

Three Native American Ceramic Vessels from Western Vermont: The Colchester and Bolton Jars Revisited

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Abstract

Three nearly whole Native American ceramic vessels were discovered during the nineteenth century in Bolton and Colchester, Chittenden County, Vermont. Details about the individual discovery of each vessel are somewhat uncertain. Although all three have been widely illustrated in the past, they have not been fully described and published before. All of them are best assigned to the late portion of the so-called "Late Woodland" period on the basis of their form and decoration characteristics and they can be cross-dated to about 400-700 years ago, or ca. A.D. 1300-1600, and perhaps even more specifically to ca. A.D. 1400-1600. These are some of the most intact vessels for this period known from anywhere in northeastern North America and they demonstrate the high refinement of ceramic technology by late prehistory. All demonstrate regional connections beyond western Vermont, with probable affinities to the St. Lawrence Iroquoians.

Introduction

Three late prehistoric (or pre-contact) Native American ceramic vessels are described in some detail here, given the extreme rarity of such finds in local and broad regional contexts. There are many fragmentary, often woefully incomplete, ceramic vessels preserved in the archaeological record, but intact or reconstructed whole vessels are limited to a few dozen examples from all across Vermont and the rest of northern New England, including New Hampshire and Maine. Whole ceramic vessels of any age, whether intact or reconstructed from fragments, are likewise rare all across northeastern North America, or the Northeast. Thus, our understanding of the roughly 2500-year chronology for Native American (or aboriginal) ceramic manufacture and use has been based by necessity on small, fragmentary examples for all temporal subdivisions of this time span in the Northeast (e.g., Petersen 1998; Petersen and Sanger 1991; Ritchie and MacNeish 1949). The duration of aboriginal ceramic manufacture and use is roughly equivalent to the so-called "Woodland period" of regional prehistory and also the early historic, or "Contact," period. Overall, the Woodland period is dated ca. 3000 to 400 B.P. (uncalibrated) in Vermont, or roughly ca. 1000 B.C. to A.D. 1600, and the Contact period is dated to 400 to 250 B.P., or A.D. 1600-1750.

Regardless of age, Native American ceramics in the Northeast were low fired, that is, they were fired under low

temperatures and likely only in open conditions without the use of kilns. Consequently, they were relatively fragile and often broke during firing and use, including even those of the best quality such as the late prehistoric examples discussed here. Their aboriginal owners expended great effort in some cases to prolong the "use life" of ceramic vessels within their cultural contexts, but sooner or later virtually all vessels were forcibly retired and discarded due to breakage. Furthermore, when buried whole for one reason or another, as in very rare association with burials during some periods, for example, these vessels were almost always later crushed by the weight of the sediment over time, although exceptions are known.

Thus, intact whole vessels have been preserved only in extraordinary circumstances, notably when cached above ground or dropped into water, for example. A 2000-year old jar recovered from Lake Champlain in 1997 is an example of the latter preservation condition (Petersen 1997). A few other examples have been recovered underwater in Lake Champlain, for example, near Grand Isle, Vermont, and near Cumberland Head in New York State (e.g., Lewis 1994).

The three ceramic vessels described in this article were all preserved in nearly intact condition apparently because of their storage and then abandonment in cache-like settings (Figures 1-6). The Colchester jar was recovered from underneath an ancient tree stump, likely buried in a pit, while the other two apparently were found in one or more rockshelters or caves in Bolton. As reported more fully below, they were discovered during the nineteenth century, as early as 1820-1825 in two cases, and later for the third one, suggesting that they were not recovered archaeologically. Rather, they were so obvious that non-archaeologists found them during the Euroamerican development of Vermont. In fact, in the case of the Colchester jar and one of the Bolton jars, they were discovered well before the advent of archaeology in Vermont and the broad region. The second Bolton jar was discovered at the end of the 1800s when the first developments of local and regional archaeology were just getting underway.

In any case, all three ceramic vessels entered the scientific record through kind donations to the University of Vermont (UVM) and thereafter through the early research of George H. Perkins, the first archaeologist in Vermont. However, Perkins was self-trained and he could not easily place these and other finds within broader contexts. In 1871, Perkins (1871:13-14) published details about the Colchester jar and one of the two Bolton jars, including several crude illustrations of them, along with close-up views of the relatively complex decoration on

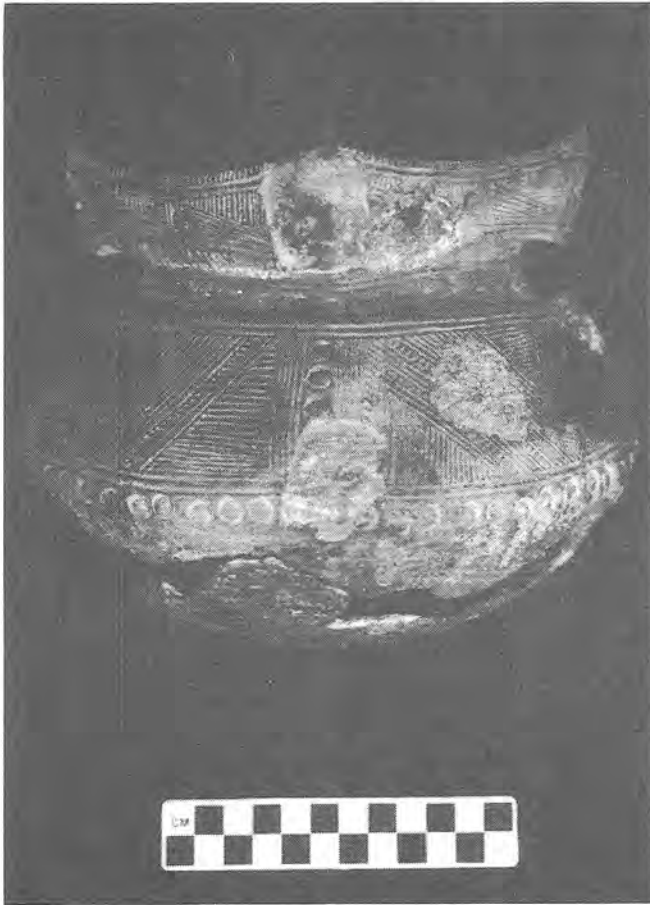


Figure 1. Overview of the Colchester jar, showing complex decoration, high collar, exterior spalling, and missing portions of the lower body.



Figure 2. Overview of the Colchester jar, showing missing portion of the collared rim.

the Colchester jar. Perkins said nothing about their potential age or relationships.

In the early twentieth century, Perkins ([1910] 1970:56-58, Plate 16; see also Perkins 1909:Plate 36b-d) further reported: "It is safe to say that less than a dozen entire jars found in New England are now preserved in all our collections," but more were then recognized in New York State. Speaking about all of New England and nearby areas here, Perkins' research enabled early archaeologists to use these vessels and others more fragmentary to help construct the first chronologies for regional prehistory. While these seem gross and inaccurate in modern terms, Perkins' publications and his direct assistance helped Charles C. Willoughby and others correctly sketch the temporal and possible cultural differences for the period of aboriginal ceramic manufacture across much of the region.

In particular, Willoughby ultimately (1909:Figures 13-15, 1935:Figure 116) published accurate drawings of all three vessels, including both Bolton specimens, and he tentatively

recognized both their temporal and cultural dimensions. Willoughby placed all three vessels into his "Iroquoian" category, as distinguished from his older "Archaic Algonquian" and "Later Algonquian" categories. The latter category, "Later Algonquian," was at least partially contemporaneous with the "Iroquoian" one, on the basis of what Willoughby (1909:93) recognized as "Iroquoian" influences on the "Algonquian" vessels. More specifically, Willoughby suggested that both Bolton jars and the Colchester jar were "distinctly Iroquoian types," based on his knowledge of regional ceramics. Willoughby (1935:198) later suggested: "There does not seem to be as yet conclusive evidence of extended occupation of New England by the Iroquois with the possible exception of the eastern Champlain Valley" (see also Willoughby 1909:970).

