



Tracing Sixteenth Century Beads in South America to Understand Their Impact on Indigenous Ritual Practices and Material Culture at the Time of the Spanish Conquest

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Tracing Sixteenth Century Beads in South America to Understand Their Impact on
Indigenous Ritual Practices and Material Culture at the Time of the Spanish Conquest

Kristi May Feinzig

A Thesis in the Field of Anthropology and Archaeology
for the Degree of Master of Liberal Arts in Extension Studies

Harvard University

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Abstract

This thesis examines bead preferences in Peru, Venezuela, and Colombia before and after the Spanish Conquest during the sixteenth century. By examining the spread of beads across a region, I was able to gain insight into colors and materials that people desired and identify potential patterns of resistance to glass beads. Information about the cultures and societies of my study are gleaned from examining glass and shell bead dispersion and their use before and after this period of significant cultural impact.

Using beads from the collections of The Peabody Museum of Archeology and Ethnology at Harvard University, The Field Museum of Natural History, and several other museums, the frequency of beads colors and materials are analyzed to help determine the value of glass beads in various regions. If there were no cultural preferences or significance by color or material, the analysis should provide a random distribution of Spanish introduced glass beads throughout each region. A chi-square test ($p < 0.001$) indicated that the distribution is not random. Correlations between color and material also show that regions in which there were more shell or white and brown beads were least likely to have glass beads.

This study shows that indigenous people did not replace pre-existing shell and stone beads, particularly shiny, white and natural-colored beads which had cultural significance, with glass beads in their ritual practices. Using statistical analyses of bead dispersion, this thesis makes an important contribution to a small body of research on beads in South America during this era.

About the Author

Kristi M. Feinzig is an ALM candidate at Harvard University Extension School, Cambridge, Massachusetts. She holds a Masters of Business Administration from Boston College, Chestnut Hill, Massachusetts and a Bachelor of Arts in Art History and Business Management from Simmons College, Boston, Massachusetts. She served as a Faculty Aide for Professor Mary Malloy, Ph.D., Associate, Peabody Museum of Archaeology and Ethnology, Harvard University. She has worked in asset management and consulting for over twenty years as a quantitative analyst, consultant, and fixed income manager. Prior to her work in asset management, she interned at the Metropolitan Museum of Art in New York, NY, The Copley Society of Boston, MA, and C.G. Sloan Auction house, Chevy Chase, MD. She is interested in Archaeology and Latin American Studies with particular emphasis on the Andean region.

Dedication

This Thesis is dedicated to my husband, Adam, and my children, Hailey and Jordan, who sacrificed many weekends and evenings with me so I could work on this thesis. They have been so supportive of my desire to complete my second Master's degree. I couldn't have done this without their support. I hope that my passion for learning, perseverance, and dedication influences their future work and studies.

I would also like to dedicate this thesis to two of the most influential teachers and mentors in my life: John Rutherford, Jr. and John Brzostoski.

John Rutherford, Jr. (Harvard University Law School, 1966, and Princeton University Woodrow Wilson School of Public and International Affairs, 1962) encouraged me to apply to business school early in my career and taught me statistical and empirical analysis, which I applied for many years in asset management. The same statistical analysis was used in this thesis. I am still inspired by his travels across the world, especially his numerous trips to India.

John Brzostoski, known as Mr. Bro by most students, was my high school art teacher. He supported me when I wanted to apply for an internship at the Metropolitan Museum of Art in New York City and encouraged me in art class despite my inability to draw. He taught me to love color, paints, texture, and so much more. Mr. Bro is an inspirational painter, writer, and lecturer who has been teaching art and Buddhist and Oriental philosophy since 1950. His stories and photos of Tibet also inspired me to travel.

Finally, to my friends and family who encouraged me and lifted me up when I wasn't sure I would ever finish. Thank You.

Acknowledgments

I would like to acknowledge and express gratitude to my Thesis Directors: Gary Urton, Ph.D., Dumbarton Oaks Professor of Pre-Columbian Studies and Department Chair, Harvard University Department of Anthropology, and Mary Malloy, Ph.D., Associate, Peabody Museum of Archaeology and Ethnology, Harvard University and Professor, Maritime Studies, Sea Education Association.

My fascination with beads began nearly five years ago in Dr. Urton's Inka class at Harvard University. He innocuously mentioned a Chachapoyas mummy bundle found perched in a cliffside cave high above the Laguna de los Cóndores near Leymebama, Peru. This particular mummy bundle was found with nearly 200 others and had a leather strap with several blue glass beads wrapped tightly around the individual's hands. From that day forward, I wondered how those glass beads found their way there. I also had the fortune of taking Dr. Urton's proseminar entitled Anthropology of Art which provided me with the opportunity to research Zulu beads and deepen my understanding of Anthropology.

Mary Malloy has also provided great guidance and inspiration for my degree and thesis. Her class entitled The Role of Museums in History provided me with the necessary background to utilize the Harvard University Peabody Museum of Ethnography and Archaeology collections, accession files, and student resources. I also had the good fortune to serve as her Faculty Aide in 2013-2014, conducting research on Marquesan U'u clubs. Her non-fiction and historical fiction publications, teaching, and travels with Sea Education Association (SEA) in Woods Hole and Polynesia have also been inspirational.

I would also like to acknowledge my neighbors who fortunately were both interested in my thesis topic and were always there when I needed guidance: Martha Pott, Ph.D., Senior Lecturer, Director of Master's-Thesis and Master's-Applied programs, Tufts University Eliot-Pearson Department of Child Study and Human Development and Gene M. Heyman, Ph.D., Senior Lecturer, Department of Psychology, Boston College and Associate, Department of Psychology, Harvard University.

Finally, I would like to thank my Thesis Advisor, James Morris, MD and Ph.D., Professor of Biology, Brandeis University and Lecturer in Extension, Harvard University, who provided guidance from my initial proposal to final submission.

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“The study of ancient beads is really the study of ancient people” (Francis, 2002).

Chapter I

Introduction

Beads have been used for thousands of years as items of beauty, currency, trade, and decoration. The use and presence of beads in a region provides information about material culture, religion, rituals, and mortuary practices. Thus, studying beads and changes in use of beads in a given population provides insight into the impact of outside influences on people.

Beads of many types including shell, stone, bone, metal, and ceramic were important media for exchange and gift giving in indigenous contexts. Since glass beads did not exist in South America prior to the arrival of the Spanish, they can be used as a way of understanding changes in culture before and after the conquest. As part of my research, I have identified bead types that were valued by indigenous cultures prior to contact and have compared their frequency in various geographical regions with the frequency of glass beads brought by the Spanish in the same regions.

In the countries of my research, Peru, Venezuela, and Colombia, a major change occurred at the time of the Spanish conquest in the sixteenth century. The Spanish brought glass beads and were able to trade them for items they perceived to have great value.

Although indigenous populations already had their own exchange networks for shell and stone beads, exchange between indigenous communities and colonists played an important role in new material exchange. Beads were given as gifts in exchange for many items such as gold and silver, cloth, and other materials.

This thesis seeks to show that beads brought by the Spanish were merely incorporated into existing customs, and that pre-existing preferences remained after their introduction. Statistical evidence based on bead color and material is utilized to show that the beads were not spread randomly across regions. My research shows inconsistencies in the acceptance of glass beads. For example, where there were more endogenous beads, there were fewer glass beads. These data also suggest that people's preference for specific bead colors before and after contact differed in locations where endogenous beads were prevalent and give clues as to the use of beads and their importance in the lives of people in each region.

1.1 Objectives and Main Questions

This thesis provides support in answering the following questions:

- (1) Were glass beads that were introduced by the Spanish more likely to be accepted in places where endogenous beads were important?
- (2) What factors might have contributed to people's fascination with beads, for example, color or material?
- (3) What changes are found in the use of beads before and after the sixteenth century Spanish Conquest in certain regions of Peru, Venezuela, and Colombia?

In examples in museum collections and anthropological records, I have sought evidence to confirm that new beads were merely inserted into existing rituals and did not transform rituals or people's existing preferences. Through a better understanding of bead acceptance and value, I have learned more about their adoption into ritual practices, as well as their larger meaning and context. The archaeological evidence has allowed me

to identify instances where glass beads appear to have been inserted into existing customs and practices and supports my thesis.

1.2 Outline

Chapter I includes the introduction, main questions, research methods, and background on beads.

Chapter II provides a background on beads and bead types. Bead appearances are described including material and color. This chapter also covers bead manufacturing processes such as cane molding and wire-wound.

Chapter III describes indigenous uses of beads in religion; dress and jewelry; mortuary practices; offerings to the gods; beliefs about the Cosmos; interest in light, dark and brilliance; and currency and exchange in order to have a baseline for their use prior to Spanish contact.

Chapter IV examines the route of entry and dispersal of beads in the New World. Maps are used to illustrate bead movement across South America.

Chapter V reports percentages of bead material and color by region and provides evidence to inform the research questions.

Chapter VI summarizes all of the regions covered in Chapter V and draws conclusions based on statistical analysis in response to the research questions.

Chapter VII provides the conclusion and summary of my research.

Chapter VIII discusses future areas of interest in the field and limitations of this research.

1.3 Summary of Results and Analysis

The analysis is broken out into six geographic areas of Peru, Venezuela, Colombia, and Bolivia (formerly Peru). The primary focus is on Peru as most of the bead samples were found there.

The six regions and cities are:

5.1 Northern Coast of Peru

5.2 Central Coast of Peru

5.3 Cuzco, Peru

5.6 Chachapoyas, Peru

5.4 Southern Peru: Nazca and Tiahuanaco (now Bolivia)

5.5 Orinoco and La Carabobo, Venezuela and Magdalena, Colombia

Each of the six geographic regions were evaluated individually to provide context around the differences between regions. Each sub-section in chapter V includes an introduction, materials, colors, and uses followed by a brief conclusion for the region. After all of the regions are covered in detail, the entire bead sample was analyzed using the same criteria of material and color to draw conclusions about the reasons for the differences in these archaeological findings.

By examining the differences in bead types across regions, I expected to see patterns that would allow me to better understand how far beads traveled. The artifacts examined in my research provided evidence to help determine whether or not Spanish beads replaced endogenous beads and if customs and traditions had an impact on which beads were accepted or rejected. As a start, bead archeological locations were plotted on the map in Figure 1 to identify patterns.

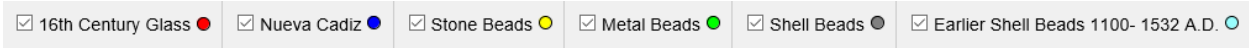
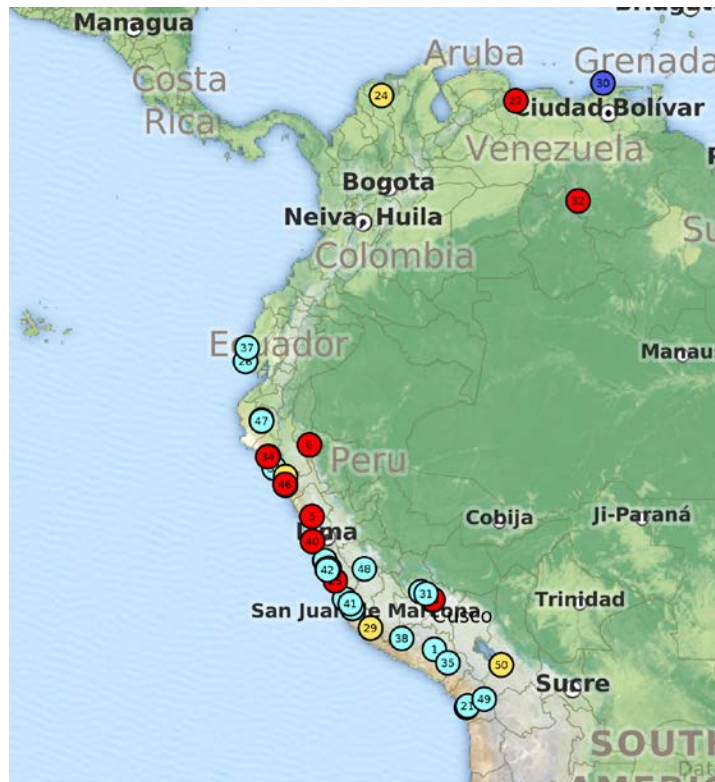


Figure 1 Map of Beads by Type and Site

My research found more shell beads than glass beads on the coast and just inland. This is to be expected given the proximity to shells; however, it also indicates a lifestyle based on simple food exchange (e.g. fishing) in contrast to commerce in city life (Bennett, 1937, p. 36). This could explain why there would be fewer glass beads in areas along the coast where fishing was the primary resource.

The evaluation of archaeological findings in my research is consistent with Gasson’s (2000) findings related to the Orinoco, Venezuela versus Andean contexts that:

shell beads have been rather rare in the lowlands, being reported mainly in Andean and sub-Andean ceremonial and high-status contexts. Those associations point to the potential importance of social complexity and inequality to explain the origins and distribution of such valuables” (p. 585)

1.4 Research Methods and Data Collection Procedures

This research was conducted using samples from The Peabody Museum of Archeology and Ethnology at Harvard University, The Field Museum of Natural History, The Smithsonian Institution National Museum of the American Indian, The Yale University Art Gallery, and The Corning Museum of Glass. I made in-person visits to The Peabody and The Field Museum and utilized online resources for the other collections.

Published sources include the Jones-Avent bead collection documented in Marvin Smith and Mary Elizabeth Good's publication *Early Sixteenth Century Glass Beads in the Spanish Colonial Trade* (1982). Other important collections were utilized through secondary sources such as Benjamin Carter (2008 and 2011), Catarina Guzzo Falci (2015), and Timothy Earle (1994).

1.4a The Peabody Museum of Archeology and Ethnology at Harvard University. I contacted the Curator of the Harvard University Peabody Museum of Archeology and Ethnology, Diana Loren, and arranged an appointment for October 2015, where I learned how to search for relevant objects on the museum website and discussed resources and research methods that would help in the thesis process. I subsequently contacted Lainie Schultz, Academic Partnership Coordinator at the Harvard University Peabody Museum of Archeology and Ethnology, and provided a list of objects to be viewed. She checked the availability and collection restrictions for the objects and notified me when they would be available. I went to the museum in December 2015 to view, photograph, measure, count and take notes on the objects. Two Peabody forms were completed:

Permission to Visit Collections (Appendix B) and Permission to Photograph Collections (Appendix C). Procedures were followed to ensure preservation of artifacts including wearing gloves and a white lab coat. Lainie Schultz also provided instruction on proper handling procedures and provided protective padding, a tray, and measuring implements. I photographed the artifacts using a digital camera with no flash. High resolution color photographs were taken to allow for zooming and close-up inspection during my research. The close-ups were invaluable in assessing color and composition of the beads. Photos are available on request.

An additional visit to the museum was scheduled to review the accession files (called the “X-Files”) which contain copies of original archeological documents, field notes, original tags, correspondence with the museum, and other assorted articles. As before, a list of objects was provided to Lainie Schultz so the files could be reviewed and pulled before I accessed them. Museum procedures were also followed for viewing the files. I photographed pertinent documents for reference at a later date. Access documentation was signed and remained with the museum. One of my Thesis Directors, Mary Malloy, also joined me in reviewing the accession files.

1.4b The Field Museum of Natural History, Chicago, Illinois. An appointment at the Field Museum was arranged for October 30, 2015 with Laure Dussubieux, Research Scientist, Elemental Analysis Facility. She showed me procedures for analyzing beads and we discussed other resources that might be useful in my research. Dr. Dussubieux showed me the Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) Laboratory at the museum and I spoke with one of the researchers who were there at the time. I viewed the Varian ICP-MS which was connected to an adaptable chamber UP266 laser

ablation system. This system is used to analyze the elemental composition of beads and other museum objects by ablating microscopic sections of a bead. By examining the elements in a bead, researchers are able to gain insight into where beads were manufactured, which beads have similar compositions, and which beads were likely manufactured in the same time period. Although this analysis was not done on any of the sample beads in this thesis, this was valuable as future research can be conducted using a similar facility in the Harvard area. Dr. Dussubieux also showed me sample beads from her own research that were being examined in her office.

