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Treasures from The Lost Galleon

San Felipe, *1573-1576*

TWO COUNTRIES TWO MUSEUMS

Linked in a Remarkable Journey to the 16th Century

Acknowledgements

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Edward Von der Porten (center, author and project organizer) and Ensenada Museum staff oversee the packing and transportation of the "Treasures" exhibit (below) to the Maritime Museum of San Diego.





Photos taken at the Ensenada Museum by Maggie Walton, MMSD Exhibits Designer.
Photos throughout by the Shipwreck Research Team Members.

While many persons made substantial contributions to this publication, their observations and conclusions may differ from some aspects of the interpretations and conclusions presented in this Journal. The interpretations and conclusions presented herein are solely those of the author.

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MAINSAIL HAUL–An order in tacking ship bidding, "Swing the main yards."

Treasures from The Lost Galleon

San Felipe, *1573-1576*

FROM THE HELM

by Ray Ashley, Ph.D.
President & CEO of the Maritime Museum of San Diego

The *Star of India* has carried a variety of cargo for nearly a century and a half, but seldom has she carried anything as exotic as what she carries in her hold today–the lost cargo of another ship, a ship that plied the waters of the Pacific almost three centuries before the *Star of India*, a ship once believed lost without a trace.

By 1571, almost eighty years after Columbus had first set out from Spain to establish a direct sea route from Europe to China, the ancient dream of globalized trade had been realized. Ultimately, as much as one-third of the silver mined in Peru and New Spain was diverted to Asia through Manila, there to be traded for spice, silk, porcelains, gold and jade ornament, and other exotic craftwork for return to the Americas and Europe. From 1571 to the last galleon of 1815, this was the longest regular trading route in the world. Each year, a single galleon (or occasionally two) would sail from Acapulco, usually in the latter part of March. This westbound ship crossed the Pacific in eight to ten weeks at about 13° 30' N Latitude in the belt of Northeast trade winds and favorable currents, making landfall at Guam for refreshment before sailing on to the Philippines. Typically, the Acapulco galleon arrived in Manila sometime in June heavily laden with silver. Following that ship's arrival, the eastbound galleon (sometimes the same ship, but a fresh ship was always ready for sea just in case) departed Manila and stood far to the north off Japan in order to pick up the strong westerly winds that would carry her to the Alta California coastline and thence down to Acapulco. This was a much harder, colder, and stormier voyage that sometimes took six months or more to complete, if lucky, by about the end of December to mid-January. Like clockwork, the galleons made their crossing in the same latitudes, year after year, knitting the earth and its peoples together.

Never before in history has such a concentrated proportion of the world's wealth moved across its surface in a single conveyance as in the holds of the Manila galleons. But they proved a slender and fragile conduit as solitary ships setting out across the greatest expanse of open ocean on Earth. Some of the ships met bad weather early in their voyage and turned back. Some were wrecked in known places where survivors and salvage were possible, some were captured by pirates. Some went missing, only to be found many months later drifting with the entire crew dead of scurvy. The galleon's chief protection, as well as its greatest danger, was the vast expanse of the Pacific into which it disappeared for months at a time. Some of them disappeared into it forever.

This is the story of the Manila galleon *San Felipe,* which set out for New Spain in 1576, how she ran aground in Baja California and how, more than four centuries later, her extraordinary cargo has been delivered to us to view.



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Painting of *San Felipe*
by Gorden Miller

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The Manila Galleon

San Felipe 1573-1576

A Reconstruction of her History

by Edward Von der Porten



Edward Von der Porten is a naval historian, nautical archaeologist, former director of the Treasure Island Museum (San Francisco Bay), and educator. He currently resides in San Francisco with his wife Saryl. (*See Notes* for further publications by E. Von der Porten.)

Above: A map (not to scale) of the Manila Galleon Route from New Spain to the Philippines.

Map by Pete Evaristo, Photo by John Wright

Andrés Urdaneta was the pilot for the first European voyage to complete a transit from Asia to the Americas via the north Pacific in 1565, effectively opening a return route to the New World. His voyage began trade between New Spain, from the harbor of Acapulco, and the Philippines.

Opposite Page: The lively harbor at Manila in 1647 shows galleons vying for products from the Far East. Their cargos included silks, spices and porcelains, in exchange for Peruvian and Mexican silver. Acapulco (below) was the eastern terminus of the Manila galleon route.

Manila in 1647, Courtesy Österreichische Nationalbibliothek
Acapulco in 1618, Courtesy Bibliotheque Nationale

Spanish navigators completed the dream of Columbus in 1565 when they established trans-Pacific commerce between Mexico and the Orient known as the route of the Manila galleons.

The links were tenuous in the first few years. The Spaniards initially operated from Cebu in the central Philippines and searched for trading opportunities. Then Governor Miguel López de Legazpi seized Manila from Moro settlers in 1571, making it the capital of the Spanish Philippines. That same year one of Legazpi's ships rescued the crew and merchants from a sinking Chinese junk and repatriated them on another Chinese ship. Encouraged by their good treatment, and lured by Spanish silver, Chinese merchants arrived in Manila Bay in 1572 to begin the large-scale trade of silver from New Spain and Peru for Oriental silks, spices and porcelains.[1]

The new colony suffered from an acute shortage of ships. Viceroy of New Spain Don Martín Enríquez characterized most of the ships tenuously linking New Spain (Mexico) and the Philippines in those years as "miserable little vessels" pressed into service from west coast trades.[2] To respond to this desperate need, Viceroy Enríquez ordered a new ship built in Acapulco in 1573, the *San Felipe*. Her name was a traditional saint's name as well as an oblique compliment to the King of Spain and the Indies, Philip II. Spanish shipwrights

Manila



Puerto de Acapulco



supervised Native-American workers to construct the galleon of native timbers and ironwork brought over the mountains from Mexico City.[3] She was capable of carrying two hundred soldiers after her later rebuilding in Manila,[4] so she was a large ship for her time, probably in the four-hundred-ton range.[5] Cannon taken from other ships by order of the viceroy[6] gave her some capacity for self defense. Lead sheathing below the waterline protected her against *teredos* – the shipworms which riddled every unsheathed ship's timbers with countless tunnels.[7]

