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On the cover: Archaeologists enter Monte Cristi Bay from the R.V. Rummy Chum IV, the diving platform positioned directly over the “Pipe Wreck.” Photo: MCSP Archives

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Across an Indigo Sea

Jerome L. Hall

Don Francisco Nestares de Marín stared intently at the silver coin balanced precariously on the first two fingers of his right hand. As his calloused thumb pushed deeply into the small, finely pressed circular stamp, he pondered in disbelief that nine winters had passed. Had it really been that long since he left his native Spain only to arrive here in Potosí (fig. 1), the frontier town that boasted one of the richest and most productive silver mines in the world?

It had. As painful as it was to remember, the success of his tenure was predicated on a scandal: Silver merchants had added excessive amounts of copper to the bullion used to make coins. As a result, business owners from his homeland no longer accepted currency from Potosí. Attempts by the Crown to cull this rampant corruption were embarrassingly unsuccessful. That was, of course, until Don Francisco arrived. His mission was made easier by many years of experience as a priest, lawyer, and former Inquisitor, not to mention the title given to him as President of the Court of La Plata. Yes, there had been issues of forced Native American labor and administrative indignities that had to be resolved, but restoration of the quality of coins struck at the mint was his foremost responsibility.

That, however, was years ago. His reforms—brutal but effective—were his legacy. Don Francisco dropped the coin into his vest pocket and sighed deeply as the sun disappeared behind the mountains. Soon he would leave this God-forsaken town forever. He closed his eyes and summoned an image that had delighted him since his arrival. He was ascending the plank, looking over his shoulder at the blight that had stolen his dreams, stepping onto a ship that would carry him back to Spain, back to the home of his youth, back... back... far across the Indigo Sea.

---

Fig. 1. The Atlantic and surrounding continents. The story of the “Pipe Wreck” begins in Europe and ends in the Caribbean, but the story implicates trade and intended trade in North and South America, as well.
François Le Juste smeared thick grease on his arms and face and lay, exhausted, on his bundled grass pallet. The evening was cool yet offered no respite against mosquitoes that plagued the northern coast of Hispaniola in late winter. At least the salve of cattle fat would keep them at bay until he fell asleep. Tomorrow he would rise before the sun and tend the fire of his green-stick smokehouse, where the last twenty hides were curing. In a few days another merchant ship laden with European goods would sail into the sheltered cove. If not, he could hold out for several more weeks, though his supplies of powder and shot were perilously low. There were luxury items that he needed: Most of his clay pipes were broken; his cooking pot was pitted with rust and wearing thin; rats had carried off his bone comb and he had carelessly dropped his rosary somewhere in the savanna. Most of these, however, were easily replaceable when the ship arrived. Besides, Le Juste had plenty of hides with which to bargain, for he found many wild cattle and feral pigs during his last hunting trip. The smokehouse was full.

As Le Juste pushed his head deeply into the filthy, rolled tarpaulin that served as a pillow, his weary mind fumbled through a maze of illusionary images: A grain-colored beach... a gray, reef-strewn shoreline... white reefed sails... a brilliant, vermilion sunset... la mer indigo.

The buccaneer slept.

---

As night covered the New World—in Peru and on the island of Hispaniola—six thousand miles away in the city of Amsterdam the sun peeked shyly over the horizon. A West India Company ship was setting sail the day after tomorrow, and if Edward Bird wanted his 190 crates of clay tobacco pipes onboard, he could ill afford to waste more time.

He had spent the last two evenings at the pottery of his friend, Willem Hendricks. Like Edward, Willem made clay smoking pipes, although not nearly as well known in the same quantities. His specialty was ceramic wares. The updraft kiln he built for his lucrative industry was one of the finest in Amsterdam and was always at Bird’s disposal—if there was room, of course. Edward bid farewell to his tired friend and scurried silently along the canal, pondering what progress (if any) his wife Aeltje and their young apprentice had made through the night. There was so much left to do if they were to get their wares aboard the Company ship!

When he opened the door to his workshop, Edward could smell candle wax from the recently extinguished flame. The faintly dawning light that squeezed itself through his leaded pane glass window illuminated forty... eighty... one hundred and twenty-seven crates, each packed neatly with rows of closely spaced, white kaolin pipes! All that was left now was to cover them with a thick layer of buckwheat leaves and secure the lids. Sometime later today (after Aeltje took her well-deserved rest), the three of them would deliver this first batch to the quay; the remaining seventy-three crates could be finished by sundown tomorrow. Edward smiled.

If Bird’s pipes—quite the fashion in the Dutch entrepôts of the Upper Hudson River Valley—were to arrive by early spring, they would have to survive the fitful voyage that lay ahead. New Netherland sounded so exotic when he heard the sailor’s stories: Thick, impenetrable forests, wild animals, dark-skinned Native Americans, things that, for Bird, ran far beyond his continental imagination. These were the things of dreams, of his dreams, dreams of a new and distant world; one that lay far beyond the Indigo Sea.

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It is the end of summer, 2003. I am sitting in the Fortaleza Ozama Conservation Laboratory in the Colonial Zone of Santo Domingo, Dominican Republic. Our multi-national team of archaeologists, volunteers, and university students has gone home, most of them exhausted from long hours and harsh conditions that complement life on a remote archaeological project. Before me on the paper-covered lab table are two white clay pipes, four hundred irregularly shaped black glass beads, a dozen animal bones, a charcoal-colored comb fragment, and a silver coin. All were excavated from a seventeenth-century merchant shipwreck—a once-proud technological wonder—that now lies in the shallow water off the island’s northern coast. Some items whisper of specific individuals: One pipe—with small leaves of Fagopyrum esculentum, or buckwheat, still pressed in its bowl—has the initials “EB” inscribed carefully into its heel, probable testimony to the craftsmanship of Edward Bird. The other, more delicately shaped, bears the cleanly stamped letters “WH,” the likely mark of Willem Hendricks, Bird’s friend and colleague. A silver ochos reales coin from the Potosí mint bears the unmistakable devaluation mark of a crowned “C,” a silent witness to the harsh but necessary reforms of Don Francisco Nestores de Marin.

Other artifacts say nothing of specific individuals, but offer general clues about the vessel in which they were carried and of life in Europe and the Americas during the middle seventeenth century. Perhaps the comb was part of a mariner’s grooming kit, or a trade item that eventually would have found
People

Francisco Nestares de Marín never boarded that ship home to Spain, for he died in Potosí in April 1660. His investigation of the mint scandal yielded horrific results: Silver merchant Captain Francisco Gómez de la Rocha was garroted in 1650 and his body hung in the plaza of Potosí. Felipe Ramírez de Arrellano, a mint assayer who, according to Nestares de Marín, was the greatest offender, was also executed. Don Luis de Vila, another silver merchant, was arrested and imprisoned.

— *—

François Le Juste, though fictional, represents the many boucaniers (buccaneers) who roamed the savannas of Hispaniola during the seventeenth century. These small groups of hunters became fierce opponents to the Spanish Empire when all the wild pigs and cattle of the northern plains were slaughtered by the Spaniards in an attempt to deprive the boucaniers of their livelihoods. Little did the Spanish know that these rural renegades would organize into the revengeful “brethren of the coast,” united in their zeal to interrupt Spanish shipping and, in so doing, take their place in history as the forerunners of the pirates of the Caribbean.

— *—

Edward Bird’s pipe factory was the biggest and best known in Amsterdam, yet prosperity was no shield from the rigors of seventeenth-century life, even in one of Europe’s most prosperous cities: Ten of Bird’s eleven children died in infancy. Because of the extensive archaeological distribution of his pipes and the frequency with which they are recovered, it is thought that he probably worked for one or more large international exporters. Though his pipes are considered of low quality by Amsterdam standards, they have been excavated in both Holland and England, as well as on Dutch- and Anglo-American sites. Pipes stamped “EB” were also popular with Native Americans, for they appear on Mohawk, Oneida, Seneca, Cayuga, Mohegan, Onondaga, and Wampanoag sites in what is now the northeastern United States.

