

## **Study of contemporary ceramic cups: Shape and iconography**

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Cite as: Li, Han Han. 2008. Study of contemporary ceramic cups: Shape and iconography. Dollarware Project, report 13. <http://dollarware.org/report13.pdf>.

*Abstract: We investigated 289 ceramic cups collected in 13 dollar stores and one secondhand store in Montreal. A general typology was constructed. We visually defined types by first using obvious shape characteristics (handle shape, curvature and straightness of external wall, top-base ratio, etc.) and then iconographic themes. We were able to define four prevalent shape-categories and seven major decorative themes. Our study was concentrated on cups that fall into any of these 11 evident typological subgroups. We did not investigate artifacts that did not correspond to our classification in detail, because they represented only small proportions of the assemblage. We found significant correlations between some shapes and decorative motifs. Prevalence of some shapes and decorations are discussed from functional and visual/conceptual perspectives.*

### **Introduction**

Ceramic cups are one of the basic drinking vessel types that can be considered as inseparable from our daily life. The present research is focusing on this particular aspect of the contemporary material cultural in the urban context of North America (Canada-Montreal).

We studied an assemblage of 289 artifacts and established a two-fold typology for sampled ceramic cups. Shape and decorative motif are two axis of our classification. Among the highly divergent morphological and iconographic types, we were capable of defining four dominant shape categories and seven recurrent decorative themes. Using both graphical and quantitative analysis, we explored the relationships between shape and decoration of cups. Some cups with specific form were found to be constantly associated with specific motifs. After the demonstration of such correlations, we tried to support our observations by explanations. We also attempted to interpret why some shapes and decorative themes were apparently more abundant than others. By answering these questions, we indirectly investigated some aspects of social-economic and esthetic/conceptual realities of our society.

### **Part I. Defining shape categories**

The shape of artifacts varied considerably. Each artifact is a "traits complex". To extract similarities and differences between artifact traits is challenging. Fortunately, we noticed much morphological regularities in the form of ceramic cups. Our first goal was to determine consistent artifact types based on shape similarities. Some of the key morphological attributes were volume (mL), top and basal diameter ratio, height (mm). Those traits were quantifiable. But it is difficult to build a shape-typology using only quantitative data. To facilitate the classification, we decided to start with visual sorting, in other words an overall qualitative analysis of shape variability. We were able to identify at least seven groups. Artifacts of these groups have regular and recognizable features. They represented 85% of the entire assemblage (246 cups out of 289). The rest 25% have highly irregular shapes. We decided not to classify them,

because group size of those minor types would be too small (usually only 1 to 3 artifacts per category). And a fractionalized typology would not be a desirable result.

Here we described the attribute state of the seven general shape categories (a qualitative account). Then, we enumerated relevant quantitative traits that characterize these groups (data shown in f 1.)

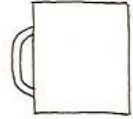
**Type 1: standard**

As the name indicates, this is the most rudimentary form of mugs.

The cup is a robust cylindrical column. The top/base ratio is almost 1.

The handle has form of a regular oval.

The most convex point of the handle coincides with the middle height of the cup.



**Type 2: elongated**

The cup is a cylindrical column.

It is not as robust as type 1, but has a rather slim and finer appearance.

The top/base ratio is slightly more than 1 (mean value 1.1),

because cups of this category have a small top external lip.

The handle is ear-shaped, with its maximum convex point located at a higher than the point of mid-height of the cup (closer to the top).



**Type 3: straight trapeze**

The cup has a trapeze shape. The surface of the cup is straight (no curvature).

The mean top/base ratio is 1.4, indicating that most cup have a top diameter that

clearly exceeds its basal diameter. The shape of handle is not important to define this type.



**Type 4: bell**

The cup has a trapezoidal form, but it has a convex surface.

At the top and base, the wall curved inward. If the cup is hold up-side-down,

it has similar shape of a bell. The cup may or may not have lip. The top/base ratio is 1.5.

The basal diameter is much smaller compare to it top diameter.

The handle shape is not a defining feature. Bell cup are generally shorter than type 3.

It has a similar height to cups of type 2



**Type 5: fat**

The cup is short and fat. The top/base ratio is 1.8 (the largest value among all types).

The top diameter of the fat cup is nearly twice as much as its basal diameter.

The handle is usually round and small, when compared to the body of the cup.

Most fat cups are remarkably large. This type has the highest mean volume.



**Type 6: concave, elongated trapeze**

Cups of this type have concave surface. They are tall (highest mean value of height).

The top/base ratio is 1.5, a value of similar magnitude to type 3 (trapeze) and 4 (bell).

But because of their height, they seem slimmer than trapeze cup.

Most cups of this category have small external lip. The shape of handle is not important.



**Type 7: Espresso**

The only defining feature for cups of this category is their small size.