Although Viceroy Enríquez planned to send the *San Felipe* to Manila in 1574,[8] she did not sail from Acapulco until 6 April 1575. She was the *almirante*, the vice admiral's ship, sailing with the *Capitana San Juan*, the admiral's ship that transported the new Governor, Doctor Francisco de Sande, to Manila on 25 August.[9]

Once in Manila Bay the *San Felipe* was found to be so decayed that the shipwrights wanted to burn her for her iron, but Governor Sande insisted on having her repaired.[10] From Christmas 1575 to July 1576,[11] the *San Felipe* was rebuilt. Her rotten keel and sternpost were replaced, along with "half the hull of the ship."[12] She was reshaped by cutting off one fathom (six feet or two meters) near the bow, then lengthening her by more than two fathoms (12 feet).[13]

While the *San Felipe* was being rebuilt at Manila, the citizens were still talking about their desperate defense against the Chinese pirate

The *San Felipe* model by Dr. William Brown was based on Raymond Aker's reconstruction plans.



Limahon's seventy-two ships and 4,000 men. The new city had been taken, looted and burned by the pirates on 30 November 1575, but the citadel had held until Spanish and Philippine reinforcements had arrived to lead a counterattack on 2 December that killed the pirates' Japanese Samurai general and drove the rest of their army out. Fearing a return of the pirates, and short of munitions, the new governor ordered shipwrights to remove substantial amounts of lead sheathing from the *San Juan* and *San Felipe* to be cast into small-arms and small-cannon shot needed to replenish the arsenal.[14] How much sheathing remained or was reinstalled on the *San Felipe* after her rebuild is not known.

Whether the cannon she arrived with were returned to her or retained for the defense of the Philippines also was not recorded, although the precarious situation in Manila suggests that the ship received little armament for a voyage deemed safe from human threats.[15]

The flag-bedecked *San Felipe* sailed from Manila without escort in July 1576 with the blessings of the Church and the prayers, cheers and hopes of the Spanish settlers who lined the shore at her departure and whose fortunes, large and small, were carried in her hold.[16] She sailed past Corregidor into the South China Sea, turned south and then eastward to thread her way through the intricate passages of the central Philippines. The *San Felipe* successfully cleared San Bernardino Strait between Luzon and Samar



This chart drawn in 1595 reflects the European view of the Far East at that time. Disorienting to modern eyes, it shows north to the left, and east on top. The Philippines are fairly well delineated, with the Moluccas, or Spice islands, south of them (to the right). Japan is little known, and Korea is shown as an island.

and sailed northeastward into the broad Pacific. Neither she nor any of her crewmen or passengers were ever heard from again.[17] Only the discovery of her remains more than four centuries later made it possible to complete her saga.

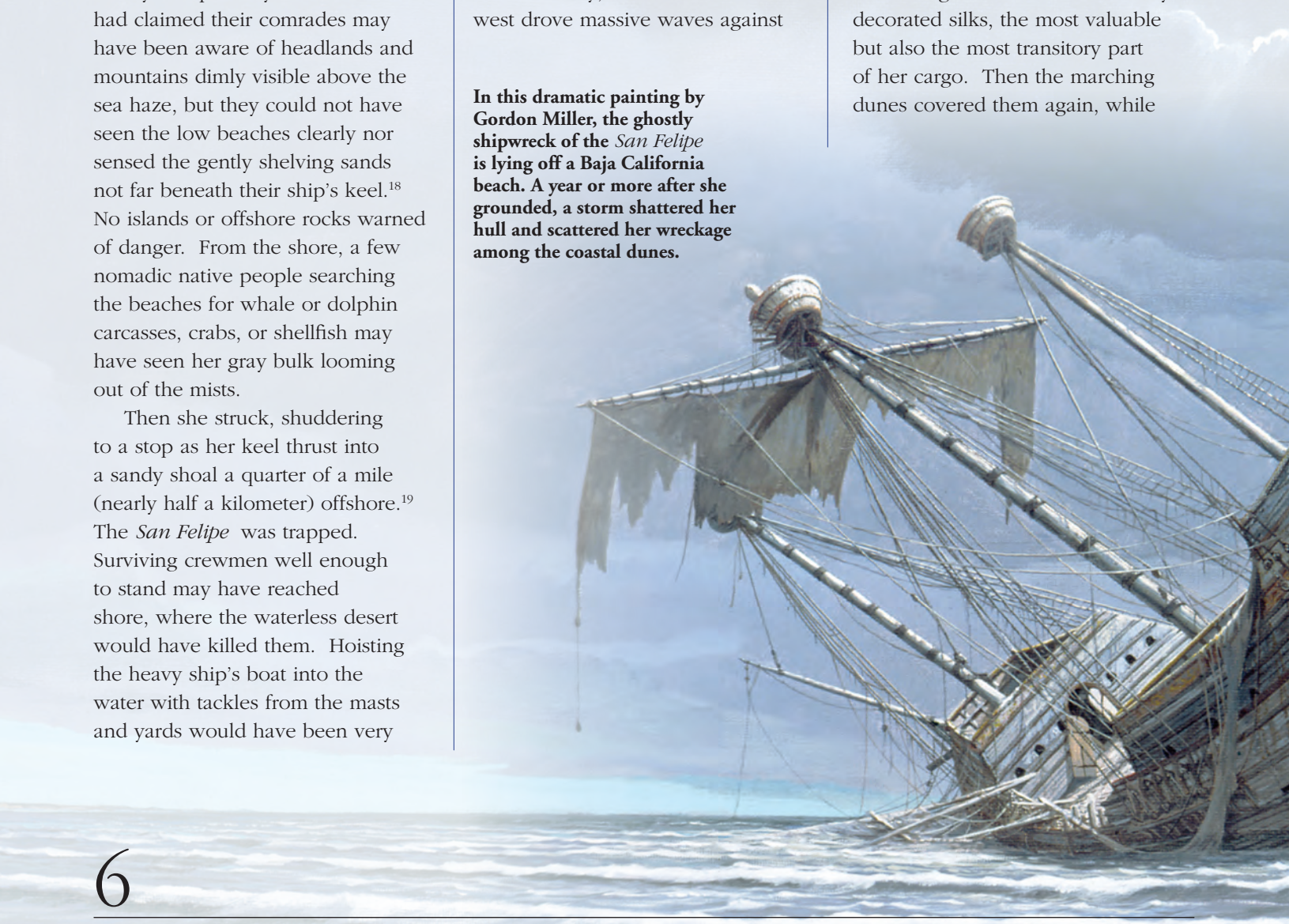
Toward the end of 1576, or early in 1577, the weather-battered *San Felipe*, her topside paint faded to pastels, hull planks weathered silver-gray, and sails patched and stained, was sailing along the coast of Baja California, pointed southward toward her home port of Acapulco and safety. But she was out of control – ghosting along far eastward and inshore of the galleon track. Any crewmen still alive after sickness, scurvy and possibly starvation had claimed their comrades may have been aware of headlands and mountains dimly visible above the sea haze, but they could not have seen the low beaches clearly nor sensed the gently shelving sands not far beneath their ship's keel.[18] No islands or offshore rocks warned of danger. From the shore, a few nomadic native people searching the beaches for whale or dolphin carcasses, crabs, or shellfish may have seen her gray bulk looming out of the mists.

