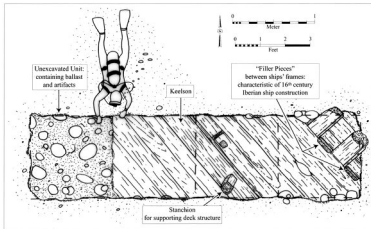


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Test Trench excavated across the Emanuel Point II Shipwreck, Summer, 2007.

## DOCUMENTING TRISTÁN DE LUNA'S FLEET, AND THE STORM THAT DESTROYED IT

JOHN E. WOOTEN

*Department of Anthropology, University of West Florida, Pensacola, Florida 32514*

*Email: jwooten@unf.edu*

### A Failed Colony

On the night of September 19 1559, Pensacola Bay was struck by a violent hurricane that raged incessantly for the next 24 hours. What made this hurricane different from all previous storms in this area was the presence of a fleet of 10 Spanish sailing vessels anchored alongside the recently-established colonial settlement of Don Tristán de Luna y Arellano, consisting of some 500 soldiers and 1,000 civilian colonists, including a diversity of Spaniards, Africans, and Mexican Indians, as well as a handful of Dominican missionaries. The fleet consisted of a wide range of vessels, small and large, old and new, some privately-owned and some royally-owned. During the course of the storm, most of the largest ships broke loose from their anchors and floated free, ultimately grounding or sinking with considerable loss of life. The contents of the vessels, many of which apparently broke apart, were inundated and scattered in the storm waters. One vessel was pushed inland by the storm surge and deposited intact in a dense grove of trees. Surviving colonists and sailors scavenged the shores for days, but the loss of the fleet ultimately proved to be a fatal blow for the Luna expedition, because in those ships was the one item most pivotal to the success of the colony: food.

Luna's 1559 colonial venture was a carefully planned expedition, financed by the Spanish crown, organized in Mexico, and intended to become the first successful Spanish colony in what is now the present-day southeastern United States (Shea 1886:256-260; Lowery 1901:351-377; Priestly 1928,1936; Hudson et al. 1989). It would have been a launching-point for overland expeditions to the Atlantic coast of modern-day South Carolina, and would have established a firm foothold for Spain in North America. In 1558, a small fleet of reconnaissance craft was sent to scout potential settlement locations along the northern Gulf of Mexico, and when the colonial fleet comprised of 11 ships finally sailed on June 11, 1559, the 1,500 colonists were supplied not just with the equipment, supplies, and armament they would need to establish a new settlement on Pensacola Bay, but also with more than a year's worth of food packed into the many large merchant vessels that formed part of the fleet (Luna y Arellano 1559; Velasco 1559a, 1559b; Ybarra 1561, 1564; Yugoyen 1569; Dávila Padilla 1955; Childers 1999a, 1999b). Where previous expeditions such as that of Hernando de Soto had failed in part due to their reliance on local food stores either bartered or taken from neighboring Native American communities, the Luna expedition was specifically designed to avoid such potential tensions by providing more than enough

food for all the colonists to be able to sustain themselves until a colonial town was built, and crops were planted and harvested. This had been the most important advice provided by four southeastern Indian women, originally captured during the Soto expedition, who were brought along on the expedition as advisors and interpreters.

So important were these food stores that when the fleet entered Pensacola Bay on August 15, most of the food was left on board the ships until a secure warehouse could be constructed on land. Based on Luna's initial reports, the Viceroy of New Spain believed Pensacola Bay to be completely safe for Spanish ships, claiming extravagantly that "the port is so secure that no wind can do them any damage" (Velasco 1559a). Though one fortunate galleon was sent back to Mexico on August 25 with news of the expedition's successful landfall, the rest of the ships were unloaded gradually over the course of the first month, focusing first on soldiers and colonists, along with their equipment, supplies, and weapons. During this time, two exploratory expeditions were sent inland to reconnoiter the countryside while two vessels were outfitted for a voyage directly to Spain, awaiting only the return of the reconnaissance parties. When the winds began to blow during the night of September 19, however, the Spaniards were caught completely by surprise.