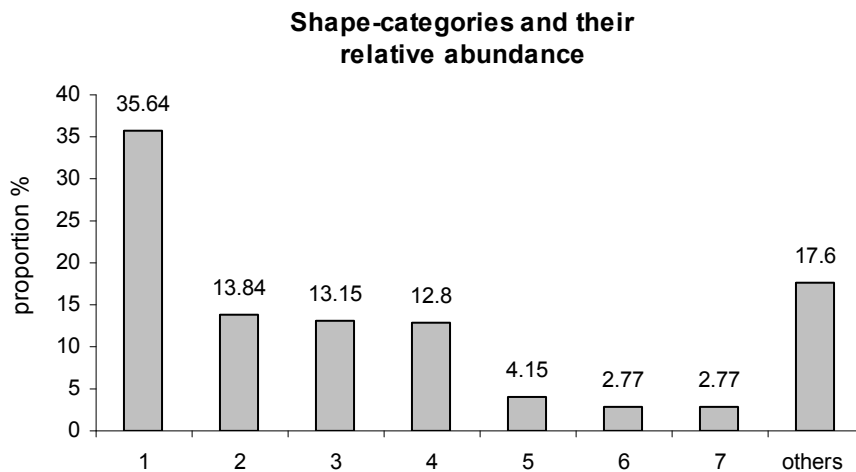
The size of most of them is only the half of a standard mug.



type	Volume( <i>mL</i> )	Weight ( <i>g</i> )	Height ( <i>mm</i> )	Top/base ratio
<b>1</b>	326.9	351.5	94.5	1.0
<b>2</b>	286.2	278.7	101.8	1.1
<b>3</b>	355.3	360.7	113.9	1.4
<b>4</b>	349.9	325.5	104.6	1.5
<b>5</b>	388.9	354.0	75.9	1.8
<b>6</b>	309.6	273.7	117.0	1.5
<b>7</b>	88.4	124.3	53.5	1.4

**Figure 1. Mean value of relevant quantitative attributes of cups (seven shape categories).**

Once the shape categories were defined, we sorted 289 cups into eight groups (seven defined shape types and one group of unclassifiable artifacts). We counted the number of cups in each group. These values were then converted into percentages. The following histogram indicates the relative abundance of each shape category (the number on top of bar shows the proportion of a given category within the entire assemblage). This graph allows us to identify the dominant shape-types.



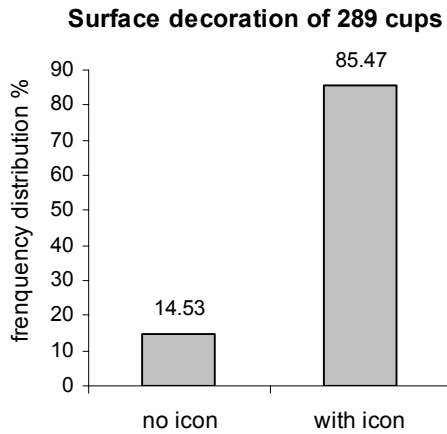
**Figure 2. Relative abundance of definable and indefinable shape categories**

We noticed that among seven clearly defined morphological types, type 1, 2, 3 and 4 (as individual shape categories) occupy significant proportions of the whole assemblage. Type 1 (standard) is the most common one (35.64% of the whole assemblage). Type 2 (elongated), 3 (straight trapeze) and 4 (bell) are roughly equally abundant (from 13% to 14%). Type 5 (fat), 6 (concave, elongated trapeze) and 7 (espresso) represent only minor components of the assemblage (less than 10%).

The presence of four dominant shape categories (type 1 to 4) can be interpreted in several ways. We will return to this observation shortly. For the moment, we will study the second aspect of the typology, which is based on the iconographic analysis of cups' surface decoration.

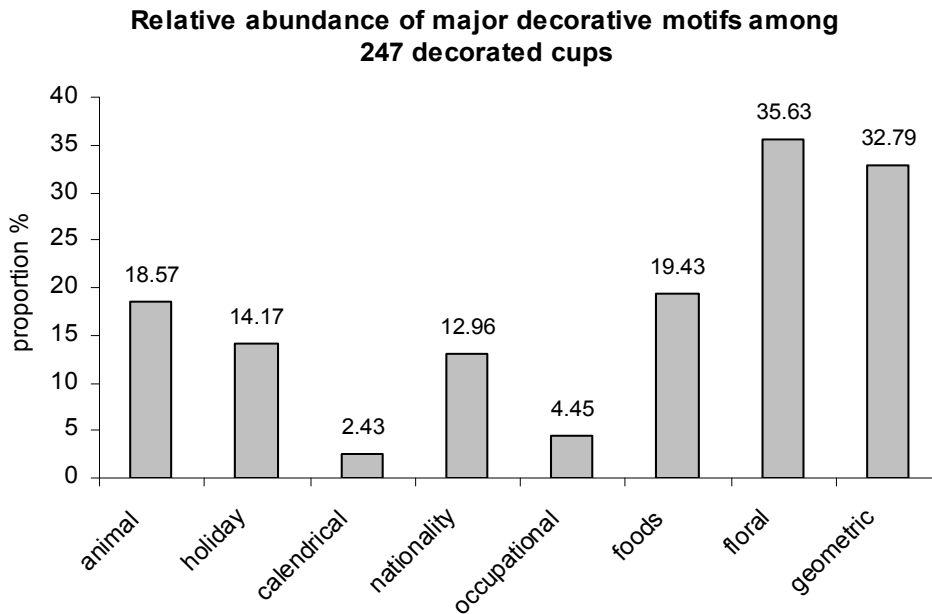
## Part II. Defining iconographic types

Not all cups have surface decoration. As shown in the graph below, 14.53% of ceramic cups in our assemblage do not have decoration. But the majority (85.47%) is decorated.