Other reference to and illustration of one or more of these vessels has occurred in later publications right up until the present (e.g., Haviland and Power 1994:150-152, 173; Howes 1944, 1960; Pendergast 1990, 1991; Petersen 1990; Tremblay



Figure 3. Overview of Bolton jar no. 1, showing exterior decoration and low collar.

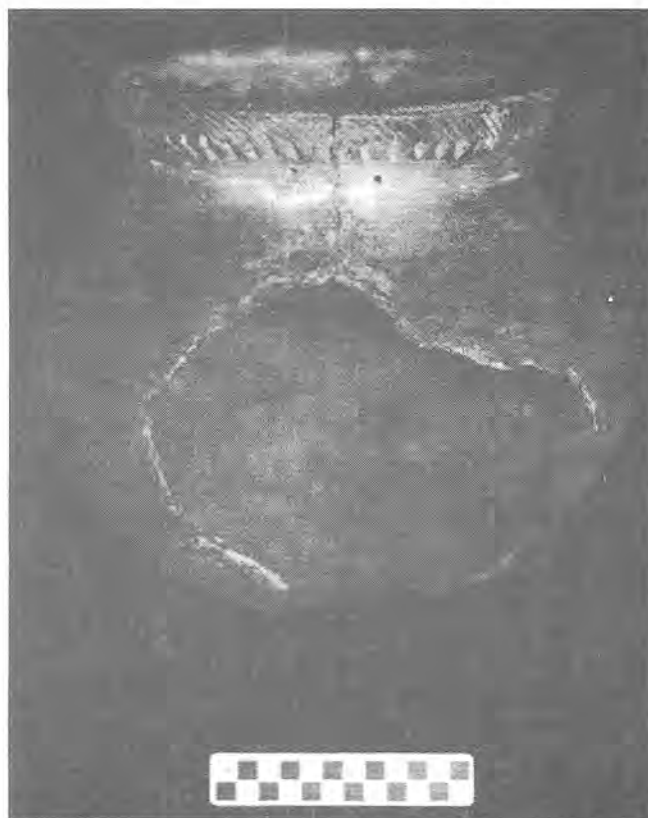


Figure 4. Overview of Bolton jar no. 1, showing old crack in upper portion and missing portion of the lower body.

1996, 1999; Wiseman 1991). Moreover, the Vermont Archaeological Society has often used the Colchester jar as its logo over the past 30 years or so. UVM archaeologists William Haviland and Marjory Power (1994:150-53, Figures 4-20 and 5-11) also dated these vessels quite late and related at least the Colchester jar to possible St. Lawrence Iroquoian refugees "who came to live among the Abenakis." Haviland and Power described the two Bolton jars as "Iroquoian related."

Fred Wiseman (1991:98-99), a Western Abenaki scholar and student of material culture, has challenged the Iroquoian attribution of the vessels, however. Wiseman suggests that the Colchester jar in particular was made by the Western Abenaki, but we feel that his attribution is based more on political grounds, rather than the details inherent in the pots. Wiseman has made the case that one or more of these vessels are of Western Abenaki manufacture because of their discovery within Abenaki territory. He worries that assignment of these vessels to Iroquoian origins will contribute to the "attempt to extinguish Abenaki rights to land that has been theirs for 10,000 years." Still more pointedly, he says: "This [Iroquoian] nomenclature carries profound moral implications when it fosters beliefs that deny the rights of a native people to their

homeland and their ancestral way of life" (Wiseman 1991:98).

In spite of this critique and the valid concerns that underlie it, we recognize obvious Iroquoian relationships for all three vessels on analytical grounds. In the past, the senior author has presented several different hypotheses to account for this late prehistoric Iroquoian ceramic "macro-style" (or tradition) beyond the known distribution of Iroquoian people during late prehistory and early history. He proposed that there were actual Iroquoian style ceramics present in northern New England during this period, along with Iroquoian "homologies," or Iroquoian "look-alike" vessels made by non-Iroquoian potters copying elements of the generic Iroquoian macro-style. The non-Iroquoian potters also made a different and contemporaneous macro-style (or styles) of their own that was not directly related to the Iroquoian style, producing a minimum of three contemporaneous macro-styles regionally in very broad, general terms (e.g., Petersen 1990; see also Willoughby 1909:100-101). The vessels attributable to the Iroquoian macro-style may have been, in fact, locally manufactured by resident Iroquoian populations during late prehistory, or they may represent the products of Iroquoian potters married into non-Iroquoian groups. Alternatively, they may simply represent trade goods, or even "booty," transferred

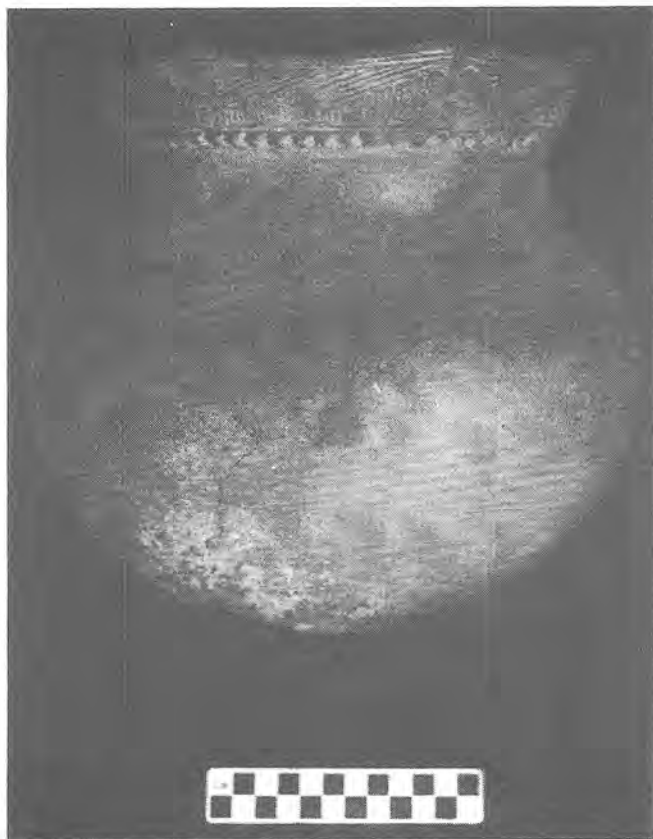


Figure 5. Overview of Bolton jar no. 2, showing collar and neck decoration, and high collar.

from Iroquoians to non-Iroquoian people, presumably Abenaki. It is possible one or more other mechanisms actually account for the presence of the Iroquoian macro-style in western Vermont and a few other locales in northern New England (Petersen 1990). We recognize the tentative nature of the attribution of these vessels to Iroquoian origins regardless of how they came to be in Vermont, but they do not seemingly represent Western Abenaki-made pots in any case.