After the storm, only 3 ships were still afloat, including two small barks and the expedition's only caravel. Though Luna's colonists scavenged whatever they could from the remnants of the fleet, the damage was done, and news of the calamity was sent to Mexico on one of the remaining barks, which was dispatched on September 29. When news finally arrived in Veracruz on October 5, the Luna expedition was instantly transformed from a bold colonial venture into a rescue operation, and all subsequent ship traffic between Veracruz and Pensacola focused on sending food and other supplies to the hapless colonists. The colonists ultimately became so hungry that they moved inland to the nearest large Indian town along the Alabama River, and were ultimately forced to send a detachment of soldiers hundreds of miles upriver to the edge of the Appalachian summit in northwest Georgia, trading whatever they owned in exchange for corn and other food supplies (e.g., Hudson et al. 1989). When the remnants of the expedition were finally withdrawn in 1561, Luna's colony joined the ranks of all previous failures by Spanish adventurers in the southeastern United States, though Luna was actually the first expedition leader to survive his attempt (Ponce, Ayllón, Narváez, Soto, and Cáncer all perished). Over the course of the next decades and centuries, the wrecks of Luna's seven

ships dissolved quietly into the sand and mud of Pensacola Bay, hidden from the modern world. But within these ships remained a moment in time, captured and preserved as a result of the hurricane of September 19-20, 1559, waiting only for the light of modern underwater archaeology to rediscover this forgotten era of Spanish explorers and colonists along the northwest Florida Gulf coast.

### Documenting Luna's Fleet

Prior to the 1992 and 2006 discoveries of the Emanuel Point I and II wrecks in Pensacola Bay, Spanish documentary sources were the only viable source of information about the colonization fleet of Tristán de Luna. From very early on, the most widely-utilized account of the Luna expedition was the detailed narrative contained in the volume published in 1596 by Fray Agustín Dávila Padilla (1955). Despite its authorship and late date, Dávila Padilla's account probably represents in part a firsthand recollection, since the relevant portion may have been originally written by Luna expedition participant Fray Domingo de la Anunciación, who is listed by Dávila Padilla among the prior authors and reviewers of sections of his final edited manuscript (Dávila Padilla 1955:653). Though this source and a limited range of additional primary documents relating to the Luna expedition had previously been employed in secondary historical accounts of early Spanish colonization in the United States (e.g., González de Barcia Curbullido y Zuñiga 1723:32-41; Shea 1886:256-260; Lowery 1901:351-377), it was not until the publication of Herbert Priestley's *The Luna Papers* that widespread access to an extensive assortment of primary Luna sources from the Archivo General de Indias (originally transcribed by Irene Wright) was finally made possible (Priestley 1928, 1936, 2010). Priestley's work was all the more significant because it included a diverse and nearly exhaustive range of original correspondence and administrative paperwork dating to the time of the Luna colony itself, and in many cases written in Florida during the discourse of the expedition (though in many cases transcribed later for legal processes). Priestley's Luna volumes had a substantial impact on scholarship about the Luna expedition, and were employed by subsequent scholars for many purposes, ultimately including detailed reconstructions of the location of Luna's landing and movements into the interior (e.g., Hudson et al. 1989). Their upcoming single-volume republication is an acknowledgment of their continuing significance (Priestley 2010).

Not surprisingly, the discovery of the first Emanuel Point wreck prompted a flurry of new archival research and documentary transcriptions and translations. During the early 1990s, diverse work was carried out in Spain, Mexico, Florida, and other archival repositories by researchers including Roger Smith, Paul Hoffman, John H. Hann, Denise Lakey, Walter Cardona Bonet, Genaro Rodríguez Morel, and Jorge Herrera (Smith et al. 1995:9-12; 1998:3; Lakey 1994, 1995). As a result of this cumulative body of new research, a substantial amount of documentation relative to the Luna expedition is now available at the University of West Florida, including microfilm copies of original documents as well as subsequent translations of substantial portions of this material by R.

Wayne Childers (e.g., Childers 1999a, 1999b). While some of this material is simply original imagery for documents already transcribed and translated in the *Luna Papers*, other material is wholly new, including substantial and detailed financial information regarding the expenses incurred before and during Luna's expedition (provided in the form of an audit of original records). This documentary data, when combined with previously-available material noted above, provides many important clues regarding the nature of Luna's ill-fated colonial fleet, as well as its cargo, passengers, and crew.

While continued examination of pertinent documentary material is still ongoing as part of this project, a few preliminary interpretations may be offered at this stage, providing a greater degree of detail and accuracy regarding the Luna fleet than has previously been possible. Financial records of the Luna expedition have already been used, for example, to begin reconstructing a comprehensive list of the ships that comprised the fleet, including information regarding the names, types, and size of the vessels, as well as their principal officers (Smith et al. 1995:12). Based in large part on detailed re-examination of these financial records, including both the Childers translations (1999a, 1999b) as well as microfilm copies of the original records also acquired by this author in Seville in 1999 (as part of separate research into Luna's 1560 detachment sent to Coosa in northwest Georgia, conducted with the Coosawattee Foundation, Inc. in Calhoun, Ga.), a much more complete record of the original Luna fleet is now emerging (Table 1). Apart from the additional level of detail, the roster of eleven ships compiled for the present study (2008) differs somewhat from the 1995 roster (Smith et al. 1995:12), which also contained eleven ships. When the two lists are compared, the differences are seen to consist in the presence of three ships on the 1995 list (*Sav Anton*, *Santiago*, and an unnamed frigate) which based on present research do not appear to have been present on the original 1559 colonial expedition, and the absence of three ships which do (the flagship *Asis*, and two ships with identical names to others already listed in the fleet, the *Sav Juan de Ulua* and the *Savi Espíritu*). Although the financial records are indeed very difficult to sort out, detailed re-examination of these records (particularly the lengthy audits in legajo Contaduría 877) provides a number of clues which clarify the situation considerably.