**Figure 3. Relative abundance of cups with and without icons**

The decorative element varies a lot. In a collectively gathered iconographic data, we identified eight main themes: animal, holiday, calendrical, nationality, occupational, foods, floral and geometric. Some themes occur more frequently than other. The following graph shows the relative abundance of these themes.



**Figure 4. Frequency distribution of decorative motifs**

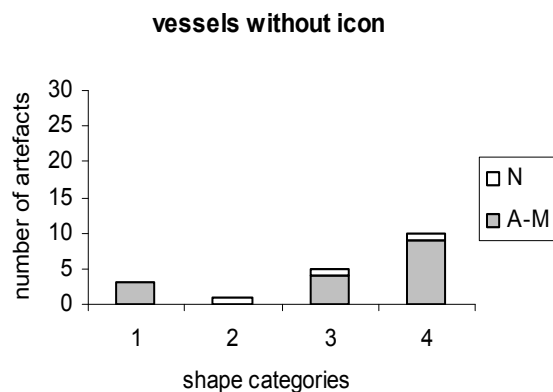
We noticed that calendrical and occupational themes are relatively rare (less than 5%), whereas floral and geometric patterns are abundant (range from 32% to 36%). Animal, holiday, nationality and foods have intermediate frequency (12% to 19%).

In our study, we slightly modified the above classification. The key elements in our modified classification are:

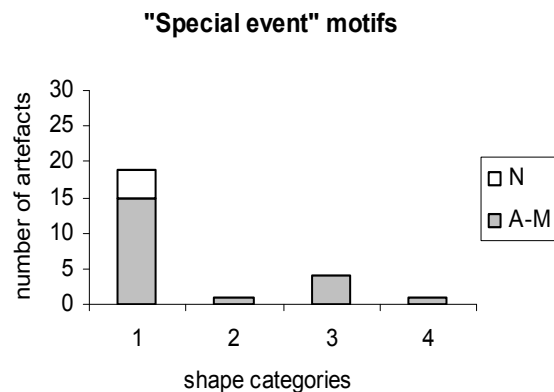
1. Animal:  
Include dog, cat, duck, rooster, rabbit, dauphin, sheep, pig, monkey, fish and bear.
2. Canada:  
Include "Canada" writing, maple leaf, flags and imprint of Canadian bills.
3. Special event:  
Include Christmas, Valentine, Halloween, birthday and all other festive events.
4. Coffee:  
Either words or pictorial references to coffee.
5. Vegetal:  
This combines the floral/plant motifs and representation of fruits.
6. Geometric:  
Lines, dots... all non figurative, abstract figures

We considered these six decorative types as the most relevant ones. We decided to ignore motifs that are restricted to few artifacts (ex. "games" motifs – card and bingo – were found on only 2 cups) and concentrate on those that appear more frequently.

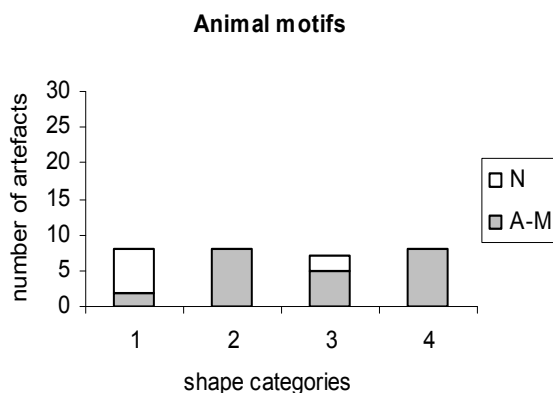
We analyzed the frequency distribution of these six decorative themes for each of the four dominant shape categories that are previously defined (type 1 to 4). Their abundances shown on the graphs below are absolute values. Artifacts of control group (set N) are shown in distinct color (on the graphs below, sets A to M are gray, set N is white). Decorative motifs clearly have unequal distribution among different shape-types. For example, "Canada" and "special events" theme seem to be concentrated in type 1. "Coffee" theme occurs frequently in type 3. We will analyze these decoration-shape relationships in more detail in the next part.



