THE RHENISH STONEWARE FROM THE
MONTE CRISTI SHIPWRECK, DOMINICAN REPUBLIC

A Thesis
by
ANNE WOOD LESSMANN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of
MASTER OF ARTS

December 1997

Major Subject: Anthropology
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December 1997
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ABSTRACT

The Rhenish Stoneware from the Monte Cristi Shipwreck,
Dominican Republic. (December 1997)
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Discovered in 1966 off the north coast of the Dominican Republic, the Monte Cristi shipwreck represents the remains of an English-built ship carrying a Dutch cargo that sank in Spanish waters during the mid-17th century. Despite heavy salvage of the site by sport divers and treasure hunters, significant features of the ship's construction and a substantial sample of the ship's cargo have survived. This cargo was predominantly composed of several types of clay tobacco smoking pipes, although other diagnostic artifacts such as ceramics, trade goods, and luxury imports have also been preserved. One artifact which has appeared consistently throughout the excavation of the wreck is a ceramic known as Rhenish stoneware, especially a type called Bartmannkruige which was produced and exported from the town of Frechen, near Cologne, during the 16th and 17th centuries. No complete stoneware vessels have yet been found at Monte Cristi, but the mottled-brown salt-glazed fragments are characterized by applied Bartmann faces and body medallions typical of Rhenish stoneware from other 17th-century sites.

Analyses of other artifacts from the Monte Cristi shipwreck have placed the date of the wreck between 1652 and 1656 and the likely destination of the ship to have been the northeastern seaboard of North America. In testing these theories through a study of the Monte Cristi Rhenish stoneware, it has become apparent that the assemblage probably dates
to the 1650s or earlier and has parallels at several sites in North America and on shipwreck sites around the world. More valuable from an interpretive point of view is the actual size of the stoneware assemblage, which suggests that the Rhenish stoneware was a major element of the ship's cargo. Since the Dutch were the primary transporters of *Bartmannkrüge* in the 17th century, the stoneware's presence here is a strong indication that the ship was under Dutch ownership at the time it sank.
ACKNOWLEDGMENTS

Many thanks are due first to the Dominican Comisión de Rescate Arqueológico Submarino in Santo Domingo for making this research possible. The trust which the Dominican Republic extended through its generosity in loaning the Monte Cristi Rhenish stoneware collection to me for study is sincerely appreciated.

I was a relative latecomer to the Monte Cristi Shipwreck Project, working there in 1994 and 1995, so I owe a debt of gratitude to those who established the initial groundwork for this research. I thank Jerome Lynn Hall for his guidance and advice and for granting me unlimited access to the project's records and data, Neil Fisher for his tireless help in the field and his updates on recent developments at the site, and Rich Wills for suggesting this thesis topic in the first place and thus starting me down this path of inquiry. I also wish to thank Tina Erwin, Alex Roberts, and other Monte Cristi staff members, board members, and volunteers who have contributed to the excavation, preservation, and organization of the Rhenish stoneware assemblage, as well as everyone who has ever contributed time or resources to the project. Their unfailing dedication to the success of the Monte Cristi Shipwreck Project needs to be recognized.

I wish to thank the members of my thesis committee -- Donny L. Hamilton, Kevin Crisman, and James Rosenheim, all of whom provided immeasurable assistance and advice, especially during those last two critical weeks of writing and drawing. I also thank Helen DeWolf, who patiently and cheerfully taught me how to illustrate artifacts, and John Canup, Fred Hocker, Wayne Smith, and Cemal Pulak, all of whom made timely comments and contributions that they may not even remember but which certainly assisted in this research. Many thanks also to Art Cohn and the staff at the Lake Champlain Maritime Museum for their boundless consideration and understanding, and to Dorette Kleine of the Frechen Keramikmuseum for her help and interest.
I also thank Erika Washburn, my true compatriot as everything came down to the wire; Caroline West and Laura Collins, an economist and a chemist who measured sherd dimensions like naturals; and my sister Amy Lessmann, whose last-minute loan of a laptop computer and laser printer may actually be what made this final report possible.

My deepest and most heartfelt gratitude is, of course, for my family. This work would never have been possible without their steadfast support, generous encouragement, and occasional badgering. Throughout all of my studies and travels, home was always where they were.
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CHAPTER I
INTRODUCTION:
THE MONTE CRISTI SHIPWRECK

The Monte Cristi shipwreck represents the remains of a northern European merchantman which sank in less than five meters of water in Monte Cristi Bay, between tiny Isla Cabra and the north coast of the Dominican Republic (Fig. 1), probably between 1652 and 1656. The nationality of the ship has been in question ever since preliminary archaeological surveys of the wreck site, conducted in the 1980s, alternately identified the observed artifacts and hull as both Dutch and English. Despite this initial confusion regarding the nationality of the vessel, however, recent analyses of the surviving portions of the hull and the artifact assemblage have revealed that the ship itself was of English manufacture, while the ship’s cargo appears to have originated primarily in the Netherlands. This combination, which explains the earlier conflicting identifications, is additionally complicated by the fact that the island of Hispaniola was technically a Spanish possession in the mid-17th century, and neither an English nor a Dutch ship would have been welcome in its waters (Goslinga, 1971: 313).

Submerged in clear, shallow waters, the site has suffered from its easy accessibility throughout its history and especially over the past thirty years. Salvage of the ship probably began within hours after the wreck occurred, and it has continued sporadically throughout the last three hundred and fifty years. The wreck was rediscovered in 1966, and, amid false rumors of treasure, it became well-known on the north coast of the Dominican Republic. An unknown number of treasure hunters, sport divers, and

This thesis follows the format of the International Journal of Nautical Archaeology.
souvenir-seekers have visited the site in recent years, and an unknown quantity of artifacts has been removed (Hall, 1996: 26-41). Despite the heavy salvaging which has occurred on the Monte Cristi shipwreck, however, an ongoing excavation undertaken in 1991 by the Pan-American Institute of Maritime Archaeology (PIMA) and Earthwatch® has so far gathered enough information to date the ship's demise to the mid-17th century and to identify the approximate origins and possible destination of the vessel and its cargo.

The Monte Cristi shipwreck has very little to offer in terms of quick wealth or glamour. After 350 years of disturbance, most of the remaining artifacts are broken and out of context, and the most valuable remaining commodity is the historical information which can be pieced together from the surviving fragments. Data has been gathered, for example, from wood analysis studies of the hull, and much information about the date and origin of the vessel has been accumulated through studies of the cargo.

By far the most recognizable and numerous artifact type on this site is the collection of thousands of clay tobacco smoking pipes and pipe fragments, which makes up the largest portion of the ship's cargo and is the origin of the Monte Cristi shipwreck's nickname, the "Pipe Wreck." In addition to the pipes, however, other finds from the site have contributed significant information toward the understanding of the shipwreck. Artifacts such as ceramics, trade goods, and luxury imports are well-represented in the ship's cargo. One particularly significant artifact type which has been excavated from the wreck in quantity is salt-glazed Rhenish stoneware, which was produced in and exported from the region around Cologne throughout the 16th and 17th centuries. Although no complete Rhenish stoneware vessels have yet been excavated from the Monte Cristi wreck, many diagnostic fragments have been raised and studied. Like the clay pipes, Rhenish stoneware is widely distributed among 17th-century archaeological sites, and parallels between stoneware from these other sites and the Monte Cristi shipwreck are capable of generating information about the source, date, and destination of the Monte Cristi
stoneware, especially when it is considered along with the rest of the cargo within the ship's historical and geographical context.

**Summary of the 1991-1994 excavation results**

**Hull remains**

The initial objective of PIMA's excavation was to record the extant hull remains, which had suffered unrelenting biological attack and erosion over the past 350 years, as well as additional damage caused by mechanical salvage within the last thirty. Lying at a depth of 5 m, the hull remains are oriented with the keel running on a nearly north-south axis and are preserved from north to south to a length of 14.3 m (Fig. 2). Approximately 10-12% of the hull -- portions of the keel, floors, first futtocks, ceiling planking, outer planking, and sacrificial exterior planking -- have survived, almost entirely on the eastern side of the keel, although the extremities are so badly degraded that it has not yet been possible to determine which end was the ship's bow and which was the stern (Beshears, 1993). The remains of the hull are pinned to the sea floor by five large calcareous concretions -- perhaps iron slabs that were originally either ballast or cargo -- which have both protected the wood from Caribbean marine organisms and prevented it from floating away in the tidal current (Hall, 1996: 63-67). These concretions, some of which have visible artifacts encrusted in their surfaces, cannot be removed without endangering the continuing survival of the hull, even though they obscure many details of the ship's construction.

Dendrochronological analysis determined the origin of the hull in 1992, when several samples of wood from the ship's remains were identified as English oak cut sometime between October 1642 and March 1643 (Hall, 1996: 62-63). When placed in historical context, this information at last settled the issue of the ship's origin. Tensions over trade rivalry which began to grow between England and the Netherlands in
Figure 2. The Monte Cristi shipwreck. After Hall, 1996.
the 1630s eventually resulted in a series of three Anglo-Dutch wars in the second half of the 17th century (Rink, 1986: 117-127). Although Anglo-Dutch smuggling and illicit trade continued throughout the period, especially in the colonies (Wilcoxen, 1987: 13-16), the Dutch and the English were unlikely to have been engaged in any formal or legitimate trade in ship timber during the 1640s or 1650s, making it probable that the ship was actually built in England (Hall, 1996: 63).

Additionally, several construction features recorded on the Monte Cristi wreck are typical of other examples of 17th-century English ship construction, a fact which lends even more credence to the theory that the vessel was of English manufacture (Beshears, 1993: 127-128; Hall, 1996: 80-81). Although 17th-century European ship construction is not well understood (Green, 1973: 288), the construction details of the Monte Cristi wreck are clearly similar to features observed on other 17th-century ships, such as Sea Venture (wrecked 1609) and Dartmouth (wrecked 1690). J. Hall (1996: 63-81) outlines the construction details of the Monte Cristi wreck, and excavation reports for several contemporary wrecks describe specific parallels among 17th-century ship construction which are also present on the Monte Cristi wreck. Some of these features include a vertical keel scarf, similar frame systems, the primary use of treenails as fasteners, and the use of animal hair and pitch as caulking material on Sea Venture (Adams, 1985: 287-292, Fig. 2; Steffy, 1994: 149; Hall, 1996: 80) and a vertical keel scarf and protective hull sheathing on Dartmouth (Adnams, 1974: 270; Adams, 1985: 289). Both Sea Venture and Dartmouth were English-built ships, strengthening the possibility that the Monte Cristi hull was built in England. However, some of these construction features, such as the exclusive use of treenails as planking fasteners, also appear on Dutch-built ships of the period (i.e. Mauritius [1609], L’Hour, Long, & Rieth, 1990: 650). The presence of both Dutch and English construction features may represent a northern European shipbuilding tradition rather than one that can be attributed to only one country, but the dendrochronological
analysis of the Monte Cristi ship timbers clearly assigns the origin of the hull’s wood to England.

Artifacts

After the hull had been recorded, the excavators reburied it and widened the area of excavation in order to recover the remains of the ship’s scattered cargo. The artifacts which have so far been excavated fall into a handful of general categories: clay tobacco smoking pipes, ceramics, trade goods, and luxury imports. The categories of trade goods and luxury imports include a wide variety of very diverse and often interchangeable artifacts. Classified here as trade goods are items such as bone comb fragments, shell beads, glass beads, thimbles, tacks, straight pins, a flushloop bell (or hawk’s bell), and three-legged copper cauldrons. The luxury imports include artifacts that would probably have been in demand among wealthy colonists, such as fragments of an ivory fan, Venetian glass, copper-alloy curtain rings, a copper-alloy chandelier column, copper-alloy pan-lamp brackets, copper-alloy wick tweezers, and a brass candlestick. Other artifacts, such as lead musket balls, a pair of navigational dividers, a copper-alloy nested weight set, and a copper-alloy book clasp, may have been either part of the ship’s equipment or personal belongings of members of the crew. Also, an iron cannon was found southwest of the hull remains. Finally, a number of Spanish silver ocho reales (pieces of eight) have been recovered from the Monte Cristi shipwreck site. None of the artifacts listed above appear in large quantities in the archaeological record of the Monte Cristi wreck; many are in fact represented by only a single example, probably as a result of the site’s history of salvage, looting, and disturbance (Hall, 1996).

The wreck’s ceramic cargo, however, is both plentiful and highly diagnostic. The three types of ceramics present in significant quantities are white tin-glazed earthenware and blue-and-white tin-glazed earthenware, both of unknown nationality, and the Rhenish
stoneware which will be the focus of this study. In addition, a few sherds of green or orange lead-glazed utility ware have been recovered. Tin-glazed earthenwares such as the assemblages from the Monte Cristi wreck were mass-produced in the Netherlands in imitation of the Chinese porcelain that was first introduced to northern Europe in the early 17th century. Since the supply of porcelain could not meet the demand, Dutch and English ceramic production centers copied Chinese designs onto the vessels they manufactured and distributed throughout the 17th century. The tin-glazed earthenwares excavated from the Monte Cristi wreck, then, as well as the Rhenish stoneware, were common exports to colonial settlements in the New World (Wilcoxen, 1987: 53-71).

The ceramic pipes, which form by far the largest portion of the cargo, provided the initial temporal framework for the wreck. Over 25,000 clay pipe fragments have been excavated at this site to date, making Monte Cristi the source of the largest collection of ceramic tobacco smoking pipe fragments yet recovered from a shipwreck site (Hall, 1996: 106-107). Approximately 2000 of these pipe fragments are stamped with one of seven distinguishable maker’s marks, namely EB, WH, D*C, P*C, a Tudor rose, a fleur-de-lis in a diamond outline, and a decorative star or flower designated as Fort Orange Type (FOT) 49 (Hall, 1996: 126-152; Huey, 1988: 740). The most predominant maker’s mark, the initials “EB,” almost certainly represent the work of Edward Bird, an Englishman who manufactured and exported pipes from Amsterdam from 1630 until his death in 1665. Since fragile 17th-century ceramic pipes generally had a life span from manufacture to disposal of less than two years (Noël Hume, 1985: 296), then it is apparent that the Monte Cristi pipes were produced and exported sometime between 1630 and 1665. The dendrochronological date of the hull, of course, further narrows the period when the ship could have sunk to 1642-1665 (Hall, 1996: 227-228).

It is the coins, the Spanish silver ocho reales, which are capable of providing the narrowest date for the Monte Cristi shipwreck. At least 27 coins have so far been
excavated from the site, six of which were *reales* produced at the Potosí mint in Peru (now Bolivia), and one of which was a *reale* from the Santa Fe de Bogotá mint in Colombia. Numismatic studies have determined that the Potosí coins were minted after 1649 and that the stamp on the Santa Fe de Bogotá coin was not introduced until 1651. From an archaeological viewpoint, this information means that the ship could not possibly have sunk before 1651, and, taking into consideration the circulation life span of coins of this period, most probably sank sometime between 1652 and 1656 (Hall, 1996: 227-229).

**Intended destination of the cargo**

The surviving artifacts from the Monte Cristi shipwreck constitute an assemblage typical of the 17th century, characterized by items which were commonly exported during that period from Europe to colonies all over the world. Close examination of this collection has yielded much information about a wreck that had supposedly been salvaged of all worthwhile artifacts. Although dendrochronological studies provided a date for the felling of the wood used in the construction of the ship, it is the analysis of the cargo which has been able to determine the probable window of time when the wreck actually occurred. The next uncertainty which must be addressed regards the cargo’s intended destination.

At first inspection the Monte Cristi cargo resembles any northern European 17th-century export cargo intended for any 17th-century colonial settlement. A close look at the pipes, however, supplies a crucial clue to the eventual intended destination of the cargo. Approximately 90% of the pipe cargo is composed of the bulbous-bowled pipes typical of ceramic tobacco smoking pipes of the mid-17th century. The remaining 10% of the pipe cargo is composed of funnel elbow-angled pipes, large, straight-sided-bowl pipes manufactured in Amsterdam, although only one example has ever been excavated and reported in the Netherlands. The Monte Cristi funnel pipes comprise the largest known assemblage of this type of pipe from any archaeological site, and they are the only
examples which have yet been excavated from a shipwreck site. Funnel pipes were a clear imitation of Native American pipes and were exported in large quantities exclusively to North America, where they were probably intended for trade with local Native American populations. These pipes have been excavated from at least 25 Native American sites in the Upper Hudson River Valley, from several neighboring Dutch-American settlements in the modern New York State region, and from Anglo-American settlements in Virginia, Massachusetts, and Maryland (Hall, 1996: 144-150).