A first task of any reconstruction of the Luna fleet is to determine the exact number of ships that originally sailed with Luna on June 11, 1559, as well as the exact number that remained in Pensacola Bay on September 19 when the hurricane destroyed the fleet (Luna 1559; Velasco 1559b). Two numbers are stated or implied in the existing documents: thirteen and eleven. While Dávila Padilla (1955:100, 192) explicitly notes that thirteen vessels were selected for the voyage, a combination of figures based on reports from Tristán de Luna himself imply the number was actually eleven. In his first letter to Viceroy Luis de Velasco after the hurricane on September 24, Luna (1559) himself noted that only three vessels survived, including "one caravel and two barks which escaped," while a subsequent letter written to Luna by the Viceroy stated that based on another subsequent letter by Luna (dated September 28, and yet undiscovered), he

Table 1. The Fleet of Tristán de Luna.

<p>Urca <i>Jesús</i> – Flagship (lost in hurricane)            Tonnage: 570 tons            Crew: 40-50 (estimated)            Owner: Francisco de Ecija            Master: Diego López            Pilot: Alonso Beltrán            Notes: Leased Jan. 24, 1559 for Luna expedition;            crew discharged Sept. 9, 1559 in Pensacola.</p>	<p>Owner: Felipe Boquin            Master: Christóbal de Escobar            Pilot: Antón Mançera            Notes: Leased Jan. 25, 1559 for Luna expedition;            crew discharged Sept. 13, 1559 in Pensacola.</p>
<p>Galleon <i>San Juan de Ulúa</i> – Vice Flagship (lost in hurricane)            Tonnage: not less than 220 tons            Crew: 45            Owner: Spanish Crown            Master: Pedro de Andonagui            Pilot: Diego Perez            Notes: Bought February 22, 1559 for Luna expedition.</p>	<p>Ship <i>Santa María de Ayuda</i> (lost in hurricane)            Tonnage: 100 tons            Crew: 17 (estimated)            Owner: Antón Martín            Master: Lazaro Morel            Pilot: Antón Martín Cordero            Notes: Leased Jan. 23, 1559 for Luna expedition.</p>
<p>Galleon <i>San Juan de Ulúa</i> (returned before hurricane)            Tonnage: unknown            Crew: unknown            Owner: Spanish Crown            Master: Hernán Pérez            Pilot: Constantín de San Remo            Notes: Built for expedition;            returned to Mexico Aug. 25-Sept. 9, 1559;            crew discharged Sept. 10, 1559 in Veracruz;            led subsequent relief efforts.</p>	<p>Caravel <i>Santi Espirita</i> (survived hurricane)            Tonnage: 242 tons            Crew: 24-25 (estimated)            Owner: Alonso Carillo            Master: Alonso Carillo            Pilot: Gonzalo Gayón            Notes: Leased Jan. 24, 1559 for Luna expedition.</p>
<p>Ship <i>San Andrés</i> (lost in hurricane)            Tonnage: 492 <math>\frac{1}{2}</math> tons            Crew: 33 (estimated)            Owner: Salvador Hernández            Master: Alonso Moraño            Pilot: Francisco Martín            Notes: Leased Jan. 24, 1559 for Luna expedition;            crew discharged Sept. 9, 1559 in Pensacola.</p>	<p>Bark <i>Corpus Cristi</i> (survived hurricane)            Tonnage: unknown            Crew: 11 (estimated)            Owner: Spanish Crown            Master: Francisco de Guadalupe            Pilot: Christóbal Rodríguez            Notes: Bought May 20, 1559 for Luna expedition;            crew discharged Sept. 19, 1559 in Pensacola.</p>
<p>Ship <i>Santi Espirita</i> (lost in hurricane)            Tonnage: unknown            Crew: 18 (estimated)            Owner: Spanish Crown            Master: Juan de Puerta            Pilot: Juan Valenciano            Notes: Leased Feb. 14, 1559 for Luna expedition;            crew discharged Sept. 13, 1559 in Pensacola.</p>	<p>Bark <i>San Luis Aragón</i> (survived hurricane)            Tonnage: unknown            Crew: unknown            Owner: Spanish Crown            Master: Hernán Rodríguez            Pilot: Gaspar González            Notes: Built for expedition;            returned to Mexico Sept. 29-Oct. 5, 1559.</p>
<p>Ship <i>San Awaro</i> (lost in hurricane)            Tonnage: 145 tons            Crew: 18 (estimated)</p>	<p>Bark <i>La Salvadora</i> (lost in hurricane)            Tonnage: unknown            Crew: 10 (est.)            Owner: Spanish Crown            Master: Vicente Fernández            Pilot: Vicente Fernández            Notes: Built for expedition;            crew discharged Sept. 11, 1559 in Pensacola.</p>