Dr. Dussubieux provided me with information on accessing the museum collections; however, their collections are not readily searchable online. The beads examined for my research were on public display at the time of my visit. They were consequently photographed through the exhibit case and additional protective procedures were not necessary. No flash was used to photograph the beads and accompanying artifact descriptions through the case.

1.4c Online Collections. Objects from the Smithsonian Museum of the American Indian, The Yale University Art Gallery, and the Corning Museum of Glass were found via web search. Photos and descriptive cards were accessed and downloaded where possible. Images of objects from the Smithsonian are used in accordance with the following footnote obtained from their website:

Smithsonian MAI: Information provided with the permission of the National Museum of the American Indian, Smithsonian Institution, 4th and Independence Ave. S.W., Washington, DC 20560.
(<http://www.americanindian.si.edu/>)

1.4d Other Collections. Visits to the Boston Museum of Science and the Museum of Fine Arts in Boston provided insight into bead types outside the timeframe of my research and were used for comparison. The Museum of Science exhibit entitled “Maya: Hidden Worlds Revealed” also provided examples of green stone beads; however, they were also outside the time period and region of this thesis. Viewing beads from other locations and time periods provided context and made it easier to identify beads specific to the sixteenth century.

1.5 Data Compilation

Beads and bead artifacts (e.g. chips and broken pieces) were examined, recorded and analyzed for the following:

- Museum ID/Number
- Location Found, Location Breakdown I, Location Breakdown II
- Color: Black, White (Clear/silver), Red, Orange, Blue, Green, Brown, Turquoise, Purple, Other (metal or Chevron)
- Material: Glass, Stone, Shell, Metal, Nueva Cádiz
- Count of items in Accession number
- Burial (Y/N)
- Date (if known)

Other data points that were only recorded for several artifacts include: whether the bead is personal, domestic or ornamental; the popular or historical name for the specimen; appropriate manufacturing category; class and type designation; any marks resulting from manufacture; measurements; structure (simple, compound, complex, or composite); shape of body (e.g. tubular, circular or round); shape of perforation if other than cylindrical; number of facets; miscellaneous attributes such as bubbles, patination, striae or swirl marks; whether the bead is complete or incomplete; use/wear or archaeological data that might help establish function; and notes/ comments. Most of these categories are drawn from Karklin (1985) and can be found in Appendix B.

1.6 Data Analysis

Once the data were collected, I calculated percentages of bead types, materials, and colors. Correlations were calculated to determine relationships among variables such as material and color. A chi-square test for goodness-of-fit and independence was performed. The chi-square test was used to test the null hypothesis that the beads were evenly distributed across all regions regardless of regional preferences. Data were analyzed using STATA statistical software. These results can be found in Chapters V and VI.

Chapter II

Bead Background

In order to better understand the wide variety of beads that existed, it is important to discuss bead types and manufacturing processes for pre-conquest beads and glass beads brought by the Spanish. These will be described in detail in this chapter. General bead characteristics will also be identified to lay the groundwork for analysis and classification of beads in later chapters. Bead characteristics that are useful in describing and classifying beads include shape, material, and color.

2.1 Bead Characteristics, Manufacturing Processes, and Bead Types

A bead is “an object with a perforation, suitable for stringing or weaving” (Geary, 2008). The hole through the middle of the bead is called the perforation or bore. The diameter of the hole is called the aperture (Beck, 1928). The perforation can be square, round or any other shape. The diameter is measured from one side of the bead to the other, across the center. The length of the bead is called the axis or the profile.

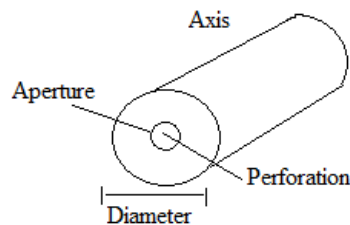


Figure 2 Anatomy of a Bead

2.2 Bead Shapes

Beads are made in many shapes and colors. These characteristics are also used by archaeologists to classify them. Round beads have a consistent diameter all the way around from top to bottom and side to side. Barrel beads are short tubular beads with rounded ends (see figure 3). Oval beads are an elongated version of barrel beads and taper equally toward each end of the bead. Discoidal or donut beads are round and flat

with a larger perforation. Flat plate beads are thin, flat beads with one or two perforations at the top of the bead. They dangle from one end and are typically woven in a side-by-side repeating pattern similar to a sequin.

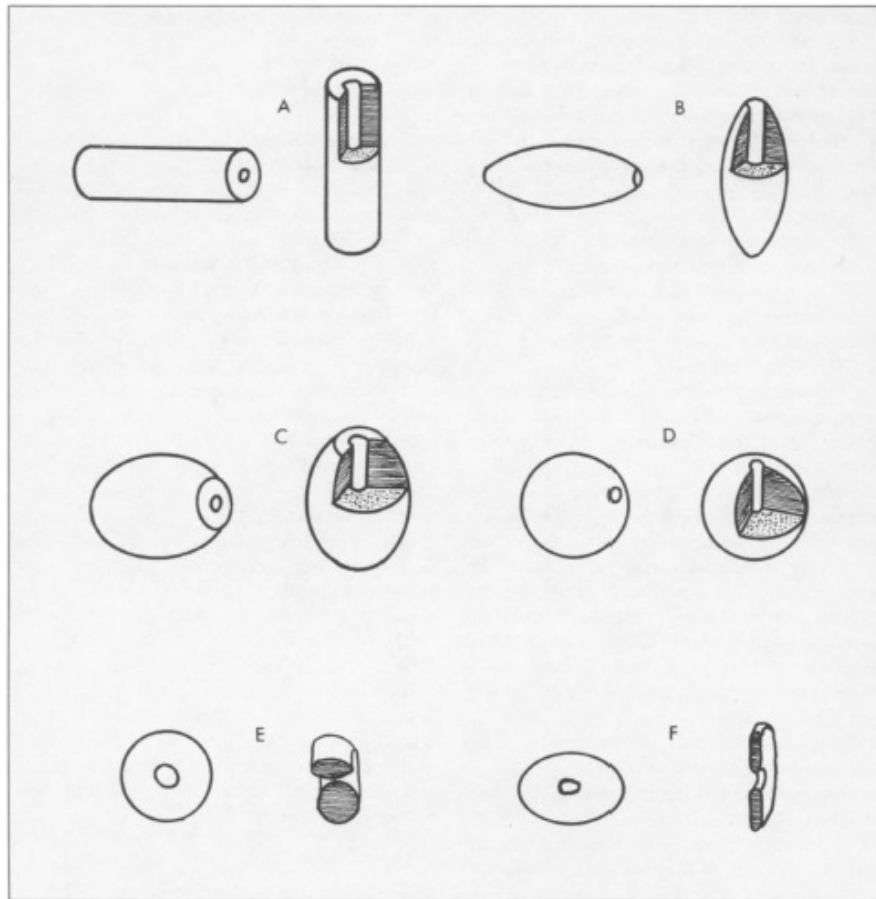


FIGURE 1. BEAD SHAPES

- A. Tubular: Cylindrical beads where the width measurement is constant, regardless of the point along the length at which the bead is measured.
- B. Oval: The width is greatest in the center of the bead, tapering equally toward each end.
- C. Barrel: Intermediate between tubular and oval beads. The widest point of the bead is in the center, tapering slightly toward each end. The ends tend to be flattened.
- D. Round: The length and the width are approximately equal. The specimens are spherical with every point on the circumference equidistant from the center.
- E. Donut: Beads which are wider than long. In cross section the beads appear donut-shaped. The bore of the bead is slightly depressed into the body of the bead.
- F. Circular: Thin, flat beads which are circular in outline.

Figure 3 Common Bead Shapes Source: Spector 1976

2.3 Indigenous Beads

2.3a Shell Beads. One type of bead prominent in South America prior to Spanish contact is the shell bead. Shell beads come in many shades of pink, peach, purple, and white and are typically made of *Spondylus* which is also known as thorny oysters.

Spondylus is a bivalve mollusk found in warmer waters in Ecuador and along the most northern coast of Peru (Carter, 2011). Shell beads were made out of local material found on the coast of Ecuador and Peru. However, *Spondylus* shell beads found on the Central Coast of Peru must have arrived there through exchange networks since the shells were only sourced further north. They were traded before the arrival of the Spanish. As local customs and dress adapted, the importance of shell beads such as *Spondylus* fluctuated.

Shell beads are formed using several techniques including “(1) rough shaping of the bead material, (2) drilling holes and rough stringing, (3) grinding to size and (4) polishing and final stringing” (Carter, 2008; Foreman 1978; Francis 1986). Shell beads may have the colored edges or the hinges removed and may be polished, smoothed, and ground for an even shape.

The location of the hole on shells is typically determined by finding a spot which is already naturally worn down. This is particularly important due to the fragile nature of the shells. Some shells form natural holes over time in places where the shell is thin and exposed to abrasion. By examining the orange shell in Figures 4 and 5, you can see that there is a weak section of the shell just to the side of the drilled hole. This section is thinner and light can be seen through the shell in that section when it is held up to the

light. This sample allows us to see the variations in shell thickness and provides context for understanding why some shells are better than others for bead use.



Figure 4 PMAE, Harvard University 34-159-30/890 Perforated Shell (back)



Figure 5 PMAE, Harvard University 34-159-30/890 Perforated Shell (front)

The beads shown in Figure 6 were found in the Mala Valley on the Central Coast of Peru and are part of the bead assemblages studied in my research. Note the variety of color, shape, and size.



Figure 6 PMAE, Harvard University 46-77-30/6685 Shell Beads

The *Spondylus* shell “was used as a semiprecious material and incorporated into the political, economic and religious realms of many cultures in the Andes and along the Pacific Coast of South America” (Carter 2011). Since shells and shell beads were highly valued, there are many examples in archaeological sites. Shell beads date back thousands of years to earlier cultures in South America (2200-1800 BCE) (Paulsen, 1974) but they were still prevalent at the time of Spanish contact.

2.3b Stone Beads. Other types of beads prevalent in South America prior to Spanish contact include stone beads made from many natural materials that were indigenous to the region. Some examples include carnelian, jade, lazurite, and obsidian, which were all sourced locally. These materials required polishing and drilling of the natural stone in order to create the beads.

Carnelian beads are orange and are made of a natural gemstone that can be opaque or translucent. Since carnelian is a hard stone, it is easier to drill the perforation without breaking the bead. Jade is a rock that was also popular in Central and South America in Pre-Columbian times and is most commonly found in those locations in an emerald green color, though it can also be translucent or opaque. Lapis lazuli or lazurite

is an opaque blue gemstone, indigenous to Peru, Bolivia, and Chile and can be used as a coloring agent in other glass beads to make them blue.

2.3c Metal Beads. Pre-conquest beads were also made of metal. The availability of natural resources such as gold and silver provided material for bead manufacture. Metallurgy was sophisticated at the time of the Inka and metal beads held special meaning in indigenous contexts, as described in the following:

Metals were the most effective Pre-Columbian artefactual conveyors of light and brilliance, partaking of light's sacred values, joining and complementing rather than supplanting the brilliant and translucent qualities of shamanic visions, crystals, feathers, lightning, and snow-capped mountains. In other words, the materiality of metal objects acted as a bridge between mental and physical worlds (cf. Miller 1987: 99, Sanders 1999, p. 26)

There is an example from Cuzco (Figure 7) of a hollow biconical metal bead that was assembled in two pieces and melted together. The metal Cuzco bead is similar to a Chimu bead (Figure 8) from the Smithsonian collection, though the metals are different. The Chimu example has a more uniform shape and appears to have been made by a more skilled bead maker.



Figure 7 PMAE, Harvard University 46-77-30/6882.2
Detail of metal bead found in Cuzco



Figure 8 Smithsonian 15_904 Detail of Chimu gold beads

2.4 European Introduced Beads at the Time of the Conquest.

Glass beads manufactured in Holland, Spain, Italy, and France were introduced to South America in the sixteenth century and were important exchange goods at the time of the Spanish conquest (Turgeon, 2001). Bead making required great skill and was a technical process but it also required artistry as Smith and Good (1982) suggest: “beads of the sixteenth century probably represent the height of achievement in the drawn-cane process” (p.18).

2.4a Glass Bead Manufacturing Methods. There are several methods of glass bead manufacturing. In the sixteenth century, the primary methods of manufacture for beads found in Venezuela, Ecuador, and Peru included hollow-cane drawn or mandrel wound (Spector, 1976). Each method has distinguishing characteristics that may provide archaeologists and researchers with critical information for identifying common bead sources. Manufacturing sites had measuring tools that were used for keeping bead sizes consistent at that particular site. This consistent bead size is one of the factors that can be evaluated to determine where a bead was manufactured.

The ingredients of man-made beads vary from one bead-making site to another and can also help identify the provenance. Glass bead-making methods involve heating ingredients such as silica, alkali, and stabilizers to a molten state and adding color (Spector, 1976). The composition of elements such as vitrifying and fluxing agents (Trivellato, 2001) also help identify location and manufacturing method.

Discoidal beads such as those shown in Figure 9 show the color variations that can be achieved with glass bead making. Through varying levels of colorants and heating processes, a wide array of colors can be achieved.¹



Figure 9 PMAE, Harvard University, 46-77-30/5989.3 Glass Discoidal Beads

2.4b Hollow Cane Method. In the hollow cane method of glass bead making, a bubble is created by folding a molten mass or by blowing air into it through a blowing rod. This mass with the bubble is then immersed into more molten glass. Another rod is attached at the end and the molten glass is stretched into a very long hollow tube. The resulting tube and bore are uniform along the entire length. The tube is laid down and is allowed to cool. Once cooled, the hollow tube is cut into smaller pieces to create the beads (Spector, 1976).

After the beads have been drawn, cooled and cut, some manufacturing processes also tumble the beads. This tumbling process rounds and smooths the bead edges. The tumbling process also sands the edge which allows us to see any layering of colors.

Other identifying characteristics include the introduction of multiple colors, stripes or even twisting of the glass to create various designs such as the twisted beads shown in Figure 10.

¹ In this particular example, and others, it is possible that colors faded or altered over time.



Figure 10 PMAE, Harvard University 46-77-30/6882-2 Cuzco Beads

2.4c Glass Wire-Wound/Mandrel Method. Wire-wound beads are made by winding molten glass on a mandrel, a metal rod upon which molten glass is wound to form the bead. The diameter of the mandrel determines the size of the bead hole. Wire-wound beads are typically identified by the thin lines of glass that can be seen wound around the middle of the bead. In a village or small-scale manufacturing site, these beads are typically uneven in size and the visible streams of glass in the bead may also be uneven (Francis, 1983).

Distinguishing between wire wound and tubular cane beads can be challenging. One way to overcome this is to examine the tiny air bubbles left in the beads. In the case of tube beads, these little bubbles will appear elongated due to the stretching of the glass between the two glassmakers (Kidd & Kidd, 1970). Wire-wound beads, on the other hand will not have elongated air bubbles; rather they will have globular or oval shaped air bubbles (Kidd & Kidd, 1970). This can be valuable information for classifying beads and identifying their origin.

2.5 Nueva Cádiz (glass beads)

Of particular note are blue Nueva Cádiz beads found along the coast of Peru and in several inland Andean mountain locations such as Chachapoyas and Cuzco. Some researchers suggest they were originally created in Flanders, Venice, or Bohemia (Picard, 1993 and Allen, 2007). They were brought to the New World by Europeans and Spanish Conquistadores. There is lack of clarity about the use of Nueva Cádiz beads; however, archaeologist, Charles Fairbanks, believed they were originally worn by the Spaniards themselves as opposed to being used in commerce or gift giving (Smith, 1983). These beads were found in many of the sites across the sample set evaluated in my research.

Nueva Cádiz beads (see Figure 11) have only three layers, usually consisting of a dark blue core, a white layer, and a bright blue exterior.



