders; French and British cloth manufacture and export; and the middleman merchants of Montreal, Quebec, and New York State. The documentary search was conducted for three reasons: (1) to provide information on the mechanism of international trade during the eighteenth century; (2) to search for any mention of lead seals and their use; and (3) to search for words or names which correspond to those found on the seals.

Site Reports

Site reports for seventeenth- and eighteenth-century sites were examined for two reasons. The first was to locate more lead seal specimens and thus increase the possibility that identifiable seal markings would be found. The second was to discover which types of sites have produced lead seals and, within those sites, in what contexts (e.g., domestic vs. commercial structures).
Cloth Imprint Analysis

Analysis of cloth imprints was prompted by a statement made by Egan (Endrei and Egan 1982:64) regarding the possibility of discerning the weave and thread count of the cloth to which a seal had been attached through examination of the remaining impression: "The nature of the textile to which a seal was fixed can in a few cases be established from the information given on the stamps, combined with that from the imprint between the lobes."

This phenomenon may indicate the function of the seals. If these imprints were produced by cloth of a fine quality, this would suggest use as cloth marks. If the imprints were produced by a heavy, coarse cloth, this would suggest instead an association with bales, because historical documents indicate that some kind of heavy cloth was used to wrap them. For example, an invoice for merchandise shipped by a Montreal merchant in 1778 (Kay and Kay 1778) lists "baling linen" and "packing linen" among the expenses.

Seals from Michilimackinac with cloth imprints were photographed on a light table with a standard 35 mm camera and macro lens. The seals were lit obliquely to emphasize surface detail. Images were blown up to approximately three times their actual size for black-and-white prints. These prints were then sent to a specialist for identification (Figure 9).

Unfortunately, cloth imprint analysis did not provide any firm evidence for the seals' function. The specialist consulted did not wish to have his tentative analysis of the imprints quoted. A
probable reason for the lack of success in this research is the difficulty of obtaining good photographs of the imprints, some of which are very faint and unclear.

Quantitative Analysis of Lead Seals From Fort Michilimackinac

Several aspects of the site of Fort Michilimackinac and its excavation suggested quantitative analysis of lead seals might be fruitful. Among them are the settlement pattern of the fort and its evolution, the existence of historical documents noting the location and purpose of structures, the meticulous nature of excavation and recordkeeping at the site, and the prior examples of use of quantitative methods to analyze archaeological data recovered there.
The results of these analyses will be presented in the final chapter of this report, following general discussion of the fur trade.
CHAPTER III

THE ROLE OF FORT MICHILIMACKINAC
IN THE FUR TRADE OF NEW FRANCE

Whether used to mark bales of trade goods or individual pieces of cloth, lead seals were unquestionably associated with the fur trade in the western Great Lakes, where Fort Michilimackinac (1715-1781) was a focal point. The eighteenth-century fur trade at Michilimackinac is difficult to comprehend without an understanding of the general history of French imperialism in New France, the colony which once encompassed the St. Lawrence River Valley, Upper Great Lakes, and Middle Mississippi River Valley. The primary economic concern of the French in New France throughout the seventeenth and eighteenth centuries was the fur trade. Trading began early in the sixteenth century when Europeans on commercial fishing expeditions from France to the Gulf of St. Lawrence and the St. Lawrence River met groups of natives and bartered with them for furs. Unlike those of later periods, pelts traded were primarily "fancy furs" which were valued by the Europeans for their beauty and warmth (Innis 1962:9-12).

Early in the seventeenth century the wearing of felt hats made from beaver fur became popular in Europe. The fashion grew so rapidly that in 1638 Charles I ordered a tax on beaver hats, noting their "increasing vogue" (Lawson 1972:29). Thus an important market for beaver pelts was opened. At the same time the aboriginal farmers
of the St. Lawrence River Valley were forcibly evicted by hunter-gatherer groups, among them the Algonquins and Montagnais, who possessed both a knowledge of methods of capturing beaver and a desire for European goods (Innis 1962:12, 22).

At the beginning of the seventeenth century a pattern emerged whereby French traders exchanged European goods with natives who either hunted beaver or acted as middlemen for other groups of natives who traded pelts. During the first half of the century, the French dealt primarily with the Hurons, who traded for pelts north of the St. Lawrence and brought them south to French settlements via the Ottawa River. This arrangement ended at midcentury when the Iroquois attacked the Hurons, destroying their villages and forcing them to relocate farther west in the Upper Great Lakes (Stone and Chaput 1978:602).

The loss of the Hurons as middlemen forced the French to travel inland in search of other native groups who could supply them with beaver pelts. Although French exploration of the Upper Great Lakes had begun as early as 1622, with the expedition of Etienne Brûlé, little trading activity had taken place there (Stone and Chaput 1978:602). After 1650, several military posts and missions were established by the French throughout the Upper Great Lakes.

The first French settlement at the Straits of Mackinac was a mission established in 1671 by Father Jacques Marquette in what is now St. Ignace, Michigan. Within a few years this mission was strengthened by the presence of thirty soldiers, and in 1689 Fort
de Buade was built nearby to accommodate them (Stone 1974:6). Thus the French gained control at Mackinac.

The French considered the Straits of Mackinac important for several reasons. The first was the value of the fur trade itself as a source of revenue for the colonial government, and as a means for establishing alliances with natives whose military strength was needed against the British and their native allies. Because of its location between Lake Michigan and Lake Huron, and its proximity to the St. Mary's River which flows from Lake Superior into Lake Huron, the Straits area was a natural place where trade goods and furs could be exchanged.

Another reason for the importance of a settlement at the Straits of Mackinac was the need to respond to the threat of the Hudson's Bay Company which was formed in 1670. British traders of the Hudson's Bay Company drew many natives who formerly had traded with the French to their posts on the shores of Hudson's Bay because British goods were attractive to the natives. British traders were able to transport trade goods to their posts directly from the Atlantic in ocean-going vessels, thus making them less expensive than canoe-transported French goods (Wheeler, Kenyon, Woolworth, and Birk 1975:1-3). The French reacted to this threat by sending trading expeditions into the area north of Lake Superior to trade with natives who were traveling toward Hudson's Bay Company posts. A post at the Straits of Mackinac was necessary to supply the fur trade north of Lake Superior.

And finally, the government of New France was aware that the British coveted the furs which could be obtained at Mackinac. In
1686 a group of British merchants from Albany had successfully traded with the natives there. A second party of British traders who attempted to return to Mackinac was captured by the French (Johnson 1919:18–19).

But the success of French traders in New France contributed to their own undoing by the end of the century. A rising volume of pelts actually resulted in a surplus which the French hat-making industry could not absorb (Innis 1962:67). By 1696, in an attempt to reduce the number of furs traded, the French government ordered all the western posts closed. Protests softened the order somewhat, and certain posts, among them Michilimackinac, remained open. Fur trading at these posts, however, was forbidden (Rich 1967:66). Despite the fact that the post at Mackinac remained open, it did so only a short while, for it too was abandoned late in the 1690s. A southward migration of the local Ottawas and Hurons to the post established by Cadillac in 1701 at Detroit caused the abandonment of the mission at St. Ignace as well (Stone 1974:6–7; Stone and Chaput 1978:604).

The terms of the Treaty of Utrecht, signed in 1713 by Great Britain and France at the close of Queen Anne's War, made it advantageous once again for France to maintain military and trading posts in New France. The treaty ended French claims to trade at Hudson's Bay, forcing a renewal of French strategy of establishing posts at locations upriver from the Bay where furs could be intercepted (Eccles 1983:346–348). The treaty also opened the western fur trade to the British. British trade goods were highly regarded by the
natives because of high quality and low prices in comparison to French goods (Stone and Chaput 1978:604). The French responded by establishing trading posts in the territories of all native groups with whom British traders could possibly come in contact (Eccles 1983:349). An economic reason for the establishment of new fur trade posts was the revived demand for beaver pelts in France after 1714, when it was discovered that while in storage many of the surplus pelts had been destroyed by vermin (Eccles 1972:119).

Mackinac was recognized as an important trading area even before the official reestablishment of the post. In a letter written by M. de Clairambault d'Aigremont to M. de Pontchartrain in 1710, he states that "if the articles required by the Upper Nations be not sent to Michilimackinac, they will go in search of them to the English at Hudson's Bay" (Innis 1962:59). The earliest stockaded enclosure at Michilimackinac was built by Captain de Lignery's troops about 1715. A small garrison was stationed there to protect the traders, whose numbers grew between the time the fort was built and its surrender to the British in 1761 (Figure 10; Stone 1974:7, 8). The trade at Michilimackinac, unlike that at the subsidized "King's Posts" at Frontenac, Detroit, and Niagara, and at leased posts at Green Bay and others north and west of Sault Ste. Marie, was open to anyone who purchased a trade license (Eccles 1972:120; Igartua 1974:244).

The British sought to increase trade with the western natives under provisions of the Treaty of Utrecht. The establishment of Fort Oswego in western New York in 1722 greatly enhanced the ability of
Figure 10. Drawing by Victor Hogg of Fort Michilimackinac As It Appeared Between 1744 and c. 1764.

British traders to move goods from Albany into the Upper Great Lakes by way of Lake Ontario (Innis 1962:86). The increase in British trade to the interior, as well as territorial disputes with France in the Ohio Valley, created tensions which once again escalated into war in 1744 (Eccles 1983:356-358).

In 1760, at the close of the French and Indian War, France surrendered control of its posts in the Upper Great Lakes to the British. Under the terms of the treaty French residents at Michilimackinac were allowed to retain their personal property and continue trading. Michilimackinac was designated a "licensed post" where licensed traders could receive furs. However, traders were restricted from going among the natives to trade (Stone 1974:9, 10), and from 1760 onward the goods traded were predominantly British manufactures.