summed up a total of seven vessels that were lost, including "five topsail ships, with the galleon of Andonaguin [sic] and one of the barks" (Velasco 1559b). Given Velasco's (1559a, 1559b) specific reference to the fact that one of the ships (the new galleon *San Juan de Ulúa*) in the original fleet had been dispatched back to Veracruz shortly after the landing, adding this absent ship to the total of seven ships which were lost and three ships which survived results in a total of eleven ships in Luna's original fleet. Since both these figures were based on Tristán de Luna's own firsthand written accounts dating to within nine days of the hurricane itself, they must be given priority over the much later recollection of thirteen ships in Davila Padilla's account.

Fortunately, detailed account records for the expedition provide additional confirmation of the number of ships that likely accompanied Luna's colonial fleet, as well as their identities, owners, officers, and crew in some cases (Ybarra 1564; Yuguén 1569; Childers 1999a, 1999b). Individual entries exist for many specific payments, among which are (1) purchase prices and contract rentals for existing privately-owned ships that were acquired for the expedition, (2) construction expenses associated with building several new ships for the expedition, or for outfitting and repairing older vessels, and (3) salaries for pilots, masters, and other officers and crew, including partial payments in advance, and cash issued for final salary payment upon vessel unloading and crew

discharge (see selections in Table 2). Importantly, each entry generally included not just the date, amount, and recipient of the payment, but also at least some brief description of the purpose of the payment, including details such as when service was rendered or work was performed, and for what purpose. For this reason, careful review of the account section dedicated to the expenses of the Luna expedition allows a relatively detailed portrait of the fleet to be constructed, including all eleven of the vessels indicated in Table 1.

Several key points should be emphasized here. First, ships were generally identified by both name and master (or owner), normally making it possible to distinguish between two vessels with the same name. In addition, pilots were also regularly singled out among other officers and crew, providing yet another distinguishing feature for some entries, or sets of entries. As a result of these facts, once all entries had been reviewed for the entire account, only eleven ships stood out with a consistent series of payments that reflected their participation in the original colonization voyage of Tristán de Luna between June 11 and September 19 (when all but four of the original vessels were destroyed). Of these eleven vessels, two pairs had identical names, including the royal galleon *San Juan de Ulúa* originally owned by Pedro de Andonaguai (who sold the ship to the Spanish Crown but nonetheless remained as master) and the newly-constructed royal galleon *San Juan de Ulúa* (master Hernán Pérez), as well as the privately-

**Table 2. Selected expense records for Luna fleet (based on Ybarra 1564).**

*Before June 11 departure*

January 23-25, 1559: Leases initiated for *urca Jesús*, *caravel Santi Espirito*, and ships *San Andrés*, *San Amaro*, and *Santa María de Ayala*.

February 14, 1559: Purchase of ship *Santi Espirito*.

February 22, 1559: Purchase of galleon *San Juan de Ulúa*.

May 20, 1559: Purchase of bark *Corpus Cristi*.

May 30-31, 1559: Crews paid half in advance for 8 vessels.

June 7-9, 1559: Leases paid for 5 vessels above, half in advance; advance pay issued for crews of 6 vessels.

June 9, 1559: Pilots paid half-salary in advance, for 11 ships.

*After August 14 arrival*

September 9, 1559: Crews of *urca Jesús* and ship *San Andrés* discharged at Ochtuse after offloading.

September 10, 1559: Crew of galleon *San Juan de Ulúa* discharged in Veracruz.

September 11, 1559: Crew of bark *La Salvadora* discharged at Ochtuse after offloading.

September 13, 1559: Crews of ships *Santi Espirito* and *San Amaro* discharged at Ochtuse after offloading.

September 19, 1559: Crew of bark *Corpus Christi* discharged at Ochtuse after offloading; at night, hurricane strikes fleet.

owned caravel *Santi Espirito* (master Alonso Carrillo) and the recently-purchased royal ship by the same name (master Juan de Puerta). Multiple independent payment entries for all four of these vessels confirm their distinct identities.