Then she struck, shuddering to a stop as her keel thrust into a sandy shoal a quarter of a mile (nearly half a kilometer) offshore.[19] The *San Felipe* was trapped. Surviving crewmen well enough to stand may have reached shore, where the waterless desert would have killed them. Hoisting the heavy ship's boat into the water with tackles from the masts and yards would have been very difficult, but if they did so and sailed her southward toward mainland Mexico, they died on the way, for no one arrived at a Spanish settlement to report the *San Felipe*'s fate.

With her pumps no longer manned, the ship's hull slowly flooded, and teredos bored their way into her timbers and cargo.[20] The mild breezes blew through her rigging, and sails flapped futilely. Now and again a halyard weathered away and a yard with its frayed remnants of sail and tangle of rigging crashed to the deck from high on a mast. The low swells lapped against the hull. For more than a year the ghost ship lay offshore.[21]

Eventually, a rare storm from the west drove massive waves against her weakened hull, battered in her side, and ripped loose her planks and cargo to ride the storm surge across the low beach and far inland until it smashed into a barrier line of tall dunes. Then the storm receded, leaving shattered porcelains, fragments of storage jars, blocks of beeswax, bales of silk, widely scattered spices, and a row of ship's planking still sheathed in twisted lead lying on the sea-edge desert.[22]

Through the centuries, the sand built seaward and dunes blew in to cover the *San Felipe*'s scattered remains. Sometimes the wind pushed the dunes aside and cleared a swath of the old beach, briefly revealing fragments of porcelains and fading remnants of elaborately decorated silks, the most valuable but also the most transitory part of her cargo. Then the marching dunes covered them again, while



In this dramatic painting by Gordon Miller, the ghostly shipwreck of the *San Felipe* is lying off a Baja California beach. A year or more after she grounded, a storm shattered her hull and scattered her wreckage among the coastal dunes.

the winds opened another tiny window on the long-lost galleon's story a hundred yards away.

During the following four and a quarter centuries, Native Americans, then occasional beachcombers visited the site, some picking up fragments of the ship and cargo, while others found nothing of interest in sharp-edged bits of blue-painted porcelains and salt-encrusted blocks of wax.

The curiosity of some recent beachcombers brought the galleon's porcelains to our attention in 1997. Since then, our Mexican-American team has completed eight expeditions, between 1999 and 2009, to investigate the remains. We hope to provide modern audiences with the story of the men and women who took part in the great adventure of the first trans-Pacific trading voyages and whose lives ended so tragically aboard the galleon *San Felipe*.



Notes

1 William Lytle Schurz, *The Manila Galleon* (New York: E. P. Dutton & Co., 1939), p. 27.
2 Letter of Viceroy of Mexico Don Martín Enríquez to King Philip II, Mexico, 5 December 1573, Rodrigue Lévesque, *History of Micronesia, A Collection of Source Documents, Vol. II: Prelude to Conquest, 1561-1595* (Gatineau, Québec: Lévesque Publications, 1992), p. 444.
3 Ibid., p. 445.
4 Governor Doctor Francisco de Sande, "Relation of the Philippine Islands," 7 June 1576, in *History of Micronesia II*, p. 479.
5 Viceroy Enríquez recommended building ships of 500 tons in 1573, suggesting that existing ships tended to be smaller. Enríquez, p. 444. Schurz, *The Manila Galleon*, pp. 193-194, discusses galleon sizes.
6 Enríquez, p. 445.
7 Sande, "Relation . . .," p. 476.
8 Enríquez, p. 445.
9 Sande, "Relation . . .," pp. 475-476.
10 Ibid., p. 478.
11 Governor Doctor Francisco de Sande, "Relation of the Philippine Islands," continued, 8 June 1577, in *History of Micronesia II*, p. 483.
12 Sande, "Relation . . .," p.478.
13 Ibid., p. 479.
14 Ibid., p.476, mentions removal of "somewhat less than 70 arrobas," or nearly a ton of lead from the sides of the *San Felipe* and her consort, the *San Juan*.
15 Enríquez, p. 445, refers to the demand of the islands for artillery.
16 Sande, "Relation . . .," p. 479.
17 Sande, "Relation . . .," continued, p. 483.
18 This reconstruction of the wreck is based on the knowledge that the ship was far off course, which implies that any crewmen remaining alive were no longer able to control her course. The exhausting task of continuously heaving the sounding lead to determine the depth of water also would have been beyond the capacity of the men and futile if attempted.
19 The ship would have had a draft of about sixteen feet, or five meters, according to the reconstruction by Raymond Aker. The distance offshore is based on the five-meter depth line.
20 Twenty blocks of wax, some riddled with *teredo navalis* tunnels, were recovered in 2003. The largest tunnels are more than 1¼ inches (3 centimeters) in diameter. Teredos live only in saltwater.
21 At least a year was required for the teredos to create the tunneling in the wax. Information from Professor of Marine Biology Thomas Niesen, San Francisco State University.
22 The beeswax, lead, and other artifacts are discussed in relation to identifying the ship in Von der Porten's forthcoming monograph, *Identifying the Sixteenth-Century Ship on a Beach in Baja California,* San Francisco, 2010.

