# Ceramics as Reflectors of Social Relationship: The Auger Site and Ball Site Castellations

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*Ceramic castellations are distinctive components of Iroquoian ceramic assemblages. The recovery of substantial numbers of castellations from two early seventeenth century Huron village sites, Auger and Ball, provides the opportunity to investigate this class of artifact more closely. A series of attributes are defined for the analysis of castellations and are used to characterize and compare artifacts from the Auger and Ball sites. These comparisons are facilitated by the use of the chi-square test and the coefficient of similarity. The tests reveal a high degree of similarity between the two assemblages. The relationship between the Auger and Ball sites is placed within a wider context through comparisons with other sites from Huronia, along with consideration of tribal affiliations and village relocation. This analysis indicates the relocation of a single community from the Ball site to the Auger site.*

## Introduction

Over the last thirty years, excavations at Huron village sites in Ontario have recovered large quantities of ceramics. Many of these ceramic sherds exhibit projections of the vessel rim known as castellations. Emerson (1955:2) remarked that "perhaps no single feature of ceramics is more characteristic and diagnostic of an Iroquoian vessel" than the castellation, yet very little attention has been given to their study. MacNeish (1952) included some information on castellations from six sites of the contact period Huron and Petun and their precontact predecessors, in his study of Iroquoian pottery types. He identified three types of castellation: pointed, bifurcated and squared. MacNeish seriated the sites according to these types, concluding that pointed forms occur early in the sequence while squared forms dominate by contact period times.

A type classification of castellations for the Ontario Iroquoians was developed by Emerson (1955). Like those of MacNeish (1952), Emerson's castellation types were based on shape, as he determined that the limited number of castellation forms makes their morphology a good diagnostic trait. On the other hand, he observed that the decorative designs occurring on the castellations "are so numerous as to virtually defy classification" (Emerson 1955:2). Emerson's types ranged from the "Classic Early" castellation through high collared and multiple varieties to the "Turret" type dominant in the contact period. Apart from these investigations by MacNeish and Emerson, consideration of castellations has been limited to short descriptive sections or tables included in larger site reports (e.g., Busby 1979; Latta 1976; Ramsden 1989) or more general ceramic analyses (e.g., Pearce 1978; Pendergast 1973). The recovery of assemblages with large numbers of castellations from the Auger and Ball sites provides an opportunity to undertake both a more detailed investigation and an intersite comparison of this distinctive artifact form.

The Auger and Ball sites are located in northern Simcoe County, Ontario, between Lake Simcoe and Georgian Bay, on opposite sides of the Coldwater River (Figure 1). These two sites are separated by just four kilometres. Excavations at the Auger site were carried out over eleven years as the Wilfrid Auger Memorial Field School of the University of Toronto under the direction of Martha Latta and Gary Crawford. The Ball site has been completely excavated by Dean Knight and the Wilfrid Laurier University field school. Both sites are palisaded Huron villages consisting of numerous closely packed longhouses and middens (Knight 1978; 1987; Latta 1985a). The Ball site dates to circa A. D. 1600

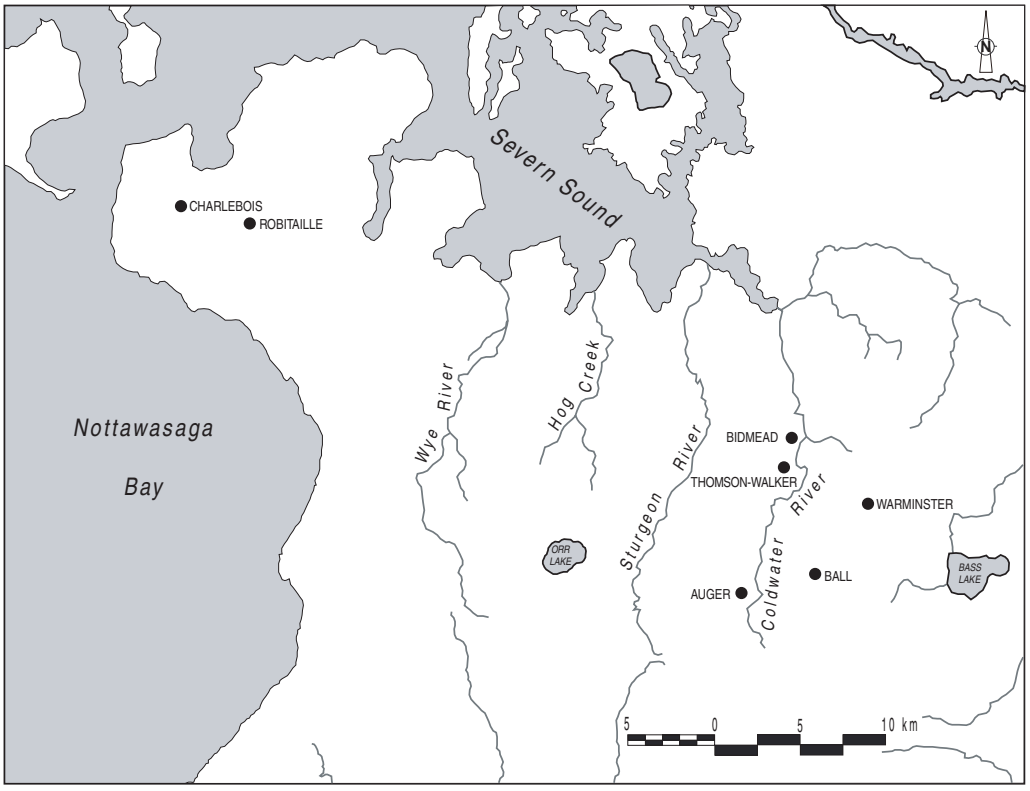


**Figure 1.** *The location of the Huron sites from which castellations were analyzed for this study.*

(Knight 1978:53) and the Auger site to circa A.D. 1610-1630 (Latta 1985a). Ceramic vessel sherds, including castellations, constitute the most abundant class of artifact recovered from these sites.