The final Luna fleet was comprised of a total of six royally-owned vessels and five privately-owned vessels, all the latter of which were leased between January 23 and 25, 1559. Three of the six royal vessels were bought specifically for the Luna expedition, on February 14 and 22, and May 20. The other three royal vessels were specifically constructed in a shipyard at the port of San Juan de Ulua at Veracruz, and for which there are numerous payment entries in the Luna account between the fall of 1558 and the spring of 1559. Notably, however, there were actually four vessels built there for the Luna expedition: the galleon *San Juan de Ulua*, the barks *San Luis Aragon* and *La Salvadora*, and also an unnamed frigate, for all of which there are numerous entries for payments related to construction. Curiously, only a single expedition-related payment was ever recorded for this frigate: an advance payment on June 9 of half the anticipated salary for Bernardo Peloso, pilot of the "new frigate" under master Juan Martin. Since all other vessels are documented to have had different pilots and different masters on the Luna expedition, this does not appear simply to be a mistranscription by the auditor or notary. It was indeed a distinct vessel, almost certainly identical to the one built at San Juan de Ulua for the Luna expedition. Nevertheless, no other salary payments of any sort were recorded for this vessel in association with the original Luna expedition. All eleven vessels in Table 1 have multiple salary payment entries explicitly stated to be for Luna's June fleet, but the anonymous "new frigate," which had clearly been built alongside three other vessels that actually did make the voyage, does not appear at all in the financial records beyond this one advance payment. Apparently, the vessel did not accompany the fleet when it departed, since nobody was ever paid for actual service rendered on this vessel, in contrast to all others.

One possible explanation may lie in the fact that despite the purchase and rental of seven privately-owned vessels between January 23 and February 22, 1559, and the construction of four additional vessels throughout that same fall, winter, and spring, as late as May 20, just three weeks before the expedition departed, an additional privately-owned bark, the

*Corpus Christi*, was purchased for the Luna expedition. Since the royally-constructed vessels must have all been complete or nearly complete by that time, it is entirely possible that the "new frigate" was experiencing construction delays, or was somehow deemed unfit for the voyage, forcing the last-minute purchase of the *Corpus Christi* in order to fill in the gap and bring the fleet up to a total of eleven ships. While this does not explain the exorbitant salary advance to pilot Bernardo Peloso (unless the ship was anticipated to be ready to sail upon completion, even though it never did), it certainly provides one possible explanation for the late purchase of the *Corpus Christi*, and the eventual absence of the "new frigate." Perhaps not coincidentally, in the latter of the two account audits for the Luna expedition expenses (Ybarra 1569), among other items sold off at auction as "unused" from the Luna expedition was an unnamed "frigate belonging to His Majesty." There is no way to demonstrate that this was the same vessel, but the coincidence is nonetheless striking.

With the composition of the fleet relatively well-established, the task remains to elaborate additional details regarding each vessel. The vessel-type of each ship in the fleet is generally consistent in the payment records, although certain designations (*navio*, and *nao*, for example) seem to have been relatively interchangeable. The capitana (flagship) of the fleet was the massive *arca* (storeship) named *Jesús*, while the almiranta (vice-flagship) was the older galleon *San Juan de Ulua*. These two ships had sailed together before as merchant vessels in the trans-Atlantic fleet of General Pedro de las Rocas, which had sailed from Spain to Veracruz between February 1 and May 23, 1558 (Chaunu and Chaunu 1955:552; Ybarra 1564; see also the full passenger list for the *Jesús* in Paz 1558). The remainder of the fleet consisted of another galleon, a large caravel, four *naos* or *navios* (a generic designation for transport/cargo vessels), and three small barks (*barcas*). The diverse composition of the fleet reflected both the expedient nature of the vessel construction, selection, and acquisition process during the previous year, as well as the diverse needs of the colonizing fleet, which would be called upon both for cargo and passenger transport, as well as for shallow-draft exploration duty in bays and rivers.

The exact sizes of the vessels are documented for only five of the eleven vessels, and then only because the monthly rental rate of the leased vessels was based on tonnage (Table 3). The

Table 3. Tonnage and crew information for the Luna fleet.