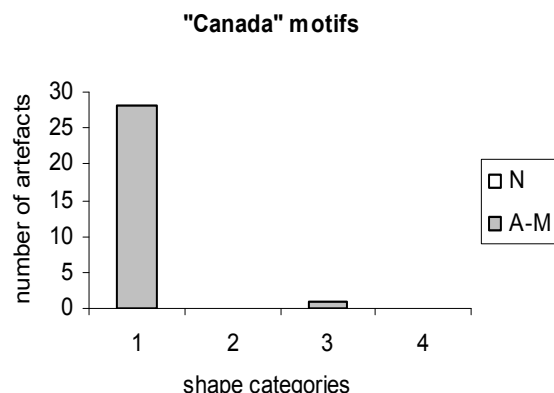
**Figure 5. Cups without decoration**



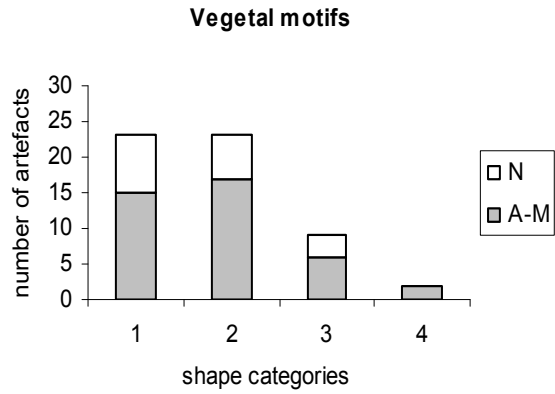
**Figure 6. Cups decorated with festive events**



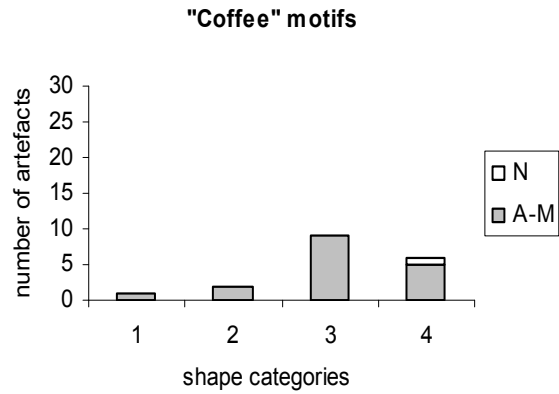
**Figure 7. Cups with animal motifs**



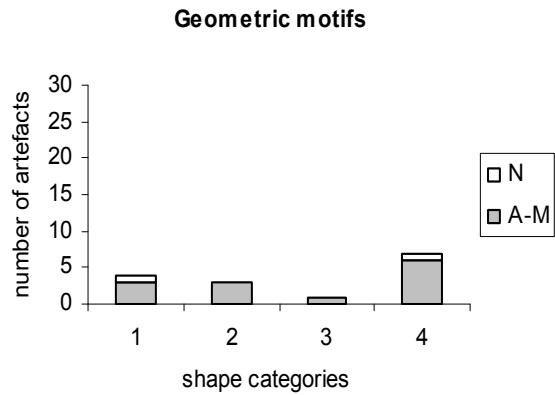
**Figure 8. Cups decorated with Canada motifs**



**Figure 9. Cups with vegetal motifs**



**Figure 10. Cups decorated with Coffee motifs**

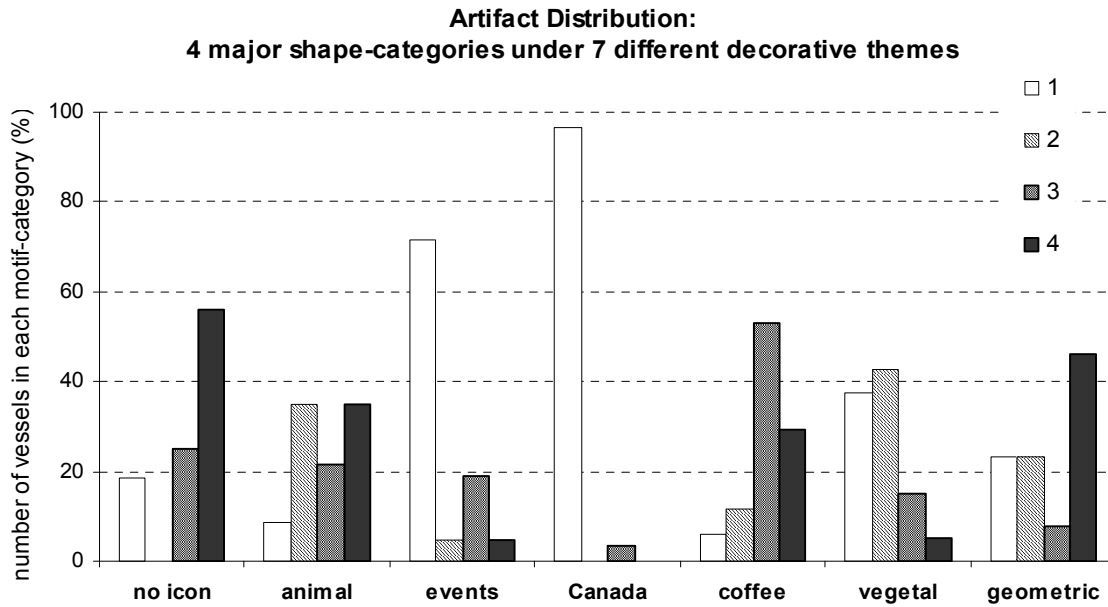


**Figure 11. Cup decorated with geometric motifs**

**(Figures 4 – 11: absolute abundance of cups of four major shape-categories for each one of the seven iconographic categories)**