This study focuses on an attribute analysis and subsequent comparison of the castellations from these sites. While the typological approach used by Emerson (1955) provided a good introduction to castellation forms and identified both temporal and geographical variation in their manufacture, several problems are evident in his classifications. For example, while he labeled one type "Turret" his "Grooved" and "Notched" types included mostly turret-shaped varieties. Emerson's illustration of the "Incipient Turret" type (1955:Figure 9b) shows a notched castellation as does his illustration of the "Grooved" type (1955:Figure 10a). These problems, inherent in the type approach, are reduced through the use of attribute analysis which allows characteristics such as shape, grooving and notching to be considered individually (Engelbrecht 1980). In this study, attributes are defined for aspects of castellation shape, decoration and paste in order to elicit information regarding the potters' concepts of what constitutes a castellation and to facilitate comparisons between the Auger and Ball assemblages. These comparisons focus on the character and degree of similarity between the assemblages. The results of this analysis indicate a close resemblance in all aspects, which is evaluated in two ways. First, the possibility that this similarity reflects membership of the Auger and Ball communities in the same tribal group is considered through comparison with other Huron villages. Second, the possibility that the close resemblance represents the relocation of a single community as recorded in ethnohistoric accounts is evaluated. As will be shown, the high degree of similarity between the Auger and Ball assemblages does indicate the relocation of a single Huron community over time from Ball to Auger.

## The Auger and Ball Castellations

The Auger assemblage consists of 513 castellations while the Ball assemblage consists of 996 castellations from which a random sample of 500 was selected for analysis. Four metric attributes of shape were recorded: the height of the castellation measured from the base of the collar to its highest point; the width of turret-shaped castellations measured from corner to corner at the top; the slope of each side of the castellation measured by recording the amount of rise over one centimetre of distance along the rim from the edge of turret and double-shaped castellations and from the centre of pointed and round castellations; and the thickness of the lip measured in the centre of each castellation.

The mean, standard deviation and range were calculated for each of these attributes (Table 1). It should be noted, however, that due to the fact that some of the castellations are incomplete, not all attributes could be determined for every specimen. This has resulted in different sample sizes for each attribute category. These results were compared using the two-sample means test and the equality of variances test (Burt and Barber 1996). The variances of all the measured attributes are equal and the two assemblages are indistinguishable in terms of mean slope and lip thickness. The mean height of castellations from the Auger site is 2.9 cm and from Ball is 3.1 cm. The equality of means test indicated that these means are different, however, the variances of the two samples are equal. The mean width of turret castellations is also different with a mean of 1.8 cm at Auger and 2.0 cm at Ball. The variances in width are equal. Though the means for height and width are different, this difference is slight with the castellations from Ball being a little higher and wider than those from Auger. The mean slope of castellation sides is equal for both the left slope at 0.8 cm and the right slope at 0.9 cm. The variances are also equal for left and right slopes. The mean lip thickness for both assemblages is 0.8 cm. Again, the means and variances are equal. There is thus a high degree of similarity in the dimensions of the castellations from the Auger and Ball sites.

Most attributes, however, were recordable only at a categorical level of data. These attributes were compared first in terms of the presence or absence of each attribute at each site. Second, the frequency of occurrence of each attribute state was compared between the two sites. The similarity of attribute state frequencies was tested using both a chi-square test (Burt and Barber 1996) and a coefficient of similarity (Brainerd 1951; Robinson 1951). The chi-square test evaluates the hypothesis that the two assemblages are identical in terms of attribute state frequencies by comparing the observed frequencies with those that would be expected in the event that the hypothesis is correct and the assemblages are identical. If the test shows no significant difference

**Table 1.** *Measured attributes of the castellations from the Auger and Ball sites.*

| | Auger | Ball |
|---|---|---|
| Height (cm) | | |
| mean | 2.9 | 3.1 |
| standard deviation | 0.9 | 0.9 |
| maximum | 5.9 | 5.9 |
| minimum | 0.8 | 1.2 |
| range | 5.1 | 4.7 |
| n | 310 | 359 |
| Width (cm) [Turrets only] | | |
| mean | 1.8 | 2.0 |
| standard deviation | 0.7 | 0.8 |
| maximum | 4.6 | 5.1 |
| minimum | 0.5 | 0.3 |
| range | 4.1 | 4.8 |
| n | 240 | 264 |
| Left Slope (cm) | | |
| mean | 0.8 | 0.8 |
| standard deviation | 0.4 | 0.4 |
| maximum | 2.5 | 2.0 |
| minimum | 0.1 | 0.1 |
| range | 2.4 | 1.9 |
| n | 269 | 331 |
| Right Slope (cm) | | |
| mean | 0.9 | 0.9 |
| standard deviation | 0.5 | 0.4 |
| maximum | 2.0 | 2.0 |
| minimum | 0.1 | 0.1 |
| range | 1.9 | 1.9 |
| n | 286 | 330 |
| Lip Thickness (cm) | | |
| mean | 0.8 | 0.8 |
| standard deviation | 0.2 | 0.2 |
| maximum | 1.9 | 1.8 |
| minimum | 0.3 | 0.4 |
| range | 1.6 | 1.4 |
| n | 395 | 427 |

between the observed and expected frequencies at a predetermined confidence level, then the hypothesis is supported. If, on the other hand, the test shows a significant difference between the observed and expected frequencies, then the two assemblages cannot be considered to be identical in terms of the attribute tested. The coefficient of similarity measures the degree of similarity between two assemblages by calculating the total amount of disagreement between them in terms of attribute state frequencies. If two assemblages are identical they will have a coefficient of similarity of 200; the closer this coefficient is to 200, the greater the similarity between the assemblages (Robinson 1951). This measure was designed for use with ceramic type frequencies, but can also be applied to attribute frequencies (Bursey 1993; Ramsden 1977). This results in a coefficient for each attribute. The results of these tests are described below.