Ship (master)	Tonnage	Monthly Crew Salary	Crew Size
galleon <i>San Juan de Ulua</i> (Andorazgui)	~500-600	273-277 ducats	45
new royal galleon <i>San Juan de Ulua</i> (Perez)	?	?	?
urca <i>Jesús</i> (Ecija)	570	249-306 ducats	40-50 (est.)
nao <i>San Andrés</i> (Morano)	492 ½	203 ducats	33 (est.)
nao <i>Santi Espirito</i> (Puerta)	~100-150	113 ducats	18 (est.)
navio <i>San Amaro</i> (Escobar)	145	108 ducats	18 (est.)
navio <i>Santa María de Ayuda</i> (Morel)	100	104 ducats	17 (est.)
caravel <i>Santi Espirito</i> (Carrillo)	242	149-152 ducats	24-25 (est.)
barca <i>Corpus Christi</i> (Gudalape)	~50-70	68 ducats	11 (est.)
barca <i>San Luis Aragon</i> (Rodríguez)	?	?	?
barca <i>La Salvadora</i> (Fernández)	~50-70	62 ducats	10 (est.)

vessels ranged widely in size, extending from the moderately-sized 100-ton *Santa María de Ayuda* to the immense 570-ton *Jesús*. Neither galleon has tonnage figures, nor do all three of the barks and one of the *naos*. For this reason, only estimates can presently be provided. Since at present no records have been identified which give direct clues as to the relative size of these vessels, an indirect method was employed to provide hypothetical figures based on reconstructed crew size, for which relatively good information exists. As can be seen in Table 3, for most of the vessels in the Luna fleet it is possible to calculate an average monthly pay rate for the entire crew of the vessel. Although specific breakdowns of crew composition and individual pay rates are generally not provided, in one case they are, for the *almiranta* of the fleet, the galleon *San Juan de Ulúa*. Using this and a few other contemporary pay lists in the same audits (to fill in gaps), it is possible to reconstruct a typical scale of pay for the officers and crew of Spanish vessels such as those used in the Luna fleet (Table 4). Since most of the crew was comprised of sailors, who were paid at a rate of 6 ducats per month, or less in the case of ship's boys or cabin boys, the larger salaries of higher-ranking officers (such as the ship's master, generally paid 16 ducats per month) does not significantly raise the average per-capita salary rate for crews, which in the case of the *San Juan de Ulúa* is roughly 6.15 ducats per month. This average figure, then, was used to divide the documented total crew pay per month into a very rough estimate of the total crew size (Table 3).

These figures were then used to generate a chart plotting known tonnage (for five ships) against the estimated and known crew complements of these ships (Figure 1). The resultant configuration of this chart seemed to demonstrate a prior assumption regarding the relationship between tonnage and crew size, namely that larger vessels generally required larger crews, but that there was a minimum crew that could effectively operate a sailing vessel of any size larger than a bark. In other words, the "curve" demonstrating the relationship between tonnage and crew size was not necessarily linear, nor did it trend directly toward the "zero" point of crew size. Finally, this chart was used to permit a tentative placement of additional "data points" representing the four ships for which no tonnage figures have been found, but for which crew size estimates were calculated. The resulting chart, while based on multiple layers of estimates, nonetheless provides a broad overview of some nine of eleven ships comprising Tristán de Luna's 1559 colonial fleet. The remaining two vessels, including the new galleon *San Juan de Ulúa* and the new bark *San Luis Aragón*, both survived the hurricane, and thus their absence does not hinder the potential usefulness of this chart for characterizing the possible array of Luna shipwrecks somewhere in Pensacola Bay (beyond the two already discovered).

Using this chart, it is now possible to suggest that Luna's fleet was minimally comprised of six smaller vessels less than 150 tons in size (including the five ships noted in Figure 1 as well as the bark *San Luis Aragón*, which was doubtless also within this size category), at least three larger vessels between 450 and 600 tons in size, and at least one mid-sized vessel in-between the two groupings. The newly-constructed *San Juan de Ulúa* was probably also in this mid-sized category, though

**Table 4. Reconstructed pay rates for the Luna expedition (based on Ybarra 1564 and Yugoyen 1569).**

Master	16 ducats per month
Ship's Clerk	12-15 ducats per month
Boatswain	12 ducats per month
Steward	12 ducats per month
Notary	12 ducats per month
Diver	12 ducats per month
Lombardero	10 ducats per month
Carpenter	9-12 ducats per month
Water Bailiff	8 ducats per month
Artilleryman	7 ½ ducats per month
Caulker	6 ducats per month
Sailor	6 ducats per month
Ship's Boy	3 to 4 ducats per month
Cabin Boy	3 to 4 ducats per month

it might also have been larger. The implications of these conclusions for past and ongoing underwater archaeological work at the Emanuel Point I and II wrecks are relatively straightforward: Emanuel Point I seems to have been one of the larger vessels, while Emanuel Point II was likely one of the smaller vessels. Based in larger part on the reconstructed configuration of the Emanuel Point I vessel as a large galleon which had been used previously, the most likely candidate for this wreck is the *San Juan de Ulúa* captained by Pedro de Andonagui (Collis 2008). The Emanuel Point II wreck could be any one of the three largest vessels in the smaller size category, including the *Santa Espirito*, the *San Antonio*, and the *Santa María de Ayuda*, all of which had been previously-used by private merchants. In any case, it certainly was not the sole bark that was lost, particularly since the *La Soledad* was a new vessel, and because of its size it may indeed have been the one described by Divila Padilla (1955:194-195) as having floated inland to be discovered completely intact within a forest.