**Part III. Analysis of correlations**

We converted the numerical data presented in the previous section into percentages. We put relative abundance of six decorative themes (and the “no icon” category) into a single graph (i. e. each decorative theme is 100%, four shape types split the total 100% into unequal proportions). The result is shown below:

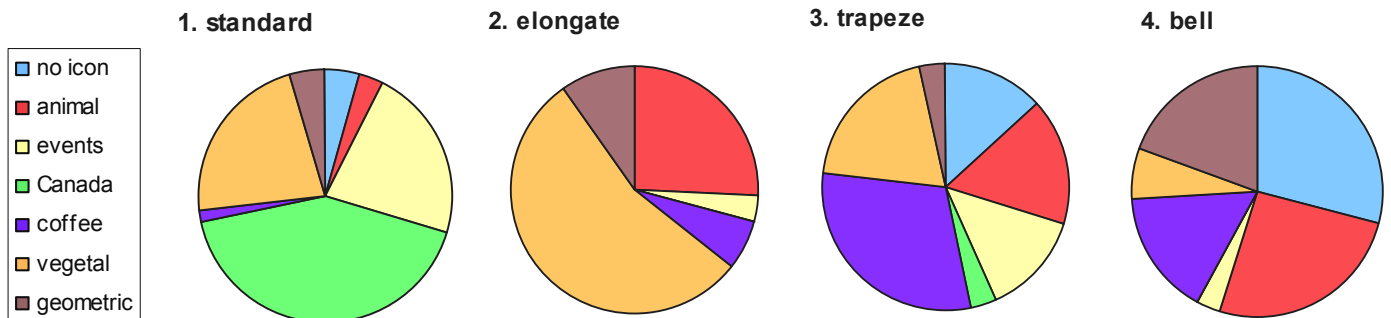


**Figure 12. Shape categories’ frequency distribution for seven decorative themes**

In this distribution chart, we noticed several trends:

- “Special events” (>70%) and “Canada” (>95%) themes are by in large the most abundant motifs found on standard (type 1) cups. Type 2 (elongated) and 4 (bell) are completely absent from “Canada” category.
- Type 4 (bell shaped) is the most important shape category without icon ( $\approx 57\%$ ), and with geometric pattern ( $\approx 46\%$ ). Not a single cup of type 4 has “Canada” motifs.
- “Coffee” theme contains mostly cups of type 3 (straight trapeze) (>55%).
- “Animal” theme contains mainly type 2 and 3 ( $\approx 35\%$ ).
- “Vegetal” themes occur most frequently in type 1 ( $\approx 38\%$ ) and 2 (>42%).

We noticed that several decorative themes seem to be tightly associated to certain shape categories. To make these relationships more obvious, we can ask how different decorative themes are distributed within each shape category:



**Figure 13. Iconographic categories’ frequency distribution for four major shape-types**

From the above graph, we visually summarized six strong shape-motif correlations:

- type 1 (standard) associate with "Canada"
- type 1 associate with "special events"
- type 2 (elongated) associate with vegetal themes
- types 3 (straight trapeze) associate with "coffee"
- type 4 (bell) associate with geometric patterns
- type 4 without any icon

We then verified these observed correlations using Chi-square test. The results are:

Shape-decoration correlations	<i>p</i> value
1 – Canada	0.0000000000528
1 – special event	0.0035
2 – vegetal	0.00002
3 – coffee	0.00015
4 – no icon	0.0000912
4 – geometric	0.011

**Figure 14. Results of Chi-square tests: verifying the shape/decoration correlation**

All tests have a small *p* values. This suggests that our six "shape categories - decorative themes" correlations are not result of pure chance event. There are significant relationships between the shape attributes and the decorative attributes.

At this point, we have a firmly established twofold typology that contains six distinct ceramic types: standard "Canada" cups, standard "special events" cups, elongated cups with vegetal motifs, "Coffee" cups characterized by straight trapeze shape, bell shaped cups without icon and bell shaped cups with geometric decorations.



**Figure 15. Six major motif-Shape types**

## Discussions

One interesting aspect revealed in this study of ceramic cups is the presence of few dominant types and a series of unclassifiable/ irregular shapes. Our typology gives us a general idea about the design of ceramic cups. Dominant types and unclassifiable artifacts together form a continuous gradient of shape variability.