— *—

Willem Hendricks lived in Amsterdam and owned one of the largest workshops in the city. Little is known of his pottery or wares, except that he had a kiln that was apparently used by Bird, manufactured industrial earthenware, and, like Bird, produced lower quality products. Regardless, Hendricks was one of the top three names in the Amsterdam pipe industry. His association with Bird lasted at least from 1640-1650 and is documented in a seventeenth-century legal case. Although the events remain ambiguous, it appears that the two gentlemen were duped when attempting to purchase a consignment of “Hessian” clay.

All of these items came from the “Pipe Wreck,” a site on the northwest coast of Hispaniola (fig. 2) that earned its moniker from the inordinately large number of clay tobacco pipes that it has yielded over the past four decades. Known to all—local fishermen, townsfolk, tourists, sport divers, treasure hunters, and even archaeologists—whence the ship came, where it headed, and why it foundered in the relative seclusion of Monte Cristi Bay remain mysteries. To date, there are no data indicating a specific vessel, but in careful consideration of the archaeological, geographical, and historical data, an interesting story begins to unfold.

its way to a buccaneer encampment in Hispaniola or a Dutch-American outpost on the Hudson River. Cattle, sheep (or goat), and pig bones tell of the ship’s stores and hint at the nationality of the crew, while three rat femurs—as well as several cattle bones bearing rodent incisor marks—suggest that sailors and vermin competed for the same precious resources. What may well be indications of the ship’s demise are also present: Many glass beads that were originally round in shape and strung together are now slumped and fused en masse, the aftermath of extreme heat and pressure that likely resulted from a shipboard fire or explosion.
The 2003 Summer Excavation

As in previous years, our 2003 research season (from June through August) was designed around the hypothesis that the "Pipe Wreck" represents a merchant vessel that sailed under the Dutch Tricolor. This notion characterized our first excavation season in 1991, but almost immediately demanded reconsideration in light of the ship's architectural features and subsequent timber analyses carried out at the Dutch Dendrochronological Center in Amsterdam. For years, our ideas concerning the vessel's origin and ownership shifted—seemingly endlessly—from The Netherlands to England. However, recent studies of individual cohorts of the cargo—specifically clay tobacco pipes, German stoneware bottle sherds, and faunal remains (fig. 3)—have led us back to a variant of our original hypothesis: The ship, though of English construction, was sailing under the Dutch flag. If this is true, it will be one of the few Dutch wreck sites discovered in the New World.

Two objectives defined our research in 2003: first, we had to determine a southern perimeter for materials distribution in Monte Cristi Bay. Since our first summer of work, the quantity of artifacts, ecofacts, and features that we have documented has steadily risen, even though the excavation has moved away from the extant hull that now supports a small but thriving reef ecosystem (fig. 4). This increase is easily explained by prevailing winds and currents that must have swept the cargo—much of it packed in floatable containers—to the southwest, away from the sinking vessel. It is imaginable that all early and subsequent salvage took place on the main portion of the wrecked hull, where many of the heavier and more utilitarian artifacts were concentrated. The salvors would not have discovered the

Fig. 3. The cargo is composed of thousands of small fragments—including clay tobacco pipes, German stoneware bottle sherds, and faunal remains—all of which must be cleaned, catalogued, photographed, and studied.
lighter cargo and other remains that settled away from the broken ship. Thus, finding the southern boundary for the distribution of these items would narrow our search, assist us in focusing future efforts on the western portion of the wreck, and help us to formulate a strategic plan for the remainder of the project excavation.

Our second objective was to investigate further a cast iron cooking cauldron discovered in 2001 on the shallow reef immediately northwest of the site (fig. 5). This artifact—found by team members during an orientation session—matched well the many pieces recovered from the wreck in past years. Three-legged cooking pots, a major European export commodity in the seventeenth century, were popular trade items with Native Americans. They are commonly excavated from northeastern tribal sites and are occasionally associated with burials, where, at times, they are found to cover the head of the deceased. Even salvors who visited the “Pipe Wreck” in the early 1980s chronicled cauldrons and cauldron fragments scattered about the western portion of the site. Our chance discovery held possible clues to the demise of the vessel, given the position of the ship within Monte Cristi Bay. If these large and heavy pieces were from our wreck, they would have been deposited as the ship scratched its way across the reef and into the bay, steadily spilling cargo from its starboard side. Therefore, they would suggest that the vessel was entering, not leaving, the bay when it sank.
Fig. 6. Nicholas Towle, a student from the University of San Diego, stands in front of El Arawaco (The Arawak), a Dominican yola of twenty feet LOA. Arawaco was one of two vessels used to transport personnel and goods to and from our small island home of Isla Cabra.

Two wooden Dominican yolas—El Arawaco (Arawak) of twenty feet length over all and La Madrugada (Wee Morning Hours), twenty-two feet LOA—transported personnel to the nearby town of Monte Cristi for provisions (fig. 6). These trustworthy veteran vessels also carried divers and equipment to the R.V. Rummy Chum IV, the wooden dive platform we positioned over the site and from which we were supplied air from a low pressure (five horsepower) compressor with triple filtration (fig. 7). Our routine schedule deployed three divers thrice daily, each of whom worked between one and two-and-a-half hours per dive.

The site was demarcated by seventeen interconnected grid squares measuring two by two meters, positioned, on average, twelve to fourteen meters southwest of the southern extremity of the extant hull. Approximately seventy-five cubic meters of loosely packed sediments were moved using a Venturi dredge comprising a water pump powered by an eight horsepower motor. These squares were excavated to a depth of 1.46 m, beyond which there was hardpan sediment and below which no archaeological artifacts, ecofacts, or features were found. In previous seasons, cargoes were distributed from thirty to eighty-five centimeters throughout the substrate. This deeper profile (greater by sixty-one cm) suggests the topography of the seafloor was more variable three and a half centuries ago. Conversely, it is conceivable that the bottom of the bay was originally characterized by a fairly uniform horizon that was significantly altered when the vessel wrecked.

Fig. 7. The R.V. Rummy Chum IV, the diving platform located directly above the Monte Cristi "Pipe Wreck."
Table 1. A comparison of clay tobacco smoking pipe fragment quantities from the 2001 and 2003 Monte Cristi “Pipe Wreck” excavation seasons.

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2003</th>
<th>Δ%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Pipes</td>
<td>2,361</td>
<td>1,227</td>
<td>&lt;48</td>
</tr>
<tr>
<td>Bulbous-bowls</td>
<td>2,219</td>
<td>1,147</td>
<td>&lt;48</td>
</tr>
<tr>
<td>Percent</td>
<td>94</td>
<td>93</td>
<td></td>
</tr>
<tr>
<td>Funnel Bowls</td>
<td>142</td>
<td>80</td>
<td>&lt;44</td>
</tr>
<tr>
<td>Percent</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Bowl Fragments</td>
<td>1,998</td>
<td>954</td>
<td>&lt;53</td>
</tr>
<tr>
<td>Stem Fragments</td>
<td>15,050</td>
<td>8,269</td>
<td>&lt;45</td>
</tr>
<tr>
<td>Totals</td>
<td>19,409</td>
<td>9,591</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 8. A partial bulbous-bowed pipe, in three pieces, from the “Pipe Wreck.” Note the barrel-shaped bowl and well pronounced heel, a style popular in Europe and her colonies during the seventeenth century.

Results

Pipes: One thousand two hundred and twenty-seven pipes were excavated during the 2003 campaign, the majority of which had bulbous, barrel-shaped bowls with well-pronounced, flat heels, a style popular in Europe and her colonies during the seventeenth century (Table 1 and fig. 8).

Most bear one of seven distinct heel stamps, ranging from a variety of initials to floral designs (see INA Quarterly 21.1–2, 33 [fig. 8]).

Though lacking the distinct heel of bulbous pipes, a second cohort, descriptively termed “funnel pipes,” is characterized by a cone-shaped bowl that joins the stem at an obtuse angle (fig. 9). In every instance, these pipes from the Monte Cristi shipwreck are decorated with a floral design that we have identified as Fort Orange Type 49 (FOT 49), a seventeenth-century Dutch-American settlement in present-day Albany, New York. Variously described as “Dutch,” “trade,” and “export” pipes, these are clear imitations of Native American forms and are relatively scarce within the archaeological record. Only one such pipe has been reported from The Netherlands and none are known from elsewhere in Europe. However, they have been recovered from at least twenty-five Native American sites in the Upper Hudson River Valley, as well as numerous Dutch-American sites in what is presently New York. They are also known from Anglo-American sites in Maryland, Massachusetts, and Virginia, thus making this Dutch-manufactured pipe form a veritable American phenomenon. Interestingly, Edward Bird is occasionally credited as the inventor of this style and is certainly thought to have exported them to the New World, where they first appear at Fort Orange.