All of the castellations from both sites are grit-tempered and the composition of this tempering varies similarly in both assemblages. Some sherds are predominantly mica-tempered, others are quartz-tempered. A combination of mica and quartz–or more rarely mica, quartz and other substances such as feldspar–are also present. The frequencies of these various temper compositions vary somewhat between the assemblages as indicated by the chi-square test and a coefficient of similarity of 177.77. The chi-square value of 27.46 with three degrees of freedom shows a significant difference between the assemblages at a 99 percent confidence level. They do, however, have the same rank order from most to least common: quartz and mica, mica only, quartz only, or mixed. Thus, potters from both sites considered quartz and mica to be appropriate for use as temper.

The size of temper particles, recorded on a relative scale compared to the assemblages as a whole, as either "small", "medium", or "large", is very similar between the two assemblages. Each sample consists of 40 to 50 percent of vessels constructed from fabric containing small temper and 40 to 50 percent containing medium temper. A chi-square test was unable to distinguish any difference at a 99 percent confidence level. Its value is 2.27 with two degrees of freedom. The coefficient of similarity is 190.52. The amount of temper used, also categorized as "small", "medium" or "large" is closely similar. Once again small and medium amounts each make up 40 to 50 percent of each assemblage. A chi-square test with a value of 4.18 and two degrees of freedom found no difference between the assemblages at a 99 percent confidence level and the coefficient of similarity is 188.58. The potters from both sites thus made similar choices regarding the size and amount of temper used.

The attribute of paste consistency is an evaluation of how well the paste holds together. A well-knit paste has a uniform consistency and does not exhibit any cracks, whereas a laminated paste contains layered cracks parallel to the castellation surfaces and a crumbly paste cracks in a particulate pattern. These three categories of paste consistency are present in both assemblages in very similar frequencies. The majority of the castellations from Auger (63.01 percent) and Ball (58.23 percent) are well-knit, while the remainder are laminated or more rarely crumbly. A chi-square value of 2.98 with two degrees of freedom shows no significant difference between the two assemblages at a 99 percent confidence level and a coefficient of similarity of 190.44 confirms this result.

Four basic castellation shapes: pointed, round, turret and double are present at both Auger and Ball (Figure 2). Turrets are predominant at both sites and their frequency is nearly identical: 79.16 percent at Auger and 79.36 percent at Ball. The double shape is equally rare at both sites. Round and pointed castellations differ slightly in frequency: 15.63 percent are round at Auger versus 11.93 percent at Ball, while 4.71 percent are pointed at Auger versus 8.26 percent at Ball. The rank order of shape frequencies, from greatest to least, is the same for both sites: turret, round, pointed, double. A chi-square test with a value of 6.12 and two degrees of freedom was unable to find a significant difference between the frequencies of castellation shape in the two assemblages at a 99 percent confidence level. This indicates that the Auger and Ball site castellations are nearly identical in terms of

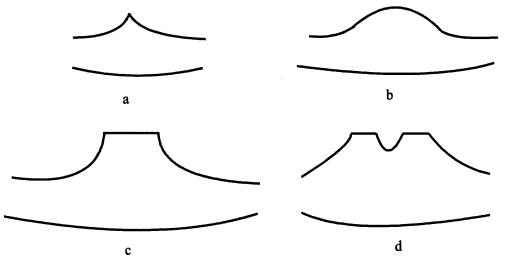


**Figure 2.** *Basic castellation shapes: pointed (a), round (b), turret (c), and double (d).*

shape, a conclusion supported by a coefficient of similarity of 192.51. The potters from both sites were not only choosing to use the same shapes and thus create a similar visual impression, but they were also choosing them with the same frequency.

Both the Auger and Ball assemblages contain the same four interior rim shapes: straight, concave, convex and pinched. Concave interior rims dominate the assemblages with similar frequencies of 78.47 percent at Auger and 80.60 percent at Ball. Other shapes also show similar frequencies and the rank order of frequency from greatest to least is the same for both: concave, convex, straight and pinched. This apparent close similarity in interior rim shape was tested using the chi-square test. The calculated value is 3.57 with two degrees of freedom. At a 99 percent confidence level no difference is evident between the assemblages. The coefficient of similarity, 194.71, for this attribute category also indicates a very close similarity. Again, the potters from Auger and Ball were choosing the same shapes with the same frequency.

Both assemblages include castellations with varying degrees of outward projection from the vessel rim. The amount of projection was measured on a scale of zero to five with zero representing no projection and five maximum projection. While most castellations project somewhat, the number of castellations in each category declines as projection increases. This pattern holds true for both sites. A chi-square value of 6.39 with five degrees of freedom indicates no significant difference between the assemblages at a 99 percent confidence level, thus corresponding with a high coefficient of similarity of 187.24.

Almost all of the castellations are decorated with incised lines. In some cases this decoration is simply a continuation of the motif used on the collar of the vessel, in others a different motif was used on castellations. Both cases represent a decorative choice made by the potter, thus the motif occurring on the castellation was recorded regardless of whether or not it differed from the collar motif. The incised line decorative category is itself further dominated by oblique lines occurring in similarly high frequencies of 77.58 percent at Auger and 82.73 percent at Ball. The combination of vertical and oblique lines is the next most common pattern in both cases, comprising 8.93 percent and 10.24 percent of the Auger and Ball assemblages respectively. The Ball castellations exhibit slightly less variety in decorative motifs than do those from Auger. The chi-square test for this attribute does indicate a significant difference between the two assemblages at the 99 percent confidence level. The calculated chi-square value is 16.77 with five degrees of freedom. Despite this difference, the coefficient of similarity remains high at 185.43. These results indicate that the potters from both sites considered incised lines and especially incised oblique lines to be appropriate decoration for castellations.