Classification does not have absolute value: all categories have a certain degree of overlap or ambiguity in their attribute states. Discrete types may reflect one's mental setting rather than the order of the external realities. However, within the ceramic cups assemblage, we are able to define several major shape categories.

Logically, the industrial (or the manual) productions can produce many possible shapes. Yet only few types are commonly and frequently observed. If we look at the histogram of relative abundance of shape-categories, there are only four dominant shapes.

As ceramic artifacts found in actual archeological context, our assemblage constitute a sample that might be reasonably representative of a (or an aspect of) material culture. Archeologists do build and use rigorous typologies. Same method is applicable to today's ceramic drinking vessels. Even they do not originated from archeological context, they are classifiable artifacts.

The typology includes surface decoration of cups. Similar trend of frequency distribution is observed. There are a great variety of themes, but only few of them appear frequently. One might ask why regularities occur in both past and present material cultures. We think this is the result of socially imposed constraints. What could be these constraints that shape our material life? In our study of ceramic cups, we explore this question from two perspectives.

#### 1. Function (materialistic approach: physical and economic aspects)

Ceramic cups are vessels designed for particular purposes: serve hot drink. We can use them in many other circumstances as well, but they are certainly the ideal container for hot drink. This specific function imposes physical constraints on the design of a cup: the stability of the cup (implying height and basal diameter), the handle (shape and size that are presumably adapted for firm holding), the thickness of the wall and consequently the weight (or mass). All these parameters tend to fall between specific limiting values.

One principal constraint is the volume of cups. In our study, the average volumes of cups of each dominant shape-category all fall into the interval 300 *mL* - 350 *mL*. This average size range could be reflection of average drinking capability (of hot liquid) of their users. We suggest 300 *mL* - 350 *mL* represent the value of central tendency of hot drink consumption for an individual. This volume range imposes physical constraints on cup design. It may also influence the popularity of specific artifact types. In our case, cups that are outside this volume range are rare. Type 5 (fat cups) is a good example. Its average volume exceeds the "normal" volume of hot drink consumption (389*mL*). From such perspective, type 5 represents an "extreme" design type that is unpractical. Thus merchants (importers of cups) are less likely to command "fat cups" in great quantity. Consequently, its production and supply are low. This scenario partially explains the low relative abundance of type 5 in our assemblage.

In our market society, productions and demands are intrinsically linked. As part of this economic loop, the relative abundance of each type is indicative of its level of demand. It also reveals indirectly the magnitude of activities that are supported each type. Considering the volume range of most abundant cup types, we can safely conclude that drinking over 400*mL* is not a very common practice.

In addition, economic status (both of store owner and clientele) could impose strong constraints on availability/abundance of cup types. We should notice that the market contain several levels. Clientele is economically differentiated. The clientele of Dollar stores represent only a fraction of the society. In result, the demand-production-supply cycle of Dollarwares is socially contextualized. The rarity of type 7 (Espresso) is an interesting example. If we follow the logic of "minimized cost/maximized profit", we would expect to sample higher number of types 7 artifacts (the production of type 7 requires the smallest amount of material). In reality, this type is rare. What explain its rarity? It may result from the specific functional value of type 7 (serve special type of coffee) in conjecture to economic value of such practice (espresso tends to be more expensive).

We suspect that cultural practices performed with type 7 cups are not common among Dollar store clients. In the commercial context, infrequent cultural practices generate low demand. If demand is low, production and supply reduce as well. Dollar store is thus not selling specialized drinkwares. Clients need to visit other stores to purchase "Espresso type". There could be other "non-Dollar store" costumers who only shop in specialized stores of finer ceramic objects. If we have a chance to conduct comparative typological analysis of dollar store and non dollar store cups, we could understand better this socio-cultural pattern of differential consumption.

To summarize, functional constraints can explain the unequal distribution of shape-categories of ceramic cups, because:

- Functional purpose of the cups directly influences the physical elements of the design.
- Contextualized demand (e.g. artifact's functional specialization associated to specific economic division) for artifact types triggers its subsequent production/supply.

## 2. Visual medium (artistic approach: decorative and conceptual aspects)

Cups serve to drink, but they also play role of visual medium. In our assemblage, over 85% of cups are decorated. Therefore this type of artifact can be considered as important vehicle of decorative art in our daily life.

Decorative themes are rich. They are originated from a pool of inspiration based on our past experiences (individual or collective) and esthetic values. To understand a culture, iconographic analysis is usually fruitful, because images speak for people. They form directly accessible source of anthropological information. Such information covers material aspects as well as immaterial aspects of people's life.

For material realities, decorative themes of ceramic cups can trace the living environment of North American urban culture. Based on iconographical analysis, we know:

- flora: apple (the dominant fruit), strawberry, pear, grapes, blueberry, orange, cherry; iris (the dominant floral motif), sunflower, rose, calla lily, tulip, lavender, chrysanthemum, leaf (maple, birch, vine) and other stylized vegetal patterns.
- fauna: cat, dog (both dominant), rabbit, mouse, bear, caw, pig, sheep, deer, monkey, dolphin, duck, rooster.