Treasures Unearthed

The Archaeology of the Manila Galleon *San Felipe*

by Edward Von der Porten



Jeff Ferguson sails to distant parts of the site using a modified skateboard and kite sail.

The discovery of a lost Manila galleon on the desert shore of Baja California was first announced in *Mains'l Haul* in 2002.[1] At that time, she was a mystery ship. We had dated her to between 1574 and 1576 by analysis of porcelains from her cargo, but we had no record of a name or history of a missing ship during that period. How the wreck had occurred was the subject of intense discussion among those working on the project, but the evidence was slim, and all our proposed scenarios were proved wrong as more evidence came to light.

At the time of that first publication, we had conducted two expeditions to the wreck site (in 1999 and 2000). Since then, we have had three more excursions by land (2003, 2005, and 2009), one by land and sea (2007), with a second sea expedition in 2007, and one in 2008.



Recently published contemporary documents have allowed us to reconstruct the ship's history. Other clues led to a reconstruction of the story of the shipwreck. Detailed mapping of the artifact distribution showed how the ship's wreckage spread across the beaches. Intensive analysis of the porcelains told the story of the early interactions between Chinese and Spanish merchants.

The first expeditions had followed in the footsteps of the beachcombers who had led us to the site in 1999, but soon our joint Mexican-American expeditions went far beyond those relatively small-scale efforts. It took four expeditions and a windsurfer sailor to define the dimensions of the site, which proved to be a debris field seven miles long and up to six hundred feet wide. The site's size and configuration, and the way the porcelains had shattered, showed that we were looking at the results of a catastrophic storm more than four centuries ago.

Although our earliest moments with the artifacts had told us that they probably came from a Manila galleon, certainty was hard to come by. A search of the available books about the galleons only provided a few names of ships sailing from Manila to Acapulco which might have been lost without a trace. Then, a few weeks before the third expedition in 2003, E. W. Giesecke, a scholar of Pacific Northwest shipwreck history, called with the news that a French-Canadian

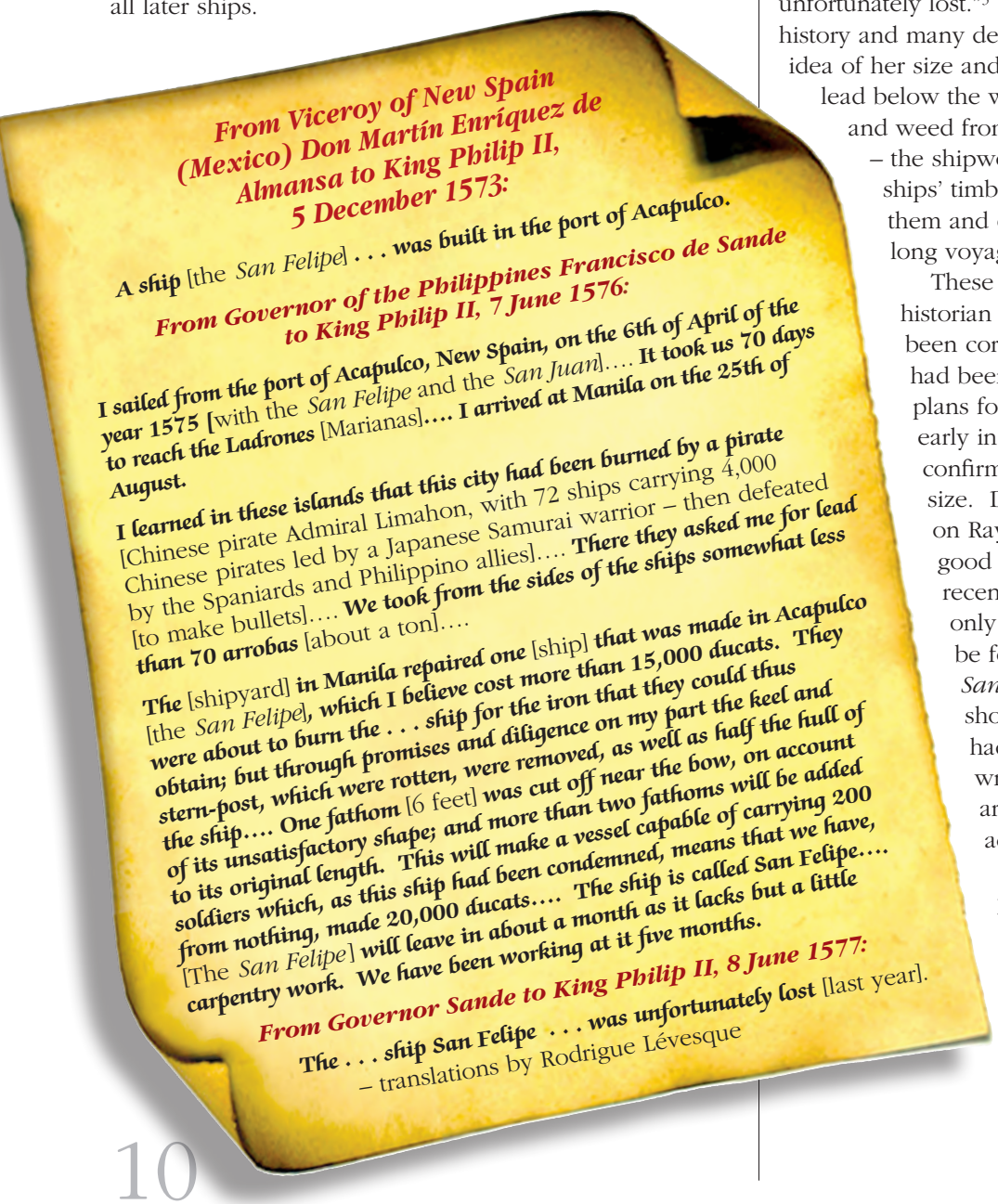


Above: In the field headquarters, Steve Keppel looks over porcelains that have been numbered and cataloged by find site, but not yet sorted by type.