Fort Michilimackinac and other British posts in the west were garrisoned by twenty battalions of troops. The British feared native uprisings for a number of reasons. These included the discontinuation of presents by the British, unfriendly traders, native discontent encouraged by the French, and distrust generally of British settlers (Russell 1939:17-26). By 1763, the feared uprising occurred, led by Pontiac, a chief of the Ottawas. Michilimackinac was captured and several other posts were attacked (Stone and Chaput 1978:606). The British regarded the fur trade as economically valuable to the mother country, and realized that European settlement in the Northwest would adversely affect it. Thus London's response to Pontiac's Rebellion was to issue the Proclamation of 1763, which barred settlement west of the Allegheny Mountains. The western posts were to
remain as fur trading centers, and their troops were to attempt to enforce the Proclamation and trade restrictions (Russell 1939:48-51).

Michilimackinac remained a major center for British fur trade and military activities until 1779-1780. At that time the commandant, fearing American and native attack, ordered the garrison to dismantle many of its buildings and move them to nearby Mackinac Island. The remaining structures at Michilimackinac on the mainland were burned in 1781. The resident traders found it necessary to move as well. British troops and traders remained at Fort Mackinac on Mackinac Island until 1796, when the area was finally turned over to the Americans (Russell 1939:13-14). From the foregoing summary it is clear that the major themes in the history of Fort Michilimackinac concern French and British rivalry for hegemony over New France in the seventeenth and eighteenth centuries.
CHAPTER IV

ORGANIZATION OF THE FUR TRADE IN NEW FRANCE

During the seventeenth century business systems evolved to obtain trade goods from Europe and distribute them to individual traders in the New World. These systems encompassed the individual trader, the Montreal merchant, and the European supplier, and quickly became the object of governmental regulation, remaining so throughout the colonial period.

The majority of eighteenth-century trade goods were European manufactures, with few having been made in North America. Native French-Canadian manufactures included decorative items of Catlinite and scrap sheet metal, German silver ornaments, and possibly some cloth. Dechêne (1974:151, 152) indicates that cloth was produced in New France in the seventeenth century but that domestically produced fabrics comprised five percent or less of all cloth sold at Montreal. It is therefore reasonable to assume that locally manufactured cloth was never significant in the Great Lakes fur trade. Through time the range of goods traded to the natives remained fairly constant. Basic trade items in 1790 are essentially the same as those which were in demand more than a century earlier. Standard trade items in 1790 were "a gun, a hatchet, an ice chisel, Brazil tobacco, knives, files, flints, powder and shot, a powder horn, a bayonet, a kettle, cloth, beads and the like" (Innis 1962:129).
French Period (c. 1650-1761)

As early as the seventeenth century the French government in Versailles realized the potential of the fur trade as a source of revenue and enacted regulations which rendered it so. By midcentury the internal North American trade whereby furs were gathered and the external marketing of furs in France were both controlled by Versailles. Control was accomplished through the sale of licenses to traders or to their merchant backers. The first licenses were sold in 1654 and licensing of traders continued, with occasional interruption, throughout the period of French hegemony (Lunn 1942:119-121). After Queen Anne's War (1713) and before final collapse of New France in 1761, trade at the frontier posts was also regulated. At Michilimackinac trade was open to all licensed traders (Eccles 1972:120). The majority of frontier trading posts were to be leased for three-year periods to merchants who bid for the exclusive right to trade at them. The colonial administration in Canada found this system to be unsatisfactory, however, and the right to regulate trade at these posts was soon given to individual commandants (Eccles 1983:345). A change in policy once again took place in 1742, and trading at frontier posts was again leased to merchants (Lunn 1942:122). The "King's Posts" at Niagara, Frontenac, and Detroit were not operated under a licensing system. Trade goods at those posts were sold by government representatives at costs below market value in order to retain the allegiance of the natives (Eccles 1972:120).
As early as the seventeenth century the government at Versailles controlled external trade by authorizing a monopoly to which all traders were required to deliver their pelts. The monopoly bought the pelts and marketed them in France. The bankruptcy of several fur monopolies during the seventeenth and early eighteenth centuries suggests that the fur market in France was not especially profitable (Lunn 1942:136). Indeed it was not until 1717, with the formation of the Compagnie d'Occident (later known as the Compagnie des Indies) that any monopoly made a profit. As a result, this organization retained its monopoly status until 1760 and thus played a major role in the fur trade at Michilimackinac (Lunn 1942:136-151).

The French colonial government was not entirely successful in enforcing its trade regulations. Unlicensed traders, or coureurs-de-bois, were active throughout the period of French rule. Unlicensed traders were a problem not only because they deprived the government of revenue but because they contributed to the shortage of agricultural laborers in the colony. Threats of severe punishment, including fines, whippings, and forced service on the galleys, were ineffective because so few unlicensed traders could be caught (Lunn 1942:133-135).

The fur trade was carried out through the combined cooperation of local traders, Montreal merchants, and European suppliers. Licensed local traders, known as voyageurs, performed the actual trading with the natives. Voyageurs were either hired by or were the business partners of Montreal merchants. In cases where a voyageur functioned as a business partner, he was not allowed to
trade on his own behalf but rather traded for the partnership and divided the profits with the wholesaler after furs were sold (Igartua 1974:141).

It would have been nearly impossible for an individual to set himself up as a voyageur without the involvement of a Montreal merchant. This is true because of the expense involved in outfitting a trading expedition and interest charges owed to manufacturers which accumulated on trade goods (Innis 1962:58). Montreal merchants were of necessity middlemen.

Size of businesses varied. Large importers ordered goods directly from France. Smaller businessmen who could not afford to deal directly with French exporters could obtain merchandise from Montreal wholesalers or Quebec importers (Igartua 1974:132, 133). Obtaining goods through Quebec probably was a common practice. As early as 1685 the Baron de Lahontan said, "Almost all the Merchants of that City [Montreal] act only on the behalf of the Quebec Merchants, whose factors they are" (Innis 1962:58). Another means by which certain trade goods were imported was through export monopolies. The monopolies began to import some trade goods early in the eighteenth century. In 1722 the Compagnie des Indes began to import regular shipments of cloth and occasional shipments of gunpowder (Lunn 1942:148, 149).

In Europe, trade goods were handled by export firms located in major port cities. Orders sent from Montreal and Quebec specified the type, quantity, quality, and occasionally the price of the desired goods. For example, an order for goods appears among
business records of the merchant Etienne Auge; in it he asks for such items as "1 piece Diablement fort scarlatte" and "4 pt. Cotton . . . bleu x blond beau x fort" (Public Archives of Canada 1971). An exporting firm purchased merchandise from various manufacturers, packed it, insured it, and shipped it to Quebec. If the merchandise was to go to a Montreal merchant, it was loaded onto smaller boats and taken up the St. Lawrence River to Montreal (Miquelon 1978:51, 73).

Not all trade goods were obtained by legal means. A lively illegal trade was carried on with the British at Albany throughout the French period. French traders found two major advantages of trading with the British, namely the higher prices paid for their pelts when compared to the prices paid at Montreal, and the opportunity to obtain British-made trade goods which were generally regarded as superior to those of the French (Innis 1962:78-80).

English woolens were highly prized by American Indians, unlike the scarlet and blue cloths of France. In fact, as early as 1713 French textile manufacturers attempted to imitate strouds (the popular scarlet woolen cloth manufactured in England) with écarlatines. This effort continued intermittently for years but a suitable imitation could not be produced at a comparable price. Strouds therefore formed the bulk of goods smuggled through Albany (Lunn 1942:157-163).
British Period (1761-1796)

British conquest of North America brought change to the fur trade. The French fur export monopoly was eliminated and new business systems evolved. British trade policy was largely responsible for the changes. Under new regulations the trade was opened to anyone who purchased a license, which could be obtained from provincial governors, Indian agents, and military officers. Licenses were issued for specific posts or territories and the holder of a license was required to trade in a designated area (Phillips 1961:551).

Licenses were first issued in 1761 (Innis 1962:170), a time when the British formulated a "new Indian policy," a plan to preserve a large area of land in the Great Lakes region specifically for the fur trade by prohibiting settlement there (Rich 1967:132). The British, by issuing the Proclamation of 1763, renewed their efforts to keep settlers out of the region. Under the terms of the Proclamation, the Great Lakes region was placed in a "Northern District" administered by Sir William Johnson; no settlement was to be allowed in the region. Pontiac's Rebellion of 1763, the natives' response to illegal settlement there, demonstrated the failure of a policy which tried to prevent settlement in native hunting areas (Innis 1962:170).

Elimination of the beaver export monopoly and the opening of trade to all who held licenses created new business opportunities for the British, but it created serious difficulties for the French-Canadian traders of Montreal. The previous division of labor between importers, exporters, and voyageurs broke down rapidly after the
British conquest because individual British traders came to control all aspects of the business. Scores of British, a few American, and even some European traders arrived in Montreal hoping to make fortunes in the trade. The French-Canadians were faced with a situation of ruthless business competition. Large quantities of inexpensive British goods were brought onto the market. Those Canadians whose businesses were marginal before the conquest stood little chance of survival in the increasingly competitive climate, and many faced bankruptcy. Some survived by obtaining British merchants as financial backers (Igartua 1974:246-256), while others transferred their trading activities south to the old Louisiana Territory, obtaining trade goods from French merchants in New Orleans (Rich 1967:134).