If the funnel pipes on the Monte Cristi wreck were in fact intended for trade with the North American native population, then it is possible that other elements of the cargo had a similar destination and purpose. Other artifacts, such as the glass and shell beads, the bone comb fragments, the brass thimbles, the flushloop bell, and the three-legged cauldrons, while not exclusively trade goods, do appear commonly at Native American sites in North America and may also have been intended for trade with Native Americans or for sale to European settlers who had contact with Native Americans. No matter who was intended to receive the rest of the Monte Cristi cargo, however, the fact that funnel pipes identical to those from Monte Cristi have been excavated only on the northeastern seaboard of what is now the United States makes that region an almost definite destination of the last voyage of the ship which sank in Monte Cristi Bay (Hall, 1996: 231). This work will determine what additional information, if any, the Monte Cristi Rhenish stoneware can contribute to the ongoing investigation of the origin of the ship, its intended destination, and the date of its demise.
CHAPTER II
THE PRODUCTION AND EXPORT OF RHENISH STONEWARE

One of the most distinctive artifact groups excavated from the Monte Cristi
shipwreck site is Rhenish stoneware, a ceramic type which was manufactured in several
production centers in the German provinces of the Rhine River valley from the 16th to the
early 18th centuries. One common form of Rhenish stoneware, of which the Monte Cristi
assemblage is an example, was a widely distributed salt-glazed stoneware that was formed
into durable, heavy, necked bottles with a full, round body and a single vertical strap
handle attached at the shoulder and just below the rim. Several regions in the Rhineland
produced other stoneware variations typical to particular towns, but the type under scrutiny
here was developed in the area near Cologne, most notably for this study in the town of

Present in several areas near the Rhine River were extensive beds of clean, fine-
grained, high-silicate clays originally derived from granitic feldspars (Askey, 1981:21;
Elliott, 1986b:85). When fired at extremely high temperatures (around 1300° Celsius),
vessels shaped from these clays vitrified to form a hard, impermeable stoneware. A
distinctive speckled effect was created on the stoneware’s exterior surface by the presence
in the clay of approximately 2% iron salts, which reacted upon firing and created either
dark brown freckles or a more uniform brown color, depending upon the fineness and
dispersion of the iron granules in the clay.

A glaze was applied simply and efficiently by throwing damp sea salt into the kiln
during the firing process. The salt would vaporize in the high heat and react chemically
with the silica in the clay, forming a mineral film evenly on the surface of the ceramic with
a pitted, orange-peel texture (Draper, 1984:33; Elliott, 1986b: 85-87; Hamilton, 1982: 25-
27, 140-142; Noël Hume, 1958: 439). Colors could also be added during the salt-glazing process; one of the most commonly applied colors in the Rhenish stoneware industry was cobalt, a metallic element which was often used to create bright blue splashes on the surface of the molded decorations (Hamilton, 1982: 40; Noël Hume, 1958: 440). The fabric color, which often showed through the mottled brown of the glazed exterior, and the unglazed interior surfaces of the bottles generally remained medium gray in color (Wilcoxen, 1987:76).

Rhenish stoneware bottles from Cologne and Frechen were often decorated with bearded faces or masks on the neck and floral or heraldic medallions on the body, all of which were pressed into wooden molds and applied to the bottles before firing. The bearded faces on the necks of these bottles, known as Bartmänner or beardmen, are perhaps the most diagnostic characteristic of this type of Rhenish stoneware, examples of which are called "Bartmannkrüge" or "beardman jugs." Bartmannkrüge are often also called "Cologne ware" or "Frechener ware" after their place of origin, or "tiger ware" after the unique mottled appearance of their glazed surfaces (Elliott, 1986b: 85; Hume, 1958: 439).

Origin of the term "bellarmine" with reference to Rhenish stoneware

Another common nickname for Rhenish Bartmann bottles is "bellarmine," a term which originated during the 17th century in response to the idea that the Bartmann masks on these stoneware bottles were originally modeled after Cardinal Roberto Bellarmino (1542-1622) in an attempt to caricature this hated Roman Catholic theologian on Protestant drinking vessels (Holmes, 1951:173; Thwaite, 1973:258). This connection between Cardinal Bellarmino and the Bartmann masks on Rhenish stoneware, while centuries old, is still something of a misnomer. Bellarmino, who was only eight years old when the earliest dated example of a Bartmann bottle was made, could never have served as the
original inspiration for the Rhenish Bartmann faces, since it is highly unlikely that he had either a heavy beard or a reputation which would have made him worthy of caricature at that age (Holmes 1951: 173; Thwaite 1973: 258).

The title of “bellarmine” was, rather, awarded sometime during the 17th century to a stylistic device that had appeared on Rhenish ceramics dating back to the Roman period, either as simple decoration or perhaps as an apotropaic symbol intended to ward off evil. Hand-worked or molded faces and other figures were applied to Rhenish pottery as early as the second century A.D. and continued to appear on local earthenware throughout the medieval period (Friederich, 1967: 100-106; Holmes, 1951: 173; Noël Hume, 1958: 439-440). The earliest recorded association between Bellarmino and Rhenish stoneware bottles, however, does not appear until 1634, when William Cartwright referred in his play The Ordinary to “…a large jug, which some call a Bellarmin, but we a Conscience” (from Noël Hume, 1958: 440). Another reference to Bellarmino with regard to stoneware jugs dates to later in the century, when Anthony à Wood recorded in his Pocket Almanac (1677) the following anecdote:

One of the fellowes of Exeter Coll., when Dr. John Prideaux was rector, as tis said, sent his servitor after nine of the clock at night to fetch some ale from the alehouse. When he came home with it under his gowne, the proctor met him and ask’d him what he made out so late and what he had under his gowne. He answered that his master had sent him to the stationer’s to borrow Bellarmin and that it was Bellarmin that he had under his arme; and so went home. Whereupon in following times, a bottle with a great belly was called a ‘Bellarmin,’ as it is to this day (from Thwaite, 1973: 260-261).

These references both postdate not only the introduction of Rhenish stoneware and Bartmann faces, but also Bellarmino’s lifetime and death. Bartmann masks were clearly not created in the image of Bellarmino, although the label of “bellarmine” was probably associated with Bartmann bottles during the later part of the period contemporary to their production and common usage.

Bellarmino was not, however, the only historical figure likened to the bearded faces on Rhenish bottles; the Duke of Alva, another opponent of Protestantism, was also
compared to the grotesque Bartmann masks. Dr. Robert Plot, author of the Natural History of Oxfordshire (1676), mentioned “the stone or Cologne wares (such as d’Alva Bottles, Jugs, Noggins) heretofore made only in Germany, and by the Dutch brought over into England in great quantities.” Another reference to d’Alva is recorded in John Evelyn’s Numismata (1697), which spoke of the Duke of Alva, “of whom there are a Thousand Pictures (not on medals only, but on every Jugg-Pot and Tabacco-Box [sic]) showing a most malicious, stern and merciless Aspect, fringed with a prolix and squalid Beard, which draws down his meager and hollow Cheeks, Emblems of his Disposition” (from Holmes, 1951: 178).

Modern use of the term “bellarmine” to indicate Bartmann masks or Rhenish stoneware in general, then, is a legacy of 17th-century misconceptions. While it may be argued that archaeological artifacts should, whenever possible, be identified with the same label that they carried at the time they were used, references to both Bellarmino and d’Alva must be recognized as assignations made long after the original development of the ceramic type and its distinctive decoration. Neither title bears any relevance to the origin of Bartmänner, their appearance on Rhenish stoneware bottles, or the demand which drove the production of the Rhenish stoneware ceramic type.

History of Rhenish stoneware production and export

Three resources in particular were necessary for the development of the Rhenish stoneware industry -- fine, clean clay deposits to provide the fabric of the stoneware, thick forests to supply the huge amount of wood needed to fuel the high-temperature kilns, and plentiful salt to create the glaze. All of these prerequisites were present in Germany, in the area along the Rhine River (Fig. 3). The clay beds, composed primarily of varying proportions of oxides of silica and alumina, lay under vast forested regions such as the Westerwald, the Erbenwald, and the area south of Aachen. Villages in these forests,
Figure 3. Major Rhenish stoneware production centers.

namely Siegburg, Frechen, and Raeren, respectively, developed the earliest Rhenish potteries, each with its own distinctive clay types and vessel forms (Elliott, 1986b: 85).

Rhenish stoneware was originally produced in its earliest forms (unglazed gray drinking vessels and bowls) in the town of Siegburg in Westphalia from the early fourteenth century. Siegburg eventually developed a successful export trade of its wares, but it suffered a major decline in its stoneware industry as a result of the Thirty Years’ War (1618-1648), from which it never recovered (Elliott, 1986b: 86; Helm, 1961; Noël Hume, 1958: 439; Wilcoxen, 1987: 73). Stoneware production continued in the Westerwald district, however; blue-on-gray drinking vessels were manufactured and exported from the region throughout the 16th, 17th, and 18th centuries. Many of these Westerwald mugs, especially those dating to the late 16th and early 17th centuries, were carefully shaped and

With the exception of only a few sherds, however, the Rhenish stoneware from the Monte Cristi shipwreck represents not Westerwald drinking vessels but rather the larger Bartmann bottles that originally evolved in Frechen (Fig. 4), near Cologne, around 1500 (Noël Hume, 1958: 439; Thwaite, 1973: 255). After its introduction and initial development in the early 16th century, Rhenish stoneware produced in the town of Frechen quickly became a popular replacement for the brittle, porous local earthenware of the 1400s and 1500s. Stoneware potters from Frechen found the best market for their ware in nearby Cologne, although Cologne quickly developed a high-quality stoneware industry of its own in the years between 1520 and 1540. The earthenware potters of Cologne, however, who had previously enjoyed a strong demand for their products because they broke so readily and needed constant replacement, resented the competition of the non-porous, robust

Figure 4. Modern emblem of the town of Frechen. After Nagel, 1986: 153.
stoneware. Consequently, due to continual harassment, confiscations, and fines for unsafe furnaces and chimneys instigated by the earthenware potters, stoneware production within Cologne was abandoned after 1600, although Cologne’s distribution of stoneware from other Rhenish regions continued (Elliott, 1986b: 86-87; Wilcoxen, 1987: 75-76).

Frechen’s Bartmannkrüge were an extremely popular Rhenish export, shipped first to Cologne, then transported down the Rhine River to the Dutch coast. Initially used as a container for Rhenish wines, Frechener stoneware was also eventually used as a household storage vessel and as a transport jar for vinegar, oil, acids, and mercury¹ (Thwaite, 1973: 255). The bottles were exported to other European countries and to far-flung European colonies dispersed throughout Asia and the New World, both for their own sake and as transport vessels for liquid commodities. The export of Frechener Bartmannkrüge reached its peak during the 17th century, at the height of the Dutch seaborne trading empire. Examples of 16th- and 17th-century Rhenish stoneware have been found throughout Britain and Western Europe, off the African Gold and Ivory coasts, in the West and East Indies, and in North America (Wilcoxen, 1987: 73; Hume, 1958: 439; Thwaite, 1973: 255; Elliott, 1986b: 86-89).

This ceramic was so hardy and durable that late 17th-century examples have been found in households in Surinam and China as late as the 1950s and 1960s, relics of early trade which had remained in use until the modern-day period (Hume, 1958: 439; Elliott, 1986b: 89). For archaeological purposes, Rhenish stoneware serves as an excellent index fossil for the 16th and 17th centuries on both underwater and terrestrial sites. Its impermeability and durability generally leave it in an excellent state of preservation which is particularly valuable for artifacts from an underwater context.

¹For further information about the transport of mercury in Rhenish stoneware, see Appendix A, nos. 3 (Lasidrager), 6 (Kennemerland), 8 (Princesse Maria), and 11 (Hollandia).
Attempts to create a Rhenish stoneware typology

Rhenish stoneware production lasted for approximately 200-250 years, throughout the 16th to 18th centuries, a period which has been estimated by analyzing examples with dates incorporated into their molded designs (Thwaite, 1973: 255). Since Rhenish stoneware is such a widespread and identifiable artifact present in so many 16th- and 17th-century archaeological sites, it is often used to help date assemblages where it is represented. Although relatively few examples actually have dates molded onto their surfaces, Bartmannkriège in particular provide a useful dating index because they underwent a gradual yet recognizable progression in style throughout the period of their production.

Sixteenth-century Bartmannkriège, especially those produced in Cologne, are generally considered the finest examples of the type. Cologne stoneware is especially characterized by naturalistic Bartmänner with pleasant expressions and finely modeled beards that flow down the necks of the bottles onto the shoulder. The bottles’ round, globular bodies were artistically decorated with ornamental molded designs such as rosettes, vine leaves, acorns, inscriptions, and complex heraldic medallions with the arms of local families and cities, all applied in a wide variety of combinations. By the turn of the 17th century, the stoneware industry had declined in Cologne and flourished in Frechen. The shape of the bottles gradually became more elongated and ovoid, and the molded decorations, while still representing Bartmänner and floral and heraldic patterns, became simpler and more stylized (Wilcoxen, 1987: 74-76). By the end of the 17th century and into the 18th century, applied molded decoration was eventually abandoned in favor of crude, incised designs or no decoration at all (Noël Hume, 1958: 439-441). If it were possible to develop a precise typology of this progression, it would no doubt be invaluable to any archaeologist who wishes to date a site, whether on land or underwater, with a well-preserved ceramic assemblage.
Bartmann typology of M. R. Holmes (1951)

Chronologies of the appearance and characteristics of Bartmannkräige have been attempted, specifically by M. R. Holmes, who published a typology in 1951 based upon the forms of the Bartmann masks and, to some degree, the medallions. Holmes’s typology, which started with examples from the early 1500s and ended with specimens from the early 1700s, followed the typical art historical progression from early, square, well-formed faces to finely modeled, naturalistic faces with long, flowing beards to more stylized, “degraded” faces with grotesque smiles and grimaces. At the end of the series, Holmes considered Rhenish stoneware production to have reached the point where the crests were plain, mass-produced medallions and rosettes, while the masks were crudely executed afterthoughts, with beards and hair scratched onto the surface of the vessels. In addition, the bottles grouped with the latest type were often poorly executed, with skewed or wry necks, kiln scars, and sagging shapes.

Holmes divided the entire progression of Bartmann faces into nine distinct types (Fig. 5). Type I, which he considered the “prototype” of the series, he dated to the mid-16th century (ca. 1560). Holmes’s Type I Bartmänner were characterized by their square beards and well-formed, dignified aspects, which he noted were reminiscent in style to late medieval wood carvings. Other decorations characteristic to Type I stoneware were small medallions, leaf patterns, and central bands bearing either inscriptions or foliage. On Type II bottles of the late 16th century, Holmes noticed the gradual disappearance of this central band, more naturalistic Bartmänner with pointed or rounded beards, and the development of a flat foot rather than a molded ring foot. Holmes dated Type III vessels to the turn of the 17th century, observing a change in the tradition of naturalistically rendering Bartmänner. The Bartmann faces frequently wore broad grins rather than their earlier decorous expressions, the central inscription or foliage band had been completely abandoned, body medallions were generally heraldic in theme, and the arms of the city of
Figure 5. *Bartmann* typology of M. R. Holmes. Not to scale.
Amsterdam were represented frequently. One additional medallion type present on Type III bottles was a depiction of a sportsman figure, sometimes armed with a sword or musket, wearing the doublet, breeches, and ruff of the 16th century. Type III bottles also carried dates more frequently in their decoration, with the latest such example dated to 1606.

Type IV bottles were dated to the earliest years of the 17th century; one Type IV bottle also carried the date 1606. Like Type III faces, Type IV masks had a wide, curving grin for a mouth; Holmes differentiated the two by observing that a stylized palmette pattern had replaced the naturalistic Type III beard, although Type IV masks did retain naturalistic mustaches and side hair. Medallions on the body continued to represent genuine armorial devices, but minor mistakes and changes in the actual achievements of arms indicated to Holmes that mold designers and cutters were beginning to disregard heraldic significance in favor of pure ornamentation. Type V bottles, placed in the first quarter of the 17th century, represented further degradation as the execution of the Bartmann faces became cruder. The grin had been abolished, replaced by a stern straight line, and a vertical, branched frown-line was often inserted between the eyebrows. Type V faces also had palmette beards, although Holmes claimed that they conflicted stylistically with the naturalistic hair at the sides of the faces.

Type VI and Type VII bottles Holmes thought to be both closely related to each other and approximately contemporary to Types III and IV. Type VI faces he dated to the late 16th and early 17th centuries, describing them as similar to Type III masks, although the Type III grin had developed bulges at the ends, giving Type VI faces a “curiously gagged appearance” (176). The voluted corners of the mouth came up very close to the nose, leaving very little room for the mustache. On Type VI bottles, both the mustache (if present) and the beard were rendered naturalistically. Type VII bottles, on the other hand, which Holmes placed in the early 17th century, had a stylized palmette beard similar to Type IV and usually no mustache at all. Type VII faces also included what Holmes
referred to as a lion-mask, on which the curved and swollen mouth hid the beard and represented the lower edge of the face.

Holmes dated his Type VIII bottles to the third quarter of the 17th century and later. The mouth of Type VIII masks had taken on an hourglass shape, with the lower lip drawn up in the center. Teeth, often represented only by crudely rendered lines, were sometimes present, the facial features were distorted, and the general expression Holmes described as "savage and uncouth" (178). Also, the bottles' shape was more ovoid, and neck was longer. Type IX bottles, placed in the last quarter of the 17th century, represented to Holmes the final degeneration of the style. Type IX bottles, he determined, could be identified simply by the rough crudeness of their execution and the obviously diminishing importance of the mask. The hair and beard were usually represented only by incised lines, and the mouth was frequently left off altogether. The medallions on the body were generally filled with rosettes, merchants' marks, and occasional corrupt armorial devices. The decoration of Type IX bottles was the last step towards the cursory stamped patterns or utter lack of decoration on 18th-century Rhenish stoneware.