Fig. 9. A funnel pipe, characterized by a cone-shaped bowl that joins the stem at an obtuse angle. Described in the literature as “Dutch,” “trade,” and “export” pipes, these are clear imitations of Native American designs and were intended as trade items with the tribes.
Anatomy and Manufacture of a Seventeenth-Century Clay Pipe

Pipes reshaped the way that Europeans—and European-Americans—regarded their recreation and health. Soon after its introduction to European society, smoking became the social pastime of men, women, and children and was considered—albeit erroneously—both a prophylactic and curative for virtually every known disease, including bubonic plague.

Clay pipes, entire or partial, have long been regarded as valuable tools for dating archaeological sites. Why? Because, according to Ivor Noel-Hume, noted archaeologist from the colonial Jamestown, Virginia excavations, they were “manufactured, imported, smoked, and thrown away, all within a matter of a year or two.” Fragility was, no doubt, the reason for their relatively short life span.

From wet lumps of clay in a river bed to fire-hardened ceramic tobacco receptacles in the hands of a colonial merchant, seventeenth-century clay tobacco pipes influenced and, to a large degree, defined European culture.

The Factory: A variety of carefully selected clays were brought to the factory in large pieces where they were placed in storage barrels. After a specific mixture was selected, the clay was broken into small pieces and soaked in water to make it pliable and to separate impurities. The softened lump was then shoveled into a grinding mill tub and mixed again. When removed from the tub, it was cut into right-angled blocks that were ground two or three times and rubbed with fine, sharp sand. These blocks were then stored in a cellar for approximately two months before being moved to the workshop.

The Workshop: Here processed clay was formed and molded. A “roller”—usually a young boy or an old man—spun a small piece of clay lengthwise with the palms of his hands until a noticeable stem and bowl were fashioned. An iron molding wire with a button at the end was then carefully inserted until the stem hole joined the bowl interior, thus producing the bore through which tobacco smoke was inhaled.

When this was completed, the clay was placed into a well-lubricated two-piece mold, which was closed and pressed in a parallel vise. An acorn-shaped hand stopper was then pushed into it to form the bowl reservoir.

When the molded pipe was removed, excess clay was trimmed with a knife. A finishing wire was inserted to ensure that the bore ran continuously to the bowl. After hardening to a specified consistency, the pipe exterior was trimmed a second time and the bowl aligned with the stem before the pipe was replaced in the mold for straightening. When dry, it was polished and often stamped with a maker’s mark. A hash-marked edge, or roulette (see below), was sometimes added as decoration to the circumference of the bowl lip or, occasionally, to the stem. Pipes were then packed into cylindrical up-draught kilns fueled with charcoal or wood.

After the fire-hardened clay had cooled, pipes were removed from the kiln and dipped in a liquid slip of fine clay. When dried, they were polished with a rough cloth and varnished.

Packing and Shipment: For transport across town or to overseas markets, pipes were placed in wooden boxes or casks filled with a protective packing agent such as grain husks or other organic materials.

Bowls: Early bowls were relatively plain, characterized by a broad center that narrowed sharply as it approached both top and bottom. In the early part of the century, the lip of the bowl was set at an angle relative to the stem, but this decreased gradually until it became parallel in later years. Over time, the somewhat angular appearance was replaced by a smoother silhouette featuring a longer bowl. By mid-century, however, larg-
er bowls exhibited a barrel-shaped profile. Henceforth to the close of the century, pipe bowls became more slender and beautiful in form as they increased in size.

**Rouletting:** A plain line or ring of small hash marks around the bowl rim, called rouletting or milling, appeared in the middle of the seventeenth century. Such marks may have indicated a higher quality pipe, since application was time-consuming and tedious.

**Marks:** Makers used a variety of marks or stamps placed either at the back of the bowl or on the heel of the pipe, the latter being most common. These symbols or initials—applied in many ways—became the maker’s own unique advertisement.

**The Stem:** Although exceptions have been reported, pipe stems at the onset of the seventeenth century were characteristically straight and generally between 14.0 and 26.0 cm in length. This increased to between 28.0 and 30.5 cm—and often up to 40.0 cm—by the close of the century. Stem bore diameters for seventeenth-century pipes ranged between 5/64 inch and 8/64 inch.

Funnel pipes from the Monte Cristi shipwreck comprise the largest known assemblage from any archaeological site and are the only examples from a shipwreck. Their presence suggests the vessel was headed for the northeastern region of what is now the United States, with a portion of its cargo specifically destined for Native American settlements, probably via Dutch-American entrepôts.

Three bulbous-bowled pipes were clearly anomalous to the cargo, bringing to nine the number of atypical pipes we have excavated over the years (fig. 10). One—a somewhat more crudely fashioned red clay pipe—is presently being examined to determine if it might have been produced in the New World, such as contemporary native-made pipes excavated from Port Royal, Jamaica.

Although 954 bowl and 8,269 stem fragments were recovered in 2003, the total number of pipe fragments diminished by half from our previous excavation season, a decrease that we, surprisingly, found encouraging (see Discussion).

**Ceramics:** Tin-enamelled earthenware and Rhenish stoneware formed the principal ceramic cargoes (See Tables 2 and 3, figs. 11 and 12, and Sidebar). The former, of uncertain national origin, is the most commonly found ceramic on the “Pipe Wreck” and is represented by white-, as well as blue-and-white-, glazed wares produced in England and the Netherlands to fill a great demand for affordable imitations of Chinese porcelain. Sherds of green-glazed and orange-glazed earthenwares have been excavated, but in such small quantities that they, like the Westerwald pottery (described below), are likely ship’s utility wares as opposed to merchandise.

Stoneware jugs—the second most common ceramic type excavated from the wreck site—were popular containers not only for their highly stylized appearance, but because of their seemingly indestructible composition, hence the name. Manufactured in the Rhine Valley, these German bottles are characterized by grotesque, bearded faces (Bartmannkrüge) that adorn the vessel neck and a heraldic emblem or crest on the swollen, bulbous body. Such jugs are commonly depicted in convivial tavern scenes of seventeenth-century Dutch and Flemish paintings, where tobacco consumption accompanied drinking as a favorite pastime.

Like earthenware, stoneware ceramics—and particularly Bartmannkrüge—were exported worldwide and are commonly found on seventeenth-century archaeological sites, including those of shipwrecks. The uniqueness of the Monte Cristi collection, however, is that for the first time we have found these artifacts on a shipwreck with a New World provenience.
### Table 2. Ceramic sherds (N=757) from the Monte Cristi “Pipe Wreck,” 2003.

<table>
<thead>
<tr>
<th></th>
<th>Rim Sheds</th>
<th>Base Sheds</th>
<th>Body Sherds</th>
<th>Handle Fragments</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EARTHENWARE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White-Glazed</td>
<td>89</td>
<td>65</td>
<td>402</td>
<td>16</td>
<td>572</td>
</tr>
<tr>
<td>Blue &amp; White-Glazed</td>
<td>5</td>
<td>1</td>
<td>32</td>
<td>1</td>
<td>39</td>
</tr>
<tr>
<td>Green-Glazed</td>
<td>4</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>Orange-Glazed</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unglazed</td>
<td>0</td>
<td>0</td>
<td>51</td>
<td>0</td>
<td>51</td>
</tr>
<tr>
<td><strong>STONEWARE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhenish Stoneware</td>
<td>1</td>
<td>0</td>
<td>73</td>
<td>4</td>
<td>78</td>
</tr>
<tr>
<td>Westerwald</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td><strong>Subtotals</strong></td>
<td>100</td>
<td>67</td>
<td>569</td>
<td>21</td>
<td>N = 757</td>
</tr>
</tbody>
</table>

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### The Monte Cristi Bartmänner

Former Texas A&M University nautical archaeology program graduate student Anne Wood Lessman spent years studying the Rhenish stoneware from the Monte Cristi “Pipe Wreck.” Her work resulted in a master’s thesis that detailed the manner in which these stylized containers were produced.