Figure 11 Nueva Cádiz Corning Museum of Glass 78.5.2 ²

Nueva Cádiz beads are named after the island of the same name off the coast of Venezuela (Smith, 1983). This Spanish port town was occupied between 1509 and 1545 and abandoned after natural disaster (Smith, 1983). The name is attributed to archaeologist, Charles H. Fairbanks, who worked at the site.³ Because the dates are so

² Source: {HYPERLINK " <http://www.cmog.org/artwork/nueva-cadiz-bead>"}

³ Research of ceramics and material culture of colonial period sites in the United States, Latin America, and South America was led by John Goggin of the University of Florida. His successor, Charles H. Fairbanks, continued Goggin's unpublished work on Spanish colonial beads. Goggin's research did not expand to Peru and other archaeological sites of South America.

well known for Nueva Cádiz, this helps identify more precise manufacturing dates and allows for dating of archaeological sites. Figure 12 provides an example of Nueva Cádiz in varying sizes and varying inner core colors.



Figure 12 PMAE, Harvard University 46-77-30/6048 Nueva Cádiz /Hollow Cane

2.6 Chevron Beads

Chevron beads are complex multi colored beads with a pattern of blue, white and red. Chevron beads were found throughout Peru but were not endogenous to the region. These beads were manufactured in Venice and can be dated by the distinct colors and number of layers.⁴ The sample in Figure 13 is identical to beads in the Smith & Good (1982) sample #79.

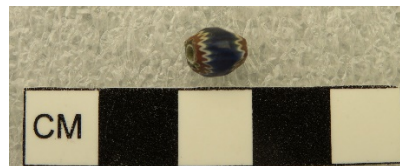


Figure 13 PMAE, Harvard University 46-77-30/6882.1 Chevron bead found in Cuzco

⁴ <http://www.cmog.org/artwork/chevron-bead-0>

Chapter III

Indigenous Uses of Beads

This chapter will cover bead usage in religion, exchange, and dress in order to have a baseline for understanding cultural traditions in South America prior to Spanish contact. The importance and use of shell, stone, and bone beads will be reviewed. This background will provide the basis for exploring how material culture and value may change as a result of the integration of external materials and goods. The integration or rejection of foreign beads will be examined later to determine whether there were regional preferences for specific materials or colors.

Physical attributes of beads such as color, shape, and brilliance are important to different people in different regions. These physical attributes are intertwined with a culture's own views of what is important. Particularly, beads also help define a social structure. As Earle (1994) suggests,

Special objects are shown in public occasions and ceremonies. Here the objects, their possession, and their use define "who is who," setting individuals within the social structure and the system of meaning that justifies that structure. These objects are given and received in socially charged ceremonies involving marriage, alliance, succession to office, and delegation of authority (p.445).

We know that bead played some role in personal identity, exchange, and materiality based on archaeological findings prior to the Spanish conquest. Each of these will be discussed further in this chapter.

3.1 Beads in Dress & Jewelry

Clothing and jewelry are forms of adornment. In many cultural contexts, dress is used to identify people by status or social position and can be symbolic in both living and burial contexts. Beads can be used to identify status, group affiliation, and regional groupings.

Because beads were highly valued, they were incorporated into dress and clothing. Textiles that were covered with feathers and beads of shells, gold, silver, and flat-plated pearl shells were highly valued (D'Altroy, 2002; Mester, 1988; Pachacuti, 1613). Pedro Pizarro's written accounts also describe Inka clothing that was so finely adorned with silver beads (*chaquira*) that you could not see any of the material underneath (D'Altroy, 2002, 292).

Some shells, such as the *Spondylus* shells, were crafted into tiny sphere-shaped beads to create detailed and multi-layered necklaces, whereas others were more easily crafted into flat plate beads, such as the very delicate pearl shells (Mester, 1988). Pearl shell beads would be placed on fabric in rows with one or two perforations at the top of the bead; this would allow the bead to dangle down while showing the flat shiny surface of the shell.

One of the few written accounts of dress before the Spanish conquest can be found in the accounts of Guaman Poma. He was an indigenous writer who recorded an extensive body of work which included drawings and text. He spoke *Quechua* and Spanish so he was able to bridge the two worlds (Wilson, 1998). He drew several scenes of people in various ceremonies and daily settings. One such example shows an Inkan woman with dress pins called *tupu*, which were worn to fasten shawls and textiles. Some

of these *tupu* had strings of beads hanging from them. While there are many examples of *tupu* in museum collections today, there are few with the beads still attached. One of Guaman Poma's drawings below shows beads on the *tupu*.

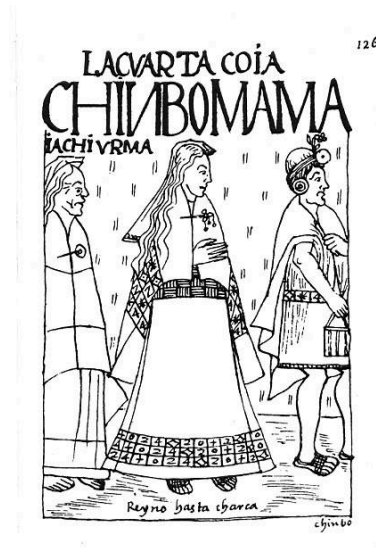


Figure 14 Guaman Poma drawing of dress with bead jewelry

Without these first-hand documents, the only records we have are from the physical objects found in museums.

There is other evidence that beads were worn as jewelry such as the sample in Figure 15. This necklace appears to be strung on original material providing insight into its primary use.

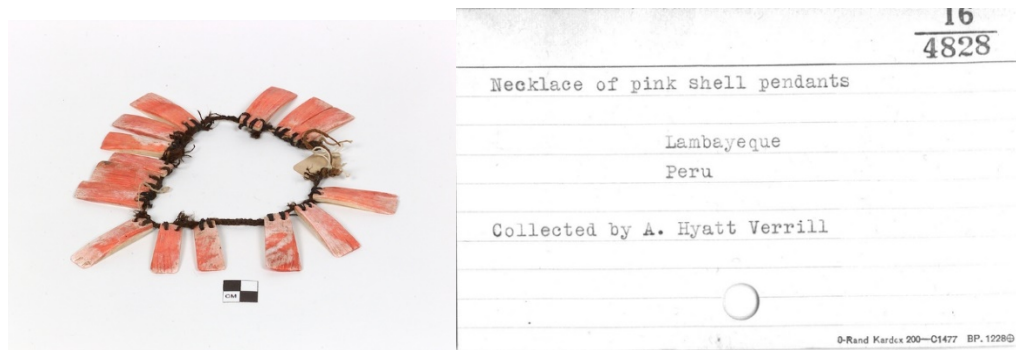


Figure 15 Smithsonian 16-4828 Lambayeque Shell Necklace

While there is no documented record of the importance of the sounds that shells or beads made on textiles in the Andean region, recent research by Diana Loren (2008) has drawn attention to the tinkling sound qualities that such beads could have. In certain ceremonies such as shaman dances, the jingling sounds of beads on their clothes could play a role in the desirability of those beads in society. However, given the descriptions of the tightly woven material in this time period and region, it seems likely that the beads more importantly served a purpose of providing shimmer and shininess that the Inka and societies before them so desired.

3.2 Mortuary Practices

Throughout the Andean region, there are many archaeological sites with burials. Celebrations of the dead were important in Andean religious practices. Mummies were incorporated into daily life and were kept in the living world for some time. They were celebrated in the home with feasts and *chicha* beer. Over time, burial practices varied. There is archaeological evidence of burial mounds, urn burials, burial pits, *chullpa* (burial tower), and others. In a Chachapoyas site, for example, groups of mummy bundles were perched high in a cliff with other mummy bundles and several artifacts. In other regions such as the Southern Nazca region, burial practices included mummies and shallow graves.

In many cases, grave goods were placed with the deceased. These goods provide clues to the status and occupation of the person and include: textiles, jewelry, strung beads, individual beads, pottery, shells, food goods, and other items. The Inka also

incorporated whole *Spondylus* shells and *Spondylus* valves with mummy bundles (Carter, 2008).

Mortuary practices are one of the most important contexts for understanding beads. If we know anything else about the location or person who was buried with the beads, it is possible to draw conclusions about bead importance in society.

3.3 Offerings to the Gods

Shell beads, in particular, played an important role in society from early times until after Spanish contact. With the expansive Pacific Coast along the Andes, there was great opportunity to harvest shells and demand for shell beads remained high. Some cultures valued shell fragments and larger pieces which could be used in offerings to the gods.

Across the Andes, religious practices incorporated the giving of gifts to the gods. Many of these gifts were left at mountaintops so they were closer to the gods. Goods that were important were left at shrines or Huacas. Mollu and other offerings were left at huacas as well. Huacas are locations of special importance, often a place where a unique natural occurrence can be found such as a uniquely shaped rock, a fork in the river or a location closest to the sun; they can also be man-made structures. Huacas such as those found in the Moche Valley included very large structures that served as regional centers such as Huaca Del Sol and Huaca Del Luna. These sites were in place well before the Inka in AD 1 to AD 600 but provide context for many customs (Moore, 1996, p.54). The early date of these sites shows how ingrained the practice of offerings was in the South American culture and prior kingdoms well before the Inka and the time of the Spanish conquest.

Offerings were made to the sun and the moon to ensure a good crop or rain. Offerings included mullu (shells), clothing, food and other items (D’Altroy, 2003; Blower, 1995). “The shell, called mullu, had many uses. As currency in the north, as decoration on cloth for the Inka, and as raw material for statues and rain ceremonies in the mountains” (D’Altroy, 2003, 255).

Rains were an important part of life. If the rains stopped, then the rivers flowing down the side of the Andes impacted the livelihood of the communities. For this reason, people often offered valuable objects to the gods. Mullu were thought to bring rain which was very important to the livelihood of the Inka and those before them (Bauer, 1998, 27 as cited in D’Altroy, 2003, 167).

In the example below, the fragments of shell that do not have perforations for adornment or jewelry were likely offerings and are shown for context and comparison. Their shiny appearance would have been appealing as offerings to the gods.



Figure 16: PMAE, Harvard University 46-77-30.6685 Mala Valley, Central Coast. Examples of possible *Mullu*.

The specific items that were left for offerings provide insight into the goods that were most valuable in society and that were valuable enough to offer to the gods. Since shells and other shiny objects were left as offerings, we are provided with some additional context as we determine the value of different beads for this research.

3.4 Beliefs about the Cosmos

Inka cosmology is grounded in the word *pacha* which can be translated as “world” in *Quechua*, the local language. The cosmology can be broken into *uchu/ucha pacha* (the underworld), *kay/cay pacha* (earth), and *hanan/janan pacha* (sky, moon, stars and sun).

The Inka way of life revolved around agriculture, which relied heavily on water and the calendar. For this reason, earth, water and everything that controlled them were ingrained in the daily lives of the Inka and others in South America. The movements of the sun and the moon determined their livelihood so some of the most important days on their calendars revolved around the summer and winter solstice. The most important buildings were aligned with the stars and the sun. The brightness of the Pleiades was also thought to foreshadow the climate and seasons for the year (Shimada, 2015).

To the Inka, there could be movement between the various worlds. For example, it was believed that Shaman could travel to *ucha pacha* and cause interruptions in the underworld. The underworld was associated with dark colors, orange and blood red. There is also a strong connection between agricultural fertility and the red *Spondylus* shell symbolism, warfare and low status non-Inka peoples (Mester, 1988).

The cosmological symbolism of light and dark also translated to beads. Objects with dark colors were equated with the ground, and terrestrial symbolism (Mester 1988). Shiny, sparkly, and bright objects such as pearls were equated with celestial symbolism and upper status. Because *Spondylus* shell beads refracted light, they were highly regarded prior to Spanish contact where “ideas concerning the spiritual and creative power of light were inextricably bound up with its embodiment in physical form”

(Saunders, 1999). These shiny objects were also used in ritual practices where Shaman ground them into powder.

An understanding of the cosmology is important for understanding the values placed on beads and other objects that were offered, buried, or worn in all of the realms. The importance of connections to the cosmos or supernatural characteristics provide insight into theories about bead acceptance and replacement with new materials.

3.5 Interest in Light, Dark, and Brilliance

One of the topics explored throughout my research is whether cultures that have strong beliefs or ties to an object such as shell beads are less apt to integrate glass or metal beads into their practices. For instance, a key characteristic given to a bead by its material was brilliance. As Saunders indicated, “there seems to be ample evidence that brilliant objects—the ‘things’ of nature and culture—were indigenously regarded as concretizations of light and light-laden natural phenomena” (Saunders, as cited in Quilter & Hoopes, 2003).

To the Inka, there were also specific associations with dark and light. *Anco* and *Yana* are the *quechua* words for white and black (Mester, 1988, Urton, 1981). One example of this can be found in the constellations which also held an important place in Andean and Inka cosmology. The Milky Way was viewed as the celestial version of the Urubamba River (Urton, 1981). The stars and the Milky Way are white while the *Yacana* or Llama in the Southern Hemisphere is formed by a dark patch in the sky. The dark patches are seen as two Llamas, a mother llama and a baby llama. The orientation of these dark patches provided insight into the calendar as it rotated with the turning of the

Earth. The dark patches were viewed as living so they held special meaning. In addition to color (dark or light), an object's shininess holds important qualities.

Each shiny material possessed meanings whose cultural specificity was determined by availability, historical contingency, and varying degrees of technological sophistication; each also therefore became differentially embedded in language, mythology, ideology, and socioeconomic reality (Quilter, 1996).

This shininess can appear through iridescent feathers, shells, stone, and a variety of other materials. Many of these materials are used in the creation of beads so it is important to understand the inherent value and esteem that specific qualities hold for people in a region.

3.6 Beads as Currency and Exchange

Given the extremely diverse geography of the Andean region, many goods were only available in certain locations. For example, bird feathers had to come from the Amazon region while shells had to come from the coast. Certain foods such as yucca and manioc were also only grown at certain altitudes while llama wool came from another. Because there was a need for items from other regions, there was trade before the Inka regime. Prior to the Inka, "the Chincha, were granted trading privileges along the Ecuadorian Coast to obtain *Spondylus* shell and other good from extra-territorial peoples" (D'Altroy, 2003, p.255).

Gassón argues "the creation of the global economy included not only the passive assimilation of aboriginal institutions but also bargaining, negotiation, and continuity or fit of economic institutions between colonizers and colonized" (Gassón, 2000, p. 583). When cultures or societies meet, the introduction of new materials has an impact on what is valued. Before glass of any kind was introduced, individual regions had their own

value system. For instance, stone beads such as carnelian and jade were valued in areas such as Venezuela. Gold was highly valued in the Orinoco. Domingo de Vera documents: “On the Orinoco, only *caciques* (a leader of an indigenous group) and their wives could take gold from its land bound sources, and then only after ritual observances designed to propitiate a guardian spirit (Quilter 2003, p. 26).

Spondylus and other shell beads played an important part in exchange, ceremonial, and ritual practices in South America. They have also played a role in the social life in Andean cultures (Bauer, 2007; Gassón, 2000; Mester, 1986). Along the coast of Peru and Ecuador, many settlements were within trading distance to incorporate locally sourced *Spondylus* shells. These shells were found in archaeological sites across the continent and provide rich evidence for this research.

There are some limiting factors to the free distribution of material goods during Inka rule; however, the archaeological findings studied in my research show the extent of wide-ranging dispersal after the Spanish arrived.

At least some regulation over wealth manufacture may have been made by controlling very specific moments in the economic process, such as the movement of the shell and tin, and by using this selective command to manage craft industries and wealth finance more broadly. The extensive evidence for manufacture, in contrast to the scarce evidence for finished objects, suggests that much of the locally produced wealth was exported from the region. (Earle, 1994, p. 451)

Since these items of value were traded across boundaries, it is possible to evaluate the routes of dispersion which will be discussed in the next chapter.