Holmes's convenient and sensible typology represented one of the earliest efforts to organize the vast corpus of surviving Bartmannkrige into manageable order. As it began to be applied toward bottles in various collections, however, discrepancies started to emerge. Holmes's typology was useful for sorting Bartmann types, but it was criticized as a chronological tool on the grounds that Bartmann masks on firmly dated bottles did not always follow the progression consistently (Thwaite, 1973). Problems with the typology became even more apparent in the 1970s, after the excavation of the VOC ship Vergulde Draeck sixty miles north of Perth, Australia. Bound for Batavia, the ship sailed from Texel on 4 October 1655 but struck a reef and sank on 28 April 1656. Hundreds of decorated Rhenish bottles, many completely preserved, were raised to the surface during the excavation and immediately dealt a mortal blow to Holmes's Bartmann typology.
Upon analysis, it quickly became apparent that masks of Holmes Types IV, V, VI, VIII, and IX were all present on the same ship, although Holmes had dated these types across the years from 1606 to the very end of the 17th century. Since the ship sank in 1656, all of the Rhenish stoneware which had been on board clearly could not be dated beyond the first half of the 17th century. Also, several jugs had manufacture flaws such as wry necks or kiln scars, which Homes had interpreted solely as characteristics of later stoneware (Green, 1977: 95-99; Thwaite, 1973: 259). Production mistakes can, of course, occur at any time in the development of any craft; the significance of the presence of poor-quality Bartmannkrüge on Vergulde Draeck lies not in dating the shipwreck but rather in gaining information about the Dutch trading empire and the high demand for Rhenish stoneware, and in the fact that these particular inferior vessels were sent to Batavia as exports.

The Bartmannkrüge from the Monte Cristi shipwreck demonstrate similar problems with Holmes's typology. By applying Holmes's typology to the Monte Cristi Bartmänner (described and illustrated in Chapter IV), it becomes apparent that examples of Holmes's Types III, V, VI, and VIII are represented. These four types, according to Holmes, range in date from the late 16th century until after 1650, but analyses of the other artifacts excavated from the shipwreck site have dated the wreck fairly firmly to the years 1652-1656. As parallels to the Monte Cristi Bartmann types are described in Chapter IV, it will become apparent that the progression of Bartmann styles throughout the 16th and 17th centuries can provide archaeologists with little more information than a relative date and, perhaps, a point of origin in either Frechen or Cologne.

Holmes's Bartmann typology has by this time been abandoned, but it has generated significant progress in the study of Bartmannkrüge over the past forty-five years. Holmes created a hypothesis about Rhenish Bartmänner for other scholars and archaeologists to test. The theory of assigning absolute dates on the basis of Bartmann types alone has been
refuted, but the clear progression of Bartmann styles can be noted along with vessel shape and body decoration in order to ascertain relative dates. For example, it is probably more reliable to observe that Rhenish jugs tended to be more globular and flat-shouldered in the earlier years of their production, but became more ovoid and slope-shouldered as the 17th century progressed (Hume, 1958: 440), than it is to date Bartmännerr based solely on the rendering of their beards.

Medallions, of course, are capable of providing the most precise method of dating Bartmannkrüge if the date of the jug’s production is actually incorporated into the design, but these examples are rare. Also, the date on a medallion probably indicates the year that the medallion’s mold was made rather than the actual date of the bottle. Sixteenth- and early 17th-century medallions often displayed identifiable arms of towns, patrons, or royal houses, but medallions after the mid-17th century generally portrayed stylized, degenerate crests or corrupt arms of achievement that had no real significance. By the 1660s to 1680s, most molded medallions were represented either as rosettes or as easily reproduced patterns and were eventually left off or replaced with stamped ornamentation (Noël Hume, 1958:440-441; Thwaite, 1973:257-258). When analyzed independently, none of the features typical of Bartmannkrüge can easily resolve questions about the absolute date of a bottle, but a relative date can often be determined when information gathered from all of the separate characteristics is consolidated.
CHAPTER III
THE EXCAVATION AND CONSERVATION OF THE
MONTE CRISTI RHENISH STONEWARE

The excavation of the Monte Cristi shipwreck by the Pan-American Institute of Maritime Archaeology (PIMA) began in 1991 and is expected to continue until 1998. Work has continued on the site every summer except 1995, when a season of only conservation was undertaken at the Fortaleza Ozama Conservation Laboratory in Santo Domingo. During this 1995 laboratory season, the Dominican Comisión de Rescate Arqueológico Submarino (Underwater Archaeology Commission) allowed all of the Rhenish stoneware which had so far been recovered from the Monte Cristi wreck to be transported temporarily to Texas A&M University for conservation and analysis. Consequently, this study encompasses only the stoneware which was raised during the first four excavation seasons (1991-1994), a total of 1371 sherds. No complete Rhenish stoneware vessels have yet been excavated from the Monte Cristi shipwreck.

Excavation methodology at Monte Cristi

The Monte Cristi shipwreck is located in a rather remote area on the north coast of the Dominican Republic, in less than 5 m of water in the shallow bay near the town of Monte Cristi. The ship sank in a channel at least 480 m wide between Isla Cabra and the mountain of El Morro on Punta de Granja, the headland that juts out at the northern end of Monte Cristi Bay (see Chapter I, Fig. 1). The wreck site is located approximately 80 m east of Isla Cabra, a small island characterized mostly by sandy shorelines and actively worked central salt pans but also by a treacherous reef system on the northern coast. The
prevailing summertime trade winds are out of the northeast, and the currents run out of the 
northeast on the flood tide and out of the southwest on the ebb tide (Hall, 1996:44, 53).

The shallow water over the site has facilitated investigations of the Monte Cristi 
shipwreck for salvors and archaeologists alike. In order to take advantage of the wreck’s 
shallow depth in a low-energy environment, the PIMA team anchored a wooden dive 
platform over the site to accommodate a surface-supplied air delivery system capable of 
supporting up to six divers at a time. Using surface-supplied air for three daily dive 
rotations of up to three hours, it was possible for the excavation team to log up to 54 hours 
of dive time per day when the air compressors were running at full capacity.

The site was organized and divided in several different ways during the excavations 
between 1991 and 1994 (see Appendix B). During the 1991 and 1992 seasons, a PVC 
grid system of 22 squares (2 x 2 m) was installed over the hull remains, and six datum 
poles were put in around the site in order to measure in the grid square system. 
Measurements were taken from the datum poles to situate the grid, and site measurements 
were taken with crosslines and plumb bobs from the grid square assembly itself.

All of the measurement data was plotted on a Direct Survey Method (DSM) 
computer program after the season had ended, generating a rather higher margin of error 
than if it had been processed as the measurements were taken in the field (Hall, 1996:52). 
The Direct Survey Method is characterized by three different features: first, measuring with 
tapes directly from datum points to archaeological features; second, accumulating a large 
quantity of redundant data in order to distinguish and correct errors more readily; and third, 
using computer programs to process the gathered information (Rule, 1989). If redundant 
measurements are not taken in the field, then it is impossible to determine what data is 
incorrect when working at the computer later. For the purposes of this paper, artifact 
provenience should be considered accurate to 1 x 1 m grid square quadrants.
The first two seasons were spent recording the ship's timbers and recovering artifacts associated with the hull remains. In 1993 the excavation team concentrated their efforts on the artifact spill area west of the southernmost extremity of the keel, down current from the surviving hull. Several additional datum poles were placed throughout this area, and artifacts were mapped in relation to triangular areas defined by the locations of these datum points (Hall, 1996:52). In 1994 another grid system was assembled rather than continuing to use the triangular areas, this time by driving reinforced steel poles into the bottom to form the corners of 2 x 2 m grid squares. DSM measurements were taken with tape measures from the four corners of each grid square, although the measurements were again not entered into the computer program while the excavation was underway (Hall, 1996:52-53).

The site's overburden, mostly composed of sand, shells, coral pieces, thick clay, and worm tubes, was loosened by hand-fanning, then carried from the site or directed into the 10-cm diameter hose of a small water pump-powered dredge. In order to negate the risk that small artifacts might inadvertently be drawn into the dredge hose, a second diver was stationed at the exhaust point in order to sift the spoil through a wire mesh screen. With the exception of broken pipe stems and non-diagnostic ceramic body sherds, all artifacts (i.e. complete pipes, concretions, unique artifacts, decorated sherds, rim sherds, base sherds, handle sherds, etc.) were measured *in situ* prior to their removal. Rhenish stoneware sherds were excavated throughout the site (Fig. 6); concentrations to date have been noted at the northernmost margin of the hull remains and down current in the artifact spill area. After measurements had been recorded, artifacts were placed in plastic bags separated according to the four 1-m quadrants within each grid square, raised to the floating dive platform in a lift basket, and taken to the outdoor laboratory at the base camp on Isla Cabra for preliminary sorting, registration, and conservation (Hall, 1996:47).
Figure 6. Distribution of the Rhenish stoneware sherds recovered from the Monte Cristi shipwreck by 1994. The stoneware apparently originated at the northern end of the wreck site and has migrated down current. The site has been so heavily disturbed that artifact provenience often has little meaning. Stoneware sherds from opposite ends of the wreck have been found to fit together.
On-site artifact registration and preliminary conservation

Once the artifacts were sorted by type, each was assigned an artifact number and registered. Complete and diagnostic artifacts (all of the types that required DSM measurements) received PW ("Pipe Wreck") numbers, and all pipe stem fragments and plain body sherds received L (Lot) numbers. During the first two seasons, all pipe stems and body sherds were given distinct, individual Lot numbers, but this system was forced to change after the artifact database ballooned to over 20,000 entries by the end of the 1992 season.

The excavation team expected to find the Monte Cristi wreck site stripped of artifacts as a result of its history of salvage but found it necessary to reorganize the artifact registration system in order to accommodate the surprising wealth of preserved material. Beginning in 1993, all diagnostics were still assigned independent PW numbers, but each type of Lot artifacts recovered from a single grid square quadrant during a single dive rather than each solitary artifact (i.e. all pipe stems, all Rhenish stoneware body sherds, all white-glazed body sherds, etc.) was assigned the same Lot number. By 1994 the number of PW artifacts had achieved four digits, so diagnostic artifacts began to be given PWA numbers instead, enabling the registration numbers to begin again at PWA 1.

Because of the site’s isolated location, all of the artifacts were separated by type and stored wet on Isla Cabra for the duration of the season. All fresh water had to be carried onto Isla Cabra daily, a limitation that prevented large-scale artifact desalination in the field, but preliminary measurements, drawings, photography, and mechanical cleaning with scalpels and dental tools were easily undertaken. At the end of the season, the artifacts were packed wet and shipped to the Fortaleza Ozama Conservation Laboratory in Santo Domingo, where they were placed in large concrete tanks filled with tap water.
Conservation in Santo Domingo

Ceramic artifacts generally survive well in a marine environment, although several issues must be addressed in their conservation in order to ensure their continued good condition and long-term survival. Stoneware, shaped from special clays and fired at temperatures of 1200-1300° C is a fused, vitrified, and impermeable ceramic substance similar in form to porcelain (Rice, 1987: 3-6), although darker in color and lacking porcelain's translucency (Elliott, 1986b:86). Despite its fragmentary state, the Monte Cristi Rhenish stoneware is a classic example of the stoneware type, and its conservation was therefore fairly straightforward.

The most critical problem which submerged ceramics face is the absorption of soluble salts from their marine environment. If these soluble salts are not rinsed away before ceramics are air-dried, the salts will eventually crystallize within the walls of the ceramic, causing exfoliation of the surface and the eventual destruction of the ceramic vessel (Hamilton, 1996:19). The impermeability of the Monte Cristi Rhenish stoneware, however, limited the potential damage of soluble salts. During the time of its production and export, Rhenish stoneware was used as a transport container for liquids such as acid and mercury (Thwaite, 1973:255) since its non-porous walls would not absorb these materials or react with them in any way. Salt water, then, posed very little threat to these artifacts, but the Monte Cristi Rhenish stoneware was rinsed with fresh water nonetheless in a three-tier cascade system at the Fortaleza Ozama Conservation Laboratory. Because of the fragmentary nature of the assemblage, many of the sherds had fine cracks in which salt crystallization could have occurred, generating the possibility that many sherds might split along these lines of weakness if the salts were not removed.

A slightly more complicated conservation problem facing the Monte Cristi Rhenish stoneware was the removal of insoluble salts and marine growth. These insoluble salts, such as calcium carbonate and calcium sulfate (Hamilton, 1996:19), formed encrustations
that adhered to the stoneware's exterior surfaces. Encrustations could in some cases be removed by mechanical means such as dental tools and surgical scalpels, but the quantity of the sherds and the obstinacy of the coral deposits made mechanical cleaning alone impractical. Insoluble salts were occasionally removed or loosened chemically at the conservation laboratory in Santo Domingo with dilute solutions of hydrochloric acid (HCl), although limited amounts of this acid at the laboratory prohibited thorough cleaning of the Rhenish stoneware in the time available in Santo Domingo.

The Monte Cristi Rhenish stoneware was stored wet in Santo Domingo until it had been cleaned in order to facilitate mechanical cleaning and as a precautionary measure for the chemical cleaning process. Once the soluble and insoluble salts were removed, however, the sherds were allowed to air-dry. None of the sherds required any immediate consolidation; they were all already broken, but their sturdy, robust fabric was not at all weak or friable. When the sherds were dry, the artifact number of each piece was inscribed onto the sherd with black India ink in an inconspicuous location (usually near an edge on the interior surface) between two applied dabs of clear nail polish.

During PIMA's 1995 laboratory season, the conservation of all of the Monte Cristi Rhenish stoneware became the responsibility of the author. Toward the end of the 1995 laboratory season, after permission had been granted to transport the entire assemblage to the United States for examination and analysis, all of the sherds which had not yet been cleaned were also air-dried in order to pack them for transit. The complete collection of cleaned and encrusted sherds was brought safely to Texas A&M University in College Station, Texas, without damage to a single artifact. The sherds were then taken to the Conservation Research Laboratory at Riverside Campus for continuing treatment in the autumn of 1995.
Conservation at Texas A&M University

All of the Monte Cristi Rhenish stoneware sherds had undergone mechanical cleaning by the time they left the Dominican Republic, but many sherds were encrusted beyond the capability of dental or surgical hand tools to clean. Also, almost all of the sherds, even those that had previously received some chemical treatment, still had insoluble salts lodged into the molded surface decorations and into the crevices and uneven surfaces of their broken edges. The first conservation priority was to completely remove all of these deposits of insoluble salts so that the decorations might be more closely examined and so that vessel re-assembly might at some point be possible. Consequently, all of the sherds were wetted in preparation for chemical cleaning.

Ceramics to be cleaned with acids should always be wetted first in order to prevent the absorption of the acid into the matrix of the artifact (Hamilton, 1996:19). The impermeable Monte Cristi Rhenish stoneware was unlikely to be damaged by a low concentration of hydrochloric acid, but the sherds were still stored wet until treatment as a protective safeguard. They were then immersed in sets of 6-10 into a solution of 10% hydrochloric acid, where they were allowed to stay for about five to thirty minutes. Chemical cleaning was combined with mechanical cleaning to speed the process; sherds were periodically removed from the chemical bath, rinsed, examined, and mechanically cleaned as the hydrochloric acid weakened the encrustation.

When all of the insoluble salts were removed, the sherds were thoroughly rinsed with water, air-dried, and inscribed with their artifact numbers. The sherds were first divided into decorated and undecorated pieces, then the decorated examples were grouped according to subject. As pieces were found that fit together, they were joined with Duro® Super Glue, a commercial cyanoacrylate adhesive that is easily reversible in acetone. Although commercial adhesives are usually avoided in archaeological conservation because of the possible effects of unknown and uncontrollable ingredients, this glue was selected
because there was no danger of it affecting the impermeable surfaces of the stoneware and
because of its convenience and ready availability.

By January 1996 the entire assemblage of Monte Cristi Rhenish stoneware that had
so far been recovered was clean, dry, labeled, and ready for close examination. As the
study progressed, it became apparent that the fragmentary nature of the collection was not
going to prevent the observation and accumulation of a considerable amount of
information. The study of the Monte Cristi Rhenish stoneware, described in Chapter IV,
has garnered significant data that no other source could have provided about 17th-century
trade, the Monte Cristi shipwreck, and Rhenish stoneware in general.
CHAPTER IV
THE STUDY OF THE MONTE CRISTI RHENISH STONEWARE

By the end of the 1994 field season, 1371 sherds of Rhenish stoneware had been recovered from the Monte Cristi shipwreck. For organizational purposes, these sherds can be divided in several different ways. For example, the sherds may be grouped according to the original type of the vessel: 1365 sherds have the appropriate color, wall thickness, and curvature to represent Rhenish Bartmannkrüge, and 15 sherds, based on their wall thickness and approximate reconstructed diameter, came from very small bottles, pitchers, or juglets. These small-container sherds, six of which are blue-on-gray stoneware typical of the Westerwald region (Noël Hume, 1967; von Bock, 1986: 65-70; Wilcoxen, 1987: 73-75), probably represent personal possessions or the ship’s tableware rather than its cargo, while the sheer volume of the Bartmannkrüge sherds suggests that the intact bottles were being carried as cargo.

The Monte Cristi Rhenish stoneware can also be divided into types of sherds: 1291 body sherds (22 with handle fragments), 52 base sherds, and 28 rim sherds (three with handles). Finally, the sherds may be divided on the basis of decoration: 290 sherds have applied molded decoration, 116 sherds (69 of which also have molded decoration) have traces of cobalt, and 1034 sherds are undecorated. Each of these three methods of categorizing the sherds has its own merit with regard to the study of the collection.

When the Monte Cristi Rhenish stoneware sherd assemblage is first viewed in its entirety, many questions about the pieces present themselves: How many vessels do the fragments represent? What was the original size of the intact bottles? Where and when were these bottles manufactured? What did the decorations look like, and what was their significance? What substance, if anything, did the original vessels contain? What was the
destination of this portion of the ship’s cargo? Some of these queries can be answered fairly readily, some can only be theorized, and some cannot be answered at all, but the quantity of information preserved in this assemblage should not be underestimated.