Although no entire vessels have yet been recovered from the site, Monte Cristi Rhenish stoneware sherds comprise one of the most unique collections in the annals of nautical archaeological research, rivaled only, perhaps, by those from the seventeenth-century Dutch East Indiaman Vergulde Draeck. Here then is how these stylized jerry-cans of the seventeenth century were produced:

Silicate-rich clays extracted from deposits near the Rhine River were brought to a pottery and fashioned into large globular jugs. While these dried to leather hardness, small bits of the same type of clay were pressed into decorative molds. One was sculpted with the highly stylized Bartmänner, or bearded man face, which would adorn the vessel’s neck; another was carved with a medallion or heraldic device that would characterize the body, or “belly” of the container. When suitably dried, these emblems were peeled from their molds and applied to the surface of the jug.

The container was placed in a kiln and fired at around thirteen hundred degrees Celsius, a temperature at which the clay vitrified, or literally turned to glass. Likewise, the molded neck and body decorations formed a hard, impermeable, layer as they fused to the walls of the jug.

Damp sea salt was added during the firing process to produce a pitted texture and dark speckled pattern. Often, cobalt was used to produce bright blue splashes, a colorful addition to a rather drab exterior characterized by grays and browns.

Eight varieties of Bartmänner—six types of neck and two shoulder designs—as well as at least nine medallion types have been found on stoneware sherds from the Monte Cristi shipwreck. The latter include floral designs, heraldic devices, a shield, and a figure referred to affectionately by team members year after year as “Shakespeare,” but which is thought to represent a soldier or sportsman.

*Photo: MCSP Archives*

“Shakespeare,” as he is referred to by the Monte Cristi Shipwreck Project team, is a common Rhenish stoneware emblem that may, in fact, represent William of Orange.
Table 3. A comparison of the numbers of ceramic sherd type from the 2001 and 2003 Monte Cristi “Pipe Wreck” Excavation seasons.

<table>
<thead>
<tr>
<th></th>
<th>Rim Sherds</th>
<th>Base Sherds</th>
<th>Body Sherds</th>
<th>Handle Fragments</th>
<th>N</th>
<th>Δ%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>'01  '03</td>
<td>'01  '03</td>
<td>'01  '03</td>
<td>'01  '03</td>
<td>'01</td>
<td>'03</td>
</tr>
<tr>
<td>EARTHENWARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White-glazed ware</td>
<td>120  89</td>
<td>61  65</td>
<td>621  402</td>
<td>16  16</td>
<td>818</td>
<td>572 &lt;30</td>
</tr>
<tr>
<td>Blue-and-white</td>
<td>34  5</td>
<td>11  1</td>
<td>97  32</td>
<td>1  1</td>
<td>143</td>
<td>39 &lt;73</td>
</tr>
<tr>
<td>Green-glazed ware</td>
<td>5  4</td>
<td>1  0</td>
<td>13  10</td>
<td>1  0</td>
<td>20</td>
<td>14 &lt;30</td>
</tr>
<tr>
<td>Orange-glazed ware</td>
<td>0  1</td>
<td>0  0</td>
<td>0  0</td>
<td>0  0</td>
<td>0</td>
<td>1 &lt;0</td>
</tr>
<tr>
<td>Unglazed ware</td>
<td>12  0</td>
<td>15  0</td>
<td>95  0</td>
<td>0  0</td>
<td>122</td>
<td>51 &lt;58</td>
</tr>
<tr>
<td>Unidentified</td>
<td>0  0</td>
<td>0  0</td>
<td>0  0</td>
<td>11  0</td>
<td>11</td>
<td>0 &lt;100</td>
</tr>
<tr>
<td>STONEWARE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rhenish stoneware</td>
<td>5  1</td>
<td>1  0</td>
<td>92  73</td>
<td>5  4</td>
<td>103</td>
<td>78 &lt;24</td>
</tr>
<tr>
<td>Westerwald ware</td>
<td>0  0</td>
<td>0  1</td>
<td>1  1</td>
<td>0  0</td>
<td>1</td>
<td>2 &lt;</td>
</tr>
<tr>
<td>Subtotals</td>
<td>176 100</td>
<td>89 67</td>
<td>919 518</td>
<td>34 21</td>
<td>1,218</td>
<td>757</td>
</tr>
</tbody>
</table>

Several sherds of Westerwald pottery, a second variety of German stoneware, were found on the shipwreck in both 2001 and 2003. These blue-on-gray or blue-on-cream pieces, typical of the Westerwald region, probably represent personal possessions or the ship’s tableware.

As with the pipes, the number of ceramic sherds excavated in 2003 decreased considerably from the 2001 season (Table 3).

Fig. 11 (above). Blue-and-white earthenware sherds from the “Pipe Wreck.” Note that all bear an insect pattern, one of the many recognizable motifs popular during the seventeenth century.

Fig. 12 (right). Rhenish stoneware bottle sherds from the “Pipe Wreck.” A grotesque mask (upper left) adorns the neck of a stoneware Bartmannkrüge (bearded man jug). Less common is a small face (upper right) on the shoulder of one bottle. Below, a floral motif applique from the body of the jug is cleaned of encrustation.

Photos: MCSP Archives
Fig. 13 (left). A silver ochos reales (piece of eight) from the Potosí mint, in Peru. This coin bears a devaluation counter stamp in the form of an inverted crown.

Fig. 14 (right). A coin from the Santa Fé de Bogota mint in Colombia establishes a terminus post quem of 1651. The Roman numerals (VIII) on the obverse (left) signal its value as ochos reales. Though the reverse (right) is highly degraded, it is possible to distinguish the outlines of two columns representing the Pillars of Hercules.

**Metal:** Iron, lead, pewter, silver, and copper-alloy artifacts, either because they contain metal, metallic corrosion products, or a thick carbonate layer (the result of chemical interaction with sea water), are generally found deeper within the sea floor sediment than ceramics. So it was with the majority of the one hundred and eighty-eight metal fragments excavated in 2003.

These concretions routinely comprise ship’s fittings and cargo elements, but this summer our collection boasted a large, nearly complete, cooking cauldron, a well preserved claw hammer, and what appears to be a lantern door.

What may well be a silver coin was also found, bringing to twenty-eight the total of Spanish silver ochos reales recovered in the past seven seasons. Of those found previously, six are from the Potosí mint and were manufactured after 1649. Several bear devaluation counter stamps (fig. 13). The single coin from the Santa Fé de Bogota mint in Colombia (fig. 14) cannot predate 1651 and therefore establishes a terminus post quem, or “date after which” our vessel sank. Though highly degraded, it is possible to distinguish the outlines of two columns representing the Pillars of Hercules, a symbol for the gateway to the Mediterranean Sea, known today as the Strait of Gibraltar. Emblazoned across the top of these pillars would have been the Latin inscription, PLUS VILTRA (“And Even Beyond”), a testimony to the hubris of Spanish Empire.

**Organic remains:** Seeds, bones, and shells are often the most interesting artifacts/ecofacts that we find, for they speak of shipboard diet and culinary practices. Although botanical specimens were few (two unidentified seeds, one of which appears to be a legume, or bean), our faunal coffers fared better. To date, three hundred and forty-six bones have been excavated, of which two hundred and nine have been catalogued to specific skeletal part by Dr. Philip Armitage of Exeter, England. The remaining lot is presently being analyzed by Ms. Julie Gay of the San Diego Museum of Man, including twenty-one bones raised in 2003. Seven of these specimens are deeply charred, as have been others excavated in previous seasons, and likely indicate that they had been cooked.

The bone assemblage from the “Pipe Wreck” offers tantalizing hints as to the composition of the crew. Most of the samples collected to date are the remains of domestic livestock carried as foodstuffs; many bear the characteristic knife and chop marks of butchery. Early on, our limited samples suggested to Armitage that the crew was English, based on the high percentage of sheep or goat rib fragments (which are virtually indistinguishable in the archaeological record). However, he posed a caveat in a personal communication: Perhaps the ship was once “operated by English sailors and later taken over by the Dutch,” an intriguing hypothesis that well supports other data gathered by our team. Since the vessel represented by the “Pipe Wreck” certainly sank no earlier than 1651 and probably went down during or shortly after the first Anglo-Dutch War in 1652, it is possible that the vessel was captured and put into service for Dutch operators in the Caribbean, perhaps even the Dutch West India Company (WIC).
Somewhat more difficult to interpret are the fish bones, as they may belong to former reef inhabitants. Included among these scant remains—wrasse, sea bream, squid and an unidentified species—is a single cod bone (Gadus sp.) and the cartilagenous mouth plate from an eagle ray (Aetobatus narinari). Although northern Atlantic Ocean codfish was likely carried as stores, eagle rays, an endemic species in the Caribbean Basin, are known to have been consumed by humans in the West Indies, thereby suggesting our crew indulged in a regional delicacy.