A variety of patterns of oblique lines are represented at both sites. More than half the castellations in each assemblage exhibit downward pointing chevron motifs (Figure 3c). The frequency of this motif is very similar with 56.94 percent at Auger and 55.64 percent at Ball. Second in importance at both sites is a simple band of oblique lines slanting upward to the right (Figure 3a), then a crossed chevron motif (Figure 3e) both also occurring in similar frequencies. The remaining patterns are equally rare at both sites. A chi-square test applied to this data was unable to indicate a significant difference at the 99 percent confidence level with a value of 9.78 and seven degrees of freedom. Close similarity between the assemblages is also illustrated by a coefficient of similarity of 189.16. Therefore, not only are both assemblages dominated by incised oblique lines, they also show a high degree of similarity in the direction and patterning of those lines.

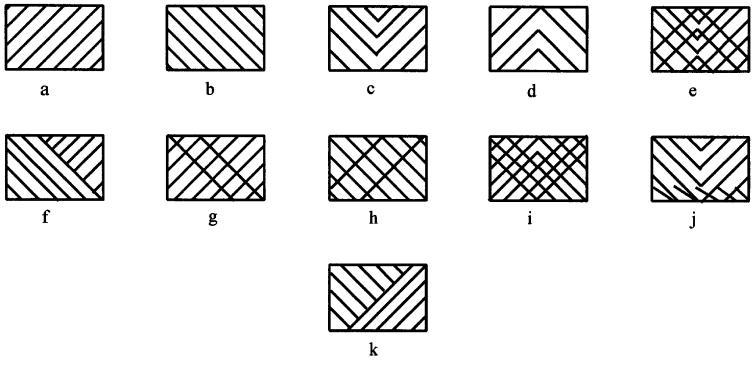


**Figure 3.** *Oblique line motifs on castellations. Note that 3e has downward-pointing chevrons applied first, whereas 3i has upward-pointing chevrons applied first.*

Castellations from the Auger site have anywhere from zero to four grooves, as do most of those from Ball, although one castellation from Ball has five grooves. Grooves were identified as thick, deep lines running vertically down the face of the castellation. The majority of castellations in both assemblages however, lack grooving. Once again the chi-square value of 10.85 with four degrees of freedom shows no significant difference between the assemblages at a 99 percent confidence level. The coefficient of similarity is high at 188.40.

Notching, in the form of a series of angular or V-shaped cuts, is found on a similar minority of castellations in both assemblages. This attribute occurred in several different locations on the castellation as illustrated in Figure 4. Notching on Auger site castellations occurs most often between grooves or vertical lines (Figure 4e) whereas on Ball site castellations it occurs most often on appliqué ridges (Figure 4f). This difference appears to be due to the greater number of castellations in the Ball assemblage that bear appliqué ridges. Consequently, the chi-square test does indicate a significant difference between these two assemblages in terms of notching at a 99 percent confidence level with a value of 37.49 and five degrees of freedom. The coefficient of similarity, at 180.43, also suggests a small amount of variation between the assemblages in this respect. When the notching on ridges is omitted from the analysis, the assemblages show greater similarity, yet the chi-square test still indicates a significant difference at the 99 percent confidence level with a value of 13.28 and four degrees of freedom, as both notching between grooves and along the collar base (Figure 4c) are more common at Auger.

In both assemblages, castellation lips are often notched . Continuous lip notching is fairly common, being exhibited by 28.90 percent of Auger castellations and 25.39 percent of Ball castellations. Castellations with one or a few notches in the centre of the lip are also present. The Ball site castellations have slightly more notches than those from Auger. The chi-square test with a value of 22.98 and six degrees of freedom–indicating a significant difference between assemblages at a 99 percent confidence level–and a coefficient of similarity of 176.73 both demonstrate some variability between the two assemblages.

Among the castellations from Auger are five with distinctive horizontal gashes in the form of

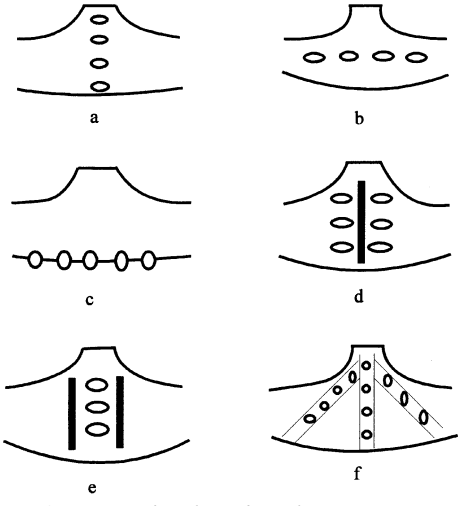


**Figure 4.** *Varieties of notching: down the centre (a), across the front (b), at the base of the collar (c), outside grooves (d), between grooves (e), and on appliqué ridges (f).*

long, elliptical cuts. No such decoration was observed on the Ball castellations. Due to the very small number of castellations with gashes it is not possible to perform a chi-square test, however, the coefficient of similarity remains very high at 198.04.

Appliqué ridges are present in both assemblages, however, the Auger assemblage includes just five fragmentary examples compared to 31 in the Ball assemblage. While the coefficient of similarity, 189.60, is high for this attribute category the chi-square test with a value of 29.42 and one degree of freedom does indicate a significant difference at the 99 percent confidence level.

A distinctive modelled face motif is equally rare in both assemblages, occurring on less than one percent of the castellations. The rarity of this motif prevents calculation of the chi-square value, but the similarity in frequencies is evident and supported by an extremely high coefficient of similarity of 199.22.

Both assemblages contain a small number of castellations bearing simple incised line decoration directly beneath the projection. This attribute occurs in a higher frequency in the Ball assemblage (8.17 percent) than in the Auger assemblage (3.16 percent). Consequently, the chi-square value of 8.57 with one degree of freedom does indicate a significant difference at the 99 percent confidence level despite a high coefficient of similarity at 189.98.