3.7 Post Conquest Use of Beads

Consistent with the findings in my thesis, “European items were incorporated into an already indigenous system of exchange that placed high value on hard, sharp, and

shiny objects, many of which were used for bodily adornment” (Scaramelli, 2005). Glass beads appear to be used primarily as jewelry and were often mixed on the same strand as indigenous beads. Glass beads were also found in burials; however, they were also mixed with indigenous beads in the burial context.

After the conquest, religious practices of the Spanish had the most impact on the use of beads. As Catholicism spread, so did the use of Rosary Beads. The Spanish were influential in changing religious practices and wanted to replace indigenous beliefs with their own. Over time, the indigenous values of light and dark, connections to the Cosmos, and burial practices were all dampened by Spanish influence. This was not an immediate change so existing customs and bead preferences remained at the time of the conquest.

Contrary to the importance of gold and silver for the Inka where, “gold was the sweat of the sun and silver the tears of the moon” (D’Altroy, 2002, 298), the Spaniards were only interested in the metal for its economic value. Objects made of gold or silver were hoarded by the Spaniards and were promptly melted down when they were taken back to Spain (D’Altroy 2002).

Chapter IV

Evidence of Routes for Bead Dispersal Using Maps

The dispersal of beads and the trade routes across South America in the sixteenth century are shown here through several maps. The following map of the Inka roads shows how interconnected the cities were from Quito to Cajamarca, Cuzco, and down to Lake Titicaca (See Figure 17). Interestingly, the roads extend to the coast in much of Peru and a parallel road extends along the coast until Chucullo at which point the road bends west through Nazca. This is significant because it provides insight into the available routes that the Spanish would have taken and the ways beads would have been dispersed. Glass beads in the sample covered in my research are found only as far south as Tiwanaku, Bolivia, which was formerly Peru.

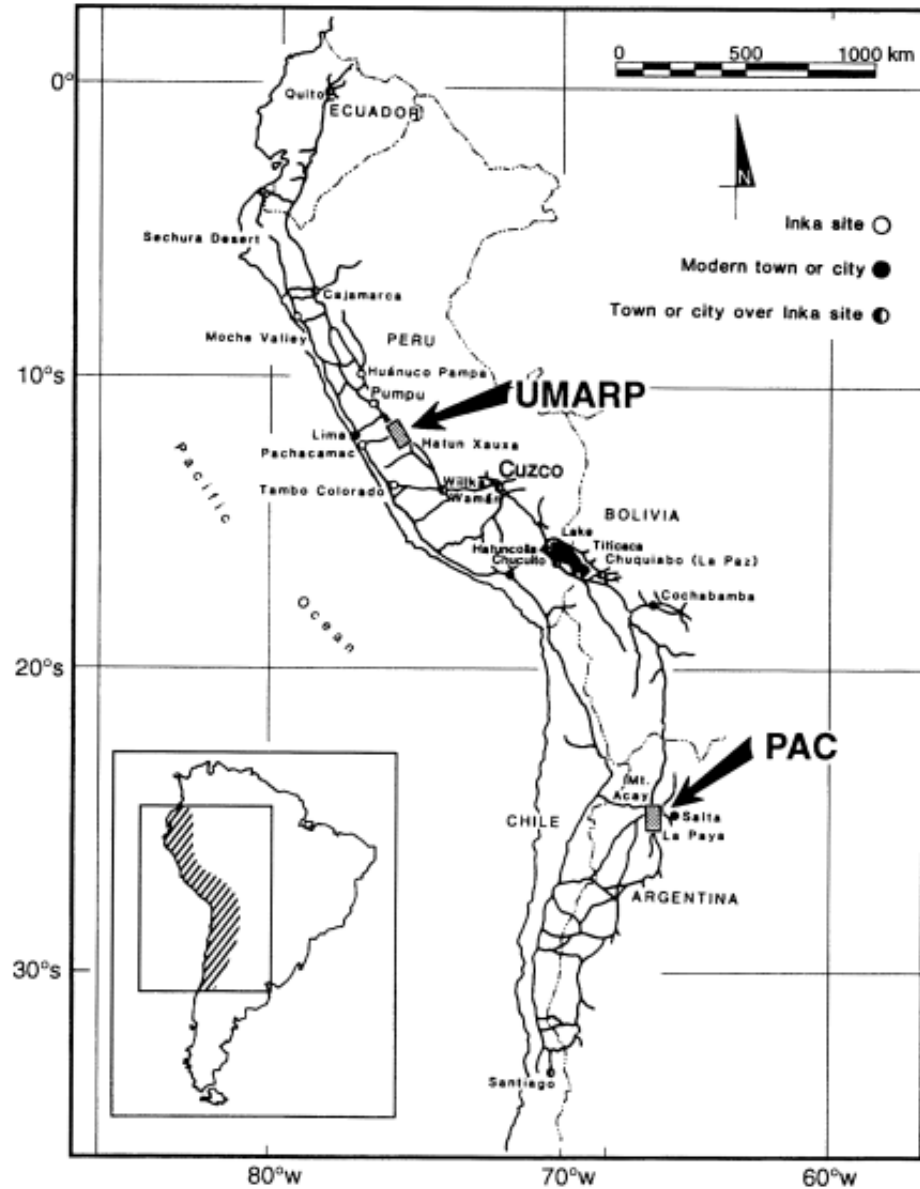


Figure 17 Map of the Inka Empire showing the road system as reconstructed by Hyslop (1984) in Timothy Earle (1994) ⁵

Another map showing the Viceroyalties in Figure 18 provides information about the extent of the Spanish Conquest. The areas in light green were generally unexplored by the Spanish for a number of reasons such as impassible routes, harsh river passages, or

⁵ Society for American Archaeology Wealth Finance in the Inka Empire: Evidence from the Calchaqui Valley, Argentina Author(s): Timothy Earle (1994) Source: American Antiquity, Vol. 59, No. 3)

Amazonia. Although not covered in my research, there is evidence of similar beads in Florida and other areas where the Spanish traveled. Since the Spanish covered such a vast geographical span, it would be expected that glass beads and other foreign materials would be more randomly distributed than the evidence found in my research and other major archaeological research.



Figure 18 Map of the Viceroyalties of South America⁶

Although not depicted here, there are maps available which show a number of expeditions in the sixteenth century. For example, Francisco Pizarro's expedition in

⁶ <http://peter.mackenzie.org/history/maps/spanishempire.jpg>

1531-1533 began in Panama and traveled down the coast of Ecuador. His route turned inland around Cajamarca and continued all the way through to Cuzco. The expedition of Nikolaus Federmann began in Coro in 1556-59 and traveled through Bogota and Quito on the way to Tumbes. These routes from the North to the South help identify the routes that the Spanish would have also taken.⁷ This information provides an example of how some of the glass beads found in Cuzco and other areas of South America might have traveled there.

Summary

If the availability of roads was the only factor impacting the dispersal of beads, one would expect that the number of European beads across South America would be random and there would be no evidence of higher percentages of one type of bead in one region than another. Chapter VI provides statistical evidence that this is not the case.

⁷ Source: *Americas, early exploration of the: exploration of northern South America*. Map/Still. *Britannica Online for Kids*. Web. 1 July 2016. <<http://kids.britannica.com/comptons/art-149861>>

Chapter V

Results of Bead Counts and Percentages by Region

5.1 Peru Overview

Several cities and regions of Peru are covered in this thesis. This section provides a brief background of the regions to provide context for the sub-sections and detailed breakdown covered later in this chapter.

Peru's geography spans the rugged Andean mountains to Pacific coastal deserts intersected by many rivers flowing down the mountainsides, and the headwaters of the Amazon River, to the east of the Andes. The rains that flow down the mountain rivers allow for irrigation and cultivation of the coastal deserts. As a result, many of these areas became populated from very early times (beginning around 4,500 B.C.) as people built irrigation canal systems and terraced landscapes. Trade also became more expansive between the regions since all materials were not available at any one location or elevation. Toward the end of the pre-Hispanic era, the Inka administration had an elaborate network to move materials from one region to another.

Specific cultures such as those of the Chachapoyas provide a look into the cultural exchange between the Peruvian cloud forest and the tropical lowlands. Chachpoyas' finds in the mortuary complex at Laguna de los Cóndores show a vast array of offerings that were contained near or within over 200 mummy bundles (Church and von Hagen, 2008). It is through archaeological finds like this that we are provided with artifacts that can help trace the original source of beads and to ascertain how new beads were incorporated into burial practices.

Another region of importance in this research is the Lima Region. Some of the beads in this research were found at the site of Paramonga (*Parmunca*), specifically on the road to Aija. Paramonga is located north of Lima, Peru about one half mile from the Pacific coast. It lies on the old coastal road of the Inka. Paramonga is also on the banks of the Fortaleza River and had a fortress with several terraces. The fortress was built between 1200 and 1400 A.D. by the Chimu civilization and was a spiritual and cultural center on the southern border of the Chimu kingdom (Kauffman, 2012). Their capital was Chan Chan, near modern Trujillo. The Chimu were ultimately conquered by the Inka who dominated the region at the time of the Spanish Conquest.

The cultural florescence of the Nazca society (Late Nazca 440-640 A.D.) -- known for its shamanism, headhunting and other ritual practices -- was long before the time of the Inka; however, the Inka roads passed through the Nazca region where the Ica-Chincha society was prominent just prior to arrival of the Inka.

Cuzco is also a site of importance in this research. Cuzco, the capital of the Inka Empire, was an elite site which was of central importance for Inka state ceremonies and festivals.

Each of these cities and regions provide varying bead count and percentage results. This allows for meaningful analysis and comparison of the beads for my research.

5.2 Northern Coast of Peru.

This sample from the North Coast includes over 220 beads of varying material and color. There is a wider variety of bead types in this region than some of the other regions covered in this thesis. This is expected because most expeditions and routes of entry into Peru came from the North. Primary ports of entry were Venezuela, Colombia, and Panama with main stops in Bogota and Quito. For example, Francisco Pizarro's exploration in 1531 followed the coast from Panama to Tumbes, passing through Cajamarca, and ending in Cuzco.

My bead sample includes several examples from the Lambayeque Valley and Paramonga, an area once ruled by the Chimú. The Late Chimú period incorporated several regions including the Lambayeque valley but also reached as far north as Chiriqui and as far south as Paramonga.

The Chimú worshipped the moon so evidence of white shiny objects such as *Mollusk* shells beads or the iridescent inner layer of *Spondylus* might be expected. Chimú pottery was red and white so I expected to see more red and white beads; however, this is not the case (Bennett, 1937, p. 42). There are also no examples of multi-colored chevron beads from this region in my sample. As indicated earlier, I expected to see every type of bead in this region since most routes traveled through the region. The discrepancies and lack of certain types of beads, such as chevron beads, lead me to believe that there was a preference for certain beads over others.

5.2a Materials. The materials in my North Coast sample include: stone, metal, glass, Nueva Cádiz, and shell beads. Stone and shell beads are most prevalent in this sample. A small sample of five simple, green translucent beads were also found at Chan Chan. Two lots of Nueva Cádiz beads were found at Hacienda Casa Grande in the Chicama Valley and at Lambayeque.

The following table provides a percentage breakdown of the bead materials. More than half of the beads are stone and shell. The number of metal beads is also higher than some of the other regions. There are no swirled colored glass or chevron beads in the sample.

	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
North Coast/Peru (N)	70	60	49	5	36	220
North Coast/Peru (%)	31.8%	27.3%	22.3%	2.3%	16.4%	100%

Table 1 Peru North Coast sample by material

The following analysis provides more detail on some of the beads tabulated in Table 1.

Like many of the other samples from the North Coast, the Figure 19 contains all organic materials. The sample contains shell beads, modified natural forms, and carved stone beads on strings. The stone beads which are white and smooth are not similar to other beads in the full thesis sample. Several have interesting perforations that do not go straight through the bead. This could indicate that they were created by hand in a small batch. They do not appear to be made in a consistent repetitive fashion of drilling one after another. The shells and beads in this sample were left mostly in their natural form with some grinding or polishing. Overall, the beads in Figure 19 are less sophisticated than others in the collection. The flat stone shaped bead is similar to those found in

Figure 20. Unfortunately, the provenance of Figure 20 is unknown aside from being from Peru. Despite the limited provenance, the beads in Figure 20 still provide a useful comparison to the stone bead in Figure 19.



Figure 19 PMEA, Harvard University 46_77_30/6994 La Libertad Region/Sausal



Figure 20 PMEA, Harvard University 46-77-30/6920 Earlier Stone Beads

The metal beads in the following exhibit were found in Trujillo. After reviewing the silver beads in Figure 21, it was hard to determine how they might have been worn. Fortunately, the sample in Figure 22 still had a piece of string attached. The parallel tubes behind the swirls can be threaded so the beads could be worn as a pendant. It is unclear how more than one of these beads could be worn at the same time if they were used as necklaces. Perhaps they were attached to textiles and worn dangling off of a

tunic or other dress. The other bead samples in this thesis are much different than these metal beads.



Figure 21 Smithsonian 15/7211 Chan Chan, Trujillo Silver beads⁸



Figure 22 Smithsonian 15/7211 Chan Chan/Trujillo⁹

Figure 23, which is also from the Trujillo region, includes *Spondylus* beads with four drilled holes. These are similar to beads found as far south as Nazca. Carter (2008) suggests that darker shells are more fragile and can break more easily when drilled. This could explain why the red samples are not drilled. This might also explain why red shells are often found whole or in larger pieces.

⁸ Smithsonian MAI: Information provided with the permission of the National Museum of the American Indian, Smithsonian Institution, 4th and Independence Ave. S.W., Washington, DC 20560. (<http://www.americanindian.si.edu/>)

⁹ Ibid, Smithsonian MAI

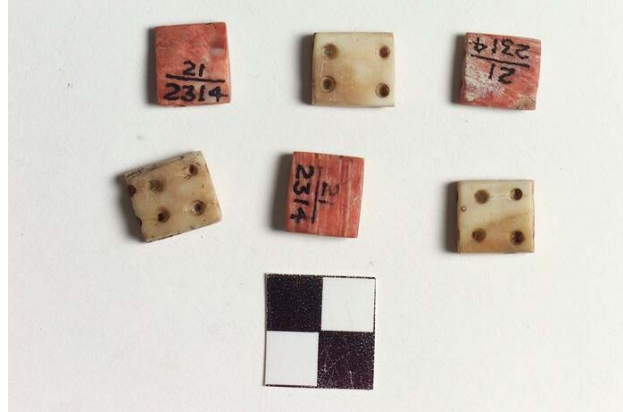


Figure 23 Smithsonian 21/2314 Trujillo, La Libertad¹⁰

5.2b Colors. The colors along the North Coast are less varied than other regions. Over 41% of the beads in the North Coast sample are white or silver. The next highest percentages by color are turquoise and green at 16.4% and 15.9% respectively. This region had the fewest orange, purple, red, and deep blue beads. The following table provides the breakdown of colors in the region.

	BLACK	ORANGE	PURPLE	WHITE (or Clear/silver)	BLUE	GREEN	BROWN	TURQUOISE	RED	Other	Total
North Coast/Peru (N)	19	9	0	92	0	35	29	36	0	0	220
North Coast/Peru (%)	8.6%	4.1%	0%	41.8%	0%	15.9%	13.2%	16.4%	0%	0%	100%

Table 2 North Coast of Peru Sample bead count and bead percentages by color

The inlaid shell beads found in Figure 24 were found in this region. This sample, combined with the other beads found in this region, provides insight into people's color preferences as well as a preference for shiny materials.