Origin of the Monte Cristi Rhenish stoneware

The Monte Cristi shipwreck has thus far yielded no complete stoneware vessels, yet the preserved sherds are easily identifiable as a product of the Rhenish stoneware industry. The combination of the dense gray fabric, the mottled brown surface, and the peau d’orange salt glaze labels it as such even before considering the applied Bartmänner or medallion decorations. The relatively small dimensions of the majority of the sherds -- probably a legacy of either recent salvage efforts or the original shipwreck event (Hall, 1996: 164) -- do not hinder the identification in any way.

This chapter will be devoted to the analysis and description of individual sherds and sherd types, in order to see what information is preserved in the most significant pieces. Only fragments of the original collection of stoneware on the Monte Cristi ship have survived, but study of the fine details of these remaining sherds has allowed several broader inferences about the assemblage to be made.

General characteristics: Handle, shoulder, and base sherds

The Monte Cristi stoneware sherds are mostly less than 10 x 10 cm in size, and only three sherds out of the entire assemblage have any dimension greater than 20 cm (the maximum preserved length of any specimen [L 5729] is 24 cm). The soft curvature of the sherds and the slope of the shoulder, preserved on only two examples (Fig. 7, RSW 6; Fig. 8, RSWs 7a & 7b), indicate large, full, ovoid bodies with narrow vertical necks, and

1Throughout the rest of this paper, specific artifacts will be designated by distinct RSW (Rhenish stoneware) numbers rather than their excavation numbers for the sake of simplicity and consistency. These significant examples will then be described in a catalogue entry in the text. For the proveniences of the rest of the sherds in the assemblage, see Appendix B.
Figure 7. Top of a Monte Cristi Bartmannkrug (RSW 6). Sherd preserves the rim, the handle, the Bartmann, and the neck of the bottle to the turn of the shoulder.
Figure 8. Top of a Monte Cristi Barmannkrug (RSW 7). Sherd preserves the rim, the handle, the neck Barmann, a shoulder mask, and the neck of the bottle to the turn of the shoulder.
clues such as wheel marks on the concave interior surfaces of the body sherds and.
concentric striations from wire- or thread-cutting on the underside of the flat foot of each
base fragment (Fig. 9, RSW 1) certify that the vessels were thrown on a potter’s wheel
(Rice, 1987: 129). Although now only represented by sherds, the stoneware bottles appear
to have been a reasonably high-quality sample of the type. Unlike the assemblage
preserved on Vergulde Draeck (see Appendix A), the fabric of the Monte Cristi sherds is
dense and robust, the preserved sherds exhibit few dents or kiln scars, and the neatly
applied decorations were, on most examples, quite carefully rendered.

RSW 1. Base sherd. PWA 2460.

Fig. 9. No provenience.

Max. height 8.3 cm, max. width 20.1 cm, wall thickness 0.5 - 1.1 cm. Base
diameter 12.0 cm.

Two hairline cracks, one of which has reached the turn of the foot, descend
from the broken edge.

The sherd profile rises from an intact flat foot with very light traces of
string or wire-cutting and flares gently outward to the broken edges. The
exterior surface is salt-glazed but has no brown mottling.

The textured glaze is present only on the sherds’ convex exterior surfaces, and, to a
slight extent, inside the narrow mouths and necks, usually no farther than the turn of the
neck. Each bottle had a single vertical strap handle attached at the shoulder and at the
cordons or raised bands just below the rim (Fig. 10, RSW 2). At the shoulder attachment
point, the handle was often shaped into a raised wedge of clay (Fig. 11, RSW 3) or
impressed with the potter’s fingertips (Fig. 11, RSW 4). One shoulder sherd from the
Figure 10. Handle of a Monte Cristi Bartmannkrug, reconstructed from three sherds.
Figure 11. Three different styles of attaching the lower end of the handle to a Bartmannkrug.
Monte Cristi stoneware preserves three unusually small fingertip indentations, perhaps belonging to a youth or apprentice (Fig. 11, RSW 5).

RSW 2. Intact handle and parts of rim and neck, reassembled from three sherds. L 396 (IIIB). PW 1952 (No prov.). PWA 1264 (141 D).

Fig. 10. Max. height 13.5 cm, max. width 6.6 cm, wall thickness 0.5 - 0.8 cm. OD rim 6.0 cm, ID rim 4.5 cm. Handle dimensions 2.6 x 1.8 cm. One chip 1.9 by 0.9 cm is missing at the mid-handle join.

Three reassembled sherds preserve a complete handle and parts of the shoulder, neck, and rim. The handle attachment point at the shoulder is finished with three fingertip indentations (diams. 1.4, 1.2, and 1.3 cm). The vertical strap handle has three ridges separated by slight valleys, probably made by the potter's fingers trailing down the top of the handle to curve it or set it in place.

RSW 3. Shoulder sherd with wedged handle attachment. PWA 2469.

Fig. 11. Grid square 157 A.

Max. height 6.9 cm, max. width 11.3 cm, wall thickness 0.6 cm. Max. wedge height 5.5 cm, max. wedge width 4.0 cm, max. wedge thickness 1.3 cm. Tiny surface cracks are present at the wedge perimeter.

The slightly curving wall slopes inward from bottom to top. None of the handle is present, although the decorative wedge below the shoulder handle attachment is.
RSW 4. Shoulder sherd with handle scar and handle attachment preserving four fingertip impressions. PW 2398. \[ \Delta 9-10-12. \]
Fig. 11.
Max. height 8.1 cm, max. width 10.1 cm, wall thickness 0.6 - 1.0 cm. Handle scar 1.2 x 2.6 cm. Handle attachment 7.2 x 3.5 cm.

The slightly curving wall slopes inward from bottom to top. The handle attachment preserves four fingertip impressions: two (diams. 1.0, 1.2 cm) are horizontally aligned below the handle scar with two (diams. 1.1, 1.1 cm) others vertically aligned below.

RSW 5. Shoulder sherd with handle attachment preserving three very small fingertip impressions. PWA 1096. Grid square 176 D.
Fig. 11.
Max. height 4.3 cm, max. width 6.7 cm, wall thickness 0.5 cm. Max. handle attachment width 1.8 cm.

The slightly curving wall slopes inward from bottom to top. Three very small fingertip impressions (diams. 0.8, 1.0, 1.1 cm bottom to top) run in a vertical row along the handle attachment.

The brown mottling on the exterior surfaces varies in size and concentration throughout the assemblage, suggesting that the clay used for these vessels may have originated in more than one clay bed. The largest freckles in the assemblage are just over 1 cm in diameter, but the smallest, which can be less than 0.1 cm in diameter, are so minuscule that they blend together to create a uniform rather than a mottled brown surface. Since the mottled effect was caused by the natural inclusion of dispersed iron granules in the clay, the inconsistent diameters and concentrations of the freckles imply different clay
sources. In addition, several sherds have no mottling at the base at all (see RSW 1) and
dark brown freckles that run in trails similar to glaze drips down their exterior surfaces,
indicating that in some cases a slip or surface wash with a particularly high iron
concentration may have been applied to the exterior prior to firing and salt-glazing (Askey,

The sherds’ exterior brown color, along with their molded decorations, contributes
to the identification of the probable production center of the Monte Cristi stoneware. Out of
all of the towns involved in the Rhenish stoneware industry, only three major
manufacturing centers were the primary producers of brown wares: Raeren, Cologne, and
Frechen. Unlike Cologne and Frechen, however, Raeren was renowned not for producing
Bartmannkrüge but rather for its small, ornate vessels. Also, Raeren’s potters, who had
used an iron oxide slip on the surface of their ware in order to create a brown color on the
exterior of the vessels, abandoned the use of this surface treatment after circa 1590,
producing instead a fine blue-on-gray ware similar to Westerwald ware (Noël Hume, 1967:
349). Cologne, which manufactured brown Bartmannkrüge throughout its tenure as a
stoneware production center, was involved in the stoneware trade only as a distribution
center by 1600 (see Chapter II). If the Monte Cristi Rhenish stoneware was in fact
produced during the seventeenth century, as the dates assigned to the rest of the wreck’s
artifacts suggest, then it follows that the ship’s Bartmannkrüge must have come out of
Frechen.

Answers to the question about the precise date of the Monte Cristi stoneware are,
however, a bit more involved than are investigations of its origin. It is difficult to assign
absolute dates to Bartmannkrüge on stylistic grounds, but it is often possible to determine
relative dates with some degree of accuracy by also taking into consideration the vessels’
shape and the characteristics of the other molded decorations. These features can be
evaluated in the Monte Cristi stoneware in order to test the mid-17th century date inferred through studies of other Monte Cristi artifacts.

*Bartmannkrüge*

The Monte Cristi *Bartmannkrüge* sherds preserve three types of decoration: molded *Bartmann* faces, molded body medallions, and cobalt splashes (Fig. 12). The first step in creating the *Bartmann* and medallion ornaments was to carve the desired design in wood to make a mold. After each bottle had been formed and had dried to leather-hardness, more of the same type of clay was pressed into the wooden mold. The clay emblem was peeled out of its mold and applied to the surface of the bottle prior to firing, and blue cobalt was often splashed onto the vessel on or near the applied mold to add color (Thwaite, 1978: 258). The clay vitrified as the vessel was fired, and the applied molded decoration, as long as it had been attached securely, fused to the wall of the vessel.

In looking at the Monte Cristi *Bartmann* masks, it is possible to see that, out of a total of 24 sherds with *Bartmann* decoration, 25 faces are represented (one sherd has both a neck mask and a small shoulder mask; see Fig. 8; Fig. 13, RSW 7a, RSW 7b). Eighteen of these faces represent eight different *Bartmann* types, three of which are only partially preserved. The last seven *Bartmann* sherds are, unfortunately, too small to discern if any of them should be classified with one of these eight types or if some or all of them might represent new categories.1

*The eight Bartmann types from the Monte Cristi shipwreck*

The most common *Bartmann* type of the Monte Cristi Rhenish stoneware (Fig. 7; Fig. 13, RSW 6), of which there are six examples, is a large mask, oval in shape, with large eyes and long eyelashes, fringes of hair along the sides of the face, and a mustache.

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1The unidentified *Bartmann* sherds include L 4933, L 5200, L 7274, PW 11071, PWA 953, PWA 1701, and one sherd with no provenience.
Figure 12. Hypothetical reconstruction of a complete Monte Cristi Bartmannkrug, based on elements that have been excavated at the site.
Figure 13. The eight different types of Monte Cristi Bartmänner. RSW 7a and RSW 7b are both preserved on the same sherd.
and beard represented by flowing wavy lines. The nose is straight with a vertical central ridge, and the straight mouth resembles a horizontal ladder, with six vertical lines that may have been intended to represent teeth.

RSW 6. Sherd with rim, handle, and neck preserved to shoulder. Bartmann opposite handle. PW 723. Grid square 170 B. Fig. 7, Fig. 13.

Max. height 17.3 cm, max. width 23.1 cm, wall thickness 0.4 - 0.6 cm. OD rim 5.4 cm, ID rim 4.1 cm. The Bartmann is 8.7 cm high and 6.1 cm wide. A surface crack that probably dates to the vessel's manufacture is located at the shoulder handle attachment. A hairline crack, which seems to penetrate the entire wall of the sherd and probably dates to the vessel's destruction, runs along the right side of the Bartmann and extends to the rim. This sherd has a kiln scar (max. 4.3 cm diam.) at the shoulder, next to the shoulder handle attachment, indicating that this vessel was resting against its neighbor in the kiln and was not glazed at that point of contact.

The sherd's shoulders describe an ovoid curve as the walls slope inward to the narrow, slightly wry neck. A vertical strap handle (1.2 thick x 2.4 cm wide in section) curves out from the neck, then turns down and in to the shoulder attachment point, which was impressed with three fingertip indentations (diam 1.5, 1.4, 1.2 cm). Two shallow 0.2-cm diam. holes of unknown purpose are preserved in the upper surface of the handle. These two holes are located 1.3 cm apart; one is 1.0 cm deep, the other is 0.5 cm deep, and they seem to slope toward each other. The Bartmann face was applied opposite the handle, 3.5 cm below the rim and 1.4 cm below the two cordons at the rim.
Other sherds with this Bartmann type: PW 1021, PWA 75, PWA 1027a, PWA 1253, PWA 2464.

Bartmann with certain features similar to those of RSW 6 have also been excavated from Batavia (1629) and Vergulde Draeck (1656). See Stanbury, 1974: 7, Type A (BAT 2102, BAT 2214) and Green, 1977: 124 (GT 834, GT 825, GT 833, GT 811, GT 004a, GT 657, GT 839, GT 845, GT 863) for similar examples of faces with ladder-mouths and large staring eyes. While the rendering of the beard of RSW 6 is the most common of all the Bartmann types from Monte Cristi, research has not yet revealed any parallels to this beard treatment.

The second Bartmann type (Fig. 8; Fig. 13, RSW 7a), preserved in four examples, is slightly smaller and more rectangular than the previous mask. This Bartmann also has large eyes, long eyelashes, and a horizontal ladder-mouth, but the beard is in a stylized palmette pattern, the mustache is bushier, and there is a branched line like a strand of wheat between the eyes and eyebrows.

RSW 7. Sherd with rim, handle, and neck preserved to shoulder. Neck Bartmann and shoulder mask. PWA 429. Grid square 171 C. Fig. 8, Fig. 13.

Max. height 14.6 cm, max. width 17.2 cm, wall thickness 0.6 - 0.7 cm. OD rim 5.2 cm, ID rim 4.3 cm. The neck Bartmann (RSW 7a) is 6.8 cm high and 4.4 cm wide. The shoulder mask (RSW 7b) is 3.3 cm high and 2.9 cm wide.

Two hairline cracks, continuing through the entire wall thickness and probably results of the vessel’s destruction, run from one of the broken edges
toward the neck *Bartmann* face. One surface crack, probably dating to the vessel’s manufacture, is present at the shoulder attachment of the handle.

The sherd preserves the bottle's entire neck, handle, rim, and part of the turn of the shoulder. A vertical strap handle (2.2 cm thick x 2.5 cm wide) extends horizontally from the neck attachment and turns down and inward to attach at the shoulder. The handle has straight sides and three ridges separated by two valleys on the top, probably a result of the potter using five fingertips to smooth or bend the handle in place. A single shallow hole (0.3 cm diam., 1.0 cm deep) is preserved in the center of the handle, next to the neck attachment. Opposite the handle, a *Bartmann* (RSW 7a) was applied 4.0 cm below the rim and 2.7 cm below the banded cordons. Below and to the left of the *Bartmann*, on the fragment of shoulder, is a small round face (RSW 7b). Both applied faces are splashed with cobalt.

Other sherds with the RSW 7a *Bartmann* type: PW 1066, PW 3740, PWA 2448.

*Bartmann* with certain features similar to those of RSW 7a have also been excavated from *Batavia* (1629) and *Vergulde Draeck* (1656). See Stanbury, 1974: 7, Type A (BAT 2102, BAT 2214) and Green, 1977: 124 (GT 834, GT 825), 127 (GT 833), 129 (GT 811), 130 (GT 004a), 133 (GT 657), 134 (GT 839, GT 845), and 136 (GT 863) for faces with ladder-mouts and large staring eyes. The palmette beard of RSW 7a is a component of *Batavia*’s BAT 2214 and most of the *Vergulde Draeck* parallels, except for GT 834 (beard represented by straight lines), GT 657 (beard not preserved), and GT 839 (beard not preserved).
A face identical in style and placement to RSW 7b appears on a 17th-century jug from Frechen now in the Kunstgewerbemuseum in Cologne (von Bock, 1986: 256, Fig. 329a).

The rest of the Monte Cristi Bartmann types are each represented only by one or two examples. The third type (Fig. 13, RSW 8) is preserved only in the lower portion of two examples. It has a stylized palmette beard with a central wheat-like strand down the center, fringes of hair along the preserved side of the face, a flowing mustache, and an hourglass-shaped mouth outlined with a ladder- or track-like pattern. Inside the mouth outline are five central vertical lines and several horizontal lines at the sides.

RSW 8.  Shoulder/neck sherd with *Bartmann* decoration..  PWA 1276.

Fig. 13.  Grid square 141 D.

Max. height 7.7 cm, max. width 14.5 cm, wall thickness 0.5 - 0.6 cm. The *Bartmann* is preserved to a height of 7.1 cm and a width of 5.3 cm. The sherd profile slopes inward then rises at the turn of the neck. A kiln scar to the right of the *Bartmann* is 3.5 cm in diameter, and a hairline surface crack on the interior surface runs parallel to the potter's wheel marks on the interior surface. This crack is directly underneath a flattened area on the molded mouth of the *Bartmann* and may have been formed during the application of the mask.

Other sherds with this *Bartmann* type: PWA 1803.

The palmettes and wheat-like strand of RSW 8's beard are unusual, but this hourglass mouth outlined by a ladder-like pattern has been preserved on *Bartmänner* from Batavia (1629), *Kennemerland* (1664), and a *Bartmannkrüge* dated 1613 at the Metropolitan Museum of Art in New York.
City. See Stanbury, 1974: 7, Type D (BAT 538d, BAT 2140, BAT 2181); Muckelroy, 1978: 243, Fig. 7.5 (D2); and Thwaite, 1973: 259, Fig. 7.

The fourth type (Fig. 13, RSW 9), represented by a single example of a complete face, has large eyes and long eyelashes similar to those of RSW 6 and RSW 7, fringes of hair down the sides of the face, and a smudged or damaged wheat-like strand between the eyebrows. The beard is represented by smooth, simple lines with a small tuft of hair below the center of the lower lip. The hourglass mouth has a curved horizontal line below the center of the upper lip and curved vertical lines at the sides, again perhaps intended to represent teeth.

RSW 9. Partial neck and rim sherd with 

\textit{Bartmann}. 

\textit{PWA 809.} 

\textit{Fig. 13.} 

Grid square 185 A. 