Inset: A dragon (below handles) and lion-dog masks decorate this utilitarian stoneware storage jar, which originally was more than two feet tall. The Oriental equivalent of the European barrel, it could have carried food, water, wine, or valuables.



scholar named Rodrigue Lévesque had recently published a twenty-volume series of Spanish documents about Pacific voyages, *History of Micronesia*.[2] It would be more than three weeks before I was able to make contact with Lévesque. While I was relaying our story via telephone, Lévesque said, "Wait a moment…." He left the telephone for less than thirty seconds, then announced, "Your ship is the *San Felipe* of 1576, the *San Juanillo* of 1578, or the…," at which point I interrupted him. "Stop right there. She's the *San Felipe*." My certainty was based on our familiarity with a 1578 cargo found at Drakes Bay, California. Our new cargo was clearly different and dated earlier than 1578, which ruled out the *San Juanillo* and all later ships.



From Viceroy of New Spain (Mexico) Don Martín Enríquez de Almansa to King Philip II, 5 December 1573:

A ship [the *San Felipe*] **. . . was built in the port of Acapulco.**

From Governor of the Philippines Francisco de Sande to King Philip II, 7 June 1576:

I sailed from the port of Acapulco, New Spain, on the 6th of April of the year 1575 [with the *San Felipe* and the *San Juan*]…. **It took us 70 days to reach the Ladrones** [Marianas]**…. I arrived at Manila on the 25th of August.**

I learned in these islands that this city had been burned by a pirate [Chinese pirate Admiral Limahon, with 72 ships carrying 4,000 Chinese pirates led by a Japanese Samurai warrior – then defeated by the Spaniards and Philippino allies]…. **There they asked me for lead** [to make bullets]…. **We took from the sides of the ships somewhat less than 70 arrobas** [about a ton]….

The [shipyard] **in Manila repaired one** [ship] **that was made in Acapulco** [the *San Felipe*]**, which I believe cost more than 15,000 ducats. They were about to burn the . . . ship for the iron that they could thus obtain; but through promises and diligence on my part the keel and stern-post, which were rotten, were removed, as well as half the hull of the ship…. One fathom** [6 feet] **was cut off near the bow, on account of its unsatisfactory shape; and more than two fathoms will be added to its original length. This will make a vessel capable of carrying 200 soldiers which, as this ship had been condemned, means that we have, from nothing, made 20,000 ducats…. The ship is called San Felipe…. [**The *San Felipe*] **will leave in about a month as it lacks but a little carpentry work. We have been working at it five months.**

From Governor Sande to King Philip II, 8 June 1577:

The . . . ship San Felipe . . . was unfortunately lost [last year].

– translations by Rodrigue Lévesque

One telephone call had saved us the many thousands of dollars it would have required to send a scholar to Spain for an extended period of time to search the archives, looking for documents relating to a shipwreck of the mid-1570s, possibly with no results.

Following up Lévesque's discussion with an afternoon immersed in his *History of Micronesia, Volume II,* in the San Francisco Maritime National Historic Park Library, I found the history of the *San Felipe* in the form of letters to King Philip II of Spain from the viceroy of New Spain (Mexico) and the governor of the Philippines, including the words any shipwreck historian dreams of finding: "… the ship *San Felipe* which was unfortunately lost."[3] The documents gave us the ship's history and many details about her, including a good idea of her size and the fact that she was sheathed in lead below the waterline to discourage barnacles and weed from adhering and to keep out teredos – the shipworms that quickly riddled unprotected ships' timbers with tunnels that weakened them and eventually caused ships to sink on long voyages.

These documents showed that ship historian and draftsman Raymond Aker had been correct when he assumed the *San Felipe* had been large for her time. He had drawn plans for a four-hundred-ton Manila galleon early in our project, and the documents confirmed that the *San Felipe* was about that size. Dr. William Brown's model, based on Ray's plans (see page 4), gives us a good impression of the ship. The more recent publication of the plans of the only reasonably intact Spanish galleon to be found by archaeologists, the whaler *San Juan,* found in Red Bay, Labrador, showed that Ray's plans, which had been based on contemporary writings and drawings, and on limited archaeological finds, had given us an accurate image of such a ship.[4]

The third expedition of 2003 proved to be a turning point in many ways. On the first day, galleon researcher Rick Rogers came back from a long reconnaissance to report large blocks of wax standing on the sand well to the north of what we then thought to be the center of the site. Beeswax

Sheldon Breiner (left) prepares his magnetometer for duty, measuring changes in the earth's magnetic field in an effort to gather clues to the location of ship fragments.

blocks were known to be a signature cargo of Manila galleons because the New World had no wax-producing bees, and the churches and well-to-do homes of Mexico demanded an endless supply of candles. Inexpensive Philippine beeswax supplied the demand, at the high cost of shipping the wax across the Pacific.

While Sheldon Breiner had been using a magnetometer on each expedition to search for buried iron, thus far without success, on this expedition Steve Keppel brought six metal detectors, which our crew soon put to use. Two days passed without any results other than modern light bulbs, tired arms, and creaking backs. On the third day, the systematic metal-detector search reached the area where Rick had found the wax blocks. Soon the detectors whined their distinctive contact songs again and again. Diggers brushed away the sand, sometimes an inch, sometimes a foot or more. They found twisted lead sheets perforated with square tack holes, some with rusty remains of the tacks still attached. These again testified that we were dealing with a Manila galleon – only Iberian shipwrights used lead sheathing in the sixteenth century. Most of the sixty-four lead sheets soon proved to be aligned in a nearly straight row, which eventually reached half a mile in length.