Were there recognizable Iroquoian and Iroquoian “homology” (look-alike) styles, along with an unequivocal non-Iroquoian ceramic style(s) in northern New England during late prehistory? We maintain, “yes, there were.” Northern New England and the broader Northeast was a very complicated social landscape during the final centuries before European contact and just after it, and this had direct manifestations in the aboriginal ceramic record (e.g., Chilton 1996; Goodby 1994; Petersen and Sanger 1991). No other parallel occurs among typically surviving artifacts in the regional record and thus, pottery provides significant information for delineation of this complex array of social interactions. Unfortunately, the highly traumatic and often

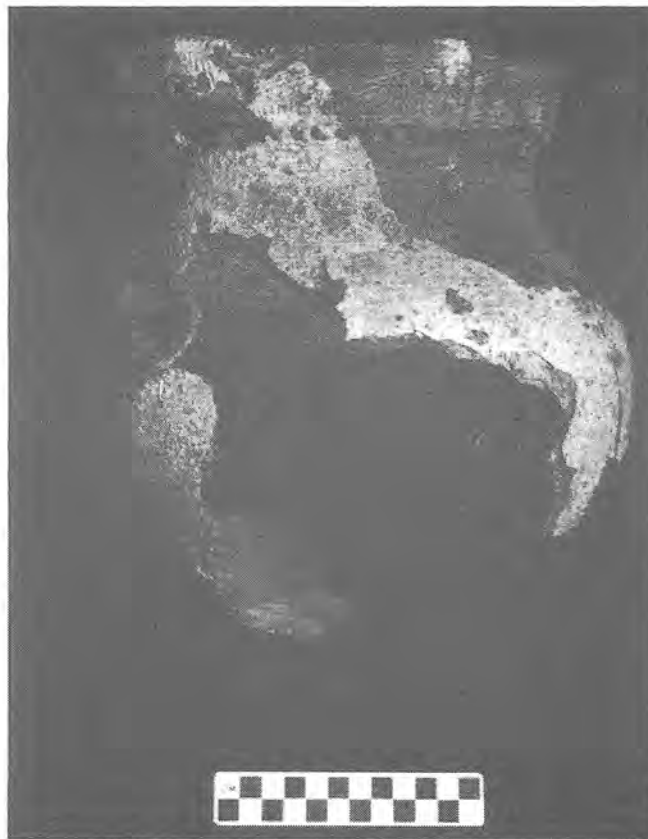


Figure 6. Overview of Bolton jar no. 2, showing decoration, high collar, missing portion of the body, and presumed calcium carbonate precipitate.

devastating effects of contact with Europeans soon disrupted traditional aboriginal material culture regionally and as a result, we have precious few direct links between archaeological finds and known ethnographic groups.

Archaeological Contexts for the Ceramic Vessels

The precise details related to the discovery of these three ceramic vessels, described typically as the “Colchester” and “Bolton” “jars,” will never be known, given the passage of more than a century since the last one was discovered in Bolton and conflicting details in the scant related documentation. Available information about their contexts at the time of discovery is summarized here, although it is variable in terms of its completeness and the original contexts are not fully clear.

Beginning with the so-called Colchester jar, Abby Hemenway (1867:454), among others, provided early mention of this vessel. Hemenway reported: “If, however, the Abenakis made that specimen of pottery, constructed in such

perfect form, and so highly ornamented upon its exterior surface, there was a time when they far excelled in that useful art." In 1871, George H. Perkins (1871:13) provided some of the earliest concrete information about it, saying that it "was found about six miles from Burlington, in the town of Colchester, in 1825. It was found some distance below the surface and covered by a stone over which the root of a large tree had grown; this tree was quite decayed and the stone itself considerably decomposed." Perkins (1871:Figure 1) illustrated the Colchester jar with a roughly accurate overview drawing and several detailed views of its decoration. Later in 1909, Perkins (1909:620-621) further reported that the Colchester jar was found "near Lake Champlain," but "two or three miles east of it." He went on to say, however, that it "was unearthed in 1885," but this must be incorrect. This date is likely a typographic error, given the 1871 account cited above and other information. In this case, Perkins (1909:Plate 36d) illustrated the Colchester jar with a high quality photograph. The same photograph was included in Perkins' 1910 (1970:Plate 16d) account, where he said that its "form is peculiarly elegant and appears to have been not very uncommon" based on other fragmentary examples from the local area (Perkins [1910]1970:Plates 15 and 16a). He also said about the Colchester jar "probably none so fine has been found in this region".

Documentation on the Colchester jar records it was discovered by "Captain Johnson" in 1825. However, Luther Loomis was the one who donated the Colchester jar to UVM in 1827. In a transcribed version of the letter accompanying its donation to the "College of Natural History" at UVM, dated June 24, 1827, Loomis reported that Captain John Johnson discovered the Colchester jar in 1825. Loomis said that he had purchased it from Captain Johnson the day before he wrote his donation letter, presumably meaning June 23, 1827. The Loomis letter reports that Johnson "found it covered with a stone over which a large tree had grown and had been so long dead that the body [of the tree] was perfectly rotten—a large root of the tree grew over the stone which covered the pot which was also decayed. He found it near some Indian stone arrows which he did not preserve." Elsewhere, it is recorded that Johnson was a Burlington surveyor (e.g., Haviland and Power 1994:173).

The Loomis letter varies slightly from the accounts presented by Perkins, especially in terms of its depth and associations, but these differences may merely represent simple editing on the part of Perkins. Nonetheless, the Loomis letter is presumably the most reliable available source about the origin of the Colchester jar. Notably, there was no mention of any human remains or bones of any sort and so, the Colchester jar clearly was not recovered from a grave. An accurate (but slightly stylized) illustration of the Colchester jar was published by Charles C. Willoughby (1909:Figure 13, 1935:Figure 116c) in several places.

The first of the Bolton jars, characterized by a narrow zone of decoration on a low collar, has even more conflicting

and incomplete information for it. In 1871, George H. Perkins (1871:15) wrote that this jar, "not ornamented except by a ring around the neck," "was found in Bolton, Vermont, about fifty years ago," making its discovery around the time that the Colchester jar was discovered, seemingly during the 1820s. He depicted it with a crude, inaccurate drawing that nonetheless captured its salient characteristics (Perkins 1871:Figure 2). At the time, Perkins (1871:16) reported that the Bolton jar was then "in the possession of J. N. Pomeroy, Esq., of Burlington."

In 1909 and 1910, Perkins presented slightly contradictory evidence for this Bolton jar. His 1909 account reported that it was "found about the same time as [the Colchester jar]," but in the town of Bolton about "twenty miles east from the shore" of Lake Champlain, and he illustrated it with a high quality photograph (Perkins 1909:621, Plate 36b). Elsewhere, in his 1910 (1970:57) account Perkins said that this Bolton "jar was found about fifty years ago and was owned by Mr. J.N. Pomeroy of Burlington, who, a few years ago, not long before his death, gave it to the Burlington Museum" at UVM. The latter portion of this account accords with his earlier 1871 account, except where he again says it was found about fifty years before hand, which would place its discovery around 1860. This is likely an inaccurate rendition of the date for its discovery, perhaps inadvertently carried over from the 1871 account. Again, this Bolton jar was illustrated by Perkins ([1910]1970:Plate 16b), using the same photograph as in the 1909 article.

No other information seems available for the origin of the low collared Bolton jar and its context at the time of discovery seems equivocal. However, its substantial integrity and completeness suggest that it may have originated in a rockshelter or cave setting in Bolton, but this is only a guess. Charles C. Willoughby (1909:Figure 15, 1935:Figure 116e) also published a high quality illustration of this jar in several different places and he correctly attributed its origin to Bolton. Using data reported by Schuyler Miller (n.d.:92) from the Fleming Museum, James Pendergast (1990:99) also determined that this vessel had been recovered around 1820.

The second Bolton jar is different than the first one, and it somewhat resembles the Colchester jar. It was clearly discovered and/or brought to the attention of George H. Perkins after his 1871 pottery account, since he does not mention it there. In 1909, however, Perkins (1909:621) said that the second Bolton jar was found "in 1895...partially uncovered, sheltered by a sort of cave formed by large fallen rocks in a woods away from the general route of travel. It is remarkable that so perfect a specimen should have remained so long undiscovered, even in the out-of-the-way place, where it was hidden." He illustrated it with another high quality photograph (Perkins 1909:Plate 36c). At the time, Perkins (1909:621) suggested that the second Bolton jar apparently originated roughly one mile away from the first Bolton jar, but the reasons behind this suggestion are unclear today.