¹⁰ Smithsonian MAI: Information provided with the permission of the National Museum of the American Indian, Smithsonian Institution, 4th and Independence Ave. S.W., Washington, DC 20560. (<http://www.americanindian.si.edu/>)

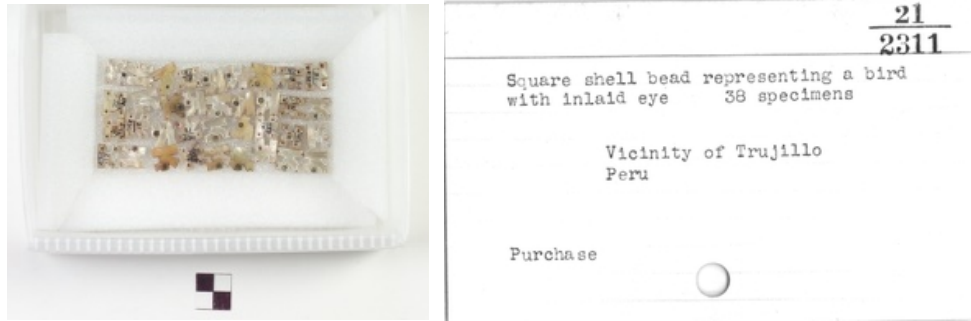


Figure 24 Smithsonian 21-2311 Inlaid shell beads found near Trujillo¹¹

The green bead in Figure 25 from Lambayeque below is also an example of a bead type that is not found in our other samples. This bead has an incised decoration which resembles a face. This type of bead is more prevalent along the coast of Venezuela where green stone was valued. The style also resembles animal effigies that were more commonly found in Venezuela and other regions.



Figure 25 Smithsonian 16-3610 Stone Bead Lambayeque, Peru¹²

The Nueva Cádiz beads in Figure 26 below which were found at Hacienda Casa Grande are similar to others found across Peru. There are similar examples from the Central Coast and Cuzco which can provide insight into the dispersal patterns across

¹¹ Smithsonian MAI: Information provided with the permission of the National Museum of the American Indian, Smithsonian Institution, 4th and Independence Ave. S.W., Washington, DC 20560. (<http://www.americanindian.si.edu/>)

¹² Smithsonian (ibid)

Peru. This sample shows a range of blues and includes a variety of inner core colors ranging from black to white.



Figure 26 Harvard University PME46-77-30/5963.1
Trujillo, Hacienda Casa Grande

5.2c Uses. The long Nueva Cádiz in Figure 26 is one of the longest in-tact beads that I have seen. Given the fragile nature and difficulty of threading such a bead, it might be suggested that it was not intended to be worked as a necklace or pendant.

The value of brightly colored glass beads is less obvious in the context of customs and religious practices along the north coast. For example, the beads and spindle whorls in Figure 27 which were found in Grave X in Sausal (on the Rio Chicama, just North of Trujillo) provide evidence that everyday items such as spindle whorls were valuable enough to be placed in a grave. There are 65 beads which are made of ceramic or stone. Approximately half of the beads are black and the other half are a natural off-white color. Incised circles are used as designs on some of the beads. These circles were created using the drill and can be found in earlier beads samples. The simple characteristics of these beads might shed some light on the status of the person with whom they were

buried. Could the spindle whorls have some significance and indicate the person's contributions in textiles or yarn making for the community? Several of the whorls look as if they had been heavily used.



Figure 27 Harvard Peabody 46-77-30/5846 La Libertad, Sausal

Several of the beads in the North Coast sample appear to be part of personal collections and were used in everyday life. They seem to serve different purposes than those covered in other regions.

5.2d Summary. In this region, it does not appear that new beads transformed indigenous rituals. Although there are Nueva Cádiz beads and some other glass beads, there is a higher percentage of metal, shell, and stone beads which were endogenous to the region. Part of this could be explained by the relatively short period of time between the conquest of the Chimu by the Inka and the impending conquest by the Spanish. The endogenous beads remained an important part of everyday life and were still highly valued in ritual contexts.

5.3 Central Coast of Peru

There are over 665 beads in my sample from the Central Coast of Peru. The major sites include the Lima region, San Nicolas/Supe, the Mala Valley, Paramonga, and Cajamarquilla. Paramonga was an important religious center with a fortress. Paramonga was important in the previous Chimu period but was later incorporated into the Inka expansion. The Cajamarquilla site flourished from A.D. 400-600 under the Huari but subsequently went into decline due to earthquakes and other natural disasters. Cajamarquilla was inhabited by the Inka prior to the arrival of the Spanish.

5.3a Materials. The tables below show the site-level differences by material for Cajamarquilla, Lima, Paramonga and all Central Coast locals in my sample set.

Region	Locale	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Central Coast/Peru	Cajamarquilla (N)	0	0	0	0	23	23
Central Coast/Peru	Cajamarquilla (%)	0.0%	0.0%	0.0%	0.0%	100.0%	100%

Table 3 Cajamarquilla Beads by Material

Region	Locale	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Central Coast/Peru	Lima (N)	24	203	68	12	1	308
Central Coast/Peru	Lima (%)	7.8%	65.9%	22.1%	3.9%	0.3%	100%

Table 4 Lima Beads by Material

Region	Locale	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Central Coast/Peru	Paramonga (%)	10	37	212	11	0	270
Central Coast/Peru	Paramonga (%)	3.7%	14%	78.5%	4.1%	0.0%	100%

Table 5 Paramonga Beads by Material

	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Central Coast/Peru (N)	73	262	283	23	24	665
Central Coast/Peru (%)	11.0%	39.4%	42.6%	3.5%	3.6%	100%

Table 6 All Central Coast Beads by Material

Although all of these sites are in the general Central Coast region, the percentage of indigenous beads versus European beads varies by specific site. The percentage of glass beads in the entire Central Coast sample is 7.1% including Nueva Cadiz. The

percentage of metal beads is 42.6%. These two man-made materials occur with less frequency than other natural materials. Bone, shell, and stone materials occur 50.4% of the time across the region; however, this percentage ranges from 0% at one site to 73.7% at another site. The reasons for this will be researched in further detail in the uses section below. Specific samples from this region follow.

The necklace from Hacienda San Nicholas in the Supe/Lima Region found in Figure 28 from The Harvard Peabody Museum of Archaeology and Ethnology (46-77-30/6121) includes a combination of stone, bone, pottery, shell, metal, and glass beads. This necklace was re-strung; however, the design appears to be unique. This design might suggest that this was the order in which the beads were found.



Figure 28 PMEA, Harvard University 46-77-30/6121 Bead Necklace Supe/Lima Region

Paramonga samples in Figure 29 are similar to the Hacienda San Nicholas example in Figure 28. The necklace in the Paramonga sample is made of stone, glass, bone, shell and metal (silver) beads. The metal beads in the Paramonga sample below are nearly identical to the metal beads found in the previous sample from Supe. Overall, the

Paramonga assemblage in Figure 29 has a wider array of bead types than other samples. There are discoidal, round, cylindrical, donut, whole shell, naturally shaped beads, and tubular beads. The small white cylindrical beads look more like the beads found in the Nazca (Figure 37) area and in Lake Valencia, Venezuela (Figure 43) than other beads in the Central Coast or the Cuzco area.



Figure 29 Harvard University PMEA 46-77-30/6103 Necklace Paramonga, Peru

The samples from Paramonga do not have Nueva Cádiz, drawn glass beads or brightly colored translucent glass beads like those found in Cuzco or Cajamarca. The closest example in the 46-77-30/6103 assemblage (Figure 29) is the light green glass bead at the top left with a unique shape. This raised disc-like shape with an off-center perforation, is not found in other samples. The opaque light green coloration also does not appear to match the style of other Spanish or European beads that were found in Peru.

Cajamarquilla, on the Central Coast to the east of Lima, in contrast to Paramonga (223 km to the North of Cajamarquilla) and Supe (201 km to the North of Cajamarquilla), had some excellent examples of turquoise and blue Nueva Cádiz. Cajamarquilla and Supe are only 22 km apart so one might expect the beads to be similar, but this is not the case.

This discrepancy might be explained by a difference in the number of years between a site's dominant time period and appropriation by other culture prior to the Inka Empire.

The Cajamarquilla examples shown below include twisted and straight varieties of the Nueva Cádiz. There are several examples of Nueva Cádiz with black centers, followed by a white layer and turquoise on the outer rim. There are also some examples with clear or white cores just inside the turquoise outer layer.



Figure 30 PMEA, Harvard University 46-77-30/6048 Cajamarquilla

5.3b Colors. A sample of 665 beads were counted and categorized for the Central Coast. As detailed in the table below, a majority of the beads were black, green, white and orange.

	BLACK	ORANGE	PURPLE	WHITE (or Clear/silver)	BLUE	GREEN	BROWN	TURQUOISE	RED	Other	Total
Central Coast/Peru (N)	281	61	0	89	47	157	19	1	9	1	665
Central Coast/Peru (%)	42.3%	9.2%	0%	13.4%	7.1%	23.6%	2.9%	0.2%	1.4%	0.2%	100%

Table 7 Bead colors in Central Coast of Peru Sample

The necklace in Figure 31 from Hacienda San Nicholas shows the wide range of colors in the samples. The weights at the bottom of the necklace are unique and might suggest that they were made locally. The Nueva Cádiz are a brighter blue color than most examples we have from other sites.



Figure 31 PMEA, Harvard University 46-77-30/6121.15
Lima Region/Supe/Hacienda San Nicolas

There is also an example of white inlaid shells in the form of a bird (see Figure 32) from this region. The white shell beads may have been used for Chimu worship of the moon, as previously mentioned. Similar inlaid beads were also found on the North Coast. Note the single Spanish introduced chevron bead on the top left side in Figure 32. This example also provides insight into preferences for specific bead colors such as orange and green which were found in other samples from this region. The colors fall in line with the percentage color counts for the overall Central Coast region.



Figure 32 PMEA, Harvard University 46-77-30-6121.1 Lima Region, Hacienda San Nicholas (Central Coast)

5.3c Uses. Several of the Nueva Cádiz beads from the Cajamarquilla sample are broken and one has a piece of string embedded through the core indicating that they may have been worn as jewelry. See Figure 33 below. The bead second to the left still has the string inside. There is no way to know when the string was attached to the bead; however, it does appear to be a fiber and spun four-ply weave that looks similar to the woven materials used by the Inka.

All of the beads appear to have worn edges indicating that they might have been used as a necklace or for decoration.



Figure 33 PMEA, Harvard University 46-77-30/6048 Cajamarquilla

5.3d Summary. The sample of 665 beads from the Central Coast is varied in terms of both material and color. The Spanish must have brought the glass beads for gifts or exchange with the Inka and indigenous people of this region. The Inka then incorporated the new beads into their customs and burial practices. Since the samples from Paramonga are so different from other sites, the local practices of the Chimu in Paramonga prior to Inka expansion might have also had an influence on the availability of certain materials and desirability of certain colors.

5.4 Cuzco, Peru

The samples from Cuzco include 259 individual beads across several lots in the Harvard Peabody Museum of Archaeology and Ethnology (e.g. 46-77-20/6882). These samples have a greater variety of bead colors and bead types than most other regions.

One explanation for this might be the elite status of the Inka, and his family, who lived there. Cuzco was a central area which was visited by the Spanish in their quest for control around 1532.

5.4a Materials. The table below shows more detail about the 250 beads in this study that are from Cuzco.

	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Cuzco/Peru (N)	26	26	9	159	39	259
Cuzco/Peru (%)	10.0%	10.0%	3.5%	61.4%	15.1%	100%

Table 8 Cuzco bead Sample by Material

There are more glass beads, Nueva Cádiz, and metal beads than shell and stone beads in the Cuzco sample. There are 26 shell beads in the Cuzco data set versus 198 glass and Nueva Cádiz combined. This low percentage of shell beads to glass beads is consistent with findings at other sites along the North Coast and Chachapoyas. This difference in bead percentages between sites helps reject the null hypothesis that bead dispersion is random.

These bead lots include the following materials: glass, stone, metal, and Nueva Cádiz beads. Some of the beads have complex designs like the twisted Nueva Cádiz in multiple colors. The following Figure 34 shows many of the different bead types found in Cuzco.



Figure 34 PMAE, Harvard University 46-77-30/6882.2 Cuzco

5.4b Colors. There is a greater number of colored beads in the Cuzco area than most other regions researched in this thesis. The Cuzco samples includes all colors that were identified across regions in this research including: black, purple, green, blue, white turquoise, red, orange, and brown. This is also the only sample in the set that has a purple bead. See Figure 35.

	BLACK	ORANGE	PURPLE	WHITE (or Clear/silver)	BLUE	GREEN	BROWN	TURQUOISE	RED	Other	Total
Cuzco/Peru (N)	9	21	2	25	96	50	0	39	0	17	259
Cuzco/Peru (%)	3.5%	8.1%	0.8%	9.7%	37.1%	19.3%	0.0%	15.1%	0.0%	6.6%	100%

Table 9 Bead colors in Cuzco samples

The beads found in Cuzco in Peabody 46-77-30/6882.2 in Figure 35 are nearly identical to the Smith & Good (1982) samples #105 and #113. Smith & Good identified their bead #105 as “donut-shaped, translucent green bead (relatively common)” (Smith, 1982). The Smith & Good sample #113, which is nearly identical to an example from Peabody 46-77-30/6882.2, is identified by them as “donut shaped, transparent pale green (rare)”(Smith, 1982). Smith & Good bead #113 was excavated in Tiwanaku but the

strand in its current state included beads from various sites (Based on correspondence with Marvin T. Smith, 6/4/2016). A similar light green bead was identified in the Smith & Good book as a rare specimen, however the specimen in this thesis came from Cuzco nearly 580 km to the North. We are fortunate to have rare examples such as this in the sample for this thesis and to have the archaeological provenance for the samples included here. After corresponding with Marvin Smith, it is evident that many of the beads they describe in the collection from the Cottonlandia Museum in Mississippi, unfortunately, did not have the same provenance as the examples studied in this thesis. Their beads mostly say “from Peru” but they do know that some groups come from the same regions as the beads in this thesis. The Smith & Good beads come from: “the South Coast of Peru (Nazca Region), North Central Peru (Cajamarca, Moche Valley and Trujillo), South Central Peru (Cuzco region), the Central Coast (Chancay District), an area north of Lima, and Tiahuanaco, Bolivia” (Smith, 1982). All of the groups of beads that they incorporated into their research included a sample of Nueva Cádiz which allowed the authors to determine that the beads all date from the early sixteenth century.



Figure 35 PMAE, Harvard University 46-77-30/6882.2 Cuzco

The purple bead in Figure 35 is a translucent, simple round bead. Further research might be done to see if the purple bead was actually a clear bead that turned purple in the

sunlight. There are other clear beads of the same donut shape in the same sample. If this is the case, one might question why the other clear beads did not change color as well.

There are very few instances in my sample where blue Nueva Cádiz are found with orange stone beads. As mentioned in previous chapters, the dark colors might have had special meaning and could explain why they were found together. This may also explain why the two colors were less frequent in other regions.

5.4c Uses. Given the high status of the Cuzco area, one conclusion that might be drawn is that colored beads and Spanish colonial beads were highly valued and accepted into burial rituals and other practices. With the evidence that we have, the presence of indigenous beads or earlier shell beads is less frequent than other sites such as Nazca, Peru, Lake Valencia, Venezuela or Magdalena, Colombia. This might indicate that the people in the Cuzco region were more apt to incorporate European beads into their existing customs.

When looking at the beads, there is evidence of wear on the ends and some beads are broken. Some research indicates that the Spanish wore beads before they were distributed as gifts or in exchange for other items. For this reason, it is also difficult to know if the wear on the beads occurred in local daily life or before they arrived to the region where they were found. Some of the beads are strung but it is unknown if the string was added later by the archaeologists or the museum.



Figure 36 PMEA, Harvard University, 46-77-30/6882 Cuzco Bead Necklace

This particular necklace in Figure 36 shows some signs of wear on the edges of the beads which could indicate that it was worn. The combination of glass, stone and shell used in this necklace is unique, as is the combination of bead colors. As would be expected with jewelry, the pattern repeats itself all the way around.

There is little detail on the exact location where these beads were found in Cuzco so we do not know if they were found in a burial site. For purposes of this research, unless an item was documented as being found in a burial site they were not marked as such.