These animals and plant species underline our urban culture, but they do not necessarily represent the true physical environment of the city. This is a notable feature of modern urban life: we are in contact with the living nature, but in a restricted way. The decorative motifs contain both the real and the imaginary elements of nature.

In most traditional societies, decorative art is tightly related to the realities of life. For example, in rural regions, crop plants and domestic animals often figure on their artifacts; along costal regions, communities often use wave/vortex pattern and/or marine creatures to decorate objects. In a modern city, things are more complex. It is a center that conveys very divergent artistic influences and cultural identities, but there are still themes that directly refer to its proper cultural realities. For example, it is not surprising that cat and dog are the dominant animal decoration. These two animal species maintain closest relationship with urban dwellers.

If we can complete this present study by comparative iconographic analyses of ceramic decoration based on cup assemblage sampled from non-North American urban context (ex. Contemporary European or Asian countries), chances are that we would find quite different dominant animal/plant motifs.

We also notice that plant and geometric motifs are very common. These two themes occupy a central place in decorative art. They appear constantly even in a cross-cultural context.

Decoration of cups provides as well references to immaterial aspects of our society. For example, we find elaborated themes of festivities on many cups within our ceramic assemblage. Celebrations are material based but ritualized events that embody specific spiritual and emotional values. Knowing festivals of a given society is especially helpful for any archeologist to better understand it. The surface decoration of ceramic cups gives us an accurate overview of North American ritual activities: birthday, Easter, Halloween, Saint-Patrick's day, Saint-Valentine and Christmas. Christmas theme is characterized by overwhelmingly elaborated motifs and contains highest number of cups. Indeed, such rich decoration correlates to the magnitude of the most important celebration in our society.

Nationalistic motifs are also remarkably abundant in the assemblage. They are adapted to touristic (or less likely, patriotic-oriented) demand. Canadian flag, maple leaf, 10-20-50-100 bills, and inscription "Canada"... all these elements express the national identity in a straight forward and insistent manner. We feel problematic that no cups with "Quebec" identity are sampled in the assemblage. Knowing that Quebec (as a province with particular socio-historical background) has strong sense of autonomy and pride, the complete lack of Quebecer references in cup decoration need some explanations. This may be result of biased sampling; or it may indicate that the city of Montreal is becoming a multicultural urban center characterized by diluted provincial-nationalistic personality. To better understand problem, it will be relevant to compare similar of ceramic cup assemblage originated from other major Quebecer cities, such as Trois-Rivières, Quebec City or Gatineau.

## **Conclusion**

By analyzing the convergence of different attribute states, we proposed a typology of ceramic cups purchased in 13 dollar stores and one second-hand store of Montreal. We defined major shape categories and identified dominant decorative themes. We explained the dominance of certain shape-categories. We also evidenced how cup's surface decoration can allow us to study the material culture of our society.

This project has several potential values. If we are able to sample cups of other type of stores and do similar kind of typological analysis, we can produce a more inclusive classification of ceramic cups.

## **References**

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Ehrich, Robert W. 1950. Some Reflections on Archeological Interpretation. *American Anthropologist*, New Series, 52 (4): 468-482.

Daniels, S. G. H. 1978. Implications of Error: Research Design and the Structure of Archaeology. *World Archaeology*, 10 (1) Field Techniques and Research Design: 29-35.

**Appendix – Raw data****1. Data for figure 2.**

Type name	<i>standard</i>	<i>elongated</i>	<i>T. straight</i>	<i>bell</i>	<i>fat</i>	<i>T. concave</i>	<i>Espresso</i>	<i>other</i>
number	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>---</b>
Total number	<b>103</b>	<b>40</b>	<b>38</b>	<b>37</b>	<b>12</b>	<b>8</b>	<b>8</b>	<b>51</b>
%	35.64	13.8	13.15	12.8	4.15	2.8	2.8	17.6

**2. Data for figure 3.**

	<i>No icon</i>	<i>With icon</i>
Total number	<b>42</b>	<b>247</b>
%	<b>14.53</b>	<b>85.47</b>

**3. Data for figure 4**

	<i>animal</i>	<i>holiday</i>	<i>calendrical</i>	<i>nationality</i>	<i>occupation</i>	<i>food</i>	<i>floral</i>	<i>geometric</i>
Total number	<b>11</b>	<b>35</b>	<b>6</b>	<b>32</b>	<b>11</b>	<b>48</b>	<b>88</b>	<b>81</b>
% (total/247 decorated)	<b>18.6</b>	<b>14.17</b>	<b>2.43</b>	<b>12.96</b>	<b>4.45</b>	<b>19.4</b>	<b>35.6</b>	<b>32.79</b>