During the first fifteen years of British rule the fur trade remained stable. But by the mid-1770s difficulties with the American rebellion disrupted trade. Once the War of Independence began, trade goods became scarce because shipments passed through to the upper lakes only with difficulty. Moreover, traders realized they would have to extend their operations further north and west into Canada in order to maintain profits because settlement and intense hunting had decreased beaver returns from the Great Lakes region. These two conditions led several wealthy Montreal merchants to form companies in order to pool their resources. The best known and largest of these was the North West Company, organized in 1779 (Rich 1967:172). Through such organization the British retained control of the fur trade in the Old Northwest until 1796. After 1781, Mackinac Island
became the center for British fur trading (Stone and Chaput 1978: 607).
CHAPTER V

RESULTS OF ANALYSIS

The fur trade forms a complex background to this study. Trade goods were manufactured at many locations in England and France, imported into North America by several middleman merchants, and distributed to the natives by competing British and French traders.

A question addressed in this study is what is the function lead seals served in the fur trade? Another question which this study attempts to answer is what can be said about the place of origin of and means by which these artifacts arrived at a particular site? The lines of evidence examined provided a surprising amount of data with which one can begin to answer these questions. The documentary record proved to be an especially rich source of data.

Documentary Sources

In order to comprehend the use of lead seals as cloth marks it is necessary to have some knowledge of cloth production in England and France, the means of regulating cloth production and trade in these two countries, and of the process by which cloth was imported into the North American colonies.

During the period covered by this study cloth production did not take place in factories but rather under a "domestic system" whereby workers owned their own weaving equipment but not the raw materials to make the cloth (Lipson 1965:170). This is important because cloth
was not produced in a standardized environment, and cloth buyers needed some reliable method of judging its quality. Lead seals served as indicators of quality. Cloth, especially woolen cloth, was a major item in the economies of England and France. Lead seals also served to indicate the cloth had been inspected and taxed by government officials.

In both England and France certain towns and regions specialized in cloth production. For example, Wakefield in Yorkshire is mentioned as a town whose "whole profit standeth by coarse drapery" (Lipson 1965:225), and the Gloucestershire town of Stroud was the source of the famous red strouds of cloth (1965:233). In France, Rouen and the region around it was the source of trade blankets called canadasts (Miquelon 1978:62). Montauban produced molletons, analogous to English strouds. Other towns such as Orleans and Montauban served as entrepôts to which cloth from small towns was sent to be exported to other regions or countries (Miquelon 1978:62, 66).

Several researchers have commented on the cloth-marking function of lead seals. Among them are Cotter (1958:191); Egan (1978:177-179); Endrei and Egan (1982); Lipson (1965:24, 231); Noël Hume (1982a:269-270); Sabatier (1908); Weinstein (1981), Keeper of the Tudor and Stuart Departments of the Museum of London, England; and Westerfield (1968:293). Their conclusions are based upon one or more of the following: (a) historical records of rules and regulations associated with cloth sealing and other records which mention sealing; (b) analysis of the marks on existing seals; (c) illustrations of
seals in use (Figure 11); (d) the physical evidence of seals still attached to cloth; (e) other indirect evidence.

Studies of seals by Endrei and Egan (1982) and Sabatier (1908) provide a wealth of data on the use of lead seals, comprising a range of cloth-marking functions. Endrei and Egan (1982:49-51) trace the origins of the use of lead seals (as customs tags) to the Byzantine empire. Between the ninth and eleventh centuries seals were attached as trademarks to Byzantine luxury cloths sold in Europe, and by the twelfth or thirteenth century lead seals were put on cloths produced elsewhere in Europe. Lead sealing spread "from the two main centers from which textiles were exported, Flanders and Northern Italy".

Figure 11. European Cloth Merchants With Their Wares. Note the Seals Shown Hanging From the Ends of the Cloths.

(1982:51). By 1317 seals were put on cloths in France. In that year the practice is mentioned in "guild statutes of the clothiers of Béziers and Carcassone" (1982:52).

The date of the first use of lead cloth seals in England is not known but regulation of the cloth industry "seems to have begun with the Assize of Measures of circa 1197" (Endrei and Egan 1982:54). The office of alnager was established in the thirteenth century. Alnagers were required to enforce the current assize, which specified a standard width and level of quality, and to see that a tax was paid for each cloth. Alnagers were present in port cities and at trading fairs and may also have worked in regions where cloth was produced (1982:55).

Silk was the only kind of cloth which may not have been sealed in England. Knitted stockings were required to be sealed (Endrei and Egan 1982:55). (Although there are no known English stocking seals in the collection from Michilimackinac, there are several French seals bearing the word "bas," meaning stockings or hose.) Alnage seals were not the only lead seals which could be fixed to a cloth:

A bewildering series of possible searches and sealings at different stages of manufacture and after finishing, carried out by local corporate organizations (either guilds or companies concerned with cloth production, or the municipal authorities) developed during the 16th century and later . . . a cloth might be searched and sealed after weaving, after fulling and shearing, and . . . after dyeing. (1982:56)

It would seem likely that the clothier for whom the piece was manufactured would add a seal with his name or initials, but this
seems not always to have been the case. Rather, many clothiers had their trademarks woven into the cloth (1982:56).

The seals used by alnagers are analogous to Stone's Series A (Figures 1 and 2). Some alnage seals are two-lobed but the standard alnage seal used from the early seventeenth century on is four lobed. The inner two lobes are marked with a "royal device" and the outer lobes are stamped with "personal marks [of the alnager] and the word 'searched', or some other device" (Endrei and Egan 1982:63).

Seals used for other purposes are generally one lobed (Series C) or two lobed (Series A). Single-lobed seals appear to have been used by dyers at times. Some are marked with a grain tree, "a mythical plant once thought to be the source of a red dye" (Endrei and Egan 1982:59-60). Two-lobed seals are the type most often found. They were used even into the nineteenth century, although after the first quarter of the eighteenth century they "were of little importance except to traders" (1982:60).

The alnage system expired in 1724 and the overseeing of cloth quality was taken over by "searchers" in Yorkshire, the region where the majority of England's cloth was produced in later years. Seals bearing the stamped word "searched" are not necessarily related to the post-1724 searchers, since examples so marked may date back to the sixteenth century (Endrei and Egan 1982:55, 60-63).

Increasing volume of cloth production and industrial standardization had made the lead sealing process obsolete by the nineteenth century. The law requiring use of lead seals was revoked in 1889 but
by then lead sealing was "little more than a nostalgic indulgence" (Endrei and Egan 1982:54-63).

Sabatier's research (1908) on French lead seals involved looking at ordinances and professional statutes by which their use was regulated. He discovered a wide array of uses for the seals which will be summarized briefly here. In addition, he reports some chronological changes in seals which may be helpful in dating some of them.

Sabatier (1908:8) notes seals have been referred to as "'customs seals', 'Custom's officers seals', [and] 'Merchant's seals'." He believes those terms are faulty because the seals can be further subdivided: "The multiplicity . . . of circumstances in which the state, the towns, and the corporations made use of these marks, renders difficult the choice of a general name" (1908:8). He groups seals into three categories: (1) commercial seals, (2) fiscal seals, and (3) special seals. The cloth seals he describes fall under the first two categories.

Commercial seals occur in four varieties: (1) individual seals, (2) corporate seals, (3) seals of the bureaux de controle, and (4) seals of the bureaux forains (Sabatier 1908:10, 123). Many cloth-related industries were required by law to use seals, among them drapers, fullers, dyers, cloth dressers, linen-printers, lace-makers, and hosiery-makers (Sabatier 1908:9-10).

Individual seals were not put on cloths by the original owner or manufacturer but by cloth merchants who often bought undyed cloths and had them dyed and finished under their supervision. Because these merchants could not weave their names into the cloths they made
use of lead seals to identify their cloths during the finishing process. The seal commonly used for this purpose bears a personal signature or mark "nearly always in the form of one of the curious signatures of the heart and four cipher" (Sabatier 1908:116-117; see Figure 12) on the obverse and scratched numbers on the reverse.

Corporate seals were attached by "master guards or jurors" of local cloth-making guilds after verification of the quality of fabrication, dyeing, and dressing of the cloth (Sabatier 1908:117). These can be distinguished from other kinds of seals by the fact that they are plateau (Series A) seals. Sabatier is not clear about how these seals were marked. They may have had the royal arms on the obverse and city arms on the reverse (Figures 13 and 14), or they may have had an individual manufacturer's name on the obverse and city arms on the reverse (1908:18, 116).

Figure 12. Series A Seal Showing a Partial "Merchant's Mark."

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Figure 13. Obverse Face of a Seal Used Either by Cloth Guild Inspectors or by Officials of a Bureau Exterieur.

Figure 14. Reverse of the Seal in Figure 13.
Seals of the bureaux de controle and bureaux forains were applied to cloths sent from their town of manufacture to be sold elsewhere. Seals of the bureaux forains were applied in towns where such cloth was to be sold, "after the inspection was made by the Masters and Keepers in the fairs, halls, and city offices and rooms where they were sent or taken by the Foreign Merchants or Manufacturers" (Sabatier 1908:123). The bureaux de controle were established by an ordinance of 1728 to fill a void in the cloth inspection process. Previous to that time cloths sent to a town too small to have its own clothmakers or cloth merchants could not be inspected on arrival. The 1728 legislation mandated that cloths sent to such destinations be marked before sending with a sceau de controle (1908:130-131). Sabatier does not describe the seals of the bureaux forains and bureaux de controle specifically, but he illustrates two Series A seals, each with the town arms on one face (1908:121, 130). He notes seals affixed by the bureaux de controle often bore the words "CONTROLLE DE ---" (1908:131; see Figures 15 and 16).