Max. height 11.3 cm, max. width 7.9 cm, wall thickness 0.4 - 0.9 cm. OD rim 4.7 cm, ID rim 3.6 cm. The \textit{Bartmann} is 8.5 cm high and 5.8 cm wide.

The sherd preserves half of a vessel rim and neck and an entire \textit{Bartmann} face. The thick, well-applied mask seems to have reinforced the neck so that the break occurred around the perimeter of the face when the bottle was destroyed. The \textit{Bartmann} is splashed with cobalt.

\textit{Bartmänner} uniformly similar to the one on RSW 9 have been excavated from \textit{Vergulde Draeck} (1656), \textit{Kennemerland} (1664), a Dutch galliot (1677), \textit{Sainte Dorothea} (1693), and the settlement at Pemaquid, Maine. See Green, 1977: 110 (GT 828), 112 (GT 85), 113 (GT 831), 117 (GT 826), 118 (GT 815, GT 32), 126 (GT 087); Muckelroy, 1978: 243, Fig. 7.5 (D1, D4); Anderson, 1974: 93, Fig. 3 (center); L'Hour, 1993: 313, Fig. 7 (Dor 1003); and Bradley, 1995: 11. Other isolated parallels can be found in the London
Museum (Holmes, 1951: Pl. XXIVe, f); Frechen, dated to 1650-1675
(Hurst, et al., 1986: 220-221, Pl. 44 [right]); the Cologne
Kunstgewerbemuseum, dated to the 17th century (von Bock, 1986: 256, Fig.
329a); and the Fitzwilliam Museum, dated 1688 (Thwaite, 1973: 260, Fig.
8).

The fifth type (Fig. 13, RSW 10), preserved only in the lower half of two
examples, seems to be similar to although somewhat smaller and narrower than the
previous type. It has the same hourglass mouth and smooth beard; the only difference is
the addition of small vertical lines in the center of the mouth above the single curved
horizontal line and small horizontal lines at both sides of the mouth, between the outermost
curved vertical lines and the mouth outline. The sixth type (Fig. 13, RSW 11), preserved
only in the upper half of a single example, is notable for its excessively long eyelashes and
similarly spiky eyebrows and also for the very long wheat-like strand between the eyes.

RSW 10. Shoulder/neck sherd with Bartmann decoration. PWA 1459.

Fig. 13. Grid square 170 C.

Max. height 8.6 cm, max. width 11.8 cm, wall thickness 0.5 - 0.7 cm. The
Bartmann is preserved to a height of 4.8 cm and a width of 4.5 cm.

A relatively recent chip is missing from the area to the right of the beard of the
Bartmann. Two hairline cracks, continuing through the entire wall thickness
and probably resulting from the vessel’s destruction, run from the bottom
edge of the sherd into the Bartmann.

The sherd profile slopes inward then rises at the turn of the neck. A trail
of cobalt ran down the neck exterior and pooled 3 cm to the right of the
Bartmann.
Other sherds with this *Bartmann* type: L 1021.

At least two *Bartmännchen* with hourglass mouths similar to the mouth of RSW 10 (differentiated from RSW 9 by the short horizontal lines at the sides) were excavated from *Vergulde Draeck* (Green, 1977: 135 [GT 854] and 136 [GT 136]). Another example, dated to 1655-1665, is now located in Frechen (Hurst, *et al.*, 1986: 216-217, Fig. 106.335).

**RSW 11.** Neck/rim sherd with *Bartmann* fragment.  
PW 2381.  
Fig. 13.  
△ 8-9-10.

Max. height 6.8 cm, max. width 6.4 cm, wall thickness 0.5 - 0.7 cm. OD rim 5.5 cm, ID rim 3.9 cm. The *Bartmann* is preserved to a height of 3.5 cm and a width of 5.6 cm.

The sherd preserves part of a neck and rim and the upper half of a *Bartmann* face. The face was applied 2.7 cm below the rim and 0.4 cm below the rim cordons.

RSW 11, which preserves only the eyes of the *Bartmann*, shares the parallels of RSWs 6, 7, and 9. In the absence of RSW 11's mouth, more specific parallels cannot be determined.

The last two *Bartmann* types are rather different than the preceding examples. They are both much smaller than the others and are preserved, each in only a single example, on shoulder sherds instead of neck sherds. The seventh type (Fig. 13, RSW 12) is a small face with large eyes and long eyelashes, a tuft of hair preserved over one eye, fringes of hair along the sides of the face, and a smooth, rounded beard represented by a pattern of curved lines. Instead of a mouth, three round balls or circles fill the area between the nose and the beard. The eighth and final type (Fig. 8; Fig. 13, RSW 7b), a small, almost
circular face, is technically not a Bartmann, since it has only a bushy mustache and no beard. This small mustached face is on the shoulder of RSW 7 in addition to the Bartmann (designated RSW 7a) on the neck.

RSW 12. Shoulder sherd with Bartmann fragment. PW 1510. Fig. 13. Grid square VI C. Max. height 7.0 cm, max. width 2.8 cm, wall thickness 0.4 - 0.5 cm. The Bartmann is preserved to a height of 4.6 cm and a width of 2.8 cm. The sherd preserves a fragment of an inward-sloping shoulder.

Although no Bartmann identical to RSW 12 has yet been located, Bartmänner with certain similar characteristics have been excavated from Batavia (1629) and Vergulde Draeck (1656). See Stanbury 1974: 7, Type F; 3 (BAT 2147, BAT 2240) and Green, 1977: 117 (GT 846), 126 (GT 837). A Bartmannkrug with a neck mask that has RSW 12's three circles in the mouth area, dated to 1625-1650, was excavated in Frechen (Hurst, et al., 1986: 220-221, Pl. 44 [center]).

Attempting to date the Monte Cristi Bartmänner stylistically

Although chronologies based upon the appearance and characteristics of Bartmänner have been attempted, the difficulty of determining Bartmannkrug dates by relying solely on mask forms has already been established (see Chapter II). As noted by M. R. Holmes (1951), the styles of Bartmänner on Rhenish stoneware bottles did indeed progress gradually from finely modeled, naturalistic faces to more stylized masks with smiles and grimaces to crudely executed faces scratched onto the surface of the vessels, but the use of certain Bartmann types frequently spanned several decades. The Monte Cristi Bartmänner, which are neither the highly naturalistic faces of the 16th century nor the crude
afterthoughts of the late 17th and early 18th centuries, probably date to the mid-17th century, as shown by parallels to the Monte Cristi masks which range in date from the 1620s to around 1690.

The only way to determine a relative date for the Monte Cristi Bartmänner is to compare them to similar, well-dated examples from other sites (see Appendix A for references to submerged and terrestrial North American sites with Rhenish stoneware). Several stylistically similar Bartmänner exist, but the variability of the dates of these parallels demonstrates the unreliable dating potential of the Monte Cristi faces. For example, one Monte Cristi Bartmann with early characteristics is RSW 12, the unique shoulder mask with three circles instead of a mouth. Although no precise parallel to this unusual mask with regard to both its style and its location on the bottle has yet been located, the three circles where the figure's mouth should be are reminiscent of early 17th-century neck Bartmänner with voluted mouths shaped into lion-like snouts. RSW 12's circular mouth, detailed beard, and the decorative features above the eyes hint at such an early date, but the facial features and beard are considerably less naturalistic than late 16th-century Bartmänner and probably cannot be dated any earlier than the early 17th century. Examples of Bartmannkrüge with voluted mouths were excavated on both Batavia (1629) and Vergulde Draeck (1656), however, proving that this lion-snout tradition was in use not only in the first quarter of the century but continued until after 1650.

A number of other Monte Cristi masks bear particular similarities to the Bartmänner from Vergulde Draeck. The large, long-lashed eyes of RSWs 6, 7a, 9, and 11 appear on Vergulde Draeck bottles again and again, and both the horizontal ladder-mouth of RSWs 6 and 7a and the hourglass mouths of RSWs 9 and 10 were well-represented (Green 1977: 110-137). Again, however, the horizontal ladder-mouth of RSWs 6 and 7a was also present on Batavia, indicating that certain features were evidently reused over the course of 25 years or longer (Hurst, et al., 1986: 221).
Comparisons between the Monte Cristi Bartmann forms and parallels from Batavia and Vergulde Draeck may at first seem to indicate that the Monte Cristi Bartmannkrüge dated only to the first half of the 17th century, but further investigation complicates matters more. Bartmänner with hourglass-shaped mouths similar to RSWs 8 and 9 were also excavated from Kennemerland (1664), and a very close parallel to RSW 9 (and possibly RSW 11) had the firm date of 1688 incorporated into its medallion decoration (Thwaite 1973: 260, Fig. 8). A single Bartmannkrug excavated from Sainte Dorothea (1693) also bears a mask similar to RSW 9, although that bottle, which does not actually have a date recorded on its body, could have been manufactured earlier in the century than the date it was lost.

Shoulder decorations seem to have been applied less frequently as the 17th century progressed, so the two Monte Cristi shoulder masks and any parallels to them that can be located may prove capable of providing more information about the assemblage than the other Monte Cristi masks can. Rhenish stoneware Bartmänner can be assigned to approximate periods based on style, but the extent to which various types were reused across the span of decades makes them unreliable as strict indicators of date. This tendency is clearly illustrated by the Bartmannkrüge, with dates ranging from the first quarter of the 17th century to the 1690s, that serve as archaeological parallels to the eight Bartmann types so far recovered from the Monte Cristi wreck. This span is much broader than the maximum range within which the Monte Cristi shipwreck might have occurred, encompassing almost the entire 17th century.

In comparisons with other examples of Rhenish stoneware, however, it may be just as critical to consider Bartmänner that are not present at Monte Cristi as well as those that are. There is, for example, at least one Bartmann type common to the second half of the 17th century that is notably absent from the Monte Cristi assemblage. This missing mask has large eyes and long eyelashes similar to the Monte Cristi faces, but its features are
more roughly rendered, its mustache is a thick vertical fringe, its mouth is usually showing only as a short, curved lower lip, and its beard, represented by straight or curving lines, looks as though the strands were brushed out to the sides from a center part (Fig. 14). This Bartmann has been excavated from Vergulde Draeck (1656), Kennemerland (1664), the Dutch galliot near Stavanger (1677), Princesse Maria (1686), the Jutholmen shipwreck (ca. 1700), and a pit in Frechen dated 1650-1675, all of which are sites that fall after the hypothetical 1652-1656 date of the Monte Cristi wreck.¹ The absence of this mask, which seems to have been a prominent type included in Bartmannkrug export cargoes of the second half of the 17th century, cannot prove that the Monte Cristi wreck predates 1655 (the embarkation date of Vergulde Draeck [Green, 1977: 43-44]), but the fact that it is not present among the Monte Cristi Bartmänner is striking nonetheless.

Figure 14. Bartmann type common to the second half of the 17th century but not present on the Monte Cristi shipwreck.

¹For illustrations of this Bartmann type from these sites, see Green, 1977: 114 (GT 86, GT 829), 119 (GT 1461), 141 (GT 380 [the medallion on this example preserves the date 1654]); Muckelroy, 1978: 243, Fig. 7.5 (D7); Anderson, 1974: 93, Fig. 3 (left); Milne & Draper, 1992: 156-157, Fig. 1; Kajser, 1983: 33, Fig. 55; and Hurst, et al., 1986: 220, Pl. 44 (left).
Monte Cristi medallions

Unlike the specialized and stylized Bartmänner, molded medallion ornaments frequently preserve dates or identifiable achievements of arms that can contribute significantly to the interpretation of a Rhenish stoneware bottle. A total of 268 of the Monte Cristi sherds bear traces of molded medallion decoration. Although 121 of these medallion sherds remain unidentified because of extensive damage or breakage, the other 147 sherds can be categorized into at least nine different medallion types.

Floral medallions

The first four types (Fig. 15, RSWs 13-16) are all floral medallions, none of which have been recovered in quantity. Six sherds with examples of the design illustrated on RSW 13 have been raised, and the designs on RSWs 14-16 are all represented in three or fewer examples. Despite the paucity of floral medallions recovered from the Monte Cristi shipwreck, these designs or variations of them are commonly represented in 17th century contexts.


Fig. 15. Grid square XXXI B.

Max. height 7.4 cm, max. width 11.4 cm, wall thickness 0.3 - 0.4 cm. The medallion is preserved to a height of 7.2 cm and a width of 9.7 cm.

The medallion decoration preserves part of a circular rosette with a large center and wide, veined petals, splashed with cobalt. RSW 13 attaches to body sherd L 4698.

Other sherds with this medallion type: PW 1436, PWA 953, and two sherds with no provenience.
Figure 15. The four floral medallion types from the Monte Cristi Rhenish stoneware assemblage.
Rosette medallions with identical or similar wide petals have been excavated from Batavia (1629), Lastdrager (1653), the Duart Point shipwreck (ca. 1653), Vergulde Draeck (1656), Port Royal (1692), the Jutholmen shipwreck (ca. 1700), and Frechen (1650-1675). See Stanbury 1974: BAT 527, BAT 539, BAT 602, BAT 2006, BAT 2008, BAT 2009, BAT 2024, BAT 2117, BAT 2245; Sténuit 1974: 240, Fig. 20; Martin 1995: 35; Green 1977: 127 (GT 836), 140 (GT 870); Hamilton 1984: 22, Fig. 13; Kaijser 1983: 33, Fig. 55; and Hurst, et al., 1986: 220-221, Pl. 44 (right).

Bartmannkrüge with rosette medallions similar in style to the narrow-petalled center of RSW 13 have been excavated on the Stavanger galliot (1677) and Sainte Dorothea (1693). See Andersen, 1974: 93, Fig. 3 (center) and L'Hour, 1993: 313, Fig. 7 (Dor 1003).


Fig. 15. Grid square 127 C.

Max. height 9.2 cm, max. width 12.7 cm, wall thickness 0.4 - 0.6 cm.

Medallion preserved to a height of 8.8 cm and a width of 7.3 cm.

The medallion preserves five of the original eight petals of an oval, cobalt-splashed rosette.

No other examples of this medallion type have yet been recovered at Monte Cristi.

Parallels to this narrow-petalled rosette have been excavated from Vergulde Draeck (1656) and in Frechen (1650-1675). See Green 1977: 118 (GT 32), 128 (GT 812), 129 (PC 3226), 138 (GT 757A, GT 874) and Hurst, et al., 1986: 220, Fig. 44 (left).
RSW 15. Body sherd with floral medallion decoration. PW 1265.

Fig. 15. Grid square XXX A.

Max. height 6.3 cm, max. width 11.0 cm, wall thickness 0.3 - 0.4 cm. The medallion is preserved to a height of 5.6 cm and a width of 6.8 cm.

The medallion preserves part of an oval, cloverleaf design splashed with cobalt.

Other sherds with this medallion type: PWA 948, PWA 2114 (adjoining sherds).

No parallels to this floral medallion have yet been located.


Fig. 15. No provenience.

Max. height 8.9 cm, max. width 14.5 cm, wall thickness 0.3 - 0.5 cm. The medallion is preserved to a height of 6.9 cm and a width of 9.8 cm.

The medallion preserves part of a circular design, splashed with cobalt, showing four vine-like tendrils extending at right angles to each other from a small rosette in the center.

Other sherds with this medallion type: PW 735, PWA 2227.

Floral medallions that parallel this pattern have been excavated from Vergulde Dreaek (1656). See Green 1977: 138 (GT 90, GT 878), 140 (GT 757).

The two most prevalent Monte Cristi medallion types

The two medallion types which have been recovered in by far the greatest quantities from the Monte Cristi wreck are illustrated in Fig. 16 and Fig. 17. Fig. 16 shows the figure of a soldier or sportsman, dressed in an Elizabethan costume of doublet, ruff,
Figure 16. Composite drawing of a figure of an Elizabethan-era soldier or sportsman. Parts of this ornament are preserved on 54 sherds.
breeches, and plumed hat. He is wearing a sword on his right hip and holds his left arm akimbo. In his raised right hand he is holding what is most likely a drinking glass, although it may be a bell (Hall 1996: 168) or a musket rest (Holmes 1951: 175). Between his feet is some kind of brickwork or masonry, and plants are springing up from the ground. Although a total of 54 sherds with fragments of this design have been excavated at Monte Cristi to date, no complete examples of this medallion have yet been found.

Fig. 16. A composite illustration of a medallion with the figure of an Elizabethan-era soldier or sportsman represented by 54 sherds: L 160; L 221, PW 546 (adjoining sherds); L 762; L 4922; L 4933; L 5061, PW 1688, PWA 2462 (adjoining sherds); L 5418; L 5441; L 7366; PW 726; PW 754; PW 1156; PW 1173, PWA 1011 (adjoining sherds); PW 1588, PWA 1305 (adjoining sherds); PW 1617; PW 1663; PW 1680; PW 1878, PW 1319 (adjoining sherds); PW 1950; PW 3341; PW 3362, PWA 928 (adjoining sherds); PW 3573; PW 3815; PWA 515; PWA 553, PWA 1501, PWA 1760 (adjoining sherds); PWA 942; PWA 949; PWA 1025; PWA 1083; PWA 1244, PWA 2228 (adjoining sherds); PWA 1273; PWA 1287; PWA 1500A; PWA 1756; PWA 1757; PWA 1774; PWA 1857; PWA 2229; PWA 2239; PWA 2299; PWA 2411 (joins to body sherds L 5743, L 7391, L 7455); PWA 2449; PWA 2451; PWA 2452.
Parallels to this figure can be seen in Holmes, 1951: 175, Pl. XXIIIa, b; and Hall, 1996: 168-170, Fig. 49b-d.