In his 1910 account, Perkins ([1910]1970:57) repeated essentially the same context information for the second Bolton

jar and he provided some details about how it arrived at UVM: "It was brought by Dr. C.G. Andrews, then of Waterbury, and given to the Museum at Burlington." Again, the same photograph as the 1909 account was used to illustrate the 1910 account (Perkins [1910]1970:Plate 16c).

Charles C. Willoughby (1909:Figure 14) published an accurate illustration of the second Bolton jar too, but in his 1909 account he erroneously attributed its discovery in several places to the non-existent location of "New Burlington," probably garbling something reported to him such as "near Burlington." Without any apparent reason (and lacking any good evidence other than its intactness), Willoughby said the second Bolton jar was "presumably from a grave." However, calcium carbonate precipitate on this Bolton jar, described further below, conclusively documents that it was indeed found in a rockshelter (or cave), as clearly described by Perkins and cited above. Thus, this jar was not associated with a grave. More recently, again using data provided by Miller, Pendergast (1990:99) reported that this vessel was recovered in 1903, not 1895, but the 1903 date is likely inaccurate.

Research Methods and Results

All three ceramic vessels were studied using standard methods developed by the senior author for the analysis of typically fragmentary, hand-built, open-fired ceramic vessels (e.g., Petersen 1980, 2000; Petersen and Burt 1985; Petersen and Newcomb 1986). In brief, this is based on a detailed attribute analysis of each vessel, including major categories of temper, texture, manufacture, surface finish, form, metrics, color, and decoration. Measurements were recorded using Helios needle-nose calipers, where possible, supplemented in some cases by both metric rulers and tape measures. Color determinations were made using Munsell Soil Color Charts. A binocular microscope, 10-25X, was used to study the temper, but this task was handicapped by the largely intact condition of each vessel, making it difficult to observe the temper on the surfaces and broken edges of each vessel. Each of the major attribute categories is summarized in Table 1.

Temper

As noted above, the temper, or binding agent mixed with clay to form the paste, was difficult to assess for each vessel due to their nearly intact condition. The size of the vessels also made them somewhat difficult to examine using the microscope and the temper analysis is therefore rather provisional.

In any case, the temper includes generally "fine" (less than or equal to 1.0 mm) quartz grit for all three vessels. However, the quartz ranges up to "coarse" (equal to or larger than 3.0 mm) size fragments, with a maximum observed size of 3.90 mm for the Colchester jar and 3.00 mm for Bolton jar no. 2, the one with the high collar. The other Bolton jar, or Bolton jar no. 1, exhibits a low collar, has quartz grit only "medium" (larger than 1.0 mm and less than 3.0 mm) in size, including a maximum of 2.10 mm. The quartz represents

roughly 20-30% of the paste for the Colchester jar and Bolton jar no. 2, while in Bolton jar no. 1 it represents about 10-20% of the paste.

Apparent muscovite mica is present in all three vessels, in all cases seemingly fine, or less than 1.0 mm in size, and "sparse," or less than 10% of the paste. Two vessels, the Colchester jar and Bolton jar no. 2, also exhibit a black mineral of some sort that was difficult to see due to the variably dark color of the vessel surfaces and limited broken edges; it may represent hornblende or tourmaline. Regardless, the black mineral is again most typically fine, but it ranges up to medium, or 1.60 mm, and coarse size, or 4.80 mm, in these two vessels, respectively. The black mineral also apparently represents less than 10% of the paste. Finally, Bolton jar no. 1 exhibits a carbonate-grit of some sort, perhaps limestone, which is generally fine but it ranges up to a coarse size of 3.35 mm. The carbonate-grit represents about 20-30% of the paste of Bolton jar no. 1.

Texture

The general texture attributes reflect that these vessels were very well made in all cases, likely the consequence of using mostly fine temper and taking great care in building, finishing, and firing them. The texture details include a consistent representation of "fine" texture for all three vessels, out of a potential range of fine, medium, and coarse textures among regional pottery samples. Two vessels show very little extrusive temper, while the third, Bolton jar no. 2, shows slight extrusion of the temper and some "star" fractures, or small cracks, emanating from the extrusive grit temper. All three vessels are ranked as being "well" (or thoroughly) consolidated in correlation with their other temper and texture attributes. Finally, one vessel, Bolton jar no. 1, demonstrates blocky-angular fractures along its broken edges. The other two vessels combine blocky-angular fractures with blocky-platey fractures on the broken edges, that is, they show some spalling where damaged (see Figure 1), in correlation with the thin walls, fine temper, and thorough consolidation.

Manufacture

All vessels were certainly manufactured in part through hand modeling. In each case, the collar area must have been at least partially modeled. No clear evidence of coiling was observed on the body of the Colchester jar, but it is unclear whether this means it was solely modeled all over, or that it was so well finished that the coils used in its construction were effectively obliterated. The exterior spalling on the Colchester jar may provide evidence that it was modeled, rather than coiled. Both Bolton vessels preserve variable evidence of coiling, the most clear of which is found on Bolton jar no. 1. Coils range from 9.50-12.45 mm high and 5.10-6.20 mm thick, where measured for Bolton jar no. 1 (n=5). Bolton jar no. 2 was also apparently coiled and its body coils apparently are about 11.50-11.70 mm high and 4.90-5.15 mm thick on the basis of a small sample (n=2).

Table 1. Vessel Attributes for the Colchester and Bolton Jars.

Attribute	Vessel Designation		
	Colchester	Bolton 1	Bolton 2
Temper			
quartz	•	•	•
black mineral	•		•
mica	•	•	•
carbonate		•	
Texture			
fine	•	•	•
little extrusion	•	•	
“star” fractures			•
well consolidated	•	•	•
blocky-angular fractures	•	•	•
blocky-platey fractures	•		•
Manufacture			
modeled rim	•	•	•
coiled body		•	•
unknown body	•		
Surface Finish			
smoothed exterior	•	•	•
burnished exterior	•		•?
paddled exterior		•	
smoothed lip			•
burnished lip	•	•	
smoothed interior	•	•	•
Form			
squat, spherical		•	•
squat, quadrilateral and spherical	•		
high collar	•		•
low collar		•	
collar castellations	•		•
round base	•	•	•
Metrics			
lip (mm)	8.30-11.90	9.40-10.60	8.90-11.70
1 cm below (mm)	8.55-11.20	10.90-11.55	8.40-11.20
neck (mm)	5.10-5.20	7.80-9.15	6.35-8.50
body (mm)	4.55-6.20	4.35-5.80	4.60-6.40
base (mm)	4.70 (+)	4.50-5.50	4.55-4.60
oral diameter (cm)	12.7-16.7	20.5	21.5
outer body diameter (cm)	23.0	31.0	28.0
collar height (cm)	3.1-4.4	2.1	4.0-4.5
vessel height (cm)	19.5	28.1	29.0

(Table continued)

Table 1. Vessel Attributes for the Colchester and Bolton Jars (continued).