Additional research into these and other possible documentary sources relative to the Luna expedition is clearly warranted, particularly in order to explore and elaborate upon the cargo that was loaded onto the Luna vessels, as well as their crew and passengers. Since eight of the eleven Luna expedition ships had seen previous usage, additional documentation may well surface regarding their previous histories. In addition, similar documentation may also exist for one or more of the four surviving vessels during the years after the Luna expedition, possibly providing insight into the ships and their standard crew complements. Ultimately, the comparatively voluminous documentary record of the Luna expedition represents a remarkable opportunity to combine archaeological and historical data in new and creative ways, augmenting what can be learned from the archaeological investigation of the wrecks off Emanuel Point.

#### Tracking the Luna Hurricane

Given that the locations of two of Tristán de Luna's doomed vessels are now known, and archaeological investigations

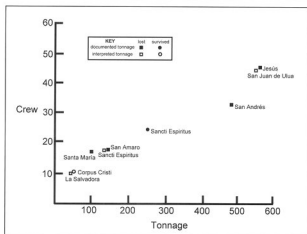


Figure 1. Reconstructed tonnage and crew size for the Luna fleet vessels.

have revealed and are continuing to reveal details about the exact circumstances of their grounding and destruction on the sandbar off Emanuel Point, historical details regarding the storm that destroyed Luna's fleet have become even more important, not only with respect to the circumstances of the wrecking event for the two known ships, but also with respect to the continuing search for the five other vessels known to have been lost during the same storm. A great deal is now known about the behavior of tropical cyclones such as the one that was undoubtedly responsible for the devastation of the Luna fleet, including not just their movement and tracks, but also the effects of wind circulation, tides, and storm surges. For this reason, a more detailed examination of the documentary record of the Luna storm was undertaken as a part of the present research.

The few brief mentions of the storm that destroyed Luna's fleet in published translations have long been known to scholars (e.g., Priestley 1928:1xxxvi) and provide only a few details of specific relevance to tracking the storm, though in retrospect, one now seems crucial. As related by Tristán de Luna himself in his initial report to the King, "During the night of the nineteenth of this month of September, there arose from the north a fierce storm which, running for twenty-four hours with winds in all [directions] up to the same hour that it began, not ceasing but instead always increasing" (Luna y Arellano 1559). The later Dávila Padilla account (likely derived from or even partially written by eyewitness Fray Domingo de la Anunciación) noted that "On the twentieth of August [*sic*],

... there began the most terrible storm, and the wildest north wind that man has ever seen" (Dávila Padilla 1955:194). Other eyewitness accounts are generally less specific, noting only the strength of the storm, such as that in testimony by expedition survivor Alonso de Montalban (1561), who stated that "... within twenty or twenty-five days, a little more or less, there struck a hurricane, which was a very great storm ...." Using all these accounts, several basic facts about the storm emerge.

First, the storm began at night on September 19, and apparently without sufficient warning to allow much, if any, significant preparation. This suggests the storm was likely moving fast. Second, the storm lasted approximately twenty-four hours (through September 20), during which Luna personally noted that the winds shifted directions, apparently coming from "all" directions during the course of the storm. Apart from confirming that the storm was probably fast-moving, this description also suggests that the storm was indeed a tropical cyclone, most likely a hurricane, and that its eye probably passed over or very close to Pensacola Bay itself, accounting for the notable shifts in wind direction. Third, and perhaps most importantly for our purposes here, the storm was specifically noted by Luna himself to have begun with winds out of the north, a fact that is confirmed by the Dávila Padilla narrative as well. Given the velocity and strength of the storm, and the fact that the winds began out of the north, the counterclockwise rotation of a hurricane would strongly suggest that the storm moved into Pensacola bay generally from the east, since approaches from the south or west would have begun



with winds out of the east or south, respectively, not from the north.