In France, as in England, lead seals were used to signify that a tax had been paid on the cloths which bore them. In France, however, fiscal seals could be placed on a cloth by more than one governmental body. Between the time of its manufacture and final sale, a cloth might pass through the jurisdiction of several tax-collecting bodies, because "the fiscal matters of the ancient regime were dissociated in a multitude of disparate and independent administrations" (Sabatier 1908:9). Governmental bureaus oversaw import and
Figure 15. Series A Sceau de Controle. On This Seal Appears the Partial Inscription "(CONT)ROLL DE FONTENAY."

Figure 16. Series A Sceau de Controle From the Town of Mazamet, France.
export duties, sales taxes, and revenues from trade fermes (under the ferme system, a tax farmer "furnished revenue to the state in exchange for the rights to collect tribute and taxes locally and to dispose of them at a profit" [Wolf 1982:371]).

The Royal Customs (douane) is thought by Sabatier to have had its origins in the administration mandated in "Lettres-patentes" of 1483 issued by Louis XI on the subject of the importation of Italian silks. The customs may have been under the municipal control of the city of Lyons until approximately 1540, the date of the first known customs seals. Seals of the Royal Customs are Series C seals and bear the royal arms on the obverse face and city arms of Lyons on the reverse face (Sabatier 1908:15-16, 18; see Figure 17).

The edict issued by Francis I in 1540 which explicitly created the Royal Customs also made provision for the city of Lyons, a center
of silk manufacture, to oversee the sealing of its own cloths. It is not clear whether the city was allowed to collect a tax on the cloths or was merely certifying their place of origin. The seals used for this purpose, "consular" seals, have the arms of Lyon on both sides, but on one side the arms are modified to include the words "LYON," "LION," "LVGDNI," or "LVGDONI." These are "tunnel" (Series C) seals, attached to the cloth by a white string which "pierces and embraces the selvedge and a small part of the cloth" (Sabatier 1908:19, 20).

**Bureaux exterieurs** were established at many locations at the beginning of the seventeenth century, and by the end of the century there were 167 of these offices located between Picardy and the Mediterranean. Silk was the only imported cloth which had to be sent to Lyon after the establishment of these adjunct customs offices. Other cloths were inspected at the bureaux exterieurs. Like other customs seals those of the bureaux exterieurs are Series C type, with city arms on one face (Sabatier 1908:22, 23) and possibly the Royal Arms on the other (Figures 13 and 14).

Another type of fiscal seal for cloth briefly mentioned by Sabatier is that issued by the Bureaux du Scel de la Draperie. The bureaux were offices of a tax ferme and were located in cloth manufacturing towns. Their inspectors were empowered to seal cloths. This office seems to correspond more closely to the English alnage than any other fiscal office of the French government. Some of the seals used by its officers are of the Series A type and they are
marked with the amount of tax paid on the cloth: 3s for three sols; 2s for two sols; etc. (Sabatier 1908:124-126).

One further category of French cloth seals discussed by Sabatier (1908:133) is that used by the Compagnie des Indes, a name used by four successive "grand associations of maritime trade." Seals of the last three "associations" or companies are frequently found. The third Compagnie, founded by John Law, existed between 1719 and 1769. The majority of Compagnie des Indes seals found at Michilimackinac were probably issued by this Compagnie. A cloth seal of the 1719-1769 Compagnie illustrated in Sabatier's paper is identical to two seals found at Michilimackinac. Like other Series C seals, it was attached to cloth by a string piercing the selvedge. On the obverse face appear the arms of the Compagnie and the motto "FLOREBO QUO FERAR." On the reverse is a complex heraldic design which includes representations of the Himalayas, the Ganges personified, the Equator, and the sky of France (1908:133-137; see Figures 18 and 19).

Many lead seals bear marks which can be related to the cloth trade. A type of mark frequently found scratched into lead seals consists of two numbers one above the other and separated by a horizontal line. One of the numbers commonly has three or four digits, and the other is usually a two-digit number followed by a fraction (Figure 20).

There is no question that at least some of the seals marked in this manner were attached to cloths. Weinstein (personal communication, 1981) describes seals "from the 1840s on red and black felted
Figure 18. Obverse Face of a Series C Cloth Seal Used by the Compagnie des Indes.

Figure 19. Reverse of the Seal in Figure 18.
Figure 20. Series A Cloth Seal Showing Typical Configuration of Scratched Numbers Separated by a Horizontal Line.

fabrics," several of which "have scratched numbers." The reverse face of a seal found attached to "duffel or blanket material" bears the scratched numbers "3239"(?) over "21 1/2" (Birk, personal communication, 1984). Another eighteenth-century seal, on which appears the name of an important trader in woolens, has the typical configuration of scratched numbers on the reverse, as does yet another marked with the "golden fleece," one of the symbols used by the English Drapers, Mercers, and Haberdashers (Calver and Bolton 1950:270; Heal 1968).

A difference of opinion exists among scholars regarding the meaning of these numbers. Weinstein (personal communication, 1981) believes the smaller of the two numbers may indicate "the length of the cloth, in yards" and the larger number may be a "cross reference..."
to the searcher's book." Cotter (1958:191), referring to seals found at seventeenth-century sites, states that "the numbers on the clips attested the quality and length of the cloth being shipped." Hanson and Ping Hsu (1975:150), discussing a lead seal with the number "25" molded in the lower half and "792" or "292" scratched in the upper half, cite a letter dated 1777 in which mention is made of two bales of cloth sent from Boston for the Indians and numbered 172 and 173. Egan (1978:178) has been able to relate some of the scratched numbers to "statutory lengths and weights for different kinds of cloth."

The smaller of the two numbers may not refer to the number of yards the cloth measured. Varying standards of cloth measurement were in use during the eighteenth century, even within the borders and colonies of a single country. In England, for example, the yard was not the only standard measurement. The Draper's Company of London used a measure called the "Draper's Ell". It is variously denominated in their books, as 'the Yard', 'the Company's Standard', and other names" (Herbert 1968:427). "Yards, ells, godes, and other measures" were also used (1968:496). Quimby (1966:65) defines an ell as "a yard plus 9 inches." Standards of measurement in use by the French at the same time include the brasse, thought to be roughly equivalent to "the length of the fore-arm" (Malhiot 1910:216), the aune, and the verge (Moore 1975:32).

Seals bearing the word "PACKER" (Figure 21) would seem to be associated with bales of goods, but this is not necessarily the case. Two definitions of "packer" agree in characterizing the profession
as one involved in packing cloth for shipment (Egan, personal communication, 1985; Westerfield 1968:312), and a seal marked with the name "Robert Burchall" was issued by a company which packed "in addition to other things . . . woolen blankets for the firm of John Early and Son" (Birk 1975:81).

Other kinds of marks which tie lead seals specifically to the cloth trade are names of towns or regions where cloth is known to have been manufactured, names of cloth manufacturers, and other cloth-related terms. Numerous seals so marked have been found. Several seals from Michilimackinac come from the French town of Montauban, an entrepôt for cloth produced in southern France (Miquelon 1978:66). Mazamet, a town from which cloth was shipped to Montauban, is also
represented among the Michilimackinac seals (Miquelon 1978:66). The phrase "bas a deux fils," referring to stockings (Sabatier 1908:129), appears on several Michilimackinac seals, as do the names Lescure and Olier, owners of a factory "which, between 1727 and 1751, manufactured a vermilion cloth which was exported overseas" (Heldman, personal communication, 1983b). The word "écarlate" (scarlet cloth) is partially visible on a seal from Michilimackinac.

Four lines of indirect evidence point to a use as cloth marks for lead seals. First, historical documents indicate bales of goods bore painted marks for identification. Girling (1964:9), in discussing English merchant's marks, makes the statement "two main considerations determined the character of a mark." One was "it was necessary that it could be made quickly with a few strokes of a brush" (1964:9). Girling bases his discussion on "contemporary representations of bales and wood packs, with marks shown on them" (1964:18).

Further indirect evidence is provided by the fact that bales of goods imported into North America were opened upon arrival and their contents repacked. Alexander Henry, an important trader at Michilimackinac during the British period, undoubtedly speaks of a typical practice when he says, "[In Montreal] I assorted my goods, and hired Canadian interpreters and clerks, in whose care I was to send them into Lake Michigan" (Henry 1809/1966:46). An eighteenth-century account of the fur trade presented in Innis (1962:207) states "every package is, or should be, an assortment of different species of Merchandize." If lead seals were attached to bales of goods in
Europe, the possibility of which will be discussed shortly, then those seals would most likely have been removed in Quebec, Montreal, or another urban center through which trade goods were processed, and would not have accompanied the goods to frontier sites. North American fur traders may have attached seals to bales of mixed goods destined for the frontier. No evidence for this practice was uncovered during research for this thesis, however.

The size of bales of goods and the rough handling which they must have endured between European ports and their final destination form a third line of indirect evidence. The weight of a bale of assorted trade goods ranged from 90 to 100 pounds (Henry 1809/1966: 15), and it is likely that the means by which a bale was secured was stout. The small size of seals renders questionable their effectiveness in sealing, that is, protecting the contents from theft. With their small surface area, it is also unlikely that the seals could have effectively conveyed all the necessary marks of identification for a bale. Innis (1962:210) says, "Each piece was marked with the name of the owner, year of outfit, district, and weight of goods at Montreal." It is difficult to imagine all this information being conveyed on approximately nine square centimeters of lead.