Attribute	Vessel Designation		
	Colchester	Bolton 1	Bolton 2
Color			
exterior	5YR 5/3	10YR 4/3	7.5YR 4/4
interior	5YR 4/3	10YR 4/2	10YR 5/2
core	5YR 4/1	10YR 3/1	10YR 3/1
firing cloud	5YR 3/1	10YR 3/1	10YR 3/1
Decoration			
exterior collar incision	•	•	•
exterior collar open punctation	•		•
exterior collar linear punctation		•	
exterior collar finger punctation			•
exterior body incision	•		•
exterior body open punctation	•		
lip incision	•	•	
lip undecorated			•
interior incision		•	•
interior undecorated	•		

Surface Finish

All three vessels exhibit predominant smoothing on their exterior surfaces, with burnishing also clearly represented on the exterior of the Colchester jar and perhaps also on Bolton jar no. 2. Bolton jar no. 1 combines apparent fabric paddling (or check stamping?) on the exterior, with subsequent smoothing over the initial finishing technique. The apparent fabric is very indistinct, but it may represent some form of twining, with an apparent Z-weft slant. Z-weft slants are typically associated with fabrics found on Iroquoian-related ceramics, or so available data seem to suggest (Petersen 1996; Petersen and Wolford 2000).

Two vessels exhibit burnished lip surfaces, while the third, Bolton jar no. 2, exhibits a smoothed lip surface. All three vessels exhibit smoothed interior surfaces. Finger indentations are clearly evident on the interior surfaces of the Colchester jar and Bolton jar no. 1, left from handling during the manufacture process. Fine striations are represented on all three vessels on the interior and some are found on the exterior as well.

Form

The original form, or morphology, is well represented for all three vessels due to their relative completeness and it is easy to reliably envision their fully intact forms, all of which are relatively complex in terms of the long span of regional ceramic manufacture (Figures 7-9). In fact, the Colchester jar ranks among the most complex vessel forms yet known in Vermont and much of the broader Northeast.

We did not precisely measure the completeness of these

three vessels, but some general estimates were recorded. The Colchester jar is missing one of its four rim castellations, about 1/5 of its rim, and about 1/5 or so of its lower body below the decorated rim and upper body. A large section of its entire circumference is preserved in other words and probably 80-90% of the vessel seems represented overall.

In the case of Bolton jar no. 1, the whole low collared rim and most of the neck is preserved, although it has a vertically oriented crack running through this area down to the missing portion of the upper body and the larger missing portion of the lower body. The crack must have occurred while the vessel was in use prehistorically because two uniconical "repair holes" were drilled just below the low collar about 3.8 cm apart on either side of the crack (Figure 10). They were drilled after the pot had been fired on the basis of the irregular fractures around the repair holes. These holes were only drilled from the exterior and show a maximum outer diameter of about 6.1-7.3 mm and taper to a minimum diameter of about 3.8 mm. It is quite likely that a leather thong or cordage of some kind was lashed across these holes on either side of the crack. If leather, it might have been placed on wet and it would have shrunk and tightened after drying, binding the crack as best as possible. The crack was repaired at the Fleming Museum in the recent past. We estimate that about 70-80% of the original Bolton jar no. 1 is represented.

Finally, Bolton jar no. 2 preserves its entire rim and upper body. It is missing about 1/5 to 1/4 of its lower body, and thus is about 75-85% complete. As noted above, calcium carbonate precipitate covers a significant area of the exterior, likely about a third of the exterior circumference of the body and a



Figure 7. *Cross-section of the Colchester jar (exterior view partially adapted from Willoughby 1909, 1935).*

small bit of the interior and lip. The precipitate is found on either side of the broken out area, but does not cover the broken edges, indicating that this section of the vessel was lost after the vessel had been partially covered by the precipitate, probably at or around the time of its discovery in 1895.

Moving on to the specific vessel forms, the Colchester jar exhibits a relatively unique form, which ranges from slightly irregular quadrilateral (four-sided) on its collar to a short, or squat, spherical lower body (see Figure 7). A distinctive inflection point, or “carination,” bounds the upper and lower body. The Colchester jar has a maximum outer diameter that exceeds its height, and it has a well-rounded base, as do the other two vessels. This is quite unlike the vast majority of earlier aboriginal vessels that exhibited conoidal bases over most of the long regional sequence. This carination form is distinctive of some St. Lawrence Iroquoian vessels (e.g., Pendergast 1973, 1984, 1990:103). The two Bolton jars are also somewhat squat in relative terms (see Figures 8 and 9). Like the Colchester jar, Bolton jar no. 1 again has a maximum outer diameter that exceeds its height, while the height of Bolton jar no. 2 slightly exceeds its maximum outer diameter, making the latter vessel just slightly less squat than the others.

The Colchester jar and Bolton jar no. 2 have what we consider to be “high” collars, while Bolton jar no. 1 has a “low” collar. “Castellations,” or raised points/nodes on the lip, are represented on the two high collared jars. Four especially

notable castellations were once represented on the Colchester jar, roughly rising 13.0 mm or more above the lowest portion of the lip; one castellation was lost when a piece of the rim was broken away. On Bolton jar no. 2, there are six castellations, making its collar somewhat hexagonal, and they rise about 4.7 mm above the lowest point on the lip. In general, the Colchester jar demonstrates one of the more relatively massive collars known from the region. The low collar on Bolton jar no. 1 is less distinct and it does not include castellations.

All of the collar forms can be related to the known range of Iroquoian ceramics (e.g., Clermont et al. 1983; MacNeish 1952; Pendergast 1966, 1973, 1981, 1984, 1990; Wintemberg 1936). However, the castellated examples are particularly diagnostic of St. Lawrence Iroquoian vessels (e.g., Clermont et al. 1983:Figures 12 and 16; Pendergast 1990:102). Western Abenaki and other non-Iroquoian peoples also made collars on their vessels prehistorically and historically, sometimes with comparable castellations and other decoration generally similar to (but distinct from) Iroquoian examples. However, the non-Iroquoian collars are almost always lower than the “high” collars as represented among two of these three vessels, and the non-Iroquoian vessels are often much smaller overall than most Iroquoian ones (Cowie and Petersen 1999; Petersen 1990; Petersen and Sanger 1991). Distinctive collared vessels made by non-Iroquoian groups have been sometimes labeled as Iroquoian “look-alike,” or Iroquoian “homologies” (Petersen 1990), as noted above, among other designations.

Metrics

As can be seen from the accompanying data (see Table 1), the metrics for these three vessels are relatively complete (except where they were difficult to measure). They help establish the large overall size for several of them, Bolton jars nos. 1 and 2, and a more modest overall size for the Colchester jar. All three have relatively small oral diameters, especially the Colchester jar, which ranges from ca. 12.7–16.7 cm across its opening due to slight irregularity in its quadrilateral form. The other two jars have oral diameters of nearly the same size as one another, 20.5 cm and 21.5 cm. Although the Bolton jars are certainly not the largest of all vessels known regionally, they tend toward the larger end of the spectrum on the basis of their large spherical bodies, especially relative to contemporaneous late prehistoric vessels made by non-Iroquoian peoples such as the Abenaki.

We did not re-measure vessel capacity for any of the three vessels, but Perkins (1871:15, 1909:621) reported that the Colchester vessel had a capacity of “nine pints,” or 4.5 quarts, just slightly more than a gallon. He also reported the capacity of Bolton jar no. 1 as “12 quarts,” or 3 gallons, while Bolton jar no. 2 “holds nearly fourteen quarts,” or 3.5 gallons (Perkins 1909:621).

Color

Color attributes are reflective of overall ceramic firing conditions, among other factors such as clay content and post-

depositional alteration. In the present case, the colors vary between and within the vessels, apparently due primarily to firing (see Table 1). Using English names for the recorded Munsell colors, the Colchester jar is largely "reddish brown" (Munsell 5 YR 5/3) on the exterior, except where darker firing clouds are "very dark gray" (5 YR 3/1). The interior of the Colchester jar is mostly darker than the exterior, with its value of "reddish brown" (5 YR 4/3). The predominant interior color is "very dark gray" (5 YR 3/1). Apparently representing a historic addition, there is a small patch of red paint on the upper interior, with a little on the exterior too; in both cases it is "dark reddish brown" (2.5 YR 3/4). The "dark gray" (5 YR 4/1) core that shows in cross-section and its overall color values seem to suggest that the Colchester jar was fired in an oxygen-rich, or "oxidized," firing environment and perhaps quickly cooled afterward. Some light carbon occurs on the upper interior surface, largely on the interior of the high collar, suggesting that the Colchester jar was used for cooking.