Fig. 17 (RSW 17) shows the only medallion type in this study for which complete examples have been reassembled from the recovered sherds, although none of the 60 sherds with this design formed intact medallions upon excavation. Illustrated on this
Figure 17. Heraldic medallion, parts of which are preserved on 60 Monte Cristi stoneware sherds.
medallion is a shield bearing heraldic designs, or an achievement of arms. This type of ornamentation was a common medallion decoration on Rhenish stoneware throughout its production.

RSW 17. Two body sherds illustrating a complete heraldic medallion. PWA 1019 (142 B). PWA 1718 (141 B-D). Fig. 17.

Max. height 18.0 cm, max. width 10.7 cm, wall thickness 0.4 - 0.6 cm. The medallion is preserved to a height of 11.0 cm and a width of 9.1 cm.

Other sherds with this medallion type: L 776; L 1414, L 1417 (adjoining sherds); L 2124; L 3638, L 5120 (adjoining sherds); L 3638; L 4130; L 4702; L 4822; L 4828; L 3906; L 5045; L 5054; L 5103; L 5636; L 7248; PW 664, PWA 1492 (adjoining sherds); PW 694; PW 712; PW 971; PW 1186; PW 1297; PW 1361; PW 1495, PWA 986 (adjoining sherds); PW 1680; PW 1823; PW 2694, PW 3277 (adjoining sherds); PW 3364, PWA 1024 (adjoining sherds); PWA 445; PWA 804; PWA 946; PWA 984; PWA 1021; PWA 1088, PWA 1701, PWA 1615, PWA 2450 (adjoining sherds); PWA 1242; PWA 1266; PWA 1345; PWA 1482; PWA 1487, PWA 2463 (adjoining sherds); PWA 1546; PWA 1547; PWA 1790; PWA 2013; PWA 2115; PWA 2297; PWA 2298; PWA 2413; one sherd with no provenience.

Description of heraldic terms

Before describing and analyzing the heraldic motifs on RSW 17 and other examples of the Monte Cristi Rhenish stoneware, it might first be helpful to define some armorial terms and figures. The study of heraldry has generated a language all its own, with precise terms that signify specific heraldic details. These terms are the most efficient way to
describe the features of the Monte Cristi heraldic medallions, but they can be completely unintelligible without any preliminary explanation.

The most accurate term for what is presented on the Monte Cristi heraldic medallions is an *achievement of arms*, or a display of several different heraldic devices. The components of an achievement of arms can include any combination of the following elements: a *shield*, which is usually the most important feature of the achievement of arms and traditionally carries most of the heraldic devices; a *crest*, which is a device displayed on the helm and frequently positioned over the shield; and *supporters*, which are figures positioned on either side of the shield. All of these devices are called *armorials bearings*, a term which also encompasses the symbols carried upon the shield (Fig. 18).

A shield is always described (or *blazoned*) from the point of view of the person who would have been holding it. When looking at a shield, therefore, the *dexter* side of the shield is on the bearer's right and the viewer's left, and the *sinister* side is on the bearer's left and the viewer's right. The top of the shield is the *chief*, and the bottom of the shield is the *base*. The *field* of the shield is sometimes divided with plain or decorative lines and described as *parted*. A parted shield can then be further divided into *quarters*, a practice which was originally intended to combine the arms of different families on the same shield. A *varied field*, which can be the entire field or any division or quartering thereof, is divided or decorated with several lines. A series of parallel diagonal lines produces a field *bendy*, and *chequed* describes a field with crossing horizontal and vertical lines that create a pattern like a chessboard.

Bands called *ordinaries* are often laid across the field in a number of different directions; the *chief* ordinary, for example, is a horizontal band that occupies the upper third of the field. Other ordinaries include the *bend*, which is a diagonal band running from dexter chief to sinister base, and the *bend sinister*, which runs diagonally from sinister
**Parts of the shield**

Chief

Dexter  Field  Sinister

Base

Bendy

Chequé

**Ordinaries**

Chief

Bend

Bend sinister

Chevron

Chevronels

Saltire

*Figure 18.* Armorial bearings illustrated on the Monte Cristi *Bartmannkrige.*
chief to dexter base. The chevron is an inverted V-shaped band; three or more chevrons may be called chevronels. The saltire is an X-shaped diagonal cross.

One reason for dividing the field of a shield in all of these different ways is to accommodate several charges, or figures or symbols that often represent such institutions as families, towns, or noble houses. Hundreds of these symbols exist, ranging from figures of divinities and humans to animals, monsters, plants, and inanimate objects. The charges which appear on the Monte Cristi achievements of arms include floral patterns, a crown, an escutcheon (a blank shield), a harp, a monster, and lions.

Lions appear as heraldic charges in a variety of forms and positions, all of which are described by distinct terms. Three different types of lions are present on the Monte Cristi medallions; these figures can be differentiated by the arrangement of their limbs, the direction of their heads, and the attitude of their tails (Fig. 19). The first of the Monte Cristi lions is a lion rampant, which faces forward and stands erect on one hind paw with the other three raised and its tail in the air behind its body. The second is a lion passant, which is shown walking, with three paws on the ground and the dexter paw raised. A lion passant always looks forward, and its tail is curved over its back. The third Monte Cristi lion is a lion counter-passant, which is identical to a lion passant except that it faces to sinister rather than to dexter (Scott-Giles & Brooke-Little, 1966: 19-69; Lynch-Robinson & Lynch-Robinson, 1967: 18-63).

![Lion rampant](image1)
![Lion passant](image2)
![Lion counter-passant](image3)

*Figure 19. Three types of lions that appear on the heraldic medallions of the Monte Cristi Bartmannkrüge.*
Heraldic medallions

Achievements of arms were common ornaments on Rhenish stoneware throughout the 16th and 17th centuries. In the earlier years of Rhenish stoneware production, these medallions were often quite complex and elaborate, representing actual arms of Continental cities such as Cologne, duchies such as Jülich-Kleve-Berg-Mark-Ravensberg, or even Elizabeth I of England (Wilcoxen, 1987: 76, Fig. 23-24; Stanbury, 1974: 3, 5; Thwaite, 1973: 257-258, Fig. 5). These arms may have originally been chosen to decorate Rhenish stoneware vessels in order to honor the families who acted as patrons for the potters or to appeal to the citizens of cities where the bottles were marketed. By the middle of the 17th century, however, medallions tended more often to represent either simpler arms such as those of the city of Amsterdam, which shows simply a vertical column of three saltires surmounted by a crown with lions rampant as supporters, or false arms that borrowed armorial elements but had no heraldic significance. By the 1660s to 1680s, molded medallions had generally been simplified to rosettes, crowns, and hearts (see Hamilton, 1984: 22, Fig. 13), and were eventually abandoned altogether (Noël Hume, 1958: 440-441).

Referring now back to RSW 17, it is possible to describe the medallion's achievement of arms in more detail. The shield bears in chief a lion counter-passant, while the lower part carries four chevronels and a blank escutcheon. Over the shield is a column surmounted by a crown, and vines and flowers support the shield. The question which naturally arises, then, is whether or not the achievement of arms that is shown here represents an actual family, town, or region, or if it is an example of the corrupt or fictitious arms that were frequently represented toward the middle and later 17th century: In the case of RSW 17, it is unlikely that the shield is an authentic achievement of arms, primarily because of the lion's direction. In heraldic design, animals are almost always represented facing to dexter, or to the right of the person who would have been holding the
shield (Scott-Giles & Brooke-Little 1966: 66). The lion in Fig. 17 is shown facing to sinister, which, along with the simplicity and generality of the other charges, is a strong indicator that this achievement of arms is not genuine.

The final three medallion designs from the Monte Cristi wreck are also heraldic. The first of these designs (Fig. 20a, RSW 18), preserved in only a single example, shows a shield with two chevrons and a lion passant above the shield. Some detail, however, is obscured due to damage that the medallion sustained in application. In the right half of the medallion it is possible to see four fingertip impressions which the potter left as the molded clay was pressed onto the bottle prior to firing. The next design (Fig. 20b) has been reconstructed as a composite of the eight sherds that illustrate fragments of the medallion. This shield bears a lion rampant, fields bendy and bendy-sinister, and an object which resembles a harp.

Fig. 20a. Grid square 141 D.
Max. height 12.4 cm, max. width 16.0 cm, wall thickness 0.4 - 0.5 cm. The medallion is preserved to a height of 9.9 cm and a width of 9.3 cm. The wheel-marked interior surface has vertical streaks, as though the flat end of a narrow (0.4 - 0.8 cm) paddle or tool were scraped down the interior wall. These markings are directly underneath the medallion, suggesting that the wall of the vessel might have caved in slightly when the medallion was applied, and the potter pushed the dent out before the bottle was fired.

Medallions showing a shield with two chevrons have been excavated from Vergulde Draeck (1656) and Lastdrager (1653). See Green, 1977: 130 (GT 004a), 139 (GT 655, GT 883) and Sténuit, 1974: 239-241, Fig. 20. None of
Figure 20. Three heraldic medallions from the Monte Cristi Bartmannkrüge. Figs. 20b and 20c are composite drawings pieced together from individual sherd.
these parallel medallions, however, has a lion as the crest over the shield, but rather floral motifs or crowns.

Fig. 20b. A composite illustration of a heraldic medallion represented by 8 sherds: PW 811; PW 2354, PW 2793 (adjoining sherds); PW 2885; PW 3363; PW 3659, PWA 63 (adjoining sherds); PWA 73.

The final medallion design (Fig. 20c), a composite of 13 sherds, shows a shield bearing a lion rampant opposite two chevrons and a field chequè. The devices on the shield are common heraldic motifs, but the crest over the shield, which shows the head and neck of an unidentified animal wearing a collar, is rather unusual. The pattern on the animal's neck probably represents scales, feathers, or spots, and flames or a tongue emerge from the end of its long blunt snout. Like the lion passant on the shield in Fig. 17 (RSW 17), however, this animal is shown facing the wrong way (to sinister), so its validity may be suspect. No parallels have yet been found for this creature, probably a dragon (although possibly an eagle or griffin), but its singularity and emphasis on this medallion make it intriguing.

Fig. 20c. A composite illustration of a heraldic medallion represented by 13 sherds: L 4922; PW 1172, PWA 1018 (adjoining sherds); PW 1416, PWA 1905 (adjoining sherds); PW 1656, PWA 794 (adjoining sherds); PW 2785, PWA 362 (adjoining sherds); PW 3630; PWA 187; PWA 2410; PWA 2468.

Interpreting the Monte Cristi heraldic medallions

So far none of the achievements of arms on the Monte Cristi medallions have been associated with a particular family, town, or region. Most of the charges borne on the
shields from these medallions, however, such as the lions, the chevrons, the field chequé, and the crown, are common motifs from other genuine arms which were molded onto Rhenish stoneware in the late 16th century and the first half of the 17th century. Lions passant were a component of the Tudor arms (see Thwaite, 1973: 258, Fig. 5), lions rampant and crowns appeared on the arms of Cologne and Amsterdam (see Wilcoxen, 1987: 766, Fig. 23; and Stanbury, 1974: 5, BAT 2121, BAT 539b), and lions, chevrons, and the field chequé were symbols of Jülich-Kleve-Berg-Mark-Ravensberg (Nagel, 1986: 24). The harp charge of Fig. 20b was known after at least 1603, when James I of the House of Stuart added this symbol of Ireland to the English royal arms (Scott-Giles & Brooke-Little, 1966: 212, Fig. 372), at least one medallion of which was preserved on Witte Leeuw (1613; van der Pijl-Ketel, 1982: 246). All of the heraldic charges that are present on the Monte Cristi achievements of arms were devices familiar to Rhenish potters, but their groupings here seem to be random and decorative rather than authentic.

It is rather curious that the arms of the city of Amsterdam, which were so common on export Bartmannkrüge throughout most of the 17th century,\(^1\) are not present in the Monte Cristi sherd assemblage. It is, of course, unknown whether these arms were simply not present on any of the Monte Cristi Bartmannkrüge or whether these or other arms may have once been represented on bottles that have since been removed from the site. An article published in 1967 cites and illustrates an intact Bartmannkrug, decorated with a medallion of the arms of Amsterdam (Fig. 21) and a Bartmann mask that does not fit into any of the eight categories described above, that was recovered from a shipwreck at Monte Cristi (Cruxent, 1967). Both the history and the current location of this bottle are now unknown to members of the Dominican archaeological community, so its assignation to the Monte Cristi shipwreck, while possible, cannot be decisively confirmed. Whether or not

\(^1\)The arms of Amsterdam are represented on Bartmannkrüge from Batavia (Stanbury, 1974: 3, 5 [BAT 2023, BAT 2121, BAT 2022]), Vergulde Draeck (Green, 1977: 139 [GT 879a], 141 [GT 380]), and Kennemerland (Muckelroy, 1978: 243, Fig. 7.5 [D2]).
Figure 21. Medallion of the arms of Amsterdam from a Bartmannkrug supposedly recovered from the Monte Cristi shipwreck in the 1960s.

This particular example was recovered at Monte Cristi, it is highly likely that many decorated stoneware sherds which may have represented additional ornamental features have been removed throughout the site's history.

While some features of the Monte Cristi heraldic medallions, such as the "dragon" of Fig. 20c, demonstrate elements of originality and potential legitimacy, it is more likely that the Monte Cristi heraldic medallions represented by the extant assemblage of sherds should in fact be classified with the fictitious achievements of arms of the mid-17th century. Unfortunately, none of the Monte Cristi medallions have dates incorporated into their designs, a practice which Rhenish potters occasionally employed (Thwaite 1973), so a more absolute date will be difficult to determine. The complexity and high level of detail of the Monte Cristi medallions, however, show artistry and precision which were generally lacking after about 1660, suggesting that the medallions, like the Bartmänner, were manufactured in the 1650s or earlier.
Westerwald ware

Represented among the sherds of the Monte Cristi Rhenish stoneware assemblage are six sherds of a type of Rhenish stoneware other than Frechener Bartmannkrüge. Westerwald ware, so named for the region within the Rhineland where it was produced, was characterized primarily by blue-on-gray drinking vessels, smaller in size than Bartmannkrüge and generally quite ornately decorated (Noël Hume, 1967; Wilcoxen, 1987: 73-75; von Bock, 1986: 65-70). Six such blue-on-gray or blue-on-cream sherds, preserved mostly as very small fragments, were excavated at Monte Cristi (Fig. 22). The Monte Cristi Westerwald ware, decorated with incised horizontal lines and vague patterns, does not have the fine ornamentation of many Westerwald vessels, and its relative scarcity on the wreck indicates that the six sherds that have been recovered probably represent personal items or the ship's tableware rather than cargo.


Fig. 22. Grid square 230 D.

Max. height 10.7 cm, max. width 5.8 cm, wall thickness 0.4 - 0.7 cm. OD rim 5.0 cm, ID rim 4.0 cm.

The sherd preserves the shoulder, upper handle attachment, and part of the rim of a small blue-on-gray salt-glazed stoneware vessel. A simple five-petalled rosette is incised on the shoulder. Above the rosette is a series of low horizontal ridges, highlighted with cobalt.

RSW 20. Two reassembled blue-on-gray body sherds. PWA 1795 (170 B).

Fig. 22. PWA 1781 (170 B).

Max. height 6.5 cm, max. width 5.8 cm, wall thickness 0.4 cm.
Figure 22. Six sherds of blue-on-gray or blue-on-cream stoneware. These sherds (RSW 20 consists of two reconstructed sherds) came from ceramic vessels that were probably manufactured in the Westerwald region.
These two sherds preserve part of the inward-sloping shoulder of a blue-on-gray salt-glazed stoneware vessel. A figure of an escutcheon or the outline of a face is incised onto the sherd between two series of low horizontal ridges. The ridges and the outline of the incised figure were highlighted with cobalt. Next to the figure is part of the outline of another figure, apparently similar in style and shape to the first.

Fig. 22. Grid square XI B.
Max. height 3.1 cm, max. width 3.5 cm, wall thickness 0.3 - 0.6 cm.

The sherd preserves the sharp curve of a blue-on-gray salt-glazed stoneware vessel between the shoulder and the vertical neck. Below the turn of the neck is a series of low horizontal ridges highlighted with cobalt.

RSW 22. Blue-on-cream body sherd. PWA 1029.
Fig. 22. Grid square 142 B.
Max. height 3.1 cm, max. width 3.3 cm, wall thickness 0.2 - 0.4 cm.

The sherd preserves the gently inward-sloping shoulder of a thin-walled, salt-glazed stoneware vessel. The fabric of the sherd is cream in color. A horizontal cobalt band (0.5 cm wide) with slight ridges above and below crosses the sherd just below the turn of the neck.

RSW 23. Blue-on-gray body sherd. PWA 666.
Fig. 22. Grid square 142 C.
Max. height 1.9 cm, max. width 1.8 cm, wall thickness 0.3 - 0.4 cm.
This sherd, the interior surface of which is badly damaged, preserves a small part of a blue-on-gray salt-glazed stoneware vessel. The sherd is decorated with a horizontal cobalt band (0.5 cm wide) with low ridges above and below, also highlighted with cobalt.

Juglets

The final type of stoneware present in the Monte Cristi Rhenish stoneware assemblage is represented by nine small sherds (Fig. 23), similar in exterior surface color to the Bartmannkrüge but similar in scale to the Westerwald ware. This small group of sherds indicates the presence on board of a limited quantity of brown-mottled stoneware juglets, again probably personal possessions or a part of the Monte Cristi ship's equipment or tableware. The purpose and contents of these juglets are unknown, but parallels to this vessel type are known from several contemporary sites (outlined below).