The final piece of indirect evidence for seals having been cloth marks is the volume of cloth imported into North America during the Colonial period. A breakdown of all consumer goods exported from France to North America between 1680 and 1720 (Dechêne 1974:151) provides the following figures: cloths, linens, "haberdashery," 40%; blankets, 2%; garments of French and colonial manufacture, 11%;
non-cloth items, 47%. Eighty to ninety percent of the imported cloth was woolen. Kinds of cloth reported to have been traded to the Ottawas include those from Limbourg, Tarascon, Carcassonne, Montauban, and, less frequently, Poitou and Normandy (Dechêne 1974:152). Several kinds of clothing were sold to the natives, among them capots (hoods or bonnets), chemises (shirts), manches sauvages (hose or sleeves—unclear), and bas de traite (stockings) (1974:153). Business records of the Société du Canada, a French firm which was a major exporter of goods to North America, restate the importance of cloth as an import. The cargo of a single shipment from this company in 1742 included blankets and other woolens from Montauban worth 22,949 livres (Miquelon 1978:62). The Compagnie des Indes, mentioned earlier as having held the beaver export monopoly between 1717 and 1760, imported goods for the fur trade as well. The Compagnie imported large quantities of cloth (mostly English strouds) and gunpowder (Lunn 1974:148-149). Lunn's research (1942:162) reveals that "by the 1750's the company was supplying 1000 to 1200 pieces [of cloth] annually." The Compagnie may have attached its seal to each piece, as a form of advertisement, or it may have bought undyed, unfinished cloths, and attached seals to them to identify ownership during the finishing process.

Although most lead seals were used to mark cloth, documentary evidence suggests a small number of North American lead seals are true bale seals. Sabatier (1908) makes direct reference to bale seals and their function as customs marks and commercial packing seals. He does not discuss the use of commercial packing seals but
quotes a 1540 edict of Francis I which prescribes the use of customs seals on bales of goods. Customs seals were of the Royal type (Series C), and they were to be "attached to a white cord wrapped around the length and breadth of chests, bales, trunks" (1908:19). Lead seals were placed on products which came under the jurisdiction of various tax fermes such as salt and tobacco (1908:111-113). "Tunnel" seals (Series C) were the kind most likely to be used on bales (1908:11). Metal bale seals were used by the United East India Company until the last years of the eighteenth century (Girling 1964:110).

A few seals from Michilimackinac may be bale seals because they do not bear marks which would identify them as cloth seals. One such seal, a triangular Series C seal marked with the faintly visible letters "CORP" or "COMP," closely resembles a seal illustrated in Sabatier (1908:133) and described by him as a bale seal (Figure 22). Another seal in this category is marked "—THORP * THOMLINSON & TRECOTHICK" (Figure 23). Charles Apthorp, John Thomlinson, and Barlow Trecothick were members of an English firm which supplied goods to North America between 1763 and 1775. Apthorp was the Boston-based agent for Thomlinson and Trecothick (Sosin 1965:4-5). The names Thomlinson and Trecothick appear together on a memorial presented to the Lords Commissioners for Trade and Plantations in 1763 (British Public Records Office 1763). The memorial was signed by merchants important in the North American trade (Sosin 1965:21-22).

Another possible bale seal from Michilimackinac carries a stamped design of four or five men paddling a canoe; above the men's
Figure 22. Possible Bale Seal of the Compagnie des Indes.

Figure 23. Lead Seal Used by the Exporting Company of Thomlinson and Trecothick. It May Be a Bale Seal.
heads are two small stars and a pair of hearts pierced by an arrow (Figure 24). A single three or four-digit number, heavily carved into the lead, appears on the reverse. The association of canoes with the fur trade and the absence of the usual two numbers separated by a horizontal line is suggestive of a function as bale marks for seals of this kind.

The Hudson's Bay Company used lead seals on bales of goods or packs of furs. One example from Canada exhibits the company's motto, Pro Belle Cutem, on the obverse and the number "44" on the reverse (Forma 1971). A seal from a North West Company wintering post, marked "McF&Co LONDON," has been tentatively identified with the firm of McTavish, Fraser, and Company. This company was "the London-based
subsidiary agency and supply house of McTavish, Frobisher, & Company... one of the larger partner concerns of the NWC [North West Company]" (Birk n.d.).

Quantitative Analysis of Lead Seals From Fort Michilimackinac

Fort Michilimackinac Settlement Pattern

Descriptions of the settlement patterns of Fort Michilimackinac have been presented in previous archaeological reports for the site (Halchin 1985; Hauser 1982; Heldman 1977, 1978; Heldman and Grange 1981). Therefore only a brief outline is presented here. The original settlement at the site was established circa 1715 when military personnel acting under orders from the French colonial government built a small trading compound, now known to archaeologists as De Lignery's Fort (Heldman and Grange 1981:6). This small fort was described in 1720 by De Lignery as "a fort for the garrison, with two guardhouses and a 40-foot house" (Heldman and Grange 1981:17). This early fort had an associated mission, and a church ruin located outside the west curtain is that mission (Minutes of the Council of the Marine, February 26, 1717, cited in Heldman and Grange 1981:18).

Sometime during the 1730s the fort was rebuilt on the same location. The new fort was considerably larger than the old, encompassing an area three times greater. Heldman and Grange point out that the settlement pattern of the newly rebuilt fort was altered in
only minor respects during the remainder of the time during which the site was occupied.

A small expansion of the fort took place in 1744 when the French built a new palisade approximately eight feet out from the old palisade. The new palisade enclosed more space and added four bastions, one on each corner. The space between the outer and inner palisades was used as a sentry beat, or *chemin de ronde* (Heldman and Grange 1981:7, 8).

The last physical expansion of the fort, before its destruction in 1781, took place sometime between 1764 and 1765. By this time members of the British Army had taken possession of the fort but had experienced difficulty in finding sufficient room for troops and equipment. They had been prevented from seizing the homes of French residents by the Articles of Capitulation under which France surrendered at the end of the French and Indian war. The British thus needed and proceeded to obtain more interior area by expanding outward the north and south curtain walls of the fort, giving it the hexagonal plan which may be seen in the modern fort reconstruction at Michilimackinac Park. The British also constructed some buildings in existing open spaces within the fort, such as the parade ground, which they claimed as spoils of war. Another development after 1765 was the growth of a "suburb" or village of over 100 houses outside the palisade (Heldman and Grange 1981:8-10).
Historical Documents Concerning Fort Michilimackinac

Historical documents outline the same settlement pattern. There are four important maps of the fort, of which the most useful is the Lotbinière map drawn in 1749 (Figure 25). Michel Chartier de Lotbinière, a French engineer, used surveyor's instruments in creating his map (Gérin-Lajoie 1976:2), and it has been found to correspond very closely to excavated features at the site. While not engineering plans, three maps or sketches drawn during the British period provide some information about the location and function of structures. The Magra map dates to 1766 (Heldman 1977:5), the Crown Collection map probably between 1766 and 1769 (Heldman and Grange 1981:33), and the Nordberg map to 1769 (Heldman 1977:8). Important for this study is the evidence provided by these maps which shows that functional areas within the fort did not change greatly through time. The location of the church, for example, as is almost always the case for ecclesiastical property, never changed from the center of the west half of the fort, nor did that of the powder magazine, located in the southeast corner after the 1730s fort was built.

Archaeological Excavation at Fort Michilimackinac

Archaeological excavation has taken place annually at Michilimackinac since 1959. Approximately 40% of the fort was excavated between 1959 and 1969 by personnel associated with Michigan State University. The goal of the early years of excavation was to obtain data which would aid the Mackinac Island State Park Commission in
Figure 25. Lotbinière's 1749 Map of Fort Michilimackinac.

carrying out a reconstruction of the site for visitors (Stone 1974: xvii). Between 1970 and 1973, excavations were conducted in the "suburbs" or village east of the fort (Heldman and Grange 1981:46). The powder magazine was the object of investigations during the 1974 and 1975 seasons (Heldman and Grange 1981:4). Heldman, Director of Archaeology for the Mackinac Island State Park Commission, has directed all excavations at the fort since 1975. Projects conducted by Heldman include the excavation of House A and B of the Southeast rowhouse, House One of the South Southeast rowhouse (Heldman 1977, 1978), portions of the rue de la Babillarde (Heldman and Grange 1981), portions of the west palisade, a 10' x 10' square located between the west palisade and Ste. Anne's church, and House C of the Southeast rowhouse (Halchin 1985; Heldman 1986; Michilimackinac Field Notes 1981). The author participated in the 1982, 1983, and 1984 field seasons, during which portions of the west palisade and House C of the Southeast rowhouse were excavated. The seals used in this study are all-inclusive from 1959 onward.

Hypothesis Testing

Two hypotheses were tested using lead seal data. Hypothesis one states: There is a statistically significant relationship between the number of lead seals per unit and the type of structure which occupied the unit. If the chi-square test result indicates significant association between higher frequencies of seals and domestic/trade structures, use as cloth seals would be indicated. Conversely, significant association between higher frequencies of
seals and structures where little or no domestic activity is known to have taken place would point toward use as bale seals. Testing of this hypothesis was patterned on studies done previously of coins by Heldman (1980) and of Jesuit rings by Hauser (1982).

Hypothesis two states: There is a statistically significant relationship between the number of lead seals per unit and the percentages of tailoring items and trade items contained in the unit. If the seals are cloth seals they should be associated with greater-than-chance frequencies of tailoring items. If they are bale seals they should be associated with greater-than-chance frequencies of trade items.