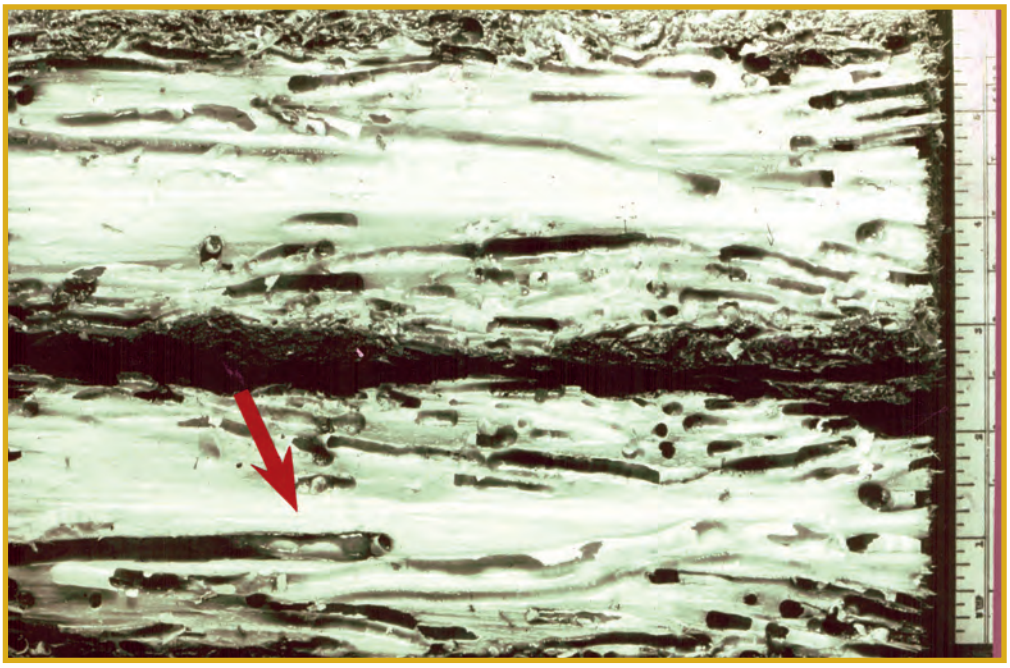




In the midst of the work with the wax blocks, lead sheets, and the numerous porcelain and stoneware sherds scattered among them, fourteen-year-old Peter Von der Porten's metal detector found another target. Gentle fanning away of two inches of sand revealed an extraordinary sight: red, blue, white and yellow bits of color shining through a haze of verdigris. It was half the rim of a cloisonné plate – the only one ever found in a galleon shipwreck. It was so fragile that I put it into a plastic bag, held it in front of me, and carried it several miles to the campsite, where Jack Hunter broke up food boxes to make a multi-layered corrugated-cardboard sandwich to protect it on its trip by boat, car and airplane to the conservation laboratory in Mexico City.

Cloisonné is a copper-alloy plate (or bowl, vase or jar) covered with copper wires soldered to its surface. Colored enamels in powder form are laid among the wires, and the plate is fired to melt the enamels and fuse them to the backing and the wires. Then the surface is polished. After a meticulous cleaning and treatment to remove corrosive chemicals, the plate fragment glows with colors seemingly as bright as when they first came from the Chinese factory more than four centuries ago.

Right: Note the teredo's burrowed tunnel in a wood block. Tunnels in beeswax blocks (see photo below) offered key information on how long the shipwreck lay offshore, before being swept ashore by what must have been a powerful storm.



That 2003 field season provided another revelation, this time from some mundane tunnels. We had noticed that the beeswax blocks had shrunk and developed shrinkage fissures in their surfaces, many to the point that the blocks had split into small fragments. As I was knocking sand off one twenty-pound block to lighten it before someone had the pleasure of carrying it to the boat landing, I noticed a series of tunnels that were not like the shrinkage fissures. Puzzled for a moment, I suddenly realized what they were and how the shipwreck had occurred. They were teredo tunnels. Teredos live in salt water, and they could not have tunneled into the wax unless the wax was immersed in salt water, which could not have occurred while the ship was afloat. This meant that the ship had to have grounded offshore, had slowly flooded when the crew stopped pumping the bilges, and had lain offshore for an unknown length of time while the teredo larvae in the water settled on the cargo and tunneled into it. How long? The size of the tunnels told Professor of Marine Biology Thomas M. Niesen, of San Francisco State University, that the ship had lain offshore for at least one year.

Further deductions concluded that the ship would not have been near the shore if she had been on a southward course along the coast on her way to Acapulco. She would have been well offshore, with the crew barely maintaining visual contact with mountain peaks and offshore islands to confirm her location to the pilots who were plotting her course. The fact that she had stranded showed that her crew had lost control of her. There no longer had been enough men alive to steer her or handle her sails, so the prevailing westerlies had pushed her far eastward of her intended track, and onto the sands. There the survivors had died in the waterless desert, or in a futile attempt to reach Spanish settlements in a small boat. Our *San Felipe* was a ghost ship.

Meanwhile, Sheldon had taken his magnetometer, which measures changes in the earth's magnetic field, to sea in a small boat. After two and a half expeditions in which the instrument had found no trace of the ship's iron on land, he found three closely-spaced targets off the beach. They have the magnetic signature of an early ship: a few large targets, possibly anchors, and many small ones in clusters, which presumably represent fasteners for the hull and rigging.



beeswax block

Detailed mapping soon related the off-shore magnetometer targets to the line of wax blocks and

Treasures Unearthed

lead sheets on shore, which showed where floating cargo and shattered ship's planks sheathed with lead had come to rest. That allowed us to visualize how a storm had torn the teredo-riddled ship apart and the storm surge had driven timbers and cargo up over the low beach until they had hit a high dune line. As the storm winds shifted, they had driven the turbulent water and lighter cargo along the beach for miles. Finally, the storm had ended. The water had retreated from the dune line, leaving the wreckage on the desert floor, where the wind soon covered the remains with fine blown sand.[5]

Putting our archaeological information about the stranded galleon together with Raymond Aker's plans and photographs of Dr. Brown's model, marine artist Gordon Miller created his painting "Wreck of the *San Felipe*" and has made prints of it available to schools, museums, and the public.

We have had five more expeditions, both by land and sea, since those moments in 2003 that provided so many answers to questions we had been asking since our first contact with a few beachcombers' sherds in 1999. The latest expeditions have answered more questions, particularly about the formation of the site. They have provided many more artifacts, which continue to add new information about the earliest years of the Manila galleon trade. We never know when the next find will show us a new category of porcelains, or help explain some additional element of the Chinese-Philippino-New Spain (Mexican) commercial world of 1576.