Numerous conch shells (Strombus sp.) have been recovered from the site during previous excavations. However, because these animals are indigenous to the area, they generally have been deemed intrusive materials—that is, they likely entered the ship after it sank—and, as such, have been relegated to the spoil piles. It wasn’t until several shells were discovered to bear extraction marks in the form of a hole cut in the third columnar whorl that these were regarded as artifacts and important clues as to the shipboard diet (fig. 15). Clearly, these holes were caused by a sharp, narrow object used to cut the adductor muscle and thus free the animal from its shell, a method still employed today by conchers across the Caribbean.

Conch was shipped in barrels from the island of St. Cristoffel (St. Kitts in the Leeward Islands, Lesser Antilles) destined “to Amsterdam in Nieu Nederland,” as recorded in the manifest of the galiot Nieuwer Amstel, Resolution Book of Curacao, MM 48b, 16 June 1659, where “one barrel of conch” (“1 vat horns”) was sent from Lourens van Ruyven to C. van Ruyven. Identical entries appear for Franck Bruyn to Mr. Hans Kiersteede, Monsieur Vaendr. to Daniel Litsco, and as an “item” to Johannes Verbrugge. Franck Bruyn (note spelling variation) is mentioned again in the Resolution Book (MM 62, 8 May 1660) when he consigned “to the Honorable Lord Director-General Petrus Stuyvesant “one half aem [a liquid measure, equivalent to 19 gallons of oil or 20.25 gallons of wine] of conch” (“1 halff aem hoorens”), which is again recorded in the manifest of goods loaded into the galiot Nieuwer Amstel (note spelling variation). This time, however, it was shipped from Curacao. Within this same document is listed “1 vat hoorens” as an “item” consigned to Mr. Johannes Verbrugge and Mr. Hans Kiersteede (note spelling variation). The Resolution Book (MM 108, no day or month noted, 1665) lists identical entries of “one barrel of conch” (“1 vat met kinckhoorens”) loaded at Curacao for both Jacobus Backer and Commissary Van Ruyven. In light of these historical and archaeological data, altered conch shells from the “Pipe Wreck” are now considered part of the vessel’s foodstuffs, and four such artifacts await further study in a fresh water tank at the University of San Diego.

Although the excavation has moved away from the extant hull, large timber fragments and small wood bits are still recovered. At the close of the 2003 season, our registry contained entries for 1,128 wood fragments, of which 514 (45.6%) were of roughly uniform size and charred. Until now, such burnt fragments were thought to be evidence of a fire onboard ship (a still-viable hypothesis); however, in light of seventeenth-century Dutch West India Company correspondence noting that charcoal was regularly transported from Curacao northward to New Netherland, consideration is being given to the notion that this collection represents cargo. A representative sample of this carbonized wood is being prepared for analysis in 2004. Additional organic finds from 2003 include a piece of charred rope (probably rigging), and five swatches of cattle hair, likely used in conjunction with the vessel’s bottom sheathing to protect against wood-boring marine organisms.

![Photo: J. L. Hall](image)

Fig. 15. Jonatan Escoto, son of the Director of the Oficina Nacional de Patrimonio Cultural Subacuático (National Office of Underwater Archaeology), displays two conch shells that were part of the foodstuffs aboard the seventeenth-century vessel.
Discussion: Our primary research objective was accomplished with encouraging results. Strong evidence indicates that the southern perimeter of artifact/ecofact/feature dispersal has been defined for the “Pipe Wreck.” Distributional counts across the site decreased—and eventually reached zero—along the north-south (x) axis in 2003, and were, overall, lower than in previous seasons. This is supported by reductions in the quantities of pipes (refer to Table 1) as well as morphologies (rim, base, body) of most categories of ceramic sherds from the 2001 to the 2003 seasons (refer to Table 3). Exceptions to the latter include Westerwald and orange-glazed sherds (types), white-glazed base and handle fragments, and blue-and-white handle fragments (morphologies).

Discernible changes in substrate color and texture occurs at the southern edge of these distributions (where \( N=0 \)). This may indicate where the disarticulated hull formed a barrier to artifact migration, before the ship’s timbers decomposed completely. If so, it offers one explanation for the abrupt reduction in artifact numbers within the outer grid squares excavated in 2003. It may also clarify why the wreck’s western frames, as well as the bottom and ceiling planks, are missing.

Our second research objective, to investigate further the seemingly anomalous cooking cauldron on the shallow reef northwest of the site, also yielded positive results, but not in the manner anticipated. Although we suspected that a detailed visual survey of the reef would indicate whether additional non-perishable cargoes spilled from the vessel, it was anecdotal—not artificial data—that provided our answer. In an interview with Dionysius Jesus Vargas (a.k.a. “Johnny Bigleaguer”), the Dominican fisherman who, along with Elpidio Arturo Francisco, is credited with finding the site, it was revealed that he placed the cauldron on the reef for safekeeping shortly after it was discovered in 1966. Therefore, we have revised and all but abandoned the idea that the vessel collided with the shallow reef while entering the bay, based on the archaeological evidence recovered to date. Future investigations may rekindle this notion, but presently, we must examine other possible explanations of the vessel’s demise.

A preponderance of evidence supports our hypothesis that the “Pipe Wreck” represents a Dutch-operated vessel which sank shortly after the middle of the seventeenth century. Timber analyses conducted at the aforementioned Dutch Woodchrochronology Center in Amsterdam indicate that the ship was constructed from oak (Quercus sp.) forested in eastern England between 1642 and 1643. The mint scandal at the Potosí silver mine, in which Nestares de Marín played a crucial role, produced counter-stamped ochlos reales between 1649 and 1651, and the single coin from the Santa Fe de Bogota mint clearly establishes a post 1650 production date. Stoneware rim, body, and base sherds from the “Pipe Wreck,” along with Bartmänner faces and stylistic elements of body medallions, suggest bottle styles consistent with those made in Frechen, Germany between 1645 and 1655. Though not manufactured in the Netherlands, Rhenish stoneware ceramics produced in the middle of the seventeenth century were shipped in bulk almost exclusively by the Dutch. Two varieties of pipes and their seven signature stamps clearly date to the middle seventeenth century and—in most cases—boast Amsterdam as their locus of production. Edward Bird produced “EB”-stamped funnel pipes that appear on Dutch and Native American sites in present day New York between 1650 and 1658, with a distributional peak in 1658. We have found no such artifacts, but funnel pipes are abundant on the site, as are Bird’s bulbous forms, and the comparative temporal distribution is supportive and encouraging. Therefore, dendrochronological analyses of the extant hull, ceramic typological studies, and comparative collections of pipe maker’s stamps and coinage mint marks conjoin to produce an optimum temporal framework of 1651-1665 for the “Pipe Wreck.”

Though no conclusive archaeological data establish a connection between the wreck and the WIC, it is abundantly clear that the remains are those of an inbound northern European merchant trader that carried an assortment of utilitarian wares for European colonists and Native Americans. Should our research one day implicate a vessel that operated under the aegis of the WIC, it will be the first such wreck to be excavated.

So what was a vessel that was apparently destined for the Upper Hudson River Valley doing on the north coast of Hispaniola? The answer may lie in the careful examination of two natural commodities that were popular export items throughout the seventeenth century. The first is leather; the second, salt.