This fact was brought home to me most vividly by the approach of Tropical Storm Fay during late August 2008, which was coincidentally during the period when I was conducting documentary research for the Luna project. Just as would be expected, as the storm approached from the east-southeast, wind speed began to pick up out of the north, increasing in velocity as the storm moved westward toward Pensacola Bay. Although (thankfully) Fay failed to maintain its strength and organization, and had only minimal impact in Pensacola, the passage of this storm prompted me to review historical storm tracks for Pensacola (focusing on the month of September) based on records from the U.S. National Oceanic and Atmospheric Administration (2009). Based on available documentation regarding westward-moving September hurricanes with major impact on Pensacola Bay, one storm stood out: the "Great Miami Hurricane" of 1926 (e.g., Mitchell 1926; National Weather Service 2009). Though the eye of the storm passed just offshore to the south of Pensacola itself, the damage to Pensacola Bay was significant, in part due to a storm surge that was measured at 9.4 feet at the city of Pensacola, and as high as 14 feet at Bagdad farther to the east (Mitchell 1926:413), causing considerable devastation to boats and shoreline structures throughout the Pensacola Bay system. Even more significant, however, was the track of the storm, which originated in the Atlantic and passed just north of Puerto Rico on September 14 and 15, moving rapidly west-northwest to devastate Miami on September 18, and finally stalling off Pensacola on September 20 before moving inland to the northwest. The Great Miami Hurricane therefore represents a good example of a westward-moving major hurricane that impacted Pensacola Bay in the month of September.

Using this storm as a model, I hypothesized that it was possible, though perhaps improbable, that the storm which Luna experienced on September 19-20, 1559 might have had a similar track, and thus might have impacted Spanish settlements in the northern Caribbean during the previous week. The fast-moving Great Miami Hurricane took no more than 6 days to traverse the distance between Puerto Rico and Pensacola, suggesting that if Luna's hurricane followed a similar track, Spanish documentation from Puerto Rico, Hispaniola, or Cuba might possibly make reference to such a storm during the days and week preceding September 19, unless the storm took a more northerly track across the Florida peninsula, as yet unsettled by Spaniards. Starting with the most likely candidate, I began to review gubernatorial correspondence from the Governor of San Juan del Puerto Rico, Diego de Carasa, during the weeks and months following the Luna storm, many of which are available online at the website of the Archivo General de Indias in Seville, Spain. Fortunately, I was rewarded almost immediately with a pivotal clue in a letter from Carasa to the Spanish Crown dated October 15, 1559, in which he made note of the fact that "... on this past twelfth of September, there came a storm that carried off everything [the people] had in the countryside... [such that] nothing remained to eat, and great hunger is being experienced." While it is impossible to be absolutely certain that this is the same storm,

given all available evidence, it seems likely that the storm which struck Puerto Rico on September 12, 1559 was the same storm that struck Pensacola Bay from the east on September 19, 1559. Taking only a day longer than the 1926 Great Miami Hurricane to traverse the same distance, the Luna storm may be hypothesized to have moved west-northwest from Puerto Rico, traversing the Bahamas to cross the southern Florida peninsula before emerging into the northeastern Gulf of Mexico, regaining strength as it zeroed in on Pensacola Bay, where Luna's unwitting fleet lay at anchor. A victim of tragic misfortune, Luna was of course unaware of the devastation wrought seven days earlier on the island of Puerto Rico, falling victim to an historic hurricane that would change the fate of Spain in Florida forever.

While the implications of this hypothetical storm track remain to be explored more fully, and may only be known once (and if) additional Luna wrecks are identified by continuing archaeological survey, it is tempting to speculate that a fast-moving hurricane out of the east or east-southeast might first have drawn down the water levels in Pensacola Bay as a result of the strong north wind documented by both Luna and Dávila Padilla (not coincidentally just as Tropical Storm Fay did on a smaller scale in 2008), subsequently followed by a rapid infilling of the bay system as a result of the incoming storm surge (such as that experienced during the Great Miami Hurricane in 1926), as well as the abrupt shift of the winds out of the south upon the passage of the storm's eye. Though purely speculative, such a scenario might first leave Luna's largest ships initially grounded at anchor during the storm's final approach (and thus unable to move), followed by a catastrophic surge of water from the south which pushed at least one vessel some distance inland, leaving the rest (and presumably the largest) broken and irretrievably embedded in the shallow sediments of the bay's northern shore. Though this is just one among several possible alternatives, it could provide one explanation for the fact that the two known Luna wrecks (Emanuel Point I and II) were both run aground in the same general orientation along the same shallow sandbar on the northern margin of lower Pensacola Bay. Whether or not they began their experience with the storm at anchor in this same general vicinity, they may both ultimately have been rammed into these shallower waters by the same storm surge that presumably accompanied the fast-moving 1559 storm. Among the biggest remaining questions is whether these wrecks are located near the original anchorage for the Luna fleet, or whether they were dispersed from another location. Only further archaeological and documentary research may provide an answer, but in the final analysis, careful reconstruction of the Luna fleet, as well as the storm that destroyed it, will provide the kind of detailed contextual information that brings further light to a poorly-known chapter of Florida's earliest colonial history.

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