A few castellations in each assemblage exhibit evidence for the attachment of small handles directly below the castellation. A chi-square test with a value of 1.40, with one degree of freedom that shows no significant difference at the 99 percent confidence level, along with an extremely high coefficient of similarity at 197.92 indicates a very close similarity in the occurrence of handles.

In summary, nine of the attribute categories show no significant difference in the frequencies of their attribute states when compared using the chi-square test. The Auger and Ball castellation assemblages are, in fact, virtually indistinguishable in terms of these attributes. Even those attribute categories that differ significantly, according to the chi-square tests, have high coefficients of similarity which indicate that the differences between them are not great. The coefficients of similarity range from a low of 176.73 for lip notching to a high of 199.22 for the incidence of face motifs. The mean coefficient of similarity for these two sites is 189.22. Considering that the maximum possible value for this measure is 200.00, this result reflects a very high degree of similarity between the two castellation assemblages.

This close similarity in attribute frequencies is present in all classes of attributes: shape, decoration and paste, indicating shared concepts of castellation form, appropriate decorative motifs and the use of similar manufacturing techniques.

In addition to considering individual attributes, styles of combined attributes were investigated resulting in the identification of common and anomalous styles within the assemblages. A style is considered here to consist of a set of attribute states that consistently co-occur. Following Davis' (1990:19) definition of style, each individual artifact possesses most but not necessarily all of the attribute states in the set, while each state is found in a large number of the artifacts. This approach groups together artifacts that are similar, while still allowing room for the variation that is present among them. In this way it provides a more comprehensive level of analysis than is possible when considering each attribute individually. This concept of style is further different from that of type as it is more flexible and does not carry any inherently chronological or spatial implications. It likewise adds another dimension to an evaluation of the similarity between assemblages. Combinations of attribute states or styles that are common within an assemblage may be identified and styles that are anomalous within the context of that assemblage may be isolated. The two assemblages may then be compared in terms of these different styles.

The common style is clearly the turret-shaped castellation with oblique incised lines as it comprises 80 percent of the Auger assemblage and 85 percent of the Ball assemblage (Figure 5). Many of these castellations also have attributes of notching, lip notching and grooving. Grooving, for example, is most often associated with the turret shape. In the Auger assemblage, 30 percent


**Figure 5.** *Examples of the common castellation style from the Auger site.*

of turret-shaped castellations have grooves compared to five percent each of round and pointed castellations. Similarly, in the Ball assemblage 35 percent of turret castellations have grooves while only two percent of round and three percent of pointed castellations bear this trait. While consisting of a set of specific and limited attributes, such as turret shape, oblique incised lines and vertical grooving, which renders them a common style, practically no two of these castellations are identical. Nonetheless, these artifacts vary within closely restricted bounds.

Interestingly, the anomalous styles within these two assemblages exhibit a much greater degree of internal consistency than the common turret-shaped style, though this is harder to judge based on a much smaller number of examples. One such style is that of a round castellation with horizontal incised lines, one lip notch and notches along the base of the collar (Figure 6a). Four such castellations are present in the Auger assemblage and five occur in the Ball assemblage. MacNeish (1952:34-35) noted that this castellation style is often associated with rims of the Warminster Horizontal type that, as the name implies, are particularly common at the Warminster site.

Another distinctive anomalous style is represented by the double shaped castellation with pinched interior and incised oblique lines (Figure 6b). The Auger and Ball castellation assemblages each contain two examples of this rare style. Several castellations are decorated with face motifs (Figure 6c). Considering that all other castellations are decorated with incised lines in geometric designs, this is a very unusual decoration. The face, an anthropomorphic design, represents an entirely different design category. These faces are characterized by a small lump for a nose with small incisions or gashes along side it for eyes, eyebrows and mouth. This unusual decoration is predominantly applied to round castellations. Three castellations with face motifs were identified in the Auger assemblage compared with five in the Ball assemblage. MacNeish (1952:60) described the association of such face motifs with a number of Onondaga-Oneida ceramic types.

The few castellations at the Auger site with elliptical gashes have low round castellations on high collars and thus form another unusual style (Figure 6e). Witthoft and Kinsey (1959:76, 95) described and illustrated a Schultz Incised type from the Lower Susquehanna valley in Pennsylvania that closely matches this style. The type is common at the contact period Schultz site and dates to A.D. 1550-1620. MacNeish (1952:50) described a similar type, Ithaca Linear,

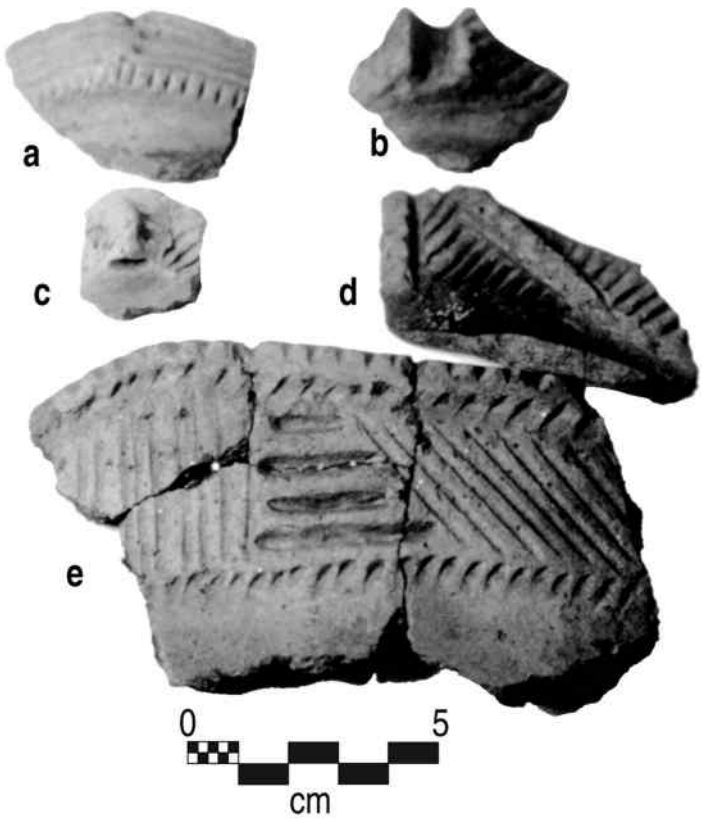


**Figure 6.** *Examples of the anomalous castellation styles from the Auger site: round with horizontal lines (a), double-shaped (b), face motif (c), appliqué ridges (d), and gashed (e).*