During the early years of the seventeenth century, the northern environs of Hispaniola were virtually uninhabited. Feral pigs and cattle—decended from the remnant stock left on Spanish ranches abandoned when the silver boom hit South America—roamed the savannas, outnumbering even the island’s human population. This overabundance set the stage for easy exploitation by the bucanter (buccaneers), highly skilled hunters who roamed in loose confederations, their livelihoods fueled by Europe’s seemingly uncontrollable demand for leather. Because it is both flexible and durable, leather was used in the production of saddles, carriages, and even ships, and thus became a principal constituent of the transportation industry. Hispaniola grew to be the center for this trade, and the island’s northern coast became the staging ground for illicit flea markets (ferias) where hides were exchanged for finished goods offloaded from European ships. Although our position time frame places the Monte Cristi vessel in the temporal twilight of this illegal industry, geographically it is positioned in the epicenter.
Fig. 16. The interior of Isla Cabra, summer base camp for the Monte Cristi Shipwreck Project, is filled with active salt pans.

Middle Range Theory is an archaeological tenet that, succinctly explained, posits that if one wishes to understand past behaviors (i.e. how people utilized resources), they should observe how inhabitants of the same geographical region comport themselves now. Today, Isla Cabra, the small, uninhabited island where we make our summer base camp, is home to active salt pans (fig. 16). In fact, Monte Cristi and its outlands are premier salt sources in the Caribbean Basin, as noted by Columbus on his first voyage to the New World. Again this past summer, we witnessed workers loading salt bags into their boats from the eastern shore of our little island, approximately 100 m from the wreck site (fig. 17). As seventeenth-century WIC documents are replete with references to salt freighted from the Caribbean northward, it is conceivable that our ship entered the bay in search of this much-prized commodity, and sank while anchored windward of Isla Cabra.

Site Significance

If our wreck is the remains of a Dutch-operated merchantman, studies of the extant hull and cargoes are significant contributions to the relatively scant corpus of archaeological data for Dutch seafaring in the New World. Likewise, the proposed temporal framework (1651–1665) and the propounded origins of the vessel and cargo place this wreck in the middle of a volatile competition between the English and Dutch for maritime, mercantile, and military supremacy in both Europe and the Americas. The

Fig. 17. Workers retrieve salt from the pans of Isla Cabra. Note the R.V. Rummy Chum IV in the background, marking the location of the "Pipe Wreck."
"Pipe Wreck" may be one of the few maritime cultural resources that help to shed light on this fascinating era of history. Lastly, Hispaniola's northern coast—especially during the middle of the seventeenth century—was a geographical region about which little is known from the historical and archaeological records. Any information garnered from our study will provide a welcome addition to the regional history of both the island and the Caribbean Basin.

Pipes and pipe fragments from the Monte Cristi shipwreck form the largest aggregation of smoking-related artifacts recovered from a submerged site. By project completion, this quantity will likely surpass that of any terrestrial excavation, making it the largest known collection of clay tobacco smoking pipes.

Proposed Work in 2004

In addition to Gay's faunal studies that will commence in early 2004, Dennis James, Manager of the Elemental Analysis Laboratory at Texas A&M University will conduct neutron activation analyses on 38 clay pipe fragments to determine their elemental composition. This research is the first step in addressing fundamental questions posed since the onset of the project. Are there archaeological data to support historical documentation that Edward Bird and Willem Hendriksen shared the same clays and possibly even the same kiln? Are our funnel pipes—stamped with the FOT 49 heel mark—products of Bird? And what of the P"C and D"C pipes? Are their stylistic and iconographic details coincidental? Will they remain anonymous, or will further study allow us to reveal their identities and establish their relationship?

Since other questions—larger and more general in scope—await answers, the author will visit Amsterdam, Cologne, and Frechen in June 2004 to investigate further comparative pipe and ceramic collections. In doing so, we hope to understand better the processes, peoples, and cargoes that were essential components of the ship and its voyage.

Perhaps the essential question at this juncture in the Monte Cristi Shipwreck Project is "Why, then, is the continued excavation of this well known site important?" Though interesting and worthy of study, Dutch clay pipes, German ceramics, Spanish silver coins, and even an English-built ship are certainly not unique. Each is mentioned in historical documents; those rendered in artistic works and displayed in comparative archaeological collections are of considerably higher quality than these crude counterparts from our wreck. Stylistically, most of our artifacts may be deemed "plain" and their utilitarian roles "ordinary." All, including the ship, are partial. After three-and-a-half centuries on the sea floor their conditions are less than desirable, if not pitiful. And herein, somehow, lies the answer to our question: Because the strength of archaeology is Story. Not artifacts or sites; not innovative methods or technological advancements; not multiple hypotheses or sophisticated analyses. Story. For years, archaeologists and volunteers have methodically attempted to coax meaning from material culture. They have done so in hopes of one day producing a narrative that begins with the lading of a ship. The continuation of this project is important because a story awaits telling: It is a tale of craftsmen and captains, inquisitors and Indian tribes, of an English-built ship flying the Dutch Tricolor, and of its last fateful trip across an Indigo Sea.

Acknowledgements: You cannot excavate a ship, year after year, without a lot of help. I gratefully acknowledge the continued cooperation of Sr. Francisco Escoto, Director of the Oficina Nacional de Patrimonio Cultural Subacuático (National Office of Underwater Cultural Patrimony) for the Dominican Republic. Sr. Francis Soto Tejeda, Director of the Fortaleza Ozama Conservation Laboratory, has been a good friend and a wonderful colleague. His capable staff has risen to every occasion, and many thanks are due Isabel Brito, Francisco Corniel García, and Fatima Mejia Zorrilla. Naval personnel Teniente Adriano Lima, Teniente Wellington Pérez Peña, and Teniente Felix Antonio Reyes Gomez have, without hesitation or reservation, assured our security while on the island. I would be remiss in my duties as a scholar and friend if I failed to mention Don Pedro Borrell Bentz, who graciously assisted us in the early years of this project.

Without the means to reach the field, provision the camp, and hire local help, there would be no excavation. I sincerely thank RPM Nautical for their continued financial support. The University of San Diego awarded our project a Faculty Research Grant, which kept us in groceries. Dr. Ronald Halbert—whose very name is synonymous with the "Pipe Wreck"—has always been a munificent benefactor and even more generous friend. So has Neil Blaine Fisher. When Mo Hall couldn't come down, he and his beautiful wife, Linda, helped to fund our work. Thanks, Mom and Dad. I am grateful, too, for the support of Mr. Ned Boswell and Mr. Harry Kahn.

I am deeply indebted to my staff for keeping things running smoothly: Laboratory Director and Texas A&M University graduate student Grace Sandrena Turner; and Dive Master Nick "Sharky" Doose.

I must also acknowledge Patrick Geyer's participation for part of the summer.
Volunteers are an indispensable part of any archaeological endeavor: Yvonne Broeder, Shanan Campanaro, Katie Custer, John Eckhart, Karl Eckhart, Hanibal Luje, Bob Petrucelli, Kate Phillips, and Sean Williams saw to it that groceries were bought, water was hauled, latrines were dug, stories were told, and morale was boosted. Thanks, team. So much of archaeology has so little to do with archaeology.

The able assistance, year after year, of our Dominican staff—Rosa Niurka Morel Belliard, Luis (Nene) Helena, and Luisito Reyes—has made this project possible. Johnny Bigleaguer always manages, season upon season, to join the team. We are glad he does. ¡Somos familia para siempre!

Many thanks are due Peter Throckmorton, with whose vision and encouragement this project left the drawing board. If there’s an angel on my shoulder, I know his name. George Fletcher Bass taught me the most valuable lesson of all: Unless you are prepared to undertake a project with “nothing more than a rowboat and a teaspoon,” then you aren’t ready for the task at hand. Thanks George. You’re right (again)!

Last, I extend my sincerest thanks to the University of San Diego field school students Mary Casey, Emily Chandler, Lesley Culver, Linda Honey, Maria Kelly, Keila Marrero, Emelie Yonally-Phillips, Kelley Sibley, Nick Towle, and William Welsh, each of whom made 2003 a truly remarkable season. Odysseus heard a distant call, traveled to a far land, weathered seemingly insurmountable odds, and returned home—a changed person—to tell the story. So did you. You are my heroes.

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Suggested Reading

For more about Francisco Nestares de Marín and the scandal at the Potosí mint:


For more about the *boucaniers* of Hispaniola:

*Sodomy and the Pirate Tradition: English Sea Rovers in the Seventeenth-Century Caribbean,* by B. R. Burg, New York University Press, New York, 1995; *The Buccaneers of America, a True Account of the Most Remarkable Assaults Committed of Late Years Upon the Coasts of the West Indies by the Buccaneers of Jamaica and Tortuga,* by J. D. D. (English and French) wherein are Contained More Especially the Unparalleled Exploits of Sir Henry Morgan, our English Jamaican Hero, who Sacked Porto Bello, Burnt Panama, etc. by John Esquemeling, one of the Buccaneers who was Present at those Tragedies, by Alexandre O. Exquemelin, 1684 (various publication houses).