Figure 23. A juglet base and a juglet rim and handle from the Monte Cristi shipwreck.
RSW 24. Two reassembled sherds of a small base. PW 943 (II D).  
Fig. 23.  
L 5349 (cannon test pit).  
Max. height 5.7 cm, max. width 8.2 cm, wall thickness 0.4 - 0.8 cm. The diameter of the base is 6.0 cm.  
These sherds preserve the base and initial profile of the wall of a small salt-glazed stoneware vessel. Parallels to juglets of this size have been excavated from Vergulde Draeck (1656), the Dutch galliot at Stavanger (1677), Dartmouth (1690), Port Royal (1692), Sapphire (1696), and Hazardous (1706).

RSW 25. Three reassembled sherds of a small rim and handle. PW 2647 (XXXI B).  
PW 1969f (cannon).  
Fig. 23.  
Max. height 8.6 cm, max. width 6.7 cm. OD rim 4.0 cm, ID rim 3.0 cm.  
The sherd preserves the rim, the handle, and the part of the neck where the handle is attached of a small salt-glazed stoneware vessel. The two sherds of the handle (PW 1969f), were found concreted to the surface of the Monte Cristi cannon during the 1995 laboratory season in Santo Domingo. Parallels to juglets of this size have been excavated from Vergulde Draeck (1656), the Dutch galliot at Stavanger (1677), Dartmouth (1690), Port Royal (1692), Sapphire (1696), and Hazardous (1706).

Parallels to the Monte Cristi juglets  
Like the Monte Cristi juglets, the parallel examples from other sites are present only in relatively small quantities. The ten juglets from Vergulde Draeck, varying in size from 12.0-16.0 cm, bore Bartmann masks but no medallions (Green, 1977: 110-115), but most
of the juglets from other sites were plain. One example from the Dutch galliot at Stavanger contained a pork fat-based material, probably a cosmetic or medical ointment (Andersen, 1974: 92-93, Fig. 3 [right]). The other ships with parallels, namely HMS *Dartmouth* (1690), HMS *Sapphire* (1696), and HMS *Hazardous* (1706), were vessels in the British Navy, all of which were on active naval duty at the time they were lost (Adnams, 1974; Barber, 1977; Holman, 1975: 255, Fig. 3; Owen, 1988: 289, Fig. 4). Port Royal, of course, was a settlement, and its two juglet examples were excavated within the town.

Juglets of this type are not well-documented (Green, 1977: 110); it is possible, however, that they are present more often than they are cited in excavation reports. Several of the Monte Cristi juglet sherds were excavated in close proximity to the ship's cannon, in an area southwest of the ship's extant hull remains (Fig. 17, RSW 24, RSW 25). The handle of RSW 25 was in fact found concreted to the surface of the cannon, just as the single stoneware juglet from *Hazardous* was found concreted to the breech of one of the ship's cannons (Owen, 1988: 289). The provenience of the other vessels' juglets was not specified in the excavation reports. The purpose of this vessel type is not definitively known, although the ointment inside the Stavanger juglet suggests cosmetic or medicinal use, and the proximity of the Monte Cristi and *Hazardous* juglets to the ships' cannons indicates that they were either a part of the ships' equipment or perhaps personal possessions stored on the decks.

**Results of the study of the Monte Cristi Rhenish stoneware**

At first glance the Monte Cristi Rhenish stoneware assemblage is best described as a large quantity of mostly very small sherds. Close investigation, however, has yielded a surprising amount of data about its origin, its approximate date, the types of stoneware present, and the original size of the ship's stoneware cargo. The information gathered as a
result of this study, then, can now be applied toward the interpretation of the Monte Cristi shipwreck.

*Date and origin of the Monte Cristi Rhenish stoneware*

The Monte Cristi Rhenish stoneware sherds represent three different forms: mottled-brown *Bartmannkrüge*, blue-on-gray drinking vessels, and mottled-brown juglets. Based upon the styles of their *Bartmänner* and medallions, the Monte Cristi *Bartmannkrüge* were apparently produced during the mid-17th century, probably sometime between 1645 and 1655, a date that helps to identify their place of origin as Frechen. The juglets, which were small, anonymous utility vessels, are more difficult to identify with regard to both origin and purpose, but they may also have been manufactured in Frechen and have several parallels on other 17th-century sites. The small assemblage of blue-on-gray stoneware is too fragmentary to allow the identification of vessel forms, but its style, decorative treatment, and low representation on the wreck site all indicate that these sherds were once part of a handful of small vessels, probably in daily use by the ship's crew, that originated in the Rhenish Westerwald region.

*Original number and size of the vessels*

The original number and size of the vessels will probably never be easy issues to resolve. None of the Westerwald sherds seem to be from the same artifact, indicating at least six examples, but the original size of the intact vessels can only be described as small, relative to the *Bartmannkrüge*. The juglets probably stood approximately 10-15 cm high, but the surface decoration of all nine sherds is practically identical and allows no differentiation between the original juglets. The juglet sherds could represent either one or two vessels or possibly several more.
Determining the original number of *Bartmannkruge* on board the Monte Cristi ship is a complicated problem. Not only is the entire assemblage represented only by sherds, but the shipwreck site has been salvaged to such a degree that a large quantity of vessels may not be represented at all. Examining the number of sherds that preserve certain features unique to each bottle can help generate some answers; there are, for example, 24 *Bartmann* sherds, 25 handle sherds, 28 rim sherds, and 52 base sherds. Also, considering the two most prevalent medallion types of the assemblage, there are 54 sherds of the soldier or sportsman figure and 60 sherds of the achievement of arms surmounted by the crown.

None of the *Bartmann* sherds fit together, indicating a minimum number of 24 bottles. Due to the salvage that has occurred on the Monte Cristi wreck, however, the maximum number of vessels will always be uncertain. There may have been as many as 50 bottles, a quantity suggested by the number of base sherds and the common medallion sherds, but some of those base sherds may yet fit together, and each *Bartmannkrug* probably bore multiple medallions. The original size of the *Bartmannkruge* is easier to determine; the diameters of the base sherds ranged from 9-14 cm, indicating that the original vessels were at least 25 cm in height, and in many cases probably more.¹

A clearer picture of many characteristics of the Monte Cristi Rhenish stoneware has emerged, but the conclusions that can be drawn regarding the role of the assemblage within the context of the rest of the shipwreck have yet to be addressed. The conclusion of the study of this stoneware will allow all of the information preserved within the collection to contribute toward the interpretation of the wreck. The next and final step of this analysis will be to apply the answers that have been gathered about the date, origin, and quantity of the Monte Cristi stoneware toward similar questions that are still outstanding in the study of the complete shipwreck.

¹Among the intact *Bartmannkruge* of *Vergulde Draeck*, the tallest bottle (25.8 cm) had a base diameter of 11.25 cm (Green, 1977: 122, GT 88).
CHAPTER V
CONCLUSIONS

Throughout the course of this study, answers to many of the questions regarding the Monte Cristi Rhenish stoneware have gradually become apparent. Despite its fragmentary nature, this sherd assemblage has been capable of generating information about the origin and relative date of the stoneware, the minimum number and approximate size of the intact bottles, and the appearance and significance (or lack thereof) of the molded decorations. A surprising wealth of detail was preserved within the Monte Cristi Rhenish stoneware.

Other issues, however, especially those related to the role played by the Bartmannkrüge cargo, cannot be answered simply by analyzing the sherds. The previous chapter could not address such topics, for example, as the intended destination of the Bartmannkrüge or the presence or absence of any liquid commodity inside the bottles when they were in transit. Also, the uncertain nationality of the Monte Cristi ship still begs investigation. Answers to questions such as these will not be found only within what has survived of the shipwreck's Rhenish stoneware assemblage, but will require consideration of other elements of the Monte Cristi cargo and a wider examination of 17th-century trade.

Summary of the results of the Monte Cristi Rhenish stoneware study

In Chapter IV specific analyses of diagnostic features and sherds within the Monte Cristi Rhenish stoneware demonstrated how much data 1371 sherds can offer. Despite the small size of each artifact, the magnitude of the complete assemblage ensured the compilation of hundreds of clues into a coherent body of information. It has become clear, for example, that the Monte Cristi Bartmannkrüge were manufactured in Frechen, probably
no later than the 1650s. The precise heights and volumes of these bottles are unknown, but the dimensions of the base fragments and the scale of the surface decorations suggest that the Monte Cristi examples were larger than the pint- or quart-sized bottles that were most common from 1640 to 1680 (Noël Hume, 1958: 440). At least 24 bottles are represented in the current assemblage, although other sherds may be recovered in the final years of the excavation that will increase the minimum number of vessels. There will, unfortunately, never be any way to determine how many bottles have been removed throughout the wreck's history of salvage or whether any complete examples were ever found prior to the current excavation.

The Monte Cristi Bartmänkrüge were decorated with a Bartmann mask on the neck and medallions on the body. So far six types of neck Bartmänner and two shoulder Bartmänner are represented, and nine distinct medallion types have been differentiated. Four of these types are floral medallions, one shows a figure of an Elizabethan-era soldier or sportsman, and the other four are heraldic designs that are probably fictitious rather than actual achievements of arms. One of the achievements of arms and the Elizabethan figure are present in far greater quantities than the other medallions, which recalls the tendency among Bartmänkrüge to have two or more medallions applied to the body, although it is impossible to tell how many medallions appeared on the original Monte Cristi bottles. Other sherds in the collection preserve molded decorations that are still too fragmentary to reconstruct (Figs. 24, 25, 26, 27), but more information about these examples may become apparent by the completion of the excavation.

**Purpose and destination**

After learning about the physical characteristics of the Monte Cristi stoneware assemblage, it becomes possible to investigate the original purpose and destination of the Bartmänkrüge. This vessel type was used commonly as a storage jug and a transport
Figure 24. Unidentified medallion fragments from the Monte Cristi shipwreck. Figs. 24a-e are apparently parts of the same design, although none of them fit together. Figs. 24f and 24g are examples of a different medallion type.
Figure 25. Ten sherds, all preserving parts of what is probably one unidentified heraldic medallion type.
Figure 26. Unidentified medallion fragments.
Figure 27. An almost intact heraldic medallion. This sherd (L 1723) was not present in the Monte Cristi Rhenish stoneware assemblage in Santo Domingo in 1995 and was consequently never transported back for study. Since this artifact was studied only as a field notebook drawing, it was not included in the analysis of Chapter IV. Figs. 26f and g may preserve fragments of other examples of this medallion.
container, and thousands of Bartmannkrüge were manufactured for export throughout the world during the 17th century (Thwaite, 1973: 255; Noël Hume, 1958: 439). It was only after the introduction of inexpensive, mass-produced glass bottles that the production of Bartmannkrüge declined, although stoneware manufacture continued in Frechen into the 19th century (Hurst, et al., 1986: Noël Hume, 1958: 439).

Rhenish Bartmannkrüge were exported both for their own sake and as containers for an unlimited variety of substances. The underwater archaeological record, for example, preserves examples that carried mercury (Lastdrager [1653], Kennemerland [1664], Princesse Maria [1686], and Hollandia [1743]), an unidentified ointment (Dutch galliot [1677]), and peach stones (Kennemerland [1664]; see Appendix A). None of the Monte Cristi Bartmannkrüge have yet been excavated intact, so naturally no liquid contents have been preserved. It is important to note, however, that no stoppers or lids of any kind have yet been recovered, unlike on Princesse Maria, for example, where an intact, corked bottle full of mercury was recovered. This conspicuous absence suggests that the bottles themselves were the cargo, despite the apparently uneconomical practice of shipping empty containers.

When determining the intended destination of the stoneware, the rest of the cargo of the Monte Cristi ship must again be considered. Rhenish stoneware was exported to locations all over the world throughout the seventeenth century, so it is difficult to assign a specific destination just by evaluating the Bartmannkrüge alone. Some of the Monte Cristi pipes, however, were almost certainly intended for the eastern seaboard of North America (Hall, 1996: 231; see Chapter I). Frechener Bartmannkrüge have been recovered from 17th-century English and Dutch settlements all along the coast of North America (Wilcoxen, 1987: 75; Noël Hume, 1958: 439; see also Appendix A), so this destination could have been entirely consistent for the stoneware as well.
Nationality of the Monte Cristi ship

Uncertainty regarding the nationality of the Monte Cristi ship and crew has characterized all recent surveys and investigations of the wreck site. Alternating English and Dutch identifications have been offered with equal frequency, and the results of PIMA’s 1992 dendrochronological study of the hull timbers still have not completely finalized the matter. That analysis decisively identified the ship’s wood as English oak felled between October 1642 and March 1643 (Hall, 1996: 62-63), but it could not, of course, impart any information about the vessel’s ownership during its final voyage. The Monte Cristi ship could have been English-crewed but carrying several Dutch-produced items, for example, or it could have been sold to the Dutch in the 1640s or captured during the First Anglo-Dutch War of 1652-1654 (Rink, 1986: 14).

The presence of a large quantity of Bartmankrilge on the wreck site, however, lends weight to the theory that the Monte Cristi ship was in Dutch hands rather than English at the time it sank. Rhenish stoneware of this type was popular in England throughout its production, but it was the Dutch who brought it there and the Dutch who carried it abroad as export cargo (Thwaite, 1973: 257; Wilcoxen, 1987: 73). Examples of Rhenish stoneware have been found all over the world at shipwreck sites of many nationalities (Fig. 28), but the only ships that were carrying a quantity of Rhenish stoneware large enough to be considered cargo, rather than only a small handful of stoneware vessels, belonged to the Dutch East India Company (see Appendix A).

The Dutch East India Company (Vereenigde Oostindische Compagnie, or VOC) was a trading company founded in 1602 to break into the lucrative East Indies trade, formerly controlled by the Portuguese. Rhenish stoneware proved to be both a successful trade item in the Far East and a useful shipboard container for mercury and other substances in VOC trade (Elliott, 1986b: 89). By the middle of the 17th century, the Dutch were completely immersed in international trade, and their sphere of involvement had
1) Portuguese shipwreck (mid-16th century), Seychelles.
2) San Esteban (1554), Padre Island, Texas.
3) Elizabethan shipwreck (1592), Alderney, UK.
4) Mauritius (1609), Cap Lopez, Gulf of Guinea, Gabon.
5) Sea Venture (1609), Bermuda.
6) White Lion** (1612), St. Helena.
7) Campen (1627), Needles rocks, Isle of Wight, UK.
8) Batavia** (1629), Houtman Abrolhos Islands, Western Australia.
9) Schuyler Flatts (17th century), New York.
10) Lastdrager** (1653), Yell, Shetland Islands, UK.
11) Duschat Point shipwreck (ca. 1653), Duschat Point, Mull, UK.
12) Northern European merchantman** (ca. 1652-1656), Monte Cristi Bay, Dominican Republic.
13) Vergulde Draeck** (1656), Western Australia.
14) Jamestown (1661), Virginia.
15) Fort Orange (17th century), Albany, New York.
16) Kennemerland** (1664), Out Skerries, Shetland Islands, UK.
17) Dutch galliot** (1677), Stavanger, Norway.
18) Princesse Marie** (1686), Isles of Solly, UK.
19) Dartmouth (1690), Mull, UK.
20) Fort Royal (1692), Jamaica.
21) Sainte Dorothea (1693), Villefranche-sur-Mer Bay, Nice, France.
22) Sapphire (1696), Bay Bulls, Newfoundland, Canada.
23) Pemaquid (1628-1690, 1729-1752), Maine.
25) Hazardous (1706), Bracklesham Bay, Sussex, UK.
26) De Liejske** (1711), Out Skerries, Shetland Islands, UK.
27) Slui der Hooge** (1726), Hout Islands, Western Australia.
28) Zeevijk (1727), Hout Islands, Western Australia.
29) Curacao (1729), Isle of Man, UK.
30) Hollandia** (1743), Western Australia.
31) Amsterdam** (1749), Western Australia.

Figure 28. Shipwrecks and some North American places.
North American sites with Rhenish stoneware.

32) Jamaica Island (late 17th to early 18th century), Portsmouth Naval Shipyard, Kittery, Maine.
33) Nevis (1680-1870), Lesser Antilles.
34) Geldermalsen* (1752), Riau Archipelago, Indonesia, South China Sea.

*Vessel was carrying a significant amount of Rhenish stoneware on board, probably as cargo.
grown to include the colonization, warfare, and piracy that characterized the New World. The joint-stock Dutch West India Company (WIC) was founded in 1621, primarily to facilitate warfare and privateering against Spain in the Western Hemisphere, but also to expand the Dutch commercial and colonial empire (Goslinga, 1979: 21). Dutch influence in the New World was never as strong as in Asia (the WIC collapsed in 1674 while the VOC did not decline to bankruptcy until 1798), but the Dutch traded and traveled openly in Spanish and English territory in the Americas throughout most of the 17th century, despite prohibitions against them from both nations (Goslinga, 1971: 313; Muckelroy, 1980: 120-128; Wilcoxen, 1987: 73; Bridenbaugh & Bridenbaugh, 1972: 307).

The apparent Dutch monopoly over the large-scale export of Rhenish stoneware during the 17th century certainly implies that the Monte Cristi stoneware left Europe in the hands of the Dutch, perhaps even on a ship of the Dutch West India Company, if its final location in the Greater Antilles is any indication. Hall (1996) states that "the assemblage of trade goods from the Monte Cristi shipwreck gives only limited support to the hypothesis that the vessel was a Dutch merchantman" (226), because only certain elements of the cargo -- such as the pipes and possibly the copper-alloy artifacts and the glass beads -- can definitively be identified as Dutch in origin. Rhenish stoneware of the mid-17th century, however, while not manufactured in the Netherlands, was shipped in bulk almost exclusively by the Dutch. Disregarding such unpredictable variables as piracy and smuggling, the inclusion of Rhenish stoneware in the Monte Cristi ship's cargo is an important clue to the nationality of the vessel on its last voyage.