An assumption enumerated by Heldman and Grange (1981:68), and seemingly verified by studies described in South (1979), provided a foundation for the quantitative analysis. The assumption is that a small item is not usually moved from the place where it is dropped. It remains where it has fallen, and gradually is covered by soil or other refuse. This assumption seems borne out in other studies. For example, O'Connell's study (cited in South 1979:218) of Australian aborigines indicates that only an object larger than nine centimeters is likely to be deliberately moved from where it is dropped. The assumption is invalid, of course, if the soil matrix containing the items is subsequently disturbed. To control for disturbance in the Michilimackinac data used in this study all soil deposits thought to result from the burning and razing of the fort in 1781, as well as from more recent disturbances, are excluded.
All seals of known provenience were plotted on an archaeological master map of the site (Figure 26) showing excavated units and architectural features as the first step in the analysis. Data from field notes, maps, and descriptions of structures at the site (Halchin 1985; Heldman and Grange 1981; Stone 1974) made it possible to assign each 10' x 10' excavation unit to a functional category, that is, "domestic," "trade," "domestic/trade," or "other." Units in which changes in function occurred over time were eliminated from analysis. A unit, for example, originally the site of a French trader's house (domestic/trade category), and later part of the British soldiers' barracks (domestic), was eliminated from analysis. Exceptions were made in cases where British period buildings were built on what had previously been open ground (other).

In testing the seals/structures hypothesis it was necessary to count certain units twice if they represented more than one function. For example, a unit in which half of the space was taken up by a trader's house and the other half was open space, the unit was counted twice, once in the domestic/trade category and once in the other category. A chi-square test was run on the resulting category frequencies to determine if statistically significant relationships existed between the seals and the structures. The chi-square test was chosen for two reasons. First, it is an appropriate test to use with data which can be classified but not ranked or counted (i.e., seals/no seals). Second, it is a general test which allows one to compare obtained frequencies with those that one would expect to obtain if the hypothesis were correct (Blalock 1979:15, 279).
Figure 26. Archaeological Master Map of Fort Michilimackinac
For the second set of tests (seals/tailoring items, seals/trade goods) functional categories of units were ignored. Each unit was assigned a number in sequence, and a 15% sample of 40 units was selected, using a random-number table (Blalock 1979:598). Field notes and maps for each sample unit were examined and soil deposits corresponding to the French and British occupation periods were selected for analysis. Frequencies of lead seals, tailoring items, and trade goods (Table 1) were counted for each deposit. These frequencies were totaled for the unit, and percentages of tailoring items and trade goods were calculated. Pearson's \( r \) test and a two-sample \( t \)-test of means were run on the data. These tests were chosen because each makes use of interval-level data and each makes it possible to relate a given variable (i.e., seals/no seals) to a second variable (Blalock 1979:223, 381).

The quantitative analysis of lead seal distribution data (Tables 2-4) did not provide strong evidence concerning the function of lead seals, although the result of the chi-square test suggests they were cloth marks. In neither the two-sample \( t \)-test of means nor the Pearson's \( r \) test (Blalock 1979), each performed on the seal/tailoring items and seal/trade items data, was the null hypothesis (of chance distribution, meaning no association) rejected. The tests failed to establish a statistically significant relationship between lead seals and other artifacts.

The chi-square test result indicates a statistically significant relationship between lead seals and areas of mixed domestic/trade activity (as contrasted to areas of trade activity only).
Table 1
Artifacts Classified as Tailoring and Trade Items

<table>
<thead>
<tr>
<th>Tailoring Items</th>
<th>Trade Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>buttons</td>
<td>bracelets</td>
</tr>
<tr>
<td>cloth fragments</td>
<td>brooches</td>
</tr>
<tr>
<td>hooks and eyes</td>
<td>catlinite items</td>
</tr>
<tr>
<td>iron needles</td>
<td>copper and brass bails, lugs, and kettles</td>
</tr>
<tr>
<td>sailmaker's needles</td>
<td>glass and silver pendants</td>
</tr>
<tr>
<td>scissors</td>
<td>gun parts</td>
</tr>
<tr>
<td>thimbles</td>
<td>iron projectile points</td>
</tr>
<tr>
<td></td>
<td>Jesuit or other rings</td>
</tr>
<tr>
<td></td>
<td>Jew's harps</td>
</tr>
<tr>
<td></td>
<td>Mic-Mac pipes</td>
</tr>
<tr>
<td></td>
<td>necklace beads</td>
</tr>
<tr>
<td></td>
<td>tinkling cones</td>
</tr>
<tr>
<td></td>
<td>trade or hawk bells</td>
</tr>
<tr>
<td></td>
<td>vermillion</td>
</tr>
<tr>
<td></td>
<td>yellow ochre</td>
</tr>
</tbody>
</table>

Note. Artifacts were classified according to artifact categories described in Heldman and Grange (1981). Seed beads and lead shot were excluded from analysis because they occur in numbers large enough to affect the results of quantitative analysis, and because field methods used since 1975 have resulted in a higher rate of recovery for these artifacts.
Table 2
Results of Chi-Square Test Using Yates Correction

<table>
<thead>
<tr>
<th>No. of Seals</th>
<th>Domestic/Trade</th>
<th>Trade</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>173</td>
<td>15</td>
<td>153</td>
<td>341</td>
</tr>
<tr>
<td>1</td>
<td>65</td>
<td>1</td>
<td>31</td>
<td>97</td>
</tr>
<tr>
<td>2 or more</td>
<td>40</td>
<td>0</td>
<td>12</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>278</td>
<td>16</td>
<td>196</td>
<td>490</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>( f_o )</th>
<th>( f_e )</th>
<th>( \chi^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>173</td>
<td>193.5</td>
<td>2.07</td>
</tr>
<tr>
<td>15</td>
<td>11.1</td>
<td>1.04</td>
</tr>
<tr>
<td>153</td>
<td>136.4</td>
<td>1.90</td>
</tr>
<tr>
<td>65</td>
<td>55.0</td>
<td>1.64</td>
</tr>
<tr>
<td>1</td>
<td>3.2</td>
<td>.90</td>
</tr>
<tr>
<td>31</td>
<td>38.8</td>
<td>1.37</td>
</tr>
<tr>
<td>40</td>
<td>29.5</td>
<td>3.39</td>
</tr>
<tr>
<td>0</td>
<td>1.7</td>
<td>.85</td>
</tr>
<tr>
<td>12</td>
<td>20.8</td>
<td>3.31</td>
</tr>
</tbody>
</table>

\[ \chi^2 (4, \ N = 490) = 13.28, \ p < .01 \]

16.47 > 13.28, reject null hypothesis
### Table 3

**Results of Pearson's $r$ Test**

<table>
<thead>
<tr>
<th>Seals/Tailoring Items</th>
<th>Seals/Trade Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>$r(38) = .275$</td>
<td>$r(38) = .275$</td>
</tr>
<tr>
<td>$p &lt; .05$, one-tailed</td>
<td>$p &lt; .05$, one-tailed</td>
</tr>
<tr>
<td>$.187 &lt; .275,$</td>
<td>$.070 &lt; .275,$</td>
</tr>
<tr>
<td>fail to reject null hypothesis</td>
<td>fail to reject null hypothesis</td>
</tr>
</tbody>
</table>

### Table 4

**Results of Two-Sample $t$-Test of Means**

<table>
<thead>
<tr>
<th>Seals/Tailoring Items</th>
<th>Seals/Trade Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>$t_{(38)} = 1.697$</td>
<td>$t_{(38)} = 2.042$</td>
</tr>
<tr>
<td>$p &lt; .05$, one-tailed</td>
<td>$p &lt; .05$, two-tailed</td>
</tr>
<tr>
<td>$1.143 &lt; 1.697,$</td>
<td>$.96 &lt; 2.042,$</td>
</tr>
<tr>
<td>fail to reject null hypothesis</td>
<td>fail to reject null hypothesis</td>
</tr>
</tbody>
</table>
The weakness of this relationship is indicated by the value calculated for Pearson's contingency coefficient \( C' \), a "measure of strength of association based on chi-square" (Blalock 1979:305). The value obtained, .221, is measured against a scale of 0 (no association) to 1.0 (perfect association) (1979:305-306).

Two things may explain why the quantitative analysis did not produce significant results for the Pearson's \( r \) and \( r \)-tests, and only weakly significant results for the chi-square. The first is multiple use of structures in the fort. Trade goods were often stored in domestic structures (Halchin 1985:Figures 21, 24, and 26), and the mix of artifacts resulting from multiple use of a structure may have affected the results. The second is frequent reuse of seals. Seals were sometimes melted to provide lead for musket balls and shot (Wheeler et al. 1975:62). The single lead seal found at Fort St. Pierre, Mississippi, was found in a "lead shot drop area" thought to be the site of a water trough where Rupert shot was produced (Brown 1979:950). The disk halves of Series A seals may have been notched around the edge and given to children to use as whizzers. These notched lead disks were strung on cord and spun to make a high-pitched whizzing noise. At least 12 such toys have been recovered at Michilimackinac (Stone 1974:154). Noble's (1983:272) list of artifacts recovered from excavations at Fort Ouiatenon includes a seal with a sawtooth edge and Noble surmises "it is possible that this seal was being modified as a whizzer." Another use to which discarded seals were occasionally put is as blanks for small arrow points. Gilman (1982:91) illustrates, among other "altered lead
seals," one which "has an arrowhead outline on its back, possibly scratched as a pattern for cutting." A seal from the collection at Michilimackinac has an arrowhead-shaped area cut from its center (Figure 27). One other use to which seals may have been put was as personal ornaments for natives. Beauchamp (1911:27-29, Plates 22, 32, and 33) illustrates several lead seals, apparently without realizing what they are, in his book on native ornament. Reuse, then, could have resulted in the removal of a sufficient number of seals from their original depositional contexts to affect the results of quantitative analysis.

Site Reports

A review of site reports was conducted to try and discover relationships between lead seals and structures, other artifacts

Figure 27. Series A Seal From Which a Small Arrow Point May Have Been Removed.
and activity areas. The type of site on which seals were found (Table 5) was also considered.

Of the 23 sites with reviewed seals, 12 are either fur trade sites or sites where it is likely fur trade-related activities took place. Others are three native village sites, four European domestic sites, a seventeenth-century trash pit, an eighteenth-century British milling complex, a Spanish mission in Arizona, and a tailor's shop in North Carolina.