For more about Edward Bird and Willem Hendricks:


For more about artifacts from the Monte Cristi “Pipe Wreck”:

Managing a Field Laboratory at an Isolated Site:
Isla Cabra

Grace Turner

Managing the field laboratory for the Monte Cristi Pipewreck Project presented serious challenges due to the site’s physical layout and its location some distance from any major city. The nearest community was Monte Cristi, a small town on the northwest coast of the Dominican Republic. During each two-month field season the crew lives on a tiny island, Isla Cabra (Goat Island) which lies about one half mile west of the mainland. Although there is a salina (salt-producing lake) in the center of the island, fresh water is not available on Isla Cabra, so it must be brought in by boat. The prevailing northeast trade winds sometimes gust over this tiny island at over thirty miles per hour. Our location within a national land and sea park meant that we would occasionally be joined by boatloads of tourists—mostly locals—eager to share in our island adventure. This season involved the largest number of participants since the beginning of the project, twenty-four people at one point, including four Dominican staff members. For the first time, this season incorporated a college-level field school. Ten crewmembers were students enrolled in one of two six-week field school sessions.

As laboratory manager, my job was to ensure that all project participants understood what needed to be done to adequately record and document all excavated material. It certainly was a plus that this was about the tenth field season for this project, which meant that there were already well-established guidelines in place that had only to be updated. Also, most of the volunteers had participated in two or more field seasons and so were quite familiar with the usual processes. For the students, however, this was a totally new challenge, since none of them had any prior archaeological field experience. While they eagerly anticipated the underwater excavation, they had no idea how big a role the field laboratory would have, not only for the project, but also in their daily lives for the six weeks they were on the island. It should perhaps have been a clue that the common name for the laboratory manager on this project was “The Dominatrix.”

The easy part was getting set up on the island. First, the area designated for the laboratory had to be cleared of the ever-present nettles and thorny acacia branches. I had packed a cutlass expressly for this purpose. A space at the western edge of the camp served best as the laboratory area since it was not only fairly close to the water but also, more importantly, because it was in a grove of trees that acted as a windbreak. New furniture was built for this season’s laboratory since two of the three tables we had used previously on the island had deteriorated beyond repair. A tarp was erected to provide shade for crewmembers working in the lab. This cover had to be replaced after four or five weeks when it was partly ripped through. One corner was slamming people in the head! Tarps were not put up over the artifact storage area until about this time. These tarps were salvaged from old tents that were kept on hand especially for such purposes. The colors of the various pieces provided a beautiful backdrop of color, much like a wall of stained glass, but by the end of the season, some six weeks later, they were all in tatters and only could be discarded. It was impossible, even with the tarps, to maintain shade over the entire artifact storage area. The sunlight shifted constantly throughout the day and the small leaves of thorny acacia trees and nettle vines provided only scant shade.

Once the students arrived, they went through several days of orientation, including a full day session in the lab. Nevertheless, they only realized the full impact of their time commitment to the laboratory after the first few days of excavation. The critical stipulation for students was that diving would not resume as long as there was a backlog of artifacts to be documented and recorded. The items were assigned catalogue numbers along with descriptions, tagged, bagged and, if necessary, measured and drawn. To ensure that everyone did a fair share of the work, stu-

Photo: G. Turner

Fig. 1. Monte Cristi Project field laboratory early in the 2003 field season.
udents were required to put in at least four hours of laboratory time each day. With four divers (two of whom dug with a dredge while two student divers excavated by hand fanning) doing three dives for six days of each week there was usually one, sometimes two, no-dive days in order to catch up on laboratory work. Although this could be tedious, we sometimes got to see the work from a different perspective when we gave tours of the laboratory and explained the project to some tourist or visiting government official.

The bulk of my work entailed checking to be sure everything was properly categorized, labeled, and recorded. This was especially important because most of the artifacts would remain in a government laboratory facility in Santo Domingo. In analyzing the finds, Project Director Jerome Hall would have to rely heavily on supporting paperwork such as the artifact register and artifact sheets. Permission could be requested for only a small number of artifacts to be taken to the U.S. for analysis and conservation. These had to be stored separately, so I was on a constant search for appropriate “travel containers,” such as plastic buckets with a secure lid. Some of these were retrieved from the kitchen trash heap while others were recovered from among the “stuff” that routinely washes up on the rocky portions of Isla Cabra’s coast. A relaxing trek around the island was always more than just aimless wandering.

A part of the job of checking artifacts was to examine the condition of material in water storage. Only some of the storage containers had lids that fit, so the almost constant high winds limited our options. Until we were preparing to break camp, the buckets without lids remained uncovered. The water was to be changed at least twice a week, although there was a far more casual schedule for changing the water until the final three weeks when the salt water was gradually replaced by fresh water. In preparation for the transfer to the mainland and loading onto the truck for the five-hour drive to Santo Domingo, all the artifact buckets were covered. One student realized we could cover the lidless containers with aluminum foil. The volume of water in the buckets was also lowered by about half to help minimize the amount of spillage during travel. Once in Santo Domingo, these artifact buckets are held in fresh water holding tanks to await treatment. We will again search for an adequate number of covered plastic containers before the next field season. When these are all filled and there is no time to search further, then the criterion will again simply become “sturdy plastic container with handles!”

As with the buckets, monitoring the supply of other laboratory materials is another important factor in maintaining a smoothly operated field laboratory. Not all items are readily available in a small town within a developing country. Take, for example, something as seemingly mundane as tie-top sandwich bags. We used all the larger bags we brought and even tried to make our own by sealing plastic pouches with the heat from a candle. Not only was this time-consuming but the seals on these bags also had an extremely high failure rate. I was finally able to purchase more bags on a trip to Santiago, the country’s second-largest city. Just about anything we needed could be found in either Santiago or Santo Domingo, but Santiago was about two hours away by bus and Santo Domingo was even farther. Therefore, when we were out of Mylar for making artifact labels, we did not consider sending someone to spend at least a full day searching for supplies at an engineering or architectural supply store. We opted instead to wait another week until we could borrow some Mylar stored at the laboratory in Santo Domingo from the Dominican Republic Survey Project. In the meantime, we cut up plastic cups to use as adequate, if not particularly flexible, labels. Our supply crises were strong reminders of one of Jerome’s favorite maxims for the students this season, “Use it up, wear it out, make it do, or do without!”

Preparation for each field season is based on the accumulated knowledge and experience of previous seasons. We will certainly not run out of various-sized bags to store artifacts next summer and there will definitely be a large supply of Mylar. Yet, just as certainly, challenges will arise over different issues that are impossible to predict. The solution remains the same, however: to be flexible enough to deal with the full range of possibilities. 

![Photo: G. Turner](image.jpg)

**Fig. 2. Team members at work in the laboratory during the 2003 field season.**
The INA Annual Board Meeting ran smoothly, beginning with the Directors’ business meeting on Friday, February 6, 2004, which was professional, short, and to the point. George Bass gave a Founder’s report and Donny Hamilton presented the President’s report, both stating in different ways that the future of INA is secure. At the end of the meeting, Ned Boshell, outgoing Chairman of the INA Board, turned the office over to newly elected Chairman Jim Goold. That night, at the formal banquet everyone reconnected with old friends and enjoyed making new ones from the list of distinguished guests in attendance. The evening program consisted of George Bass showing a short film of his fascinating trip on a Russian deepwater submarine down to R.M.S. Titanic. We also took the opportunity to honor Ned Boshell for his remarkable tenure as Chairman of the Board and presented him with a crystal ship’s decanter to hold the private scotch that he is known to favor.