**4. Data for figures 5 – 11**

A. subsets A to M (total number of cups \*shape-type 1-4\* within each motif category)

	<i>No icon</i>	<i>animal</i>	<i>events</i>	<i>Canada</i>	<i>Coffee</i>	<i>vegetal</i>	<i>geometric</i>
1	<b>3</b>	<b>2</b>	<b>15</b>	<b>28</b>	<b>1</b>	<b>15</b>	<b>3</b>
2	<b>0</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>2</b>	<b>17</b>	<b>3</b>
3	<b>4</b>	<b>5</b>	<b>4</b>	<b>1</b>	<b>9</b>	<b>6</b>	<b>1</b>
4	<b>9</b>	<b>8</b>	<b>1</b>	<b>0</b>	<b>15</b>	<b>2</b>	<b>6</b>
total	16	23	21	29	17	40	13

B. subset N (total number of cups \*shape-type 1-4\* within each motif category)

	<i>No icon</i>	<i>animal</i>	<i>events</i>	<i>Canada</i>	<i>Coffee</i>	<i>vegetal</i>	<i>geometric</i>
1	<b>0</b>	<b>6</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>1</b>
2	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>0</b>
3	<b>1</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>
4	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>
total	3	8	4	0	1	17	2

**5. Data for figure 12.**

- Relative abundance of each shape category (%) grouped under motif-types.

	<i>No icon</i>	<i>animal</i>	<i>events</i>	<i>Canada</i>	<i>Coffee</i>	<i>vegetal</i>	<i>geometric</i>
1	<b>18.75</b>	<b>8.7</b>	<b>71.4</b>	<b>96.6</b>	<b>5.88</b>	<b>37.5</b>	<b>23.08</b>
2	<b>0</b>	<b>34.78</b>	<b>4.76</b>	<b>0</b>	<b>11.76</b>	<b>42.5</b>	<b>23.08</b>
3	<b>25</b>	<b>21.74</b>	<b>19</b>	<b>3.4</b>	<b>52.94</b>	<b>15</b>	<b>7.69</b>
4	<b>56.25</b>	<b>34.78</b>	<b>4.76</b>	<b>0</b>	<b>29.41</b>	<b>5</b>	<b>46.15</b>
total	100	100	100	100	100	100	100

**6. Data for figure 13.**

- Relative abundance of each motif-type (%) grouped under shape-types 1 to 4.

- Only based on data of subsets A to M

	<i>No icon</i>	<i>animal</i>	<i>events</i>	<i>Canada</i>	<i>Coffee</i>	<i>vegetal</i>	<i>geometric</i>	total
1	<b>4.47</b>	<b>2.99</b>	<b>22.38</b>	<b>41.8</b>	<b>1.49</b>	<b>22.39</b>	<b>4.47</b>	100
2	<b>0</b>	<b>25.81</b>	<b>3.23</b>	<b>0</b>	<b>6.45</b>	<b>54.84</b>	<b>9.67</b>	100
3	<b>13.33</b>	<b>16.67</b>	<b>13.33</b>	<b>3.33</b>	<b>30</b>	<b>20</b>	<b>3.33</b>	100
4	<b>29.03</b>	<b>25.81</b>	<b>3.23</b>	<b>0</b>	<b>16.13</b>	<b>6.45</b>	<b>19.35</b>	100

**7. Table of Chi-square tests.**

- Calculation based on data of subsets A to M

- Calculation restricted to identified shape-types (1 to 4) and seven modified iconographic types

1. Correlation type 1(standard) – Canada motif

		Motif		
		<i>Canada</i>	<i>other</i>	
shape	<i>Type 1</i>	<b>28</b>	<b>39</b>	67
	<i>other</i>	<b>1</b>	<b>91</b>	92
		29	130	159

2. Correlation type 1(standard) – special event (celebration) motif

		Motif		
		<i>events</i>	<i>other</i>	
shape	<i>Type 1</i>	<b>15</b>	<b>52</b>	67
	<i>other</i>	<b>6</b>	<b>86</b>	92
		21	138	159

3. Correlation type 2(elongated) – vegetal motif

		Motif		
		<i>vegetal</i>	<i>other</i>	
shape	<i>Type 2</i>	<b>17</b>	<b>14</b>	31
	<i>other</i>	<b>23</b>	<b>105</b>	128
		40	119	159

4. Correlation type 3(straight trapeze) – coffee motif

		Motif		
		<i>Coffee</i>	<i>other</i>	
shape	<i>Type 3</i>	<b>9</b>	<b>21</b>	30
	<i>other</i>	<b>8</b>	<b>121</b>	129
		17	142	159

5. Correlation type 4(bell) – “no icon” type

		Motif		
		<i>No icon</i>	<i>other</i>	
shape	<i>Type 4</i>	<b>9</b>	<b>22</b>	31
	<i>other</i>	<b>7</b>	<b>131</b>	128
		16	143	159

6. Correlation type 4(bell) – geometric motif

		Motif		
		<i>Geometric</i>	<i>other</i>	
shape	<i>Type 4</i>	<b>6</b>	<b>25</b>	31
	<i>other</i>	<b>7</b>	<b>121</b>	128
		13	146	159