from postcontact Cayuga sites in New York, the diagnostic features of which include "large elliptical punch decoration [gashes] on extremely high incipient collars." Finally, a few turret-shaped castellations were decorated with appliqué ridges (Figure 6d). The ridges are vertical and oblique in form with notches running along them. While the form and decoration of these castellations is identical between the two sites, the Ball assemblage contains significantly more of them (n=31) than does the Auger assemblage (n=5).

These anomalous styles, present at both sites are indistinguishable in form, decoration and–excluding those with appliqué ridges–in frequency, and thus indicate a very strong relationship between Auger and Ball. The sharing of common styles suggests that the potters at these sites participated in a network of common ideas about castellations. Identical anomalous forms in addition to shared common styles further support a close connection between the two sites, as well as a common pattern of interaction with Iroquoian groups to the south. Taken altogether this data indicates a strong similarity between the castellations of the Auger and Ball sites.

## Comparison With Neighbouring Villages

Other villages dating to the proto-contact and postcontact periods are located within a few kilometres of the Auger and Ball sites (Figure 1). This raises the question as to whether the similarities observed between Auger and Ball are common to all Huron sites or are indicative of a particularly close relationship between these two sites. An examination of the castellations from the Thomson-Walker (n=59), Warminster (n=162), Bidmead (n=82), Robitaille (n=74) (Latta 1976), and Charlebois (n=37) (Latta 1976) sites, in comparison with those from the Auger and Ball sites places the relationship between

Auger and Ball into a broader context thereby revealing the unusually close nature of the relationship between them.

All of these assemblages, like Auger and Ball, are dominated by turret-shaped castellations with oblique line decoration. The proportions of shape and decorative attributes are, however, substantially different. The frequency of round castellations is greater at Thomson-Walker (34 percent) and Warminster (30 percent), and lower at Bidmead (three percent), while the comparatively limited Charlebois assemblage lacks round castellations altogether.

Like Auger and Ball, most of the castellations in these assemblages are decorated with oblique incised lines and with downward-pointing chevron motifs in particular. Again, however, the frequencies of decorative motifs are different. There are more castellations with horizontal lines at Warminster while more castellations from Robitaille and Charlebois have vertical lines. Several castellations from Bidmead are decorated with punctates, a decorative form that is absent from the Auger and Ball assemblages.

Only one form of notching occurs on the Thomson-Walker castellations, that is notching down the centre of the castellation (Figure 4a). This attribute occurs on nine percent of the Thomson-Walker castellations, compared to two percent at Auger and one percent at Ball. At Warminster, a few castellations have notches along the base of the collar and two have notched ridges. In contrast to the limited forms of notching at Thomson-Walker and Warminster, both the Auger and Ball assemblages exhibit a variety of notching techniques that includes notching between grooves and down the face of the castellation.

The anomalous styles are also different in their occurrence and frequencies at the Thomson-Walker, Warminster, Bidmead, Robitaille and Charlebois sites. The round castellation style with horizontal lines, notches along the base of the collar and one lip notch is present at the Warminster site but not Thomson-Walker or Charlebois. In fact, no less than 26 such castellations occur in the Warminster assemblage compared with only four at Auger and five at Ball where the sample sizes were much larger. The Warminster castellations also include some variations on this type, such as one lacking the lip notch and another small turret-shaped castellation with the distinctive decoration in the horizontal line style. This style, associated with the Warminster Horizontal type, was noted by MacNeish (1952:35) to be characteristic of the Warminster site. He suggested that this type reached its zenith during the period of Warminster's occupation, however, the comparisons with contemporary sites presented here indicate that this type was particularly popular at the Warminster site itself. The Warminster assemblage includes two castellations with face motifs, one on a round castellation the other on a turret-shaped castellation. Two of the Warminster castellations have appliqué ridges, however, they do not resemble those found at the Ball site. The ridges are vertical, notched and accompanied by incised horizontal lines. Charlebois and Robitaille each have one double shaped castellation. One castellation from Robitaille has elliptical gashes similar to those observed on a few of the Auger site castellations.

The similarity in turret shape and oblique line decoration between all of these sites indicates a sharing of common styles and techniques in the Huron region. The different proportions of shape and decorative attributes at Thomson-Walker, Warminster, Bidmead, Robitaille and Charlebois indicate that these sites differ significantly from the Auger and Ball sites in terms of ceramic castellations and highlight the unusually close relationship shared by Auger and Ball.

## Discussion

This high degree of similarity between the Auger and Ball assemblages is consistent with membership in the same tribal group. Ethnohistoric accounts indicate that during the contact period the Huron confederacy was made up of four tribes: the Attignawantan, Arendarhonon, Attigneenongnahac, and Tahontaenrat. Each tribe inhabited its own territory within Huronia, and each had a different history of development, moving into the region and joining the confederacy at different times (Heidenreich 1971:81;

Sagard 1939:91; Thwaites 1959:16:227 Trigger 1976:30,156-157). Therefore the members of each tribe would have had a much closer relationship with each other than with members of other tribes in terms of their ethnic identity, shared development, and geographic proximity: all of which would contribute to more intense social interaction within the tribe. The material culture of groups from the same tribe could thus be expected to exhibit a high degree of similarity compared to other tribes, as appears to be the case with the castellations from the Auger and Ball sites.