Baleen, a series of plates used to filter tiny sea creatures in a whale's mouth, lies on the beach along with skulls and sometimes entire skeletons driven onshore by storms, as was the wreckage of the *San Felipe*.

At sea, Jack Hunter has led three attempts to dive beneath the water to dig into the offshore sands and reach the remains of the *San Felipe*'s lower hull, as defined by Sheldon's repeated magnetometer hits. All have failed because of the problems of working from small craft off an open coast in shallow water. We will try again with new methods in the years to come.

Back in the laboratories and offices, much additional work has been done through the years. A week in the field results in months of follow-up work to make sense of the field records and artifacts. This work is the distinction between archaeology and mere treasure hunting or collecting – the archaeologist brings meaning to the work and makes it permanently available to the public and to other scholars in the form of cataloged collections, publications, videos, and museum exhibits.

Much remains to be done on site in the sea-edge desert, as well as offshore where the ship's lower hull appears to be buried, and in the library and laboratory. Nevertheless, the story of our ghost galleon *San Felipe* is far fuller than it was in 2002 when it was first revealed to the public in *Mains'l Haul* and via the Maritime Museum of San Diego's Manila Galleon exhibit.

Notes

1. Edward P. Von der Porten, "Archaeology and the Galleons: Uncovering a Lost Galleon," *Mains'l Haul – A Journal of Pacific Maritime History*, Vol. 38:1&2 (2002).
2. Gatineau, Québec: Les Éditions Lévesque, 1992-2002.
3. Ibid., vol. II, p. 483.
4. Robert Grenier, Marc-André Bernier, and Willis Stevens, eds., *The Underwater Archaeology of Red Bay,* Ottawa: Parks Canada, 2007.
5. The full story of the ship's dating and the evidence for her fate is provided in a forthcoming monograph by Edward Von der Porten, *Identifying the Sixteenth-Century Ship on a Beach in Baja California,* San Francisco, 2010.



Porcelains reveal their secrets to Asian Art Museum of San Francisco epigrapher Li He (left), Senior Curator Clarence Shangraw (center), and Sheila Keppel (right), adjunct curator of Asian Art at the University of California, Berkeley, Art Museum. One hundred and three types have been identified, each with its own story.



What the Shattered Porcelains tell Us...

Above: The dominating Mandarin duck and the good-luck cricket on the reed enliven one of the earliest fully-dated examples of a long-lived, export-porcelain style. Drawing each porcelain type (left) enables us to reassemble the designs from numerous sherds.

Drawings by Edward Von der Porten

The artifact group that has provided us with the most information so far has been the Ming porcelains, dated to the earliest years of the Wanli Emperor, who reigned from 1573 to 1619. So far, we have found 1,297 sherds, most of them representing individual bowls, plates, cups, bottles, and jars. Few of them can be identified as coming from the same bowl or plate, and fewer still can be joined to each other.

Porcelain scholar Clarence Shangraw recognized from the first that this cargo was a "sampler" cargo: the merchants along the coast of China who were loading the junks for the voyage to Manila didn't yet know the preferences of their new Spanish customers, who had been buying from them for only five years. Therefore, they sent types of porcelains normally suited for quite varied markets, ranging from wealthy Japanese to southeast Asian tribal peoples.

Twenty-seven percent of the porcelain collection was one type of low-quality plate with a phoenix in the center. This motif would have been popular in overseas-Chinese homes, where the phoenix was recognized as a symbol of the Empress of China and of domestic bliss. We suspect there were so many of them in this Spanish cargo because there was an oversupply in the warehouses of coastal China, and the new customers were seen as a convenient outlet for the surplus.





Rice bowls with a pleasant arrangement of flowers, a magic *lingzi* mushroom, and an orchid made up eighteen percent of the total cargo. Normally, such bowls would have been sent to varied customers throughout east Asia. They were welcomed by the Spaniards, as shown by their presence in later cargos.

The third-most-common wares found were rice bowls with curling dragons, which constituted ten percent of the cargo. This Oriental motif also proved popular with the Spaniards.

These three types comprised fifty-five percent of the cargo. The other forty-five percent was made up of one hundred different types of porcelains and they provide many stories, only a few of which can be told here.[1]

Collecting large numbers of sherds enables us to compare similar pieces from different bowls and plates. Sometimes the hand of the same painter can be identified, sometimes the product of the same firing in the kiln. We can reconstruct how these mass-produced products were stacked, bundled in straw, packed in wooden cases, and shipped together from their production site two hundred miles inland in China. They traveled to a coastal warehouse by boat and carrying pole, on a voyage in a Chinese junk to a warehouse in Manila, and across the Pacific in the galleon's hold, until the stranding and subsequent storm which shattered and scattered them on the Baja California beach.



Three dozen simple bowl types, in two shapes and four sizes, illustrate the freedom of the Chinese potters to experiment when developing wares for their overseas markets. Calligraphy, birds, exotic flowers, dragons, phoenixes, water buffalos, flames, ladies and boys, a garden, fruit trees, mountains, and orchids appear in exuberant profusion. Their two shapes, with straight rim and flaring rim, would have been seen as soup and rice bowls by the Chinese, a distinction lost on the Spaniards, who soon ordered only flaring-rim bowls with a few well-established motifs.

The many small cups, in tea-cup and rice-wine-cup sizes, are a puzzle. They had no practical use in the Spanish lifestyle. As with other types, they probably had novelty value at first, but are rare in later cargos.

High-value polychrome wares, using red, yellow, green, turquoise, black and brown enamels, were normally sent to wealthy Japanese customers, and show that the Chinese merchants tested expensive wares in the new market. Some were colorful to the point of garishness, including gold-leaf overlays. Some were lovely by any standard. Later cargos show when the Spanish merchants learned they could make more profit by buying showy mid-value blue-on-white wares.

A tiny dish with exquisitely painted bamboo in an arrangement appreciated by Japanese customers, and meticulously drawn Taoist-paradise landscape bowls, met the same response. The landscapes reappeared in a later cargo in a simplified, quickly painted form, showing that cost, not the subject matter, appeared to be the determining factor.