5.4d Summary. In summary, the bead samples from Cuzco are more varied in color and material than those found in other regions of my data set. One explanation might be that more people converged on the Cuzco region due to its central proximity in Peru, as well as its political centrality (i.e., it was the capital of the Inka Empire). Cuzco and nearby Machu Picchu were important centers for the Inka. People from other regions went there to celebrate and pay their respect to deceased relatives or elite leaders.

5.5 Southern Peru: Nazca (Peru) and Tiwanaku (now Bolivia)

The samples from the Southern regions of Peru are primarily natural materials including shell and stone. Of the samples in my data set, there are no brightly colored glass beads found in the Nazca region. There are; however, a few glass samples in the Smith & Goode research.

The lack of brightly colored glass beads might suggest that travel by Spaniards that far south was not as prevalent; however, Bennett indicates that there is evidence that the Chimú were in contact with the Nazca from the South Coast early on. The Nazca

influence is evidenced in Chimu pottery (Bennett, 1937, p. 43). It is interesting that pottery in the Central and North Coast was influenced by civilizations as far south as Nazca. The Nazca brought influences of red, white and black in pottery. This may be important as we evaluate bead colors and the dispersal of beads.

An initial review of the beads in my sample along the southern coast indicates that there wasn't much interaction with cultures on the far north on the coast. This evidence from pottery would indicate otherwise and could shed some light on the expected outcomes for bead dispersal in the South. Evidence suggests that while there was a cross-pollination of pottery styles, there might be another reason that certain color and type beads were not present.



Figure 37 PMAE, Harvard University 46-77-30/6771 Shell Beads, Nazca

5.5a Materials. Of my samples from Nazca, 78% of the beads are shell while the remainder are stone. There are no samples of glass beads from this region in my data set. One theory might be that the Spanish did not make contact that far south; however, some of the beads from more southern Tiwanaku were glass and the Inka road passed directly through Nazca so it is surprising that there aren't more European beads.

	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Inland/South Peru (N)	297	82	0	0	0	379
Inland/South Peru (%)	78.4%	21.6%	0%	0%	0%	100%

Table 10 South Peru Beads by Material

5.5b Colors. Although the sample set in Nazca is limited to a few bead necklaces, the beads found in Nazca are all white or brown. Further analysis of materials found in Nazca, such as headbands and decorative objects, are also brown and white. This is much different than some of the other regions we have analyzed.

	BLACK	ORANGE	PURPLE	WHITE (or Clear/silver)	BLUE	GREEN	BROWN	TURQUOISE	RED	Other	Total
Inland/South Peru (N)	0	0	0	301	0	0	78	0	0		379
Inland/South Peru (%)	0%	0%	0%	79.4%	0%	0%	20.6%	0.0%	0.0%	0.0%	100%

Table 11 South Peru Beads by Color

5.5c Uses. Gold and brilliant objects are most commonly found in the Nazca region. There are several examples of earlier beads in the Smithsonian collections. Most of them are made of shiny gold. Several of the beads are in the figure of people and animals, which is much different than some of my other samples. The animal and human shaped beads are similar to those found in Lake Valencia, Colombia, Lima and Lambayeque.

Glass and brightly colored beads do not seem to have value in the customs and religious practices in Nazca. This could have been due to the regional preference of the

people in the region or an underdeveloped need for material wealth. Timothy Earle also found similar results in Argentina, which was on the Southern periphery of the Inka region.

5.5d Summary. In the Nazca and Tiwanaku areas, the evidence shows that shell beads and other ritual objects were more permanent, meaning they did not change solely based on the materials that were available. With the sample that we have here, foreign beads did not seem to cause a transformation in indigenous ritual practices in Nazca.

5.6 Chachapoyas (Peru)

The land populated by the Chachpoya is found in the cloud forest of the Leymebamba region of the Andes with the Marañón River to the West and the Huallaga River to the East. The Chachapoya were warriors who thrived from 800 AD until they were conquered by the Inka in the 1470's (Church and von Hagen, 2008).

These tombs were used until early Spanish colonial times as evidenced by the glass beads and pottery. An understanding of the dates of the burials provides a window into the continued material importance of beads into Spanish colonial times. "A small wooden crucifix, glazed pottery, and glass trade beads indicate that the *chullpas* at Laguna de los Cóndores continued to be used into early Spanish colonial times" (Church and von Hagen, 2008).

There is only one lot of 41 beads in the sample from Chachapoyas. The beads were found wrapped around the fingers of a mummy. Although, this sample is too small to provide any specific statistical information about the region, I thought it was important to include because these blue beads provided the inspiration for this entire thesis. They also show how far inland Nueva Cádiz beads were found.

5.6a Materials. There are several glass beads and a few shell beads in this sample set. If the percentage of Nueva Cádiz and glass beads is combined, 63% of the sample is glass while 32% is shell. Although it is hard to tell from the photo, the metal beads on the ends appear to be bronze or another material that ages with a green patina. Metal beads represent the other 5%.

	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Chachapoyas/Peru (N)	13	0	2	16	10	41
Chachapoyas/Peru (%)	31.7%	0%	4.9%	39.0%	24.4%	100%

Table 12 Chachapoyas Beads by Material

Of all the other sites, the mix of glass to shell beads in Chachapoyas is closest to the percent mix at Cuzco. Other sites have many more stone and shell beads.

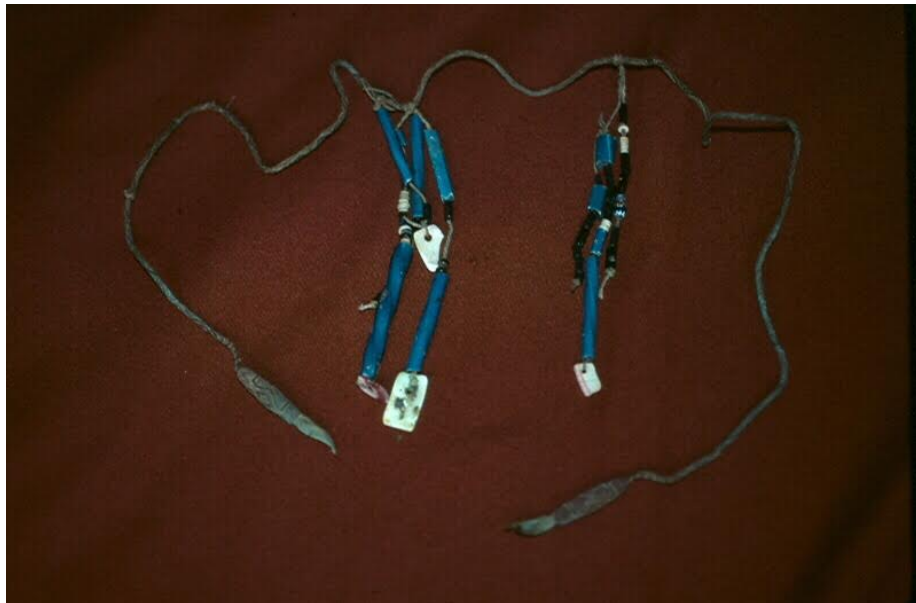


Figure 38 Laguna de los Cóndores Beads, Peru. (Source: Gary Urton, personal photo)

5.6b Colors. Most of the beads in the Chachapoyas sample are turquoise Nueva Cádiz and blue glass. This is unique compared to several other bead samples from other sites. There are several very small white discoidal shell beads and a few flat white shell beads. There are 2 very small orange shell beads. The two “other” beads classified are the metal beads on the end of the leather strap.

	BLACK	ORANGE	PURPLE	WHITE (or Clear/silver)	BLUE	GREEN	BROWN	TURQUOISE	RED	Other	Total
Chachapoyas/Peru (N)	0	2	0	11	16	0	0	10	0	2	41
Chachapoyas/Peru (%)	0.0%	4.9%	0%	26.8%	39.0%	0.0%	0.0%	24.4%	0.0%	4.9%	100%

Table 13 Beads from Chachapoyas by Color

5.6c Uses. Chachapoyas finds in the mortuary complex at Laguna de los Cóndores show “the wide array of offerings that accompanied the more than 200 mummy bundles” (Church and von Hagen, 2008). It is through finds like this that we are provided with artifacts that can help trace the original source of beads and to ascertain how new beads were incorporated into burial practices. An understanding of the dates of the burials also provides a window into the continued material importance of beads into Spanish Colonial times. For example, “A small wooden crucifix, glazed pottery and glass trade beads indicate that the chullpas at Laguna de los Cóndores continued to be used into early Spanish colonial times” (Church and von Hagen, 2008). The existence of the glass beads provided context to help determine the dates of the mummies. This was later corroborated by radiocarbon (AMS) dates on textiles and khipus from the site which primarily fell between 1422 and 1630 (Urton, 2007).

5.6d Summary. Since this site does not provide a statistically significant amount of data, it is hard to draw conclusions about the general burial practices, customs, or dress. The only conclusion that might be able to be drawn is the elite status of the Laguna de los Cóndores site. The similarities to the percent of Nueva Cádiz and glass beads relative to shell beads is similar to other elite sites such as Cuzco.

5.7 Orinoco and La Carabobo (Venezuela) and Magdalena (Colombia)

Amazonian regions such as the Orinoco have been inhabited for many centuries; however, their people and civilizations are less-known than civilizations in Mesoamerica or the Andes. Because these regions are much more remote, there is less known about their ritual practices. Amazonian people are intimately familiar with natural resources and the land around them. Some groups were hunters and foragers and lived off the tropical environment around them. Amazonian cultures are known for protecting their land. Since weapons such as arrows required the shaping and polishing of stone, they were familiar with working stone and other hard materials.

5.7a Materials. Most of the beads found in Orinoco, Carabobo, and Magdalena in my sample set are made of natural resources. The beads were made of shell, green stone, or red stone.

	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Inland/Venezuela (N)	211	2	0	0	0	213
Inland/Venezuela (%)	99.1%	0.9%	0%	0%	0.0%	100%

Table 14 Beads from Venezuela by Material

	Shell Beads	Stone Beads	Metal Beads	Glass Beads	Nueva Cadiz	Total
Colombia (N)	0	1510	0	0	0	1510
Colombia (%)	0%	100%	0%	0%	0%	100%

Table 15 Beads from Magdalena Colombia by Material

5.7b Colors. In many societies, including some societies in Colombia, green stones were more valued than gold. Jade, serpentine, and other stones which were used to create beads and other ornamentation were highly valued and represented authority. (Field Museum, Chicago. Ancient America’s Exhibit, October 2015). The samples from this region vary vastly from those found in the Cuzco region. The beads in the Cuzco region consisted of many different colors including vibrant blues and translucent green glass beads; however, these beads are mostly white orange or green because they are made of natural material like stone or shell rather than glass.

	BLACK	ORANGE	PURPLE	WHITE (or Clear/silver)	BLUE	GREEN	BROWN	TURQUOISE	RED	Other	Total
Inland/Venezuela (N)	0	1	0	210	0	0	2	0	0		213
Inland/Venezuela (%)	0%	0.5%	0%	98.6%	0%	0%	0.9%	0.0%	0.0%	0.0%	100%

Table 16 Beads from Lake Valencia, Venezuela by Color

	BLACK	ORANGE	PURPLE	WHITE (or Clear/silver)	BLUE	GREEN	BROWN	TURQUOISE	RED	Other	Total
Colombia (N)	0	470	0	0	0	1040	0	0	0	0	1510
Colombia (%)	0%	31.1%	0%	0%	0%	68.9%	0%	0.0%	0.0%	0.0%	100%

Table 17 Beads from Magdalena, Colombia by Color

The sample from Colombia includes beads in the Field Museum in Chicago which were excavated from the Tairona site (AD 1550-1600) of Pueblito. Redstone and greenstone beads were traded by Tairona leaders to show their power and rank (Field Museum, Chicago Ancient America’s Exhibit, October 2015). This particular sample of redstone beads was found in an area where feasts were held. Some of these beads were strung for necklaces and others were loose beads found at the feasting site. Figure 25 found on the North Coast also had a similar green color (Smithsonian 16-3610).

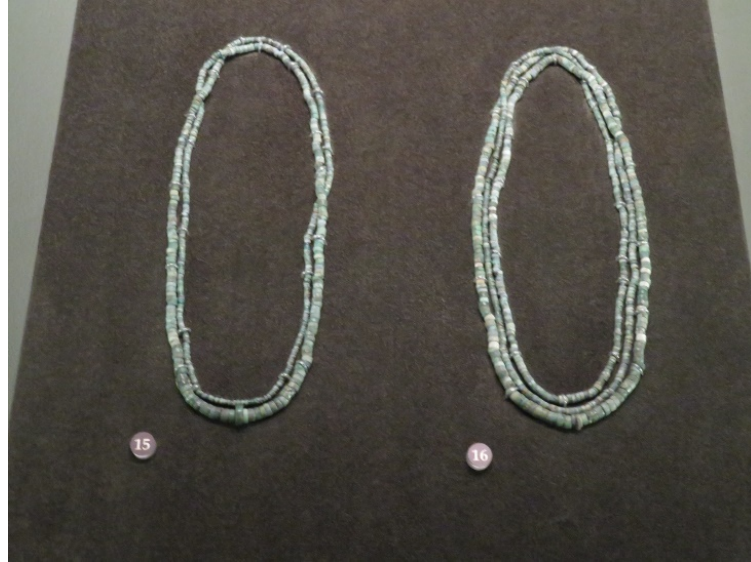


Figure 39 Field Museum, Chicago 1419.152942:1
Green Stone Necklace Magdalena, Colombia

These greenstone necklaces above are from the Tairona culture 1550-1600. The green color of jade and greenstone was important in Amazonian contexts. Animal shaped *Muirakitãs* were made of green stone and were used as objects to ward off infertility and to protect against drought. Jade held powers for Amazonian people in a similar manner as *Spondylus* on the coast of Peru.



Figure 40 Field Museum, Chicago 1419.152876 Redstone beads

The following necklaces are examples of stone beads found in Colombia. These are different than many of the beads found in Peru. The necklaces do not mix materials as many of the examples from Peru. Unlike these samples, green stone and red stone necklaces were less common in my examples from Peru.

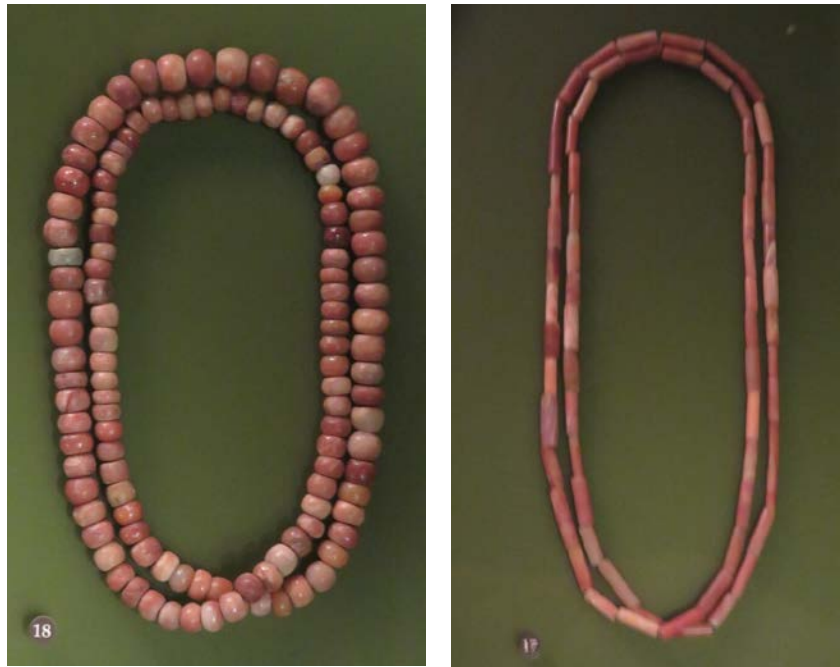


Figure 41 (left) Field Museum 1419.152876 Redstone Bead Necklace
Tairona (AD 1550-1600) Magdalena, Colombia

Figure 42 (right) Field Museum 1419.1522909
Redstone bead Necklace Tairona (AD 1550-1600) Magdalena, Colombia

5.7c Uses. The primary use of beads in these regions of Venezuela and Colombia appear to be for personal adornment and burial practices. Other objects such as effigies are more prevalent in this region so the use of beads appears to be narrower than some of the contexts in Peru (e.g. links to the Cosmos and light vs. dark). Similar to other regions in South America, necklaces were used to display power and to identify people with elite status.