Heidenreich (1971:Map 17) used ethnohistoric accounts to reconstruct the geographical territories of the Huron tribes during the first half of the seventeenth century. The Attignawantan were the largest tribe and had the most clearly defined territory, which encompassed all of the area west of the Wye River in the Penetang Peninsula (Heidenreich 1971:82). The Attigneenongnahac occupied the southern two-thirds of the Mount St. Louis Ridge in the centre of the Huron region between the Sturgeon and Coldwater Rivers (Heidenreich 1971:83, Map 17). The easternmost tribe was the Arendarhonon who occupied the Medonte-Orilla Upland from the eastern branches of the Coldwater River to the shores of Lake Couchiching. The Tahontaenrat had only one village and their territory was centred just north of Orr Lake in the southern portion of Huronia. Based on this reconstruction, the geographical location of the Robitaille and Charlebois sites places them securely in the Attignawantan territory. Auger is located in the Attigneenongahnac territory and Warminster in the Arendarhonon territory. The affiliation of the Ball, Bidmead and Thomson-Walker sites is uncertain as they are located in an ambiguous region between the Attigneenongnahac and Arendarhonon territories as illustrated by Heidenreich (1971:Map 17). This situation is further complicated by inaccuracies in the historical sources. As Latta (1985b) pointed out, the seventeenth century maps on which Heidenreich's reconstructions are based are incorrect as they show only four rivers in Huronia rather than the five that actually exist. As the tribal territories were defined in relation to these rivers this discrepancy introduces a further element of uncertainty into the affiliations of these village sites and particularly those in the eastern portion of Huronia.

If the material culture of these sites exhibits geographical patterning attributable to tribal regions this could help to clarify the situation. A high degree of similarity between the Auger and Ball castellations has already been identified, indicating a close relationship between them and possibly membership in the same tribe. Table 2 presents coefficients of similarity for castellation shape among all seven of the Huron sites considered here. Two pairs of sites with close similarity are evident: Auger and Ball on the one hand, and Thomson-Walker and Warminster on the other. These pairs of sites are located close to each other and thus could represent shared tribal affiliations with Auger and Ball representing the Attigneenongnahac and Thomson-Walker and Warminster representing the Arendarhonon. The Robitaille and Charlebois sites are located some distance to the west in the Penetang Peninsula, but are both most similar to Ball. Bidmead is located in the eastern side of Huronia, but is most similar to Robitaille in the west. These groupings, therefore, are unlikely to represent a shared tribal affiliation.

**Table 2.** *Coefficients of similarity for castellation shape.*

| | Auger | Ball | Thomson-Walker | Warminster | Bidmead | Robitaille | Charlebois |
|---|---|---|---|---|---|---|---|
| Auger | | 192.51 | 167.72 | 172.00 | 161.91 | 177.99 | 168.75 |
| Ball | 192.51 | | 156.05 | 164.59 | 169.00 | 185.00 | 176.16 |
| Thomson-Walker | 167.72 | 156.05 | | 186.24 | 138.93 | 153.83 | 132.21 |
| Warminster | 172.00 | 164.59 | 186.24 | | 147.47 | 162.37 | 140.75 |
| Bidmead | 161.91 | 169.00 | 138.93 | 147.47 | | 182.22 | 169.34 |
| Robitaille | 177.99 | 185.00 | 153.83 | 162.37 | 182.22 | | 172.18 |
| Charlebois | 168.75 | 176.16 | 132.21 | 140.75 | 169.34 | 172.18 | |

A similar consideration of coefficients of similarity for attributes of castellation decorative

**Table 3.** *Coefficients of similarity for castellation decorative motif.*

| | Auger | Ball | Thomson-Walker | Warminster | Bidmead | Robitaille | Charlebois |
|---|---|---|---|---|---|---|---|
| Auger | | 186.63 | 162.69 | 166.11 | 182.46 | 184.59 | 167.28 |
| Ball | 186.63 | | 169.48 | 168.80 | 182.91 | 171.66 | 159.60 |
| Thomson-Walker | 162.69 | 169.48 | | 163.20 | 179.71 | 157.82 | 131.90 |
| Warminster | 166.11 | 168.80 | 163.20 | | 169.75 | 162.88 | 135.58 |
| Bidmead | 182.46 | 182.91 | 179.71 | 169.75 | | 180.29 | 149.29 |
| Robitaille | 184.59 | 171.66 | 157.82 | 162.88 | 180.29 | | 166.18 |
| Charlebois | 167.28 | 159.60 | 131.90 | 135.58 | 149.29 | 166.18 | |

motif indicates a different pattern (Table 3). This category combines the incised line motifs with other motifs such as faces and the use of punctates resulting in an inclusive summary of all castellation motifs observed in the assemblages. Once again the Auger and Ball sites are most similar to each other, however Thomson-Walker and Warminster are both most similar to Bidmead, whereas Bidmead is most similar to Ball. Robitaille and Charlebois are most similar to Auger. Again, these two sites cross-cut the postulated geographical tribal divisions. While clusters of similar assemblages therefore are evident, they are not necessarily coincident with tribal affiliations and vary depending upon the attributes used for comparison. The coefficients in Table 2 also show that the coefficient of similarity between Auger and Ball for castellation shape, at 192.51, is the greatest of any pair of assemblages. Likewise their coefficient of similarity for castellation motif is the highest. Furthermore Auger and Ball are the only sites to maintain a consistent pairing in both of the attributes compared.