Data on the type of structure with which seals are associated was not always available in the reports. But available evidence indicates associations with a trade goods storehouse (Tordoff 1983:380), a structure which may have been a farmhouse (Heldman 1983a:133), a lime kiln and three houses (Cotter 1958:51-83), and a "family residence" (Martin 1983:85).

Information on artifact and activity area associations is scanty. Birk (personal communication, 1984) describes a seal found still attached to "duffel or blanket material"; MacCord (1972:62, 64) interprets the artifacts found with the seal from a seventeenth-century trash pit as being of "domestic origin"; and Cotter (1958:51) describes artifacts found with one seal as "typical house refuse."

Specific mention is made of only one activity area, where Brown (1979:200) believes Rupert shot (shot made by dropping lead through a sieve into cold water) was produced at Fort St. Pierre. In this case the depositional context probably reflects the seals intended reuse.

As a whole, the evidence from site reports is inconclusive. Of the sites where lead seals have been found, eight (seven
<table>
<thead>
<tr>
<th>Site Name, Location</th>
<th>Site Type</th>
<th>Date</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bayou Goula, LA</td>
<td>native habitation site</td>
<td>1699-1758</td>
<td>Quimby 1957</td>
</tr>
<tr>
<td>Boundary Falls, MN</td>
<td>canoe wreck site</td>
<td>ca. 1760-1860</td>
<td>Wheeler et al. 1975</td>
</tr>
<tr>
<td>Brunswick Town Public House</td>
<td>British town</td>
<td>ca. 1725-ca. 1776</td>
<td>South 1977</td>
</tr>
<tr>
<td>Tailor Shop, NC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fort Charlotte, MN</td>
<td>fur trade portage</td>
<td>ca. 1760-ca. 1860</td>
<td>Birk 1975</td>
</tr>
<tr>
<td>Fort Mackinac, MI</td>
<td>British/American fort</td>
<td>1781-1815 (British period)</td>
<td>Dunnigan 1980</td>
</tr>
<tr>
<td>Fort Ouiatenon, IN</td>
<td>French fort</td>
<td>ca. 1717-1786</td>
<td>Noble 1983; Tordoff 1983</td>
</tr>
<tr>
<td>Fort Renville, MN</td>
<td>fur trade post</td>
<td>ca. 1826-ca. 1846</td>
<td>Nystuen and Lindeman 1969</td>
</tr>
<tr>
<td>Fort St. Joseph, MI</td>
<td>French/British post</td>
<td>ca. 1680-1781</td>
<td>Hulse 1977</td>
</tr>
<tr>
<td>Fort St. Pierre, MS</td>
<td>French fort</td>
<td>ca. 1718-ca. 1720</td>
<td>Brown 1979</td>
</tr>
<tr>
<td>Fort Stanwix, NY</td>
<td>British/American fort</td>
<td>1758-1781</td>
<td>Hanson and Ping Hsu 1975</td>
</tr>
<tr>
<td>French Farm Lake, MI</td>
<td>British farm</td>
<td>1774-1781</td>
<td>Heldman 1983a</td>
</tr>
<tr>
<td>Guebert Site, IL</td>
<td>Kaskaskia village</td>
<td>1720-1736</td>
<td>Good 1972</td>
</tr>
<tr>
<td>Horsetail Rapids, MN</td>
<td>canoe wreck site</td>
<td>ca. 1760-1860</td>
<td>Birk 1979</td>
</tr>
<tr>
<td>Hungar's Neck, VA</td>
<td>trash pit</td>
<td>mid-17th century</td>
<td>Heite 1973; MacCord 1972</td>
</tr>
</tbody>
</table>
Table 5—Continued

<table>
<thead>
<tr>
<th>Site Name, Location</th>
<th>Site Type</th>
<th>Date</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jamestown, VA</td>
<td>British fortified town</td>
<td>17th century</td>
<td>Cotter 1958</td>
</tr>
<tr>
<td>John Sayer's Post, MN</td>
<td>North West Company post</td>
<td>1804-1805</td>
<td>Birk n.d.</td>
</tr>
<tr>
<td>Lac La Loche, Sask.</td>
<td>fur trade post</td>
<td>late 18th/early 19th century</td>
<td>Steer 1977</td>
</tr>
<tr>
<td>Longlac Historic Trading Post, Ont.</td>
<td>Hudson's Bay Company post</td>
<td>ca. 1763-1921 (intermittent)</td>
<td>Dawson 1969</td>
</tr>
<tr>
<td>Martin's Hundred, VA</td>
<td>British settlement</td>
<td>1619-ca. 1650</td>
<td>Noël Hume 1982b</td>
</tr>
<tr>
<td>Mill Creek, MI</td>
<td>British milling complex</td>
<td>ca. 1790-ca. 1840</td>
<td>Martin 1983</td>
</tr>
<tr>
<td>Norge Village, MI</td>
<td>native habitation site</td>
<td>late 17th century</td>
<td>Fitting and Lynott 1974</td>
</tr>
<tr>
<td>Point Louise, Ont.</td>
<td>harbor on St. Mary's River</td>
<td>ca. 1760-1790</td>
<td>Conway 1980</td>
</tr>
<tr>
<td>San Xavier Del Bac, AZ</td>
<td>Spanish mission</td>
<td>1692-early 19th century</td>
<td>Fontana 1968</td>
</tr>
</tbody>
</table>
habitation sites and the tailor's shop) reflect domestic, or more specifically tailoring, activities and would point toward the seals having served as cloth marks. Fifteen sites, on the other hand, are in some way related to the fur trade. The structures and artifacts with which seals have been found tend to favor a connection with domestic activity and cloth, but the small number of cases limits any conclusions.

The type of site where seals were found, if viewed in isolation, would lead to the conclusion that the seals were bale seals, because sites where trading took place outnumber other sites. Evidence from structure and artifact associations would indicate they were cloth marks because reported seals are often in association with domestic structures or domestic artifacts. The data do not permit a clear interpretation of the seals' function.

The manner in which the search for site reports was conducted may have biased the results toward overrepresentation of fur trade sites. Because the author began the study believing the seals were bale seals, the search for site reports was conducted primarily by consulting the bibliographies of Fort Michilimackinac and other well-known fur trade sites. One other factor may have led to an overrepresentation of fur trade sites. It is possible that researchers working on other kinds of sites may not have expected to find lead seals, and may have misidentified them. For these reasons, any conclusions based solely on data from site reports must remain tentative.
Description and Identification of Lead Seals
From Fort Michilimackinac

The data obtained during the course of research strongly indicate that nearly all the lead seals from Fort Michilimackinac functioned as cloth seals. The data allow for more specific identification of function and place of origin of some of the seals. A summary description and discussion of these seals, grouped into 25 types, is presented below.

1. Series: A
   Quantity: 5
   Diameter: 20-23 mm
   Obverse: Rooster with three fleurs-de-lis above it and a band of lettering around the edge.
   Reverse: Coat of arms containing three fleurs-de-lis surmounted by a crown.
   ID: "Corporate" inspection seals attached to cloths by guild masters, or seals of a bureau exterieur. These seals come from the town of Mazamet in northern France.

2. Series: A
   Quantity: 1
   Diameter: 20 mm
   Obverse: Three fleurs-de-lis surrounded by letters, including -AZAMET (MAZAMET).
   Reverse: Coat of arms containing three fleurs-de-lis.
   ID: Variant type of corporate seal described above or cloth seal of a bureau forain.

3. Series: A
   Quantity: 6
   Diameter: 19-22 mm
   Obverse: Rooster with three fleurs-de-lis above it and a band of lettering around the edge.
   Reverse: Horizontal lettering, including -TROL DE -SAMET or -ZAMET (CONTROL DE MAZAMET). The reverse of two of the seals is missing and they may belong in type 1.
   ID: Sceaux de controle used after 1728 in France to mark cloths. These are also from the town of Mazamet.
4. Series: A
Quantity: 6
Diameter: 21-23 mm
Obverse: The following combinations of stamped letters and numbers: (1) 32 A 1/2; (2) 1/2; (3) 31 A 3/4; (4) 33 AV; (5) 32 AV; (6) 31 A.
Reverse: Horizontal lettering, including -DE -NTRO- DE.
ID: Probably French sceaux de controle.

5. Series: A
Quantity: 7
Diameter: 21-23 mm
Obverse: Only one of this type of seals has a legible symbol on the obverse—three fleurs-de-lis in a circle.
Reverse: This type is characterized by each having some part of the phrase MARQUE DE CONTROLLE present on the reverse.
ID: French sceaux de controle.

6. Series: A
Quantity: 1
Diameter: 21 mm
Obverse: The word ROUBAIX
Reverse: A "circular quartered crest with 8 diamonds in diagonally opposite quarters, and 7 dots in diagonally opposite quarters; a row of 5 fleur-de-lis appears above the crest" (Stone 1974:283).
ID: Either a cloth inspection seal attached by guild masters or a seal of a bureau forain. Roubaix is a town in northern France.

7. Series: A
Quantity: 1
Diameter: 25 mm
Obverse: The words -SCURE OLIER --GOTIONS MON - AUBAN.
Reverse: The numbers 1741 28 1/2, scratched in.
ID: An "individual seal" placed on a cloth by the firm of Lescure and Olier. This firm, located in Montauban, France, produced scarlet cloth for export between the years 1727 and 1751 (Heldman, personal communication, 1983b).