The beads in Figure 43 were found in the Los Tamarindos trench, under a skull in burial 10. This specific context provides support that beads were used in burial practices.



Figure 43 Harvard University PMAE Lake Valencia, Venezuela 34-159-30:897

5.7d Summary. The evidence of beads from Venezuela and Colombia provided in this sample show signs that people saw them in a different way than other regions in South America. Natural materials such as stone and shell were more prevalent than brightly colored glass beads. There is little evidence of glass beads in this region. This might be explained by the mystical characteristics people valued in certain stones and shells or that the Spanish Conquistadores did not make their way into the region due to the lack of desirable material goods such as gold and silver.

Chapter VI

Data Analysis and Summary of Results

The evaluation of material evidence in this research shows that bead distribution was not random and that certain regions appeared to have more resistance to foreign beads and to specific bead colors. This analysis helps us better understand the physical attributes of the beads to discern the anthropological reasons, traditions and customs in which beads were or were not incorporated into use.

Without this analysis, it might be expected that beads were transferred from one location to another without much purpose or intent. One analogy promulgated is that beads spread like disease and ended up in various locations without any logic or pattern to their dispersal.

The six regions covered are the same as those in the preceding chapters. In addition to the six regions in the thesis sample set, Benjamin Carter's data from Ecuador is analyzed for comparison. However, Carter's bead counts were kept separate from my sample set. What Carter found gives more strength to my findings and provides corroboration.

The following analysis attempts to show that the dispersal was not random and that there was a resistance to glass beads in certain regions, as evidenced by varying percentages of specific colors and materials. Additional analysis was performed to test whether the presence of endogenous beads is correlated with the presence of glass beads. I tabulated and analyzed the following:

- a) Raw counts and percentages by bead material
- b) Raw counts and percentages by color

- c) Whether the distribution of glass beads across regions was or was not random
- d) Correlations between endogenous beads and glass beads, where endogenous is either: shell, stone, metal or brown & white, green, orange, black.

6.1 Color and Material by Region

The following table shows the bead color percentages by region. These percentage calculations help identify the regions where there are many bead colors, such as Cuzco, versus another region like Colombia or Venezuela where there are fewer bead colors in my sample. Although bead materials were not as diverse in Table 19, the breakdown by color for many of the regions shows a wide variety of preferences as seen in Table 18.

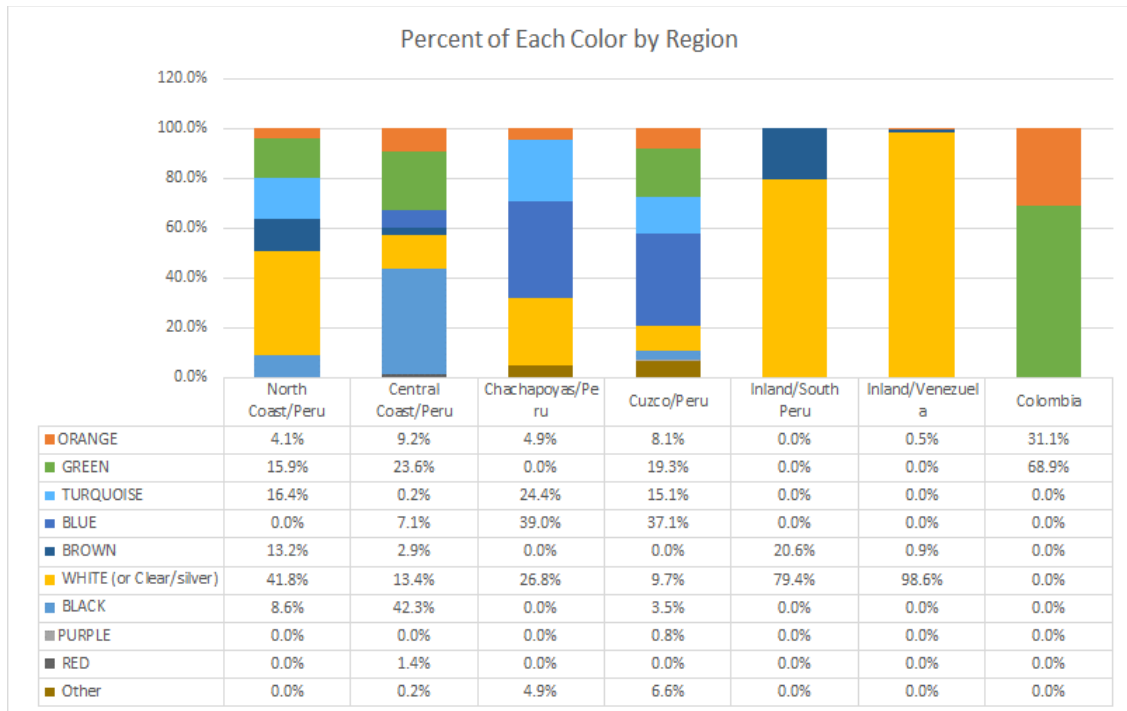


Table 18 Feinzig sample set: Color by Region

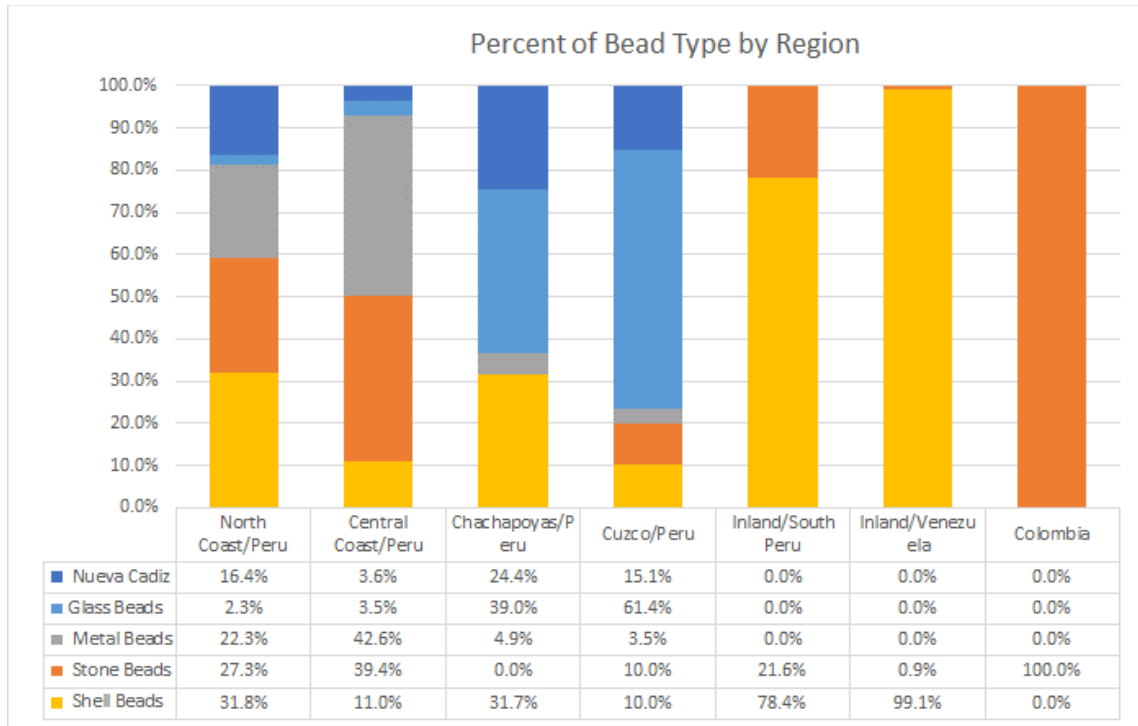


Table 19 Feinzig Sample set: Percent of Bead type by region

Note the trend of increasing glass beads in the regions from North to South in the Peru bars on Table 19. Also note the percentage of shell beads in the Nasca (Inland/South Peru) samples and the North Coast samples versus the much smaller percent of shell beads along the Central Coast and in Chachapoyas and Cuzco. This analysis shows that there were clear preferences for certain bead materials by region; therefore, allowing for the possibility that glass beads were resisted by certain people.

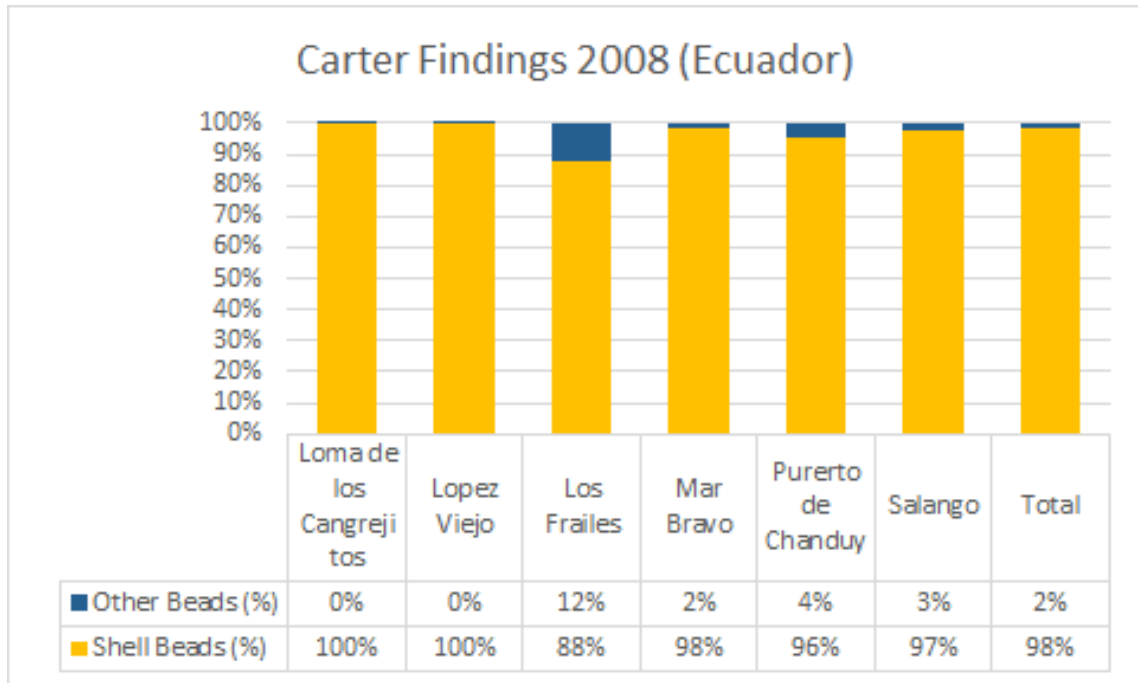


Table 20 Benjamin Carter (2008) findings in Ecuador

The limited number of glass beads that Benjamin Carter found in his excavations (Table 20) and research is supported by the lack of roads along the coast of Ecuador. While there were some non-shell beads in his sample, there were far fewer than other areas just south in Peru. His findings add depth to the analysis I have completed.

6.2 Chi-square Test of Goodness of Fit

In order to determine whether the distribution of beads across the regions was truly random, I performed a chi-square goodness of fit test. This test compared the obtained frequencies to the expected frequencies for each region.

$$\chi^2 = \sum_i \sum_j \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

Equation 1 Chi-square formula¹³

If the distribution across regions were random, then it is reasonable to assume that the long term expected frequency in each region would be the average frequency across regions. The average frequency would therefore have been 45 or the total glass beads divided by 7 (N=6 plus one degree of freedom). The chi-square compares obtained (Feinzig data) to expected data (in this case the average). This test gave me a chi-square value with 6 degrees of freedom equal to 657.7 which has a probability by chance of < 0.001 or $\chi^2(6) = 657.7$, $p \leq .001$. This probability indicates that the results are highly significant and the distribution is not random.

6.3 Correlations by Material

I also looked at correlations between endogenous beads and glass beads, where endogenous is either shell, stone, metal or brown & white, green, orange, or black. My results were stronger when I used the raw frequencies rather than percentages.

¹³ www.quantpsy.org/chisq

The following table shows the correlations between materials. The third row combines glass and Nueva Cádiz since they are all glass; however, I did not want to lose the information so the separate glass and Nueva Cádiz columns are also retained.

	GlassBDK	NuevaBDK	GlassNueva	StoneBDK	ShellBDK	MetalBDK
GlassBDK	1.0000					
	7					
NuevaBDK	0.6528	1.0000				
	0.1119	7				
GlassNueva	0.9826*	0.7822*	1.0000			
	0.0001	0.0377	7			
StoneBDK	-0.2391	-0.3634	-0.2857	1.0000		
	0.6056	0.4231	0.5345	7		
ShellBDK	-0.3485	-0.4567	-0.3987	-0.3840	1.0000	
	0.4436	0.3029	0.3757	0.3951	7	
MetalBDK	-0.0475	0.3300	0.0419	-0.0515	-0.1340	1.0000
	0.9195	0.4698	0.9290	0.9126	0.7745	7
	7	7	7	7	7	7

Table 21 Feinzig Sample. Correlations by Material

Shell beads are negatively correlated with all other bead materials (glass, Nueva Cádiz, stone and metal). Shell beads are most negatively correlated with Nueva Cádiz with a -0.4567 correlation. Metal beads have a positive correlation of 0.3300 to Nueva Cádiz beads and only a slightly negative correlation with glass beads excluding Nueva Cádiz of -0.0475. Nueva Cádiz and other glass beads are more negatively correlated than stone, and metal. One hypothesis is that the man-made nature of the material of glass beads was less appealing to certain groups of people.

6.4 Correlations by Color

Material is not the only factor that can be evaluated for beads. In my analysis, I also performed correlations for colors. As mentioned in the materials section, the correlations for Nueva Cádiz vs. shell beads are negative. Since Nueva Cádiz are always blue, this might reflect a preference for white, shiny shell beads.

The following table shows the correlation between endogenous colors across the beads in my sample set. Blue, purple, and red were removed because they were considered to be non-endogenous. Several conclusions can be drawn from this table. The percent green and percent orange have a very high correlation of 0.9515 (95%). Orange and green beads are negatively correlated to brown beads with a value of -0.8540 and -0.9183 respectively. This indicates that stone and shell beads are negatively correlated. This conclusion can be drawn because most brown beads are shell and most green and orange beads are stone.

	perbrownwh~k	perblackbdk	pergreenbdk	perorangebdk	p
perbrownwh~k	1.0000				
	7				
perblackbdk	-0.5155	1.0000			
	0.2364	7			
pergreenbdk	-0.9183*	0.1424	1.0000		
	0.0035	0.7607	7		
perorangebdk	-0.8540*	0.0300	0.9515*	1.0000	
	0.0144	0.9491	0.0010	7	7

Table 22 Feinzig Sample. Correlation of Endogenous Colors

6.5 Correlations of Endogenous Materials vs. Color

The following table shows correlations of bead material (glass, Nueva Cádiz and GlassN which is glass and Nueva Cádiz combined) versus endogenous bead colors. The endogenous colors were primarily black, brown, green, orange, and white. For additional analysis, green and orange are also combined in S|tGrOr because those were primarily stone. White and brown are also combined because those were primarily shell. In each case, the colors are also included in the table on their own.

Table 23 shows correlations of glass beads with color of endogenous bead colors. White & brown combined has the strongest negative correlation with GlassN~a (Glass and Nueva Cádiz combined) with a value of -0.3975. This negative correlation supports the hypothesis that there are fewer glass beads where there are shell beads since the shell beads are primarily white and brown.

Black has the weakest negative correlation to Glass and Nueva Cádiz combined with a value of + 0.0547. Many of the metal beads were classified as black so this is also consistent with the higher correlation of metal to glass beads which was found in table 23.