Saturday morning was devoted to illustrated project presentations. The talks began with an overview of the 2003 survey in Turkey and the survey planned for this summer by INA Associate Director Faith Hentschel, Principal Investigator of the project. Next, Jeff Royal, RPM Nautical Foundation Archaeological Director, spoke of the unique and mutually beneficial relationship between RPM Nautical Foundation and the Institute of Nautical Archaeology. Following was a presentation given by Justin Leidwanger, a Nautical Archaeology Program student at Texas A&M University, who is directing an INA/RPM Nautical Foundation survey project in Episkopi Bay, Cyprus. Justin’s project was just one of several student-directed projects supported by both INA and RPM Nautical Foundation. Kevin Crisman then provided an exciting review of his first excavation season on the Red River steamboat in Oklahoma. Filipe Castro concluded the program by discussing his project in Panama concerning an early sixteenth-century Spanish shipwreck that INA hopes to get permission to excavate in the summer of 2005. To prepare for an active afternoon of museum tours and upcoming evening events, everyone then enjoyed a leisurely luncheon together at The Mansion’s Promenade.

The INA group next traveled to Fort Worth for entertaining and educational museum tours arranged by INA Directors Lucy and Toby Darden. After viewing the Amon Carter Museum, the Kimbell Art Museum, and the Modern Art Museum, our group joined Fort Worth friends of the Darden family at a cocktail social. A dinner reception followed with George Bass giving a brief overview on INA’s history and international interests. We owe our sincerest thanks to Lucy and Toby Darden for their graciousness in hosting this memorable day of activities for INA.

Everyone at INA looks forward to corresponding with you throughout the coming months and we hope to see you at the 2005 annual meeting! Meanwhile, below are some of the pictures from the various Board Meeting events.

Sincerely,
The INA Staff and President in College Station, Texas.

Fig. 1. INA Director Joe Ballew and his guest Ray Morrison enjoy the company of George and Ann Bass.
Fig. 2. Nancy Cook, Raynette Boshell, and Danielle Feeney share a conversation at the cocktail reception.

Fig. 3. Donny Hamilton honoring Ned Boshell with a thank-you gift for serving as Chairman of the Board.

Fig. 4. Enjoying Donny Hamilton's generous disclosure with equal parts of delight and amusement are Raynette Boshell and Lynn Shaw.
Fig. 5. Guests Minnie and Bill Caruth at the INA banquet.

Fig. 6. Director Donald Geidel and his wife Marilyn enjoying a break between project presentations.

Fig. 7. Newly elected Chairman of the Board Jim Goold confers with Nautical Archaeology Program students Randall Sasaki and Alexis Catsambis.
Fig. 8. The INA Group listens to the docent at the Modern Art Museum in Fort Worth.

Fig. 9 (below). Lucy Darden, along with John and Nina Cassils, views collections at the museum.

Fig. 10 (above). Directors Toby Darden and Alex Nason

Fig. 11. Lynn and Russ Shaw with Sema and Cemal Pulak at the Modern Art Museum reception.
IN MEMORIAM

George O. Yamini
1915–2004

George Oliver Yamini, age 88, passed away on February 12, 2004, in a Corpus Christi, Texas, hospital after a brief illness. He had served as a member of the Board of Directors of the Institute of Nautical Archaeology since 1983 (see Profile in INA Quarterly 19.4, 27). Dr. George F. Bass once observed, “George Yamini defines the word, ‘gentleman;’ he is the kind of person any board would be proud as a member.” Mr. Yamini’s efforts for INA included three years as a member of the Executive Committee and time on the Long-Range Planning Committee. He was vice chairman of the Board of Directors for two years. His wife Sara is also an active INA supporter and his daughter, Sally Yamini, currently serves as a Director.

In addition to his contributions to nautical archaeology through INA, Mr. Yamini served as a director of the Texas Maritime Museum. Only two days before his death, a 1:12 model of LaSalle’s flagship La Belle (see INA Quarterly 30.4, 3–18), donated to the Museum by Mr. Yamini and his wife, was opened to the public. A reception honored the couple for their generosity.

A look at the faculty titles on the back cover of this issue will show how much INA and the Nautical Education Program at Texas A&M University owe the Yamini family. At A&M, Mr. Yamini was a founding contributor to the President’s Endowed Scholars program, endowing two chairs in the Nautical Archaeology Program and one in the College of Liberal Arts. “He was so big on education, and every year he was always putting some in-need student through A&M,” Sally Yamini said. He was appointed by the Governor of Texas to a six year term on the original Board of Trustees of Texas Real Estate Research Center (presently The Texas Real Estate Center) with headquarters at A&M.

George Yamini was born in San Antonio, Texas, on October 18, 1915. As a boy, he achieved the rank of Eagle Scout (and, years later, enjoyed serving on the board of Circle Ten Council of the Boy Scouts of
American). He graduated from Woodrow Wilson High School in Dallas in January 1933, attended North Texas Agricultural College (predecessor of the University of Texas at Arlington), and Texas A&M University in College Station. While at NTAC he was the Major of the band, played in the Dance Orchestra, taught music lessons, and was President of the Senior Class. At A&M, he played in the Aggieland Dance Orchestra.

Mr. Yamin served four and a half years in the Army during World War II, retiring as a Major after serving in the Arctic on Hudson Bay and as the transportation officer of the Binghamton, New York, medical depot, for which he was awarded the Army Commendation Medal. He also received a letter of personal appreciation signed by the Surgeon General of the United States Army.

After the war he opened George O. Yamin Company, a real estate brokerage office, and expanded it into property and casualty insurance and the building of FHA and VA project homes. He also entered the land development business, the construction and retention of apartments and shopping centers along with property management. Mr. Yamin was President and Chairman of a number of privately owned building, development, and property management corporations. He served on the boards of directors of several publicly owned companies including Lakewood Bank & Trust. He developed and owned over 7500 apartment units and developed over fifteen thousand residential lots and major shopping centers principally in the Dallas area.

Mr. Yamin was a life member of the Dallas Board of Realtors and was helpful when they started the local multiple listing service. As a member of the Dallas Home and Apartment Builders Association, he served on its Board of Directors from 1958 to 1976 and was chairman of virtually every major committee. He served as President in 1969–70. He was also State Director and Life Director of the National Association of Home Builders and was a member of the Convention Center Committee, the Apartment Center Budget Committee, and the Finance Committee. He played a major role in bringing the N.A.H.B. convention to Dallas in 1960.

George Yamin had a long record of civic activities throughout the Dallas area. In 1968 he was awarded the coveted Hugh Prather Trophy, awarded to the builder who did the most for his city. In 1969, General Electric presented him the Community Progress Award.

His civic service included time with the Board of the North Dallas Chamber of Commerce, South Dallas Chamber of Commerce, and other civic organizations in which he had an interest. He captained United Fund and YMCA drives and for ten years was a sponsor of a Junior League Boys Baseball team. He was a member of the Convention Committee and the Aviation Committee of the Dallas Chamber during the initial development of DFW Airport. He was appointed by Mayor Robert L. Thornton to the Dallas West Revitalization Commission, which instigated the “Clean Up” of West Dallas. It included health, sanitation, street and drainage improvements as well as the removal of hundreds of tons of trash and garbage. He was a member of the Dallas Planning Commission and Chairman of the City of Dallas Board of Tax Equalization.

George Yamin was a member of Masonic Lodge 323 in Rockport, a Thirty-Second Degree Mason, and a member of the Dallas and Corpus Christi Shriners. He was also a member of Jester Court 176 in Corpus Christi. He loved and enjoyed gourmet food, fine wine, photography, hunting, fishing, sailing, and yachting. He was a member of the Chaîne des Rotisseurs, Northwood Club, Dallas Club, Chaparral Club, Dallas Gun Club, Texas Game Fishing Club, The Sons o' Beaches Fishing Group, Key Allegro Yacht Club, Rockport Yacht Club, and Rockport Country Club, and was one of the founding members of Coast Watchers Club. He joined the First United Methodist Church of Dallas in 1934, where he served on the Church Board and numerous committees.

After selling his business to his employees, Mr. Yamin retired in June 1978, subsequently making his permanent home in Rockport, Texas. He served as Vice President of the Key Allegro Canal and Property Owners Association. He anonymously supported a number of Rockport charitable organizations and was a member of the First United Methodist Church in Rockport, where his memorial service was held.

In addition to his daughter, George Yamin is survived by his loving wife of sixty-two years, Sara Williams Yamin, and several nephews and nieces. He was preceded in death by his parents and his brother, Woodrow M. Yamin.