The grouping of sites based on ceramic similarity was explored further using cluster analysis. Hierarchical cluster analysis with between groups linkage using counts of castellation shapes standardized to account for sample size differences was performed using SPSS. This analysis found no significant difference between the assemblages. A similar analysis for motif categories found that the Warminster site differed from Auger and Ball but otherwise the assemblages are very similar. These results confirm that all of these assemblages are derived from a single ceramic tradition as was demonstrated by their sharing of the common turret-shaped style. They do not, however, help to distinguish groupings within this tradition. A second cluster analysis was performed using standardized castellation shape frequencies with the squared Euclidian distance measure and between groups linkage. The resulting dendogram is shown in Figure 7. After a visual inspection of this diagram a rescaled distance of five was chosen as the breaking point, thus in this analysis Auger and Ball cluster together and are the most similar pair. Thomson-Walker and Warminster cluster together as do Bidmead and Robitaille while Charlebois appears as an outlier. In a similar cluster analysis of decorative motif frequencies, Auger and Ball again cluster together as the most similar pair. Bidmead and Robitaille also cluster together, but in contrast to the preceding cluster analysis, Thomson-Walker and Warminster do not. Once again, the Auger and Ball sites maintained a consistent pairing throughout.

These observations confirm the special nature of the relationship between the Auger and Ball sites. In this context, such a high degree of similarity indicates the presence of a single community relocating their village site over time.

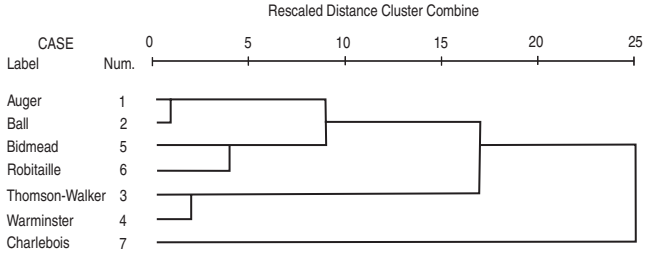


**Figure 7.** *Hierarchical cluster analysis dendrogram of castellation shapes between the sites using average linkage.*

Historically, the Huron are known to have relocated their villages periodically, usually every ten to twelve years (Heidenreich 1971:29-30; Sagard 1939:92; Thwaites 1959:14:153). The main reasons the Huron gave for moving were exhaustion of the soil and firewood supplies (Sagard 1939:92; Thwaites 1959:11:7). Heidenreich (1971:214) suggested that the need to clear new fields farther and farther from the village eventually resulted in fields that were too scattered to be adequately supervised. Other factors contributing to the decision to relocate a village may have included the proliferation of pests such as mice in the village (Heidenreich 1971:214), likewise the accumulation of refuse in and around the village may have made a move desirable. These moves reportedly occurred over short distances of up to three leagues (Heidenreich 1971:30; Thwaites 1959:8:91).

Archaeological considerations of village relocation sequences for the Huron and other Iroquoian groups tend to begin with the assumption that geographical clusters of sites represent the relocation of a single community over time and then proceed to investigate the ceramic similarity between those sites (Bursey 1993; Tuck 1971; Warrick and Molnar 1986). With respect to Onondaga prehistory, for example, Tuck (1971:208) identified "three distinct geographically isolated groups of sites" and suggested "that each of these groups of sites represents the village removals and resettlements of a single small community." He was then able to isolate ceramic microtraditions that distinguish these sequences. In Ontario, Ramsden (1977) grouped Huron sites into clusters based on both geographical proximity and ceramic similarity. He subsequently experienced some difficulty in ordering the members of each cluster into linear sequences, however, and suggested that this may be due to interaction and ceramic exchange between contemporary communities and to the effect of sites missing from the sequences (Ramsden 1977:190-191, 194, 204). In the present study, the ceramic similarity between a pair of Huron sites was identified first. This close similarity combined with the geographical proximity of these two sites and the dating of the Auger site (circa A.D. 1610-1630) to a period slightly later than the Ball site (circa A.D. 1600) indicates that the inhabitants of the Ball site moved westward to build a new village at the Auger site.

The occurrence of village relocations such as this have important implications concerning the nature of ceramic artifacts. The ceramics recovered from two sites representing two sequential locations of the same village population should be almost identical as they would have been manufactured by the same potters. The only variations that would occur would be minor variations over the time span of the two sites and in the style of individual potters. The time span involved would have been very short–perhaps as little as 20 years for the entire occupation of both sites. The variation between ceramics at the two sites would be essentially the same as the variation over the ten-year period of occupation at one site, with the ceramics of the last years of occupation at the first site being nearly identical to those of the first years at the second site. Thus a continuum of slight variations over the course of two village site occupations would be expected in an otherwise virtually identical ceramic assemblage.

The Ball and Auger site castellations are indistinguishable in terms of shape, oblique line motifs, and most paste attributes. Furthermore, anomalous styles such as the horizontal style, double-shaped castellations and face motifs are identical. These results, combined with the sequential dating and close proximity of the two sites favour the relocation scenario as the best interpretation of the relationship between the Ball and Auger sites.

## Conclusion

A set of attributes has been defined here for the analysis of ceramic castellations and has been applied to the substantial assemblages recovered from the Auger and Ball sites. The comparison of these two assemblages indicates that they are indistinguishable in form and in the frequency of a majority of attribute categories. Even where differences do exist they are slight. This close similarity pertains to all classes of attributes: shape, decoration and paste. The similarity of

these attributes provides valuable information indicating that the potters of these sites shared a common concept of what constituted appropriate castellation forms and decorative motifs and that they used the same ceramic manufacturing techniques. The similarity between the Auger and Ball castellations becomes even more striking when they are placed within the context of contemporary Huron sites such as Thomson-Walker, Warminster, Robitaille, Bidmead, and Charlebois. At these sites the potters used similar shapes and designs but in significantly different proportions. Therefore, the relationship between Auger and Ball appears to be an unusually close one, reflecting the relocation of the same village community over time.

While the analysis of ceramic castellations has provided valuable insight into social interaction and site relationships, castellations comprise only a very small component of the ceramic vessels that are themselves just one aspect of Huron culture. In order to confirm the conclusions reached here regarding village relocation it will be necessary to examine other aspects of the material culture, as well as settlement patterns and subsistence practices. The castellations, therefore, provide the first in a series of comparisons necessary to investigate the relationship between these sites and also illustrate the potential value of such investigations.

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