	GlassBDK	NuevaBDK	GlassNva
BLACKBdK	-0.0205 0.9652 7	0.2917 0.5256 7	0.0547 0.9073 7
BROWNBdK	-0.3130 0.4943 7	-0.1654 0.7230 7	-0.2980 0.5162 7
GREENBdK	-0.1913 0.6811 7	-0.3275 0.4733 7	-0.2377 0.6078 7
ORANGEBdK	-0.1915 0.6809 7	-0.3426 0.4518 7	-0.2415 0.6019 7
WHITEBdK	-0.3686 0.4159 7	-0.4108 0.3599 7	-0.4039 0.3689 7
SltGrOr	-0.1914 0.6810 7	-0.3323 0.4665 7	-0.2389 0.6059 7
ShWhBr	-0.3714 0.4121 7	-0.3752 0.4069 7	-0.3975 0.3772 7

Table 23 Feinzig Sample. Glass beads vs. endogenous bead colors (blue removed because they are all glass)

	GlassBDK	NuevaBDK	GlassNueva	perbrownwh~k	perblackbdk	pergreenbdk	perorangebdk
GlassBDK	1.0000						
	7						
NuevaBDK	0.6528	1.0000					
	0.1119	7					
GlassNueva	0.9826*	0.7822*	1.0000				
	0.0001	0.0377	7				
perbrownwh~k	0.0308	0.0165	0.0293	1.0000			
	0.9478	0.9720	0.9502	7			
perblackbdk	0.0032	0.3094	0.0785	-0.5155	1.0000		
	0.9945	0.4996	0.8671	0.2364	7		
pergreenbdk	-0.0134	-0.1130	-0.0387	-0.9183*	0.1424	1.0000	
	0.9772	0.8095	0.9343	0.0035	0.7607	7	
perorangebdk	-0.0918	-0.2982	-0.1486	-0.8540*	0.0300	0.9515*	1.0000
	0.8448	0.5160	0.7504	0.0144	0.9491	0.0010	7
	7	7	7	7	7	7	7

Table 24 Feinzig Sample. Bead Correlation by Material

6.6 Data Conclusions

- 1) The distribution of glass beads is not random.
- 2) The correlations show that regions in which there were more shell or white and brown were least likely to have glass beads.

Chapter VII

Conclusion

An underlying theme of this thesis is based on the quote from Francis (2002) that “the study of ancient beads is really the study of ancient people”. Beads are intriguing not only for their beauty, including shape and color, but they tell us about people’s lives and people’s preferences. In this case, archaeology gives us a view into anthropology. Before the sixteenth century, beads in South America were made with indigenous materials and were used in particular ways including trade, personal adornment, and burial practices. But what happened when the Spanish arrived?

This thesis examined bead preferences before and after the conquest. Beads from several museum collections were counted and analyzed to allow for the discovery that: 1) the distribution of glass beads is not random and 2) regions in which there were more shell or white and brown beads were least likely to have glass beads. This means that the endogenous meanings were not impacted, or replaced, by those associated with exogenous bead forms, materials, and colors. These findings indicate that the traditions of the indigenous culture were pervasive and valued. Therefore, it is possible that people in different regions rejected the European beads based primarily on their existing value system and preferences for certain colors and materials.

Chapter VIII

Limitations and Future Research

While much of the focus in this research is on materials and color, there are other cultural factors that would have had an impact on the dispersion of beads and how they were used. This includes whether or not more glass beads were found in other sites used primarily for elite ceremonial and ritual practices, such as Cuzco, versus sites inhabited by local or regional groups outside of a site of central importance. This is additional data that could be analyzed and added to the bead details.

Given the scope of this thesis, it was not possible to cover more than one time frame. For that reason, this thesis did not cover the progression of beads and civilizations through time. Suggested further research in this area could be interesting. Especially, looking at the time periods after the Spanish Conquest to the present day.

By examining beads and other artifacts across time, anthropologists and archaeologists can gain a better understanding of a culture's adoption and acceptance of outside materials. It can also provide insight into bead demand and usage over time. Similar methods could be employed in future research to gain a better understanding of the bead progression at the sites that were analyzed in this thesis. Other questions that could be explored include: Are there similarities in the beads that are found in different regions? Do regions with attachment to shells maintain that relationship as new beads are incorporated into the culture? Does the Amazon remain remote enough and maintain enough of its own customs that new bead types are not incorporated into new practices?

Further research would allow for the expansion of the data set to cover more archaeological sites and museum collections. For example, broader research of the

lowlands and Amazon region could provide additional insight into regional bead preferences. This would allow for a better comparison of multiple sites and could provide greater context for the reasons glass beads were more readily accepted by certain groups of people. More recent articles such as Catarina Falci (2015) could also be used for comparison in a similar manner as Benjamin Carter's research.

Finally, the use of a laboratory with Inductively Coupled Plasma-Mass Spectrometry (ICP-MS) capabilities could allow for analysis of the material content of several of the beads in the PMAE, Harvard University collection. By narrowing the origin of some of the beads by their chemical composition, we might be able to gain an even better understanding of their trade routes and patterns of dispersal.

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Appendix A: List of Museum Specimens

Museum Number	Location Found	Location Breakdown I	Location Breakdown II
46-77-30/6048	Peru, Central Coast, Cajamarquilla	Cajamarquilla	Central Coast/Peru
Yale 2014.27.83	Peru, Central Coast	Central Coast	Central Coast/Peru
Field Museum 1694.171142	Ica Region, Peru	Ica	Central Coast/Peru
15/8577	Rio Rimac valley,	Lima	Central Coast/Peru
(Smithsonian)	Lima Province, Peru		
46-77-30/6121.3	Peru, Lima Region, Barranca Province, Supe, Hacienda San Nicholas	Lima	Central Coast/Peru
46-77-30/6121.5	Peru, Lima Region, Barranca Province, Supe, Hacienda San Nicholas	Lima	Central Coast/Peru
46-77-30/6122	Peru, Lima Region, Barranca Province, Supe, Hacienda San Nicholas	Lima	Central Coast/Peru
46-77-30/6685.1	Peru Central Coast, Mala Valley	Mala Valley	Central Coast/Peru
42-12-30/3179	Paramonga (Chimu) South America, Peru, Lima Region, Barranca Province, Fortaleza, Paramonga	Paramonga	Central Coast/Peru
46-77-30/6103	Peru, Lima Region, Barranca Province, Fortaleza, Paramonga (road to Aija)	Paramonga	Central Coast/Peru
Chachapoyas	Chachapoyas	Chachapoyas	Chachapoyas/Peru
1419.152942:1 (Field Museum)	Magdalena, Colombia	Magdalena Colombia	Colombia
1419.152942:2 (Field Museum)	Magdalena, Colombia	Magdalena Colombia	Colombia

Museum Number	Location Found	Location Breakdown I	Location Breakdown II
46-77-30/6882.1	Peru, Cuzco Region, Cuzco Province, Cuzco	Cuzco	Cuzco/Peru
46-77-30/6882.1	Peru, Cuzco Region, Cuzco Province, Cuzco	Cuzco	Cuzco/Peru
46-77-30/6882.2	Peru, Cuzco Region, Cuzco Province, Cuzco	Cuzco	Cuzco/Peru
46-77-30/6882.2	Peru, Cuzco Region, Cuzco Province, Cuzco	Cuzco	Cuzco/Peru
46-77-30/6882.2	Peru, Cuzco Region, Cuzco Province, Cuzco	Cuzco	Cuzco/Peru
46-77-30/6882.1	Peru, Cuzco Region, Cuzco Province, Cuzco	Cuzco	Cuzco/Peru
46-77-30/6882.4	South America, Peru, Cuzco Region, Cuzco Province, Cuzco, Cuzco	Cuzco	Cuzco/Peru
46-77-30/6771.1	Peru, Nasca	Nasca	Inland/South Peru
Yale 1940.572	Peru, Tiahuanacu (now Bolivia)	Tiahuanacu	Inland/South Peru
33-100-30/180	Venezuela, Carabobo, Los Tamarindos trench, La Cabrera, Lake Valencia	Lake Valencia	Inland/Venezuela
34-159-30/847	Venezuela, Carabobo, Los Tamarindos trench, La Cabrera, Lake Valencia	Lake Valencia	Inland/Venezuela
34-159-30/890	Venezuela, Carabobo, Los Tamarindos trench, La Cabrera, Lake Valencia	Lake Valencia	Inland/Venezuela
34-159-30/897	Venezuela, Carabobo, Los Tamarindos trench, La Cabrera, Lake Valencia	Lake Valencia	Inland/Venezuela
34-159-30/901.1	Venezuela, Carabobo, Los Tamarindos trench, La Cabrera, Lake Valencia	Lake Valencia	Inland/Venezuela

Museum Number	Location Found	Location Breakdown I	Location Breakdown II
15/7211 (Smithsonian)	Chan Chan, Trujillo Province, La Libertad Region, Peru	La Libertad	North Coast/Peru
15/7211_2 (Smithsonian)	Chan Chan, Trujillo Province, La Libertad Region, Peru	La Libertad	North Coast/Peru
21/2311 (Smithsonian)	Near Trujillo, Trujillo Province, La Libertad Region, Peru	La Libertad	North Coast/Peru
21/2314 (Smithsonian)	Near Trujillo, Trujillo Province, La Libertad Region, Peru	La Libertad	North Coast/Peru
46_77_30/6994	South America, Peru, La Libertad Region, Sausal	La Libertad	North Coast/Peru
46-77-30/5846	Peru, La Libertad, Sausal	La Libertad	North Coast/Peru
46-77-30/5963.1	Peru, La Libertad, Trujillo, Hacienda Casa Grande (Chicama Valley)	La Libertad	North Coast/Peru
46-77-30/5989.3	Peru, La Libertad, Chan Chan	La Libertad	North Coast/Peru
12-36-30/87706	South America, Peru, Lambayeque Region, Burial Place	Lambayeque	North Coast/Peru
16/3610 (Smithsonian)	Lambayeque Region, Peru	Lambayeque	North Coast/Peru
16-4828 (Smithsonian)	Lambayeque	Lambayeque	North Coast/Peru
24/3399 (Smithsonian)	North Coast Peru	Unknown	North Coast/Peru
46-77-30/6920	Peru- unknown location	Unknown	Unknown
46-77-30/6944	Peru- unknown location	Unknown	Unknown
32-30-30/107	Peru- unknown location	Unknown	Unknown
Yale 1940.596	Unknown, Inca	Unknown	Unknown

APPENDIX B

Appendix A. Instructions for Completing Parks Canada Artifact Data Base Input Forms for Glass Beads

The forms are to be filled out using the terminology set forth in the preceding guide and the field-specific instructions presented below. A completed sample form is appended.

Category

Enter PERSONAL/DOMESTIC.

Subcategory

Enter ORNAMENT.

Article

Enter BEAD.

Model

If known, enter the popular or historical name for the specimen.

Type

Enter the appropriate manufacturing category, class and type designation proffered in the preceding guide, and the Kidd and Kidd (1970) variety number if applicable. If there is no variety number, append an asterisk (*) to the code.

Date

If known, enter the temporal range as indicated by the archaeological context or a regional chronology. The latter should be referenced.

Material

Enter GLASS, and any non-glass elements that may be present as overlays, inlays or internal decoration.

Manufacture

Enter the appropriate technique of manufacture including the sub-type, if applicable. Record any marks resulting from manufacture.

Dimensions

Record the measurement as outlined under Size in the attached guide. Where large quantities of beads are involved, tally the measurements on the back of the form and enter the range, mean and mode(s) on the front.

Description

Record the following attributes:

Structure (simple, compound, complex, or composite).

Shape of body (e.g. tubular, circular or round).

Shape of perforation if other than cylindrical (e.g. square-sectioned, Y-shaped or tapered).

Colour and diaphaneity of body using the Color Harmony name and code or the Munsell code; also note the lustre.

Facets — list their number, shape and location, and how produced (cut, paddle pressed or mould imparted).

Miscellaneous attributes, such as bubbles, patination, striae or swirl marks on or in the glass.

Decoration

Enter the major decorative category (overlaid, inlaid or internal) followed by a detailed description of the various decorative elements including their quantity, colour and diaphaneity, physical appearance, location and orientation.

Condition

Enter COMPLETE or INCOMPLETE, and note if burned, crizzled, solarized, etc.

Comments

Enter use/wear or archaeological data that might help establish function.



Parks Canada / Parcs Canada

OBJECT CATALOGUE / CATALOGUE D'OBJET

0.082099A023-0004

3. LOCATION ENDROIT HEADQUARTERS		4. REFERENCE NO. NO DE REFERENCE	
5. GROUP GROUPE GLASS		6. CATEGORY CATEGORIE PERSONAL / DOMESTIC	
7. SUB CATEGORY SOUS CATEGORIE ORNAMENT			
8. ARTICLE BEAD		9. MODEL MODELE CORNALINE D'ALEPPO	
10. TYPE GENRE WIII b *			
11. PATENT NO. NO DE BREVET		12. SERIAL NO. NO DE SERIE	13. QUANT. 2
14. AScription ATTRIBUTION			
15. MAKER FABRICANT			
16. PERIOD FROM PERIODE DU		17. DATE 1852-1886 (site date)	
18. MATERIAL MATERIEL GLASS			
19. MANUFACTURE FABRICATION WOUND			
20. DIMENSIONS L: 9.3 mm , 8.7 mm D: 4.6 mm , 4.2 mm			
21. DESCRIPTION COMPOSITE ; CYLINDRICAL BODY : tsp, scarlet (7 pa) outer layer, op: white (a) core; perforation tapers slightly; shiny surface ; distinct wind marks in both layers of glass.			
22. DECORATION DECORATION Inlaid: a floral wreath of op. bright blue (16 ic) on op. white (a) about the middle, and a ring of op. light gold (2 ic) around either end.			
23. MARKS MARQUES			
24. CONDITION ETAT COMPLETE			
25. CONSERVATION			
26. MENUS COLLAGES			
27. PHOTOS PHOTOGRAPHIES RA-98 W		28. DRAWINGS DESSINS	
29. PUBLICATIONS			
30. COMMENTS OBSERVATIONS Ends battered			
31. CATALOGUER PREPOSE AU CATALOGUE T.E. LAWRENCE		32. DATE 25.03.80	



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Name: KRISTI FEINZIG Date: 12/14/2015

Institution: Harvard Extension School

Title/Position: Student ALM Program

Address: 45 Martin Road
Wellesley MA 02481

Phone: 917-584-9677 Fax: _____ Email: feinzig@fas.harvard.edu

Collection Examined: _____

Purpose of Research: Masters Thesis

Peabody Staff Signature: *Jane Smith* Date: 12/14/15

OFFICE USE ONLY

Duration of Visit: _____

Collection Type: Arch

Collection Area(s): 30

Number of Objects: _____

Project Completed: Project in Process:

CUTS Entry:

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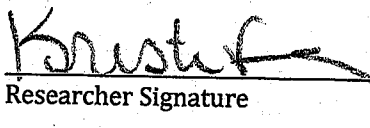
- Only museum staff is authorized to handle and move objects. Staff will authorize exceptions as needed and on a case-by-case basis.
- No bags of any kind are allowed in storage. Please take only the tools you need for your research.
- Food and beverages (including water) are not allowed in storage areas.
- Be aware of clothing, jewelry, keys, etc. that hang or dangle.
- Use a pencil when working with or near objects. No pens please.
- Limit moving and handling objects; only touch an object if there is no alternative.
- Move only one object at a time; always use both hands. Never support an object by an appendage or its rim.
- Ask for help if any object is oversized, fragile, or heavy.

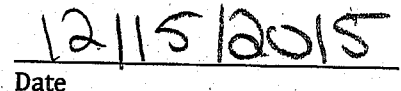
PLEASE NOTE

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Gloves and protective clothing must be used at all times.

This helps us to both preserve the integrity of every object in our collection as well as keep you safe.


Researcher Signature


Date