The Bolton jars are somewhat more typical of contemporaneous ceramics known from regional samples in terms of their colors that are slightly darker than the Colchester jar. Bolton jar no. 1 has a "brown/dark brown" (10 YR 4/3) exterior that ranges in some limited areas to "very dark gray" (10 YR 3/1). The interior of Bolton jar no. 1 ranges from predominant "dark grayish brown" (10 YR 4/2) to "very dark gray" (10 YR 3/1), and the cross-section core is "very dark gray" (10 YR 3/1). Of the three jars, Bolton jar no. 1 is the darkest and may have been fired in an oxygen-poor, or "reduced," firing environment, with fast cooling. It shows extensive evidence of carbon, very likely burned on food, over as much as 50% of the interior, especially on the upper half. The carbon occurs above a presumed "water" line, below which carbon did not build up because of the fluid content of the vessel.

Bolton jar no. 2 exhibits a predominant "brown/dark brown" exterior color (7.5 YR 4/4 to 10 YR 4/3), with some firing clouds of "very dark gray" (10 YR 3/1). Of note, substantial portions of the exterior of Bolton jar no. 2 are "reddish brown" (5 YR 4/4) and the interior shows "grayish brown" (10 YR 5/2) and lesser "yellowish brown" (10 YR 5/4) colors. The cross-section core is "very dark gray" (10 YR 5/4). Like the Colchester jar, Bolton jar no. 2 was clearly fired in an oxidized environment and it had fast cooling. There is no carbon on this vessel, but calcium carbonate precipitate covers a significant portion of its exterior, as noted above (see Figure 6).

Decoration

Along with the distinctive collar forms and other morphological attributes, decoration serves as the classic hallmark of Iroquoian ceramics. These three vessels show classic Iroquoian decoration in their combinations of incision in all three cases and three forms of distinctive punctations, which are generally small, individually stamped elements. Both high collared vessels, the Colchester jar and Bolton jar no. 2, show classic St. Lawrence Iroquoian open circular (or

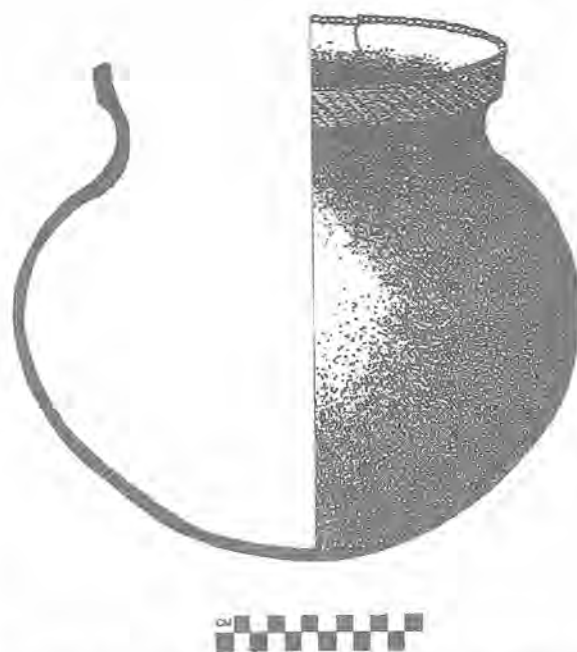


Figure 8. *Cross-section of Bolton jar no. 1* (exterior view partially adapted from Willoughby 1909, 1935).

"annular") punctations on their collars, sometimes occurring in sets of three and typically overlying incisions. Bolton jar no. 2 also exhibits another classic St. Lawrence Iroquoian decoration in terms of the finger tip punctations on the bottom of its high collar. The potter's fingernail shows in some cases.

All of the open circular punctations were made with large diameter reed-like (or hollow bone) implements, roughly 9.75 mm in diameter and 2.00 mm thick on the Colchester jar and 10.5 mm in diameter and about 1.5-2.2 mm thick on Bolton jar no. 2. Along with open circular punctations on its collar, the Colchester jar also exhibits open circular punctations on its neck and upper body below the collar, which is seemingly unusual. Also unusual is the presence of broad bands of incision on the upper exterior body of the Colchester jar, since decoration on most late prehistoric vessels is largely confined to the collar zone. Bolton jar no. 1 exhibits still another form of punctation, less diagnostic linear to ovalish punctations along the lower portion of its collar. These linear punctations were apparently made by tipping the end of the incising tool during the application of each element.

Decoration is largely confined to the exterior collars on both of the Bolton vessels, that is, only the uppermost, near rim portion was decorated, while the Colchester jar exhibits more complex and more extensive decoration. Bolton jar no. 2 also exhibits a single horizontal motif of short, obliquely oriented incisions marking the shoulder well below the collar and the broader zone of decoration. This use of a narrow, isolated, single "design unit" (or horizontal set of decorative

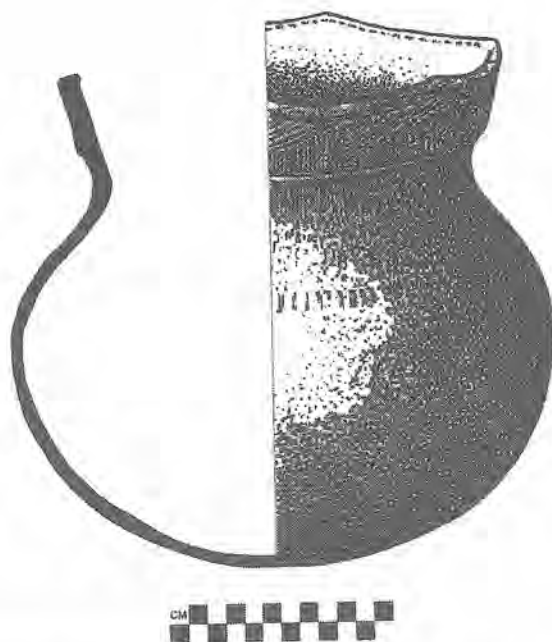


Figure 9. *Cross-section of Bolton jar no. 2* (exterior view partially adapted from Willoughby 1909, 1935).

elements) on the shoulder of Bolton jar no. 2 is seemingly a classic Iroquoian trait.

Little decoration is present on either the lip or interior surfaces of two of the three vessels. The lip of the Colchester jar shows a limited area of short incisions near the interior edge of the lip, somewhat like lip notches, while Bolton jar no. 1 has oblique incisions in one band nearly across the lip, but they do not fully cross it. The Colchester jar exhibits no interior decoration, but the two Bolton jars both exhibit a single horizontal design unit of very short, vertical to obliquely oriented incisions on their uppermost interior surfaces just below the lip.

The exterior decoration is the most striking characteristic of each of the three vessels, especially for the Colchester jar. Bolton jar no. 1 effectively demonstrates two simple design units on the exterior of the collar: obliquely oriented incisions across the low collar and linear punctations on the bottom of the collar (see Figures 3, 4, 8, and 10). It somewhat resembles the "Roebuck Low Collar" type, a common St. Lawrence Iroquoian form (MacNeish 1952:61, Plate 25; Pendergast 1966:6-7), according to the notes of Schuyler Miller (n.d.:92) and Jim Pendergast, but seemingly this is only a general match. Regardless of its typological correlation, Bolton jar no. 1 closely resembles various St. Lawrence Iroquoian vessels in its simple combination of incision and linear punctation decoration elements (e.g., Clermont et al. 1983:Figures 16 and Plate 27; Pendergast 1981:Plate 2).