Although Rhenish stoneware and Bartmannkrüge in particular are widely distributed and highly diagnostic artifacts on 17th-century shipwreck sites, the Monte Cristi Rhenish stoneware is a significant comparative collection because of its New World provenience. Other North American shipwrecks and many North American terrestrial sites preserve isolated examples of the type, but the Monte Cristi shipwreck provides
unprecedented evidence of its method of transport to these areas. The Monte Cristi
Rhenish stoneware is today only a collection of fragments, but the information it preserves
continues to contribute both to the understanding of the Monte Cristi shipwreck and to the
body of knowledge surrounding the production and export of Rhenish stoneware in the
17th century.
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APPENDIX A
CATALOGUE OF SHIPWRECK SITES AND
NORTH AMERICAN SETTLEMENT SITES WITH
RHENISH STONEWARE

Ships that wrecked while carrying a cargo of Rhenish stoneware

1) *Witte Leeuw* (1613), St. Helena. Nineteen Frechen *Bartmann* jugs and some Sieburg bottles were excavated from this VOC ship, sunk in a battle with two Portuguese vessels while on its homeward voyage (Green in Throckmorton, 1987: 170; Muckelroy, 1980: 122; van der Pijl-Ketel, 1982: 246-248).

2) *Batavia* (1629), Houtman Abrolhos Islands, Western Australia. This VOC ship sank on its outward voyage after striking a reef. A large quantity of Frechen stoneware was excavated with a variety of *Bartmann* masks and heraldic medallions of Amsterdam, Cologne, Gelderland, and the duchy of Jülich-Kleve-Berg-Mark-Ravensberg. Other decorations on the numerous medallions were rosettes and faux achievements of arms. Approximately 1500 brown-mottled sherds, 100 Westerwald-type sherds, and 100 Sieburg-type sherds were recovered (Green, 1975; 1983: 30-33; Muckelroy, 1980: 122-123; Stanbury, 1974).

3) *Lastdrager* (1653), Yell, Shetland Islands, UK. Since the English Channel was inaccessible in 1653 because of the First Anglo-Dutch War, this VOC flute was traveling the northern route around Scotland, where it sank on its outward voyage. Approximately sixty Rhenish stoneware sherds, thirty of them associated with quicksilver puddles, were excavated. Traces of mercury were
also found preserved in green glass bottles (Stenuit, 1974: 239-243; Sténuit, 1977b: 403-468).

4) Northern European merchantman (ca. 1652-1656), Monte Cristi Bay, Dominican Republic. Although the identity and nationality of this ship are still uncertain, studies of the cargo suggest that the vessel sank on its outbound voyage, never reaching its probable eventual destination of the eastern seaboard of North America. The site has been heavily salvaged, but excavations from 1991-1994 have so far recovered 1371 sherds of Rhenish stoneware. Six of these sherds represent small Westerwald ware vessels and nine are sherds of small brown-mottled bottles, juglets, or mugs, but the remainder are fragments of Bartmannkriige. No intact Rhenish stoneware vessels have yet been found, and the original contents of the bottles are unknown.

5) Vergulde Draeck (1656), Western Australia. This outbound VOC ship sank on a reef; a large number of complete and fragmentary stoneware bottles from Frechen were excavated from the site. These bottles bear a variety of decorations. Some of the bottles have no decoration, some have only a mask, some have a mask and one medallion, and some have a mask and three medallions. Fourteen different mask types are preserved, and a number of different medallion types are also present. Some of the medallion types which are preserved are rosettes, genuine and faux heraldic medallions, and stylized designs with hearts, crowns, and rosettes. The quality of the Vergulde Draeck bottles is quite variable; some were carefully executed with regard to shape and appearance, but other bottles in the collection exhibit dents, wry necks, crudely applied decoration, and flaws and inclusions in the fabric which made the vessels leak badly (Green, 1973: 280-282; 1977: 95-146).
6) *Kennemerland* (1664), Out Skerries, Shetland Islands, UK. This ship, outbound for Batavia, sank while sailing the northern route around Scotland, which it had been forced to travel because of hostilities between England and the Netherlands. Five complete, decorated Rhenish stoneware flagons were recovered from this site by the end of the 1976 season, two of which contained mercury (recovered 1971), and one of which (1973) contained peach stones. A complete small bottle (height 11 cm) was also found in 1973. Over 800 fragments of salt-glazed stoneware have been excavated from the wreck, many representing examples of a considerable number of different masks and medallions (Forster & Higgs, 1973: 297-298, Figs. 6-8; Price & Muckelroy, 1974: 266, Fig. 8; 1977: 205).

7) Dutch galliot (1677), Stavanger, Norway. A considerable number of Frechen Bartmann flagons were excavated, some plain, some with only a mask, some with only a medallion, and some with a mask and a medallion. Two Bartmann types are preserved, and the medallions portray either heraldic arms or rosette patterns. The vessels' heights vary from 0.115 m to 0.37 m. Most of the bottles were probably utilized for the export of wine or oil, but one contained a pork fat-based material, probably a cosmetic or medical ointment. The conclusion which was drawn is that several of the flagons, particularly the small ones, were used for the transport or storage of different ointments (Anderson, 1974: 92-93, Fig. 3).

8) *Princesse Maria* (1686), Isles of Scilly, UK. This ship, which ran aground on its outward voyage, was carrying a large cargo of mercury. At least one corked Rhenish stoneware flagon full of mercury was found on the site (Milne & Draper, 1992: 156, Fig. 1; Muckelroy, 1980: 125; Green in Throckmorton, 1987: 170).
9) *De Liefde* (1711), Out Skerries, Shetland Islands, UK. This ship, the first VOC ship to be found and identified off the coast of the British Islands (1964), sank on its outward voyage. The excavation report listed salt-glazed stoneware sherds among the wreck's artifacts (Bax & Martin, 1974: 90).

10) *Slot ter Hooge* (1724), Madeira. Investigation of this VOC ship, which wrecked on its outward voyage, revealed that its cargo had included stoneware (Green in Throckmorton, 1987: 170; Muckelroy, 1980: 127).

11) *Hollandia* (1743), Isles of Scilly, UK, outward bound. Many sherds of Rhenish stoneware jugs were excavated, as well as two almost complete flagons. Fragments of Westerwald ware were also recovered. Traces of mercury were found on the wreck site, and the only evidence of packaging was sherds of stoneware in the vicinity (Cowan, Cowan, & Marsden, 1975: 291, 297-299; Gawronski *et al*., 1992: 418-424).

12) *Amsterdam* (1749), Hastings, Sussex, UK. This VOC merchantman ran aground on its maiden voyage, sailing through the English Channel outbound for Batavia. Stoneware represented the largest portion of the ceramic artifacts; both Frechen and Westerwald ware were present. Five intact jugs and nine broken or incomplete examples were excavated, as well as over forty Frechen stoneware sherds (including two masks) and over 500 Westerwald sherds (Gawronski *et al*., 1985: 82; 1986: 53; Marsden, 1972: 93).

13) *Geldermalsen* (1752), Riau Archipelago, Indonesia, South China Sea. This fully laden VOC ship hit a reef and sank before it reached Batavia on its homeward voyage to Europe. In addition to its cargo of tea, textiles, and porcelain, a quantity of Westerwald ware and Frechen stoneware bottles were being carried on board. These bottles have no decoration and are very elongated and ovoid in shape. Their presence on a ship returning to Europe from Asia is puzzling;
perhaps they were storage bottles among the ship's equipment (Christie's Amsterdam, 1986: 17-22; Hatcher, de Rham, & Thorncroft, 1987).

Shipwreck sites with non-cargo examples of Rhenish stoneware

14) Portuguese shipwreck (mid-16th century), Seychelles. One artifact recovered from this wreck was a small Bartmann bottle, probably manufactured in Cologne in the first half of the 16th century (Blake and Green, 1986: 15-17, Fig. 13).

15) San Esteban (1554), Padre Island, Texas. This Spanish wreck yielded two sherds of Cologne stoneware with applied decorations of acorns and oak leaves (Arnold and Weddle, 1978: 259, 262, Fig. 45a).

16) Elizabethan shipwreck (1592), Alderney, UK. This small, lightly armed vessel was apparently lost while serving as a dispatch carrier and military transport for English forces in Brittany. One intact Cologne Bartmannkrug and fragments of other bottles were recovered during the excavation (Bound, 1997: 90; Davenport & Burns, 1995: 37-38, Fig. 14).

17) Mauritius (1609), Cap Lopez, Gulf of Guinea, Gabon. This VOC ship was wrecked on 19 March 1609, carrying a cargo of spices and zinc ingots bound for Amsterdam. One partial Rhenish stoneware bottle (0.45 l) was found (L'Hour, Long, & Rieth, 1990: 68, Fig. 4i).

18) Sea Venture (1609), Bermuda. The flagship of an English expedition of seven ships and two pinnaces, Sea Venture was bound for Jamestown, Virginia, when it sank. Two examples of Rhenish stoneware were excavated from the wreck: one jug (1580; height 15 cm) and one bottle (1600; height 19 cm), both with medallions and a Bartmann (Elliott, 1986a: 69-71; Steffy in Bass, 1988: 111; Wingood, 1982: 341-342, Fig. 11a-b).
19) *Campen* (1627), Needles rocks, Isle of Wight, UK. This VOC ship sank outbound to Batavia on its maiden voyage. Two sherds of salt-glazed stoneware were reported, but they are probably not from *Bartmann* bottles. (NUAG, 1985: 19, Fig. 13b).

20) Duart Point shipwreck (1653?), Duart Point, Mull, UK. This English (possibly Cromwellian) wreck has so far yielded one intact *Bartmann* flagon (Martin, 1995a: 41, Fig. 1; 1995b: 34-35).

21) *Dartmouth* (1690), Mull, UK. *Dartmouth* sank in a storm while on patrol for William of Orange in his campaign against the Catholic Scots of the Western Isles. Rhenish stoneware from the wreck includes three small flagons (12.5 cm high) identical to one from *Sapphire* (1696), fragments of a Bellarmine flagon similar to the type from the Dutch galliot which sank near Stavanger (1677), and some sherds of Westerwald drinking vessels (Adnams, 1974: 271; Holman, 1975: 255-256).

22) *Sainte Dorothea* (1693), Danish merchant ship, Villefranche-sur-Mer Bay, Nice, France. The preliminary investigation of this Danish merchant ship has so far yielded one Rhenish stoneware jug, probably part of the shipboard kitchen equipment, which was located near the ship’s oven (L’Hour, 1993: 313-315, Figs. 7, 10).

23) *Sapphire* (1696), Bay Bulls, Newfoundland, Canada. This British frigate was sunk in an engagement with the French. At least one small flagon, identical to two flagons from the Dartmouth (1690), was excavated from the wreck (Barber, 1977; Holman, 1975: 255-256).

24) Jutholmen shipwreck (ca. 1700), Jutholmen, Dalarö, Stockholm archipelago, Sweden. This Swedish merchantman sank with one *Bartmann* bottle and one Westerwald tankard on board (Kajser, 1983: 32-33, 49, Figs. 55-56).
25) *Hazardous* (1706), Bracklesham Bay, near Selsey Bill, Sussex, UK. This British warship, a prize taken from the French, ran aground in a gale. A small salt-glazed stoneware jug (height 10.5 cm, diameter 7 cm) was found concreted to cannon "D" during the preliminary survey of the site (Owen, 1988: 289).

26) *Zeewijk* (1727), Houtman Abrolhos Islands, Western Australia. The wreck debris from this VOC ship was found scattered over an area of several kilometers. Artifacts which had washed into the shallows inside the reef included German stoneware. (Ingelman-Sundberg, 1977; Muckelroy 1980:127).

27) *Curaçao* (1729), Isle of Unst, Shetland Islands, UK. This Dutch warship was lost while escorting a fleet of returning East Indiamen. Scattered bellarmine sherds were found on the shipwreck site (Sténuit, 1977a: 113).

**Some settlement sites in North America with Rhenish stoneware**

28) Schuyler Flatts (17th century), located north of Albany along the Hudson River, New York. Stoneware from the first half of the 17th century has been excavated in the cellar fill of this 17th-century farmhouse (Huey, 1974).

29) Fort Orange (17th century), Albany, New York. A number of Rhenish stoneware fragments have been excavated from contexts with dates ranging from before 1640 to 1664. One complete *Bartmann* jug was excavated from a 1651-1664 context (Huey, 1988: 557-560, Figs. 74, 90-91; 1995: 17).

30) Pemaquid (1628-1696, 1729-1759), Maine. This 17th-century fortified settlement was abandoned in 1696 after the inhabitants surrendered to a force of French-supported Native Americans. It was re-inhabited as a garrison for the Massachusetts militia in the mid-18th century. At least one intact mid-17th-century *Bartmann* jug has been recovered from the site (Bradley, 1995: 11).
31) Jamestown (1661), Virginia. A large, fragmentary Bartmann jug with the year 1661 incorporated into a medallion was excavated on the site of the First State House (Noël Hume, 1958: 440, Fig. 4).

32) Port Royal (1692), Jamaica. Several examples of 17th-century Rhenish stoneware were excavated from this submerged English-American settlement (Hamilton, 1984: 21-22, Fig. 13).

33) Jamaica Island (late 17th to early 18th centuries), Portsmouth Naval Shipyard, Kittery, Maine. Historic documentation of the occupation of this island indicates that it was inhabited from at least the last decade of the 17th century to the early 18th century. Artifacts recovered in test excavations include Rhenish stoneware (Wheeler & Will, 1995: 42-45).

34) Nevis (1680-1870), Lesser Antilles. Preliminary analyses of the ceramic assemblage on the island of Nevis have revealed the presence of decorated Rhenish stoneware and other salt-glazed wares, so far noted mostly as surface scatter (Meniketti, 1997).
Figure 29. Grid square system of PIMA’s 1991-1994 excavations at Monte Cristi. The squares designated by Roman numerals were excavated during the 1991-1993 seasons, and the squares designated by Arabic numerals were added in 1994. The 1993 triangular excavation areas near the cannon are not illustrated.
APPENDIX C
GLOSSARY

ACHIEVEMENT OF ARMS. A display of several different heraldic devices.

APOTROPAIC. Intended to ward off evil.

ARMORIAL BEARINGS. All of the heraldic devices borne in an achievement of arms.

BARTMANN (plural BARTMÄNNER). Beardman. The molded face or mask applied to a Rhenish stoneware bottle from Frechen or Cologne.

BARTMANNKRUG (plural BARTMANNKRÜGE). "Beardman jug." A mottled-brown stoneware bottle, rounded in body with a narrow, vertical neck and a single vertical strap handle. These bottles were usually decorated with a molded Bartmann face on the front of the neck and molded medallions or ornaments on the body.

BASE. The bottom of a shield.

BEND. A diagonal band running across the field of a shield.

BENDY. A series of parallel diagonal lines filling the field of a shield.

BLAZON. To describe heraldic symbols.

CHARGE. A figure or symbol on an achievement of arms.

CHEQUE. A field with crossing horizontal and vertical lines in a pattern like a chessboard.

CHEVRON. An inverted V-shaped band on a shield.

CHEVRONELS. Three or more chevrons.

CHIEF. The top of a shield.

COBALT. A metallic element often used to generate a decorative blue color.

CORDON. A raised decorative band around the rim of a ceramic vessel.

CREST. An armorial device displayed on the helmet and often positiones over the shield in an achievement of arms.
DEXTER. The side of the shield on the viewer's left and the bearer's right.

ESCUTCHEON. A blank shield.

FIELD. The open area on a shield.

KILN SCAR. An unglazed spot on the exterior surface of a ceramic vessel, caused by two or more vessels leaning against each other in the kiln.

LION PASSANT. A walking lion with three paws on the ground and the dexter paw raised (A LION COUNTER-PASSANT is identical except that it faces to sinister rather than to dexter.)

LION RAMPANT. A lion facing forward and standing erect on one hind paw with the other three raised and its tail in the air behind its body.

MEDALLION. A circular ornament on the body of a Bartmannkrug, usually illustrating a floral or heraldic pattern, although other figures often appear as well.

ORDINARY. A band laid across the field of a shield.

PARTED. A divided shield.

PEAU D'ORANGE. Textured like the peel of an orange.

PERMEABILITY. Allowing moisture to penetrate into the wall of a ceramic vessel via pores in the interior or exterior surfaces.

POROSITY. The presence of pores or openings in the wall of a ceramic vessel.

POTTER'S WHEEL MARKS. Regular grooves and channels that spiral around the interior surfaces of the walls of a ceramic vessel thrown on a potter's wheel.

RHENISH. Of or from the region near the Rhine River.

SALTIRE. An X-shaped diagonal cross.

SHOULDER MASK. On Bartmannkrüge, a smaller face with or without a beard that was placed on the shoulder of the bottle.

SINISTER. The side of the shield on the viewer's right and the bearer's left.
STONEWARE. A ceramic type made of high silicate and aluminate clays that vitrify when fired at extremely high temperatures (around 1300° Celsius) to form a dense, impermeable fabric.

SUPPORTERS. Figures positioned on either side of a shield in an achievement of arms.

VARIED FIELD. A shield that is decorated or divided with several lines.

VERTICAL STRAP HANDLE. A handle that is wider than it is thick, attached in a vertical orientation to a ceramic vessel.

WRY NECK. In the case of Rhenish stoneware, a bottle with a tilted or skewed neck rather than one that is perfectly vertical.
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PUBLICATIONS

1997  The Rhenish stoneware from the Monte Cristi shipwreck, Dominican Republic. *Underwater Archaeology*; 121-127.