8. Series: A
Quantity: 1
Diameter: 29 mm
Obverse: The words HONORE SCE --- LIER.
Reverse: Cloth imprint.
ID: An individual seal placed on a cloth by a French manufacturer or cloth trader.
9. Series: A
  Quantity: 1
  Diameter: 29 mm
  Obverse: The words —RIQUE DE —ASSON.
  Reverse: Cloth imprint.
  ID: Either an individual seal or a corporate seal attached to a cloth in the town of Carcassonne in France. The complete phrase on the obverse is FABRIQUE DE CARCASSONNE.

10. Series: A
    Quantity: 1
    Diameter: 20 mm
    Obverse: The words —AL-MAN— COMMUNE ONZE TAILLE.
    Reverse: Cloth imprint.
    ID: The complete phrase on the obverse is CALAMANDE COMMUNE ONZE TAILLES (see Noble 1983:273). Noble translates this as "common calamanco, eleven cuttings." Tordoff (1983:379) lists a seal with the inscription G(R)IS COMMUNE II TAILLES (common gray, two cuttings). These seals are in some way associated with cloth, but it is unclear by whom they were used.

11. Series: A
    Quantity: 3
    Diameter: 27–30 mm
    Obverse: A band of lettering around the edge, including the word ECARLATINE. On one of the seals, the word INSPECTION can also be seen.
    Reverse: Cloth imprint.
    ID: These seals were put on écarlatines, scarlet cloths produced in France and traded to North American Indians. It is not clear whether these would have been attached by guild inspectors or officials of bureaux of the French government.

12. Series: A
    Quantity: 17
    Diameter: 23–41 mm
    Obverse: Two scratched numbers, separated by a horizontal line. Typically the lower number ranges from 20–30. It is sometimes followed by a fraction such as 1/2.
    Reverse: 10 of the seals have one or two initials only, while 7 have initials and a "merchant's mark."
    ID: Cloth merchants may have attached these to unfinished cloths, in order to be able to identify them during and after the finishing process. These may be English or French.
13. Series: A
Quantity: 1
Diameter: 28 mm
Obverse: Two scratched numbers separated by a horizontal line.
Reverse: The letters -DON and a representation of a woolsack.
ID: The woolsack is one of the symbols used by the Company of Drapers of London during the eighteenth century. It is likely that this is an English cloth seal.

14. Series: A
Quantity: 4
Diameter: 21-26 mm
Obverse: One seal is unmarked, another has a cloth imprint, and two have scratched numbers separated by a horizontal line.
Reverse: Each has the word PACKER; two also have LONDON impressed into them.
ID: "Packers" were professional packers of cloth for shipment. Some packers apparently were cloth traders as well. These seals may have been attached to cloths before finishing to identify ownership by the packers.

15. Series: A
Quantity: 3
Diameter: 29-34
Obverse: Cloth imprint.
Reverse: Each of the seals has lettering around the edge, which includes the name WAKEFIELD.
ID: Wakefield, England has been described as a town whose "whole profit standeth by coarse drapery" (Lipson 1965:225), and it was the site of an important cloth trading hall after 1710. These are seals of Wakefield cloth manufacturers or traders.

16. Series: A
Quantity: 2
Diameter: 15-16 mm
Obverse: Unmarked.
Reverse: A crown in the center, with the number 3 to its left. This design is surrounded by a beaded border.
ID: These are parts of four-disk alnage seals. The "3" indicates that a 3 pence tax was paid on the cloth. These seals may date between 1714-1724 (Egan, personal communication, 1983).
17. Series: A
   Quantity: 1
   Diameter: 26 mm
   Obverse: Unmarked.
   Reverse: The words -THORP - THOML-NSON TRECO-- around the edge. The center of the seal has been torn away, but a small part of the design remains. It includes a banner with the cross of St. George (?) and the letters L --- N.
   ID: This seal was issued by the trading company of Thomlinson and Trechothick, of London. The company exported goods to North America between 1763 and 1775. This may be a bale seal, although Series A seals were primarily used on cloth.

18. Series: A
   Quantity: 5
   Diameter: 18-24 mm
   Obverse: One of the seals is unmarked; the rest have a three- or four-digit number heavily carved into the lead.
   Reverse: Each has a design of at least four men paddling a canoe. Above the men appears a pair of hearts pierced by an arrow and two stars.
   ID: These are probably bale seals, judging from the design and the absence of the usual two numbers separated by a horizontal line which appear on cloth seals.

19. Series: B
   Quantity: 1
   Diameter: 1
   Obverse: A fleur-de-lis surmounted by a crown. The letter F appears to the left of the fleur-de-lis and an E (?) appears to the right.
   Reverse: The letters A --- AIZE.
   ID: This is a French seal which was clipped on a piece of baize (in English, bays) cloth. It may be a corporate seal or a seal of a government bureau.

20. Series: B and C
   Quantity: 20
   Diameter: 12-17 mm
   Obverse: On three of the seals, the obverse face is obliterated. Eleven bear the name of Henry Larguier or Pierre Larguier and the word FORS (unknown meaning) or the phrase A 2 FILS or A 3 FILS (double-ply, triple-ply). Four carry the phrase POUR LESTRANGER (for the foreign trade). Two seals have lettering around the edge, including the word -OLOMB.
Revers: The common denominator of this type is a design of an alligator or crocodile chained to a palm tree, with the letters COL to its left and NE to its right.

ID: These seals were attached to stockings by inspectors in the town of Nimes, France. The letters COL NE are an abbreviation for Colonia Nemausus or Colonia Nemausensis, the Latin name for Nimes.

21. Series: B and C
Quantity: 12
Diameter: 10-16 mm
Obverse: The seals of this type exhibit a variety of markings on the obverse, including the word Fabrique, fleurs-de-lis, and the names T. HUEER or T. HUBER, P LE ROY, and CORBERT.
Reverse: The seals have the complete or partial phrase BAS A 2 FILS or BAS A 3 FILS on the reverse.
ID: These are French seals for stockings or hose.

22. Series: C
Quantity: 2
Diameter: 16-18 mm
Obverse: Obliterated.
Reverse: A design composed of three fleurs-de-lis above a rampant lion.
ID: This design appears to be identical to the crest of the city of Lyons. These may be Royal customs seals, or seals attached by guild inspectors to cloth produced in Lyon (probably silk).

23. Series: C
Quantity: 23
Diameter: 16-22 mm
Obverse: The letters C D I enclosed between two leafy branches.
Reverse: Heraldic design on a shield showing a reclining figure holding a jar, in front of a mountain. Above the mountain is a horizontal band and above the band is a field of fleurs-de-lis.
ID: These are cloth seals of the Compagnie des Indes. They were probably used by the third Compagnie (1719-1769).

24. Series: C
Quantity: 2
Diameter: 15-20 mm
Obverse: Three fleurs-de-lis on a shield with fine lines running horizontally across it, surrounded by the phrase FLOREBO QUO FERAR.
Reverse: The same heraldic design which appears on the reverse of the seals in type 23. On these seals the design appears between two supporting figures.
The left-hand figure is an American Indian holding a bow. The right-hand figure is indistinguishable.

ID: These are also cloth seals of the Compagnie des Indes (1719-1769).

25. Series: C
Quantity: 1 (Seal is triangular)
Diameter: 16 mm
Obverse: Obliterated.
Reverse: The letters COMP—, surrounded by a beaded border.
ID: This is a bale seal of the Compagnie des Indes.

Using data gathered during the study, the author reexamined the seals from Michilimackinac and assigned each to categories of function and nationality. Seals with marks indicative of their use as cloth marks (names of cloth-producing towns, two numbers separated by a horizontal line, etc.) were assigned to the cloth seal category. Those with marks which indicate they may have been bale seals (men-in-canoe motif, single number of 3 or 4 digits heavily carved into the lead, etc.) were placed in the bale seal category. Grouped by function, the result is as follows: cloth seals, 174 (62.7%); bale seals, 16 (5.6%); and unknown, 88 (31.7%). If all the Series A seals are included in the cloth seal category (Sabatier suggests this type of seal was used to mark cloths), the result becomes: cloth seals, 238 (85.7%); bale seals, 16 (5.6%); and unknown, 24 (8.7%).

Sorting the seals on the basis of nationality proved more difficult and provided surprising results in light of the reputed popularity of British cloth: French, 113 (40.6%); British, 20 (7.2%); and unknown, 145 (52.2%). Adjusted figures for the nationality category were obtained by assigning fragmentary lead seals with any variant of
the £ "merchant's mark" to the British category (all of the complete seals of this kind in the collection are British). The adjusted figures are: French, 113 (40.6%); British, 37 (13.3%); and unknown, 128 (46.1%).

Concluding Remarks

The results of this study allow one to conclude that nearly all of the Michilimackinac seals are cloth seals. The data also raise questions and provide a basis for further study. One such question concerns how seals came to be known as "bale seals." Perhaps the confusion stems from varying meanings of the term "bale," which can refer to a quantity of cloth as well as a package of goods. Another question raised is why are there so many more French than British seals in the collection when British cloth is reputed to have been the more popular? Part of the answer may lie in the fact that the alnage ended in England in 1724, and searching and sealing of cloths after that time was sporadic. The French may have continued to seal a greater percentage of their cloths throughout the eighteenth century. Another contributing factor is the attempt of the British military, however unsuccessful, to literally move fur trading outside to the "suburbs" of Michilimackinac after 1765 (Heldman and Grange 1981).

Further study of lead cloth seals may reveal something about consumer preferences or economic status of the inhabitants of domestic sites where they are found. A chronology of lead seal types would be another useful topic for further study. A great deal of
patient searching through business records of cloth producers and importers of fur trade goods will be needed to uncover more about them. This study strongly indicates that most lead seals are cloth marks, and has identified some of them. It is hoped this study will be of some value to archaeologists studying the period of European contact at North American sites.
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