Bolton jar no. 2 exhibits what we defined as a basic set of

five design units on the exterior collar and a sixth on the exterior shoulder (see Figures 5, 6, and 9). The five design units on the collar of Bolton jar no. 2 include a combination of short and long incisions, with horizontal, vertical, and oblique orientations in the first four design units and the fifth design unit consists of finger punctations on the bottom of the collar. Open circular punctations were used in the third (or middle) design unit down from the lip and they are situated below some of the castellations, sometimes in sets of three. As noted above, the sixth and final design unit of Bolton jar no. 2 is a horizontal band of short incisions on the shoulder of the vessel and below the undecorated neck.

In typological terms, Bolton jar no. 2 most clearly resembles the "Durfee Underlined" type and more specifically, it may represent one of the later forms thereof, given its design motif and the presence of "notches" (finger punctations) on the lower portion of the collar (MacNeish 1952:60-81, Plate 25; Pendergast 1966:6, Plate 2, 1973; see Miller n.d.:91). A whole vessel somewhat similar to Bolton jar no. 2 was recently recovered underwater from Lake Champlain near Cumberland Head, New York (Lewis 1994:Figure 1), but it apparently lacks the finger punctation and open circular punctation elements. A very similar vessel to Bolton jar no. 2 is known from a rockshelter in Quebec, where it is attributed to the St. Lawrence Iroquoians (Wright 1979:Color Plate 5; J. Pendergast, personal communication 1987). Various other analogues are known among St. Lawrence Iroquoian vessels (e.g., Clermont et al. 1983:Figure 16, Plates 26 and 35; Pendergast 1981:Plate 1, 1984:Plate 7).

The Colchester jar has a more complex exterior motif than the other two vessels, with a total of twelve exterior design units, as we defined them (see Figures 1, 2, and 7). Of these twelve design units, five occur on the collar and seven are located on the neck and upper body, effectively all the way down the vessel to its carination, below which the vessel is undecorated. The design units on the exterior collar of the Colchester jar include a combination of short and long incisions, with horizontal, vertical, and oblique orientations very much like those described above for Bolton jar no. 2. However, the Colchester jar does not exhibit a row of finger punctations along the bottom edge of the collar, as seen on the Bolton jar no. 2, but instead this boundary is marked by a design unit of short incisions. In the case of the open circular punctations on the Colchester jar, they again first occur in the third (or middle) design unit down from the lip on the exterior collar, as on Bolton jar no. 2. However, while some open circular punctations are situated below the castellations, they do not exclusively occur there on the collar, nor do they necessarily occur in sets of three.

The short, deep neck of the Colchester jar includes two design units, consisting of horizontally oriented incisions and a horizontal row of open circular punctations. Below the neck, the basic design motif found on the collar is largely duplicated on the upper body using five more design units, with short and long incisions having horizontal, vertical, and oblique orien-

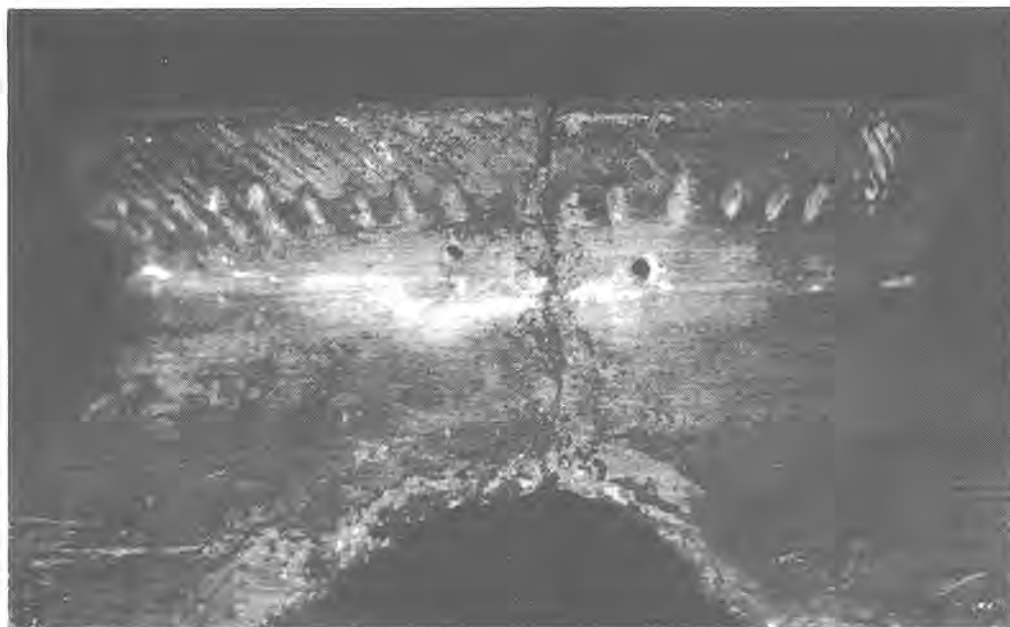


Figure 10. *Detail view of Bolton jar no. 1, showing decoration on low collar, and old crack and repair holes on either side of it.*

tations. As on the collar (and also on Bolton jar no. 2), open circular punctations are present in the third design unit (or middle one) down within this major segment on the upper portion of the exterior body. However, the open circular punctations occur in continuous vertical alignment with the castellations on the upper body and below the neck. The final design unit on the Colchester jar is a horizontal row of open circular punctations with a horizontal orientation, like one of the units on its neck. As for Bolton jar no. 2, the Colchester jar is typologically most like the "Durfee Underlined" type, cited above. However, the Colchester jar is more unusual and it may represent an early form of this type (Miller n.d.:91; Pendegast 1966, 1973), rather than a later form as seen for Bolton jar no. 2.

In summary, the three vessels exhibit different degrees of decoration, with widely varying numbers of design units, from two to twelve. Nonetheless, they share commonalities that are striking in terms of the common decoration types, namely, incision and different forms of punctuation. A common basic design motif is shared by two of the vessels, including a more-or-less basic set of five design units that occurs once on Bolton jar no. 2 and is twice repeated (with some idiosyncratic variation) on the Colchester jar. Both of these vessels are seemingly related to the "Durfee Underlined" type.

We see here continuity in the midst of variation that suggests a close relationship among all three vessels. Iroquoian motifs are well represented, along with other diagnostic traits, among these three ceramic vessels. Other actual Iroquoian and generally similar vessel fragments are known in western Vermont and elsewhere regionally in what is traditionally regarded as non-Iroquoian territory in northern New England, including that of the Western Abenaki. Actual

Iroquoian ceramics are much less common to the east beyond the Lake Champlain drainage in New Hampshire and Maine. They occur in small numbers at late prehistoric sites within the Connecticut and Kennebec River drainages, for example (e.g., Blais 1993; Chapdelaine et al. 1995, 1996; Cowie and Petersen 1999; Miller n.d.; Perkins 1909, [1910]1970; Petersen 1990; Tremblay 1996).

Local and Regional Implications: Another Case for Iroquoian Ceramics in Vermont

As introduced in the preceding comments, these three ceramic vessels from Colchester and Bolton, Chittenden County, Vermont, are quite significant on a number of levels. First, regardless of their missing portions, they are intact enough to represent some of the very few largely complete ceramic vessels known from anywhere in northern New England and the broader region. Thus, they provide critical information for visualization of the products of very skilled aboriginal crafts people within the context of a long history of pottery manufacture in the region, whether made by Western Abenaki or St. Lawrence Iroquoians. As "works of art," they are superb examples of the high technical skill achieved by aboriginal potters, representing "master works" in reality. Skilled potters manufactured all three vessels in other words. While all of them are rather sophisticated in broad relative terms, the Colchester jar in particular represents one of the most elaborate forms known from the region and it is quite extraordinary in any context.

Secondly, these three vessels provide specific examples of the diversity found among late prehistoric vessels in the region, presumably dating to the final years of the Late

Woodland period, ca. A.D. 1300-1600, or more specifically A.D. 1400-1600, as can be best determined. In other words, they provide a critical slice of information about the late Late Woodland period in the Lake Champlain drainage of Vermont and the broader region. Using these vessels as significant representations, through them we can easily envision some of the variation in late prehistoric vessels and thus, we can "breathe life" into other, more fragmentary specimens from late prehistoric sites in Vermont and elsewhere, including the St. Lawrence Iroquoian heartland along the St. Lawrence River.

Third and perhaps most importantly, these vessels provide direct evidence for what some might consider a surprising form of social identity, or "ethnicity," in western Vermont. We say "surprising" because of the known Western Abenaki presence in the region during late prehistoric and especially historic times. As noted above, these vessels provide variable degrees of relationship to St. Lawrence Iroquoian ceramics known from areas to the north, west, and northwest, specifically including Quebec, Ontario, and New York State. In spite of the concerns of today's Western Abenaki and with all due respect, there is little doubt about the Iroquoian relationships of these vessels under fine-grained analysis—these three pots were manufactured in one or more Iroquoian ceramic style(s). They differ dramatically from known and suspected Abenaki ceramics of the same time period and later to ca. A.D. 1700 in terms of their morphology, size, and various details of decoration, as noted above. In particular, we can easily attribute at least two of them to the St. Lawrence Iroquoians, including the Colchester and the high collared Bolton jar no. 2. The third vessel, the low-collared Bolton jar no. 1, is clearly attributable to the Iroquoian macro-style too and more specifically, some St. Lawrence Iroquoian examples thereof. Jim Pendergast unequivocally assigned Bolton jar no. 1 to the St. Lawrence Iroquoians, along with the Colchester jar and Bolton jar no. 2 (Pendergast 1990:99-100, personal communication, 1987, 1999; see Miller n.d.:92).

How are we to account for these finds in Vermont? Using all three vessels and other more numerous fragmentary specimens from Vermont, various authors have wrestled with this issue for a long time and different hypotheses have been presented, as outlined above. These hypotheses range from an unqualified Western Abenaki attribution for one or more of these vessels (Wiseman 1991), to trade with or copying the St. Lawrence Iroquoians by the Abenaki, or perhaps actual Iroquoian refugees or marriage partners locally among the Abenaki (Haviland and Power 1994; Petersen 1990). More radically, it has been suggested that they possibly represent more substantial St. Lawrence Iroquoian occupation in Vermont during late prehistory (Pendergast 1966, 1990, 1991, 1993). Pendergast (e.g., 1990, 1991, 1993) further tentatively recognized that there was a long-term presence of the St. Lawrence Iroquoians in the Lake Champlain drainage of Vermont. He said (1990:118) that there "is archaeological evidence to suggest that Abenaki Algonquians, and the St.

Lawrence Iroquoians, had long been present before... depopulation occurred by 1609. Significantly this evidence includes the full spectrum of St. Lawrence Iroquoian ceramics, which suggests that St. Lawrence Iroquoians were present in Vermont over approximately the same period that Iroquoians were present in the nearby St. Lawrence valley."

Does acceptance of a St. Lawrence Iroquoian presence in Vermont change any of the current Western Abenaki claims to the area and need it be a political, or even a "racist," issue? We feel strongly that this is not the case. Clearly, the local area and the broader Northeast was the scene of diverse Native American groups with differential relationships and interactions during late prehistory and early history. The presence of both Western Abenaki and St. Lawrence Iroquoian remains in western Vermont should not be surprising, given its proximity to the St. Lawrence River proper. That the Abenaki had long-term interaction with the St. Lawrence Iroquoians all across northern New England, including New Hampshire and Maine, seems likewise apparent on the basis of recent research.

Inter-tribal trade and visitation are one thing, but in some cases it seems that the St. Lawrence Iroquoians may have had settlements in and very near modern day Vermont, as tentatively recognized recently in the town of Alburg, Vermont, on Missisquoi Bay, for example. Various other such finds are known from nearby Swanton and other towns in Franklin County, but these generally lack good context and associations. Also, six sites producing presumed St. Lawrence Iroquoian pottery are located very nearby on the Pike (Brochets) River, which flows into Missisquoi Bay, just across the international border in southernmost Quebec (Blais 1993; Chapdelaine et al. 1996; Tremblay 1996). Old, nineteenth-century finds preserved at UVM (Perkins 1909, [1910] 1970), besides the finds described herein, demonstrate other St. Lawrence Iroquoian finds in Franklin County in and around Swanton and other parts of western Vermont. Another such find was made just a few years ago at nearby Lake Carmi to the east within the Missisquoi River drainage in Vermont.

Further elucidation of late prehistoric St. Lawrence Iroquoians in Vermont, along with the more prevalent manifestations of the Western Abenaki, must await more substantial future research, including extensive site sampling, artifact and other collection analyses, and report preparation. We have an excellent analogue in the Squakheag/Sokoki Fort Hill site located in Hinsdale, New Hampshire, for one Abenaki group in 1663-1664 (Thomas 1979), but we need to identify many more earlier and contemporaneous settlements to better understand the dramatic developments of this period. This work should be a high priority in the future. In the meantime, we must again content ourselves with rumination over these three extraordinary aboriginal ceramic vessels recovered during the nineteenth century in Vermont—the Colchester and Bolton jars.

Acknowledgments

We dedicate this paper to the memory of the late James F. Pendergast, who passed away recently. Jim rose from enlisted man to the rank of Lt. Colonel in the Canadian Army and he served as a military attache in Washington, D.C., and worked abroad with U.N. peace keeping forces, all the while maintaining a matchless sense of good will and friendship. Jim also managed to more-or-less single handedly bring the topic of the enigmatic St. Lawrence Iroquoians to the forefront of northeastern archaeology during 50 (+) years of research. He was also an unfailingly generous man, who shared critical information on many topics with many, many colleagues regionally, nationally and internationally. The fact that we won't receive any more of his copious reprints in the future is reason enough alone to miss him already and mourn his loss. Jim was so upbeat and supportive that we are positive that we won't see the likes of him again any time soon.

Besides Jim Pendergast, various other people also provided key literature and help important to this study. These people minimally include Louise Basa, Steve Bicknell, Dick Boisvert, Claude Chapdelaine, Elizabeth Chilton, Ellen Cowie, Kevin Crisman, Bob Goodby, Bill Haviland, Mike Heckenberger, Kate Kenny, Giovanna Peebles, Marj Power, Harald Prins, Jim Richardson, David Sanger, Peter Thomas, Roland Tremblay, and Jim Wright. Still other people contributed to this study in direct ways as well. Fred Wiseman is thanked for his willingness to listen to what he has considered heresy in the past. At the University of Vermont (UVM), Cindy Longwell helped in final manuscript preparation and the staff of the UVM Photography Services printed the photographs. Ann Porter and Milly Meeks at the UVM Fleming Museum provided critical access to these vessels and were patient as the authors studied and photographed them over several long months earlier this year—it took us a while to finish this analysis and yet it still isn't quite done. Both of us appreciate your patience, Ann and Milly—thank you! Finally, we also thank Victor Rolando, who was patient with us after we promised to submit this article. As is customary in such cases, the authors alone accept sole responsibility for any errors or omissions herein.

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