Some Oriental designs probably were appreciated by the Spaniards despite the gap of understanding between the two cultures. Who could not enjoy the leaping monkey even though the story he represents was incomprehensible to the Spaniards? Again, this was an expensive ware.

The monkey bowl, the landscape bowls, and finely potted and painted bowls with phoenixes amid scrolling plants probably would have been cabinet pieces in overseas Chinese homes – they would have been displayed on shelves as decorations rather than used as tableware, attesting to their owners' good taste. A soup bowl with scrolling tendrils, flowers and leaves illustrates the Chinese tendency to revive century-old designs.



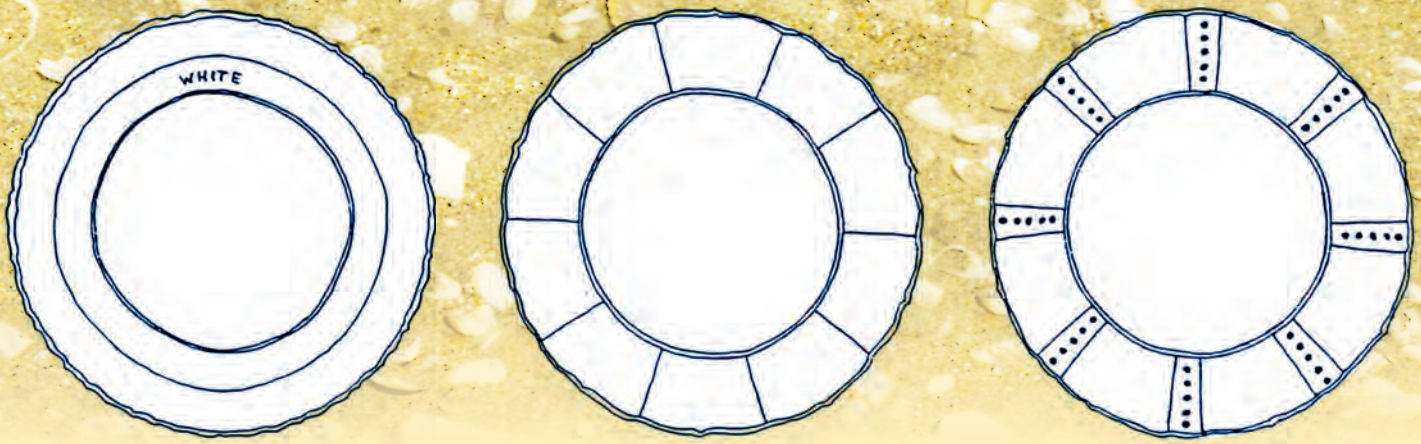
A folktale on porcelain: In the formal garden of the Queen Mother of the Western Paradise, a monkey leaps into the air to distract the gods while his comrade quietly climbs the tree to steal the peaches of immortality, which are guarded by hanging wasps' nests. This is the only example of this design known in the world.



Left: Some color has been lost to beach salts in this polychrome piece – squirrel on a melon vine.



Right: A Taoist paradise, or the ideal Chinese countryside to which the overseas Chinese merchant aspired to retire.



These are a few rim designs from an eighty-year progression of export plates which have been dated closely by studying shipwreck cargos.

Some wares proved important for charting sequences of types so porcelains can be dated accurately wherever they are found around the world. Such dating sequences derived from shipwreck cargos are also useful for dating the production sites in China.[2] Two particularly useful types in this cargo are paneled wares, which have designs divided into sections by single or double lines, and simple provincial wares with flower and bird decoration from the South-China coast. Our paneled wares are the second-earliest that have been firmly dated, and our coastal wares are the earliest.

Poorly fired wares with greyish paste and dull blue paint, notably an exquisitely painted plate with a pond scene including a Mandarin duck, suggest the sale of "seconds" to foreigners who would not have a wide choice of merchandise and who were not likely to be too discriminating.

The ubiquitous phoenixes, dragons, gentlemen's purses, Buddhist symbols, Sung poetry, and other Oriental motifs found in this cargo were soon replaced by deer and birds – motifs more attuned to Western sensibilities.

Sometimes the discovery itself is the story. We had found half a dozen ladies on bowl sherds during the first two expeditions. On a visit to a friend's shop in Amsterdam, I saw a bowl with the same ladies, but with boys playing between them. The dealer assured me that ladies always appeared with boys. Restudying the porcelain photographs on my return home, I found odd bits of color along the edges of some lady-bowl sherds.

They were the raised arms of boys. On the next expedition, we found a boy. After finding 115 fragments of bowls with curling dragons, Sheila Keppel and I found half the face of a dragon at the edge of a sherd during the fifth land expedition. We realized that it should belong to a running or flying dragon, but could not prove it. A year later, Jack Hunter came back from the third sea expedition with a few sherds from land. Among them was a complete running dragon with a face like the one on the earlier find.



Ladies-and-boys bowls reflect the overseas Chinese merchant's dream of returning home to retire to the countryside with his ladies and his sons..



Interior designs often do not relate to the exteriors. The reclining horse with flames (on the left) is in the monkey bowl. The egret in a lotus pond (center) provides the interior for many bowls decorated with overglaze polychrome designs on the exteriors. The flower-and-leaves design on the right is the interior design for high-quality phoenix exteriors.

A chance meeting at a conference led me to Chinese bird expert Jo Ann MacKenzie, who identified many of the birds on the porcelains. That proved to be interesting in its own right, but also useful to those trying to understand the meanings of the motifs. A spoonbill on one sherd proved to be a species now extinct in China, which was of interest to ornithologists. Such cross-discipline discoveries widen the value of our work.

Now, Sheila and her colleagues are deciphering the reign and shop marks on the bases of many of our porcelains, and restudying all of them for more of the stories revealed in the symbolism of particular plants, birds, and other motifs.

Careful searches in the field, meticulous cataloging and comparison studies, and reviews of the collections by a wide range of scholars enable us to read the many stories in these porcelains and make them available to scholars, museum visitors, armchair historians and archaeologists. As our next expedition gets underway in 2010, we look forward to new discoveries adding to our understanding of the sixteenth-century world.



The Oriental motif displays pearl strings with Buddhist-symbol pendants around a gentleman's purse decorated with a flying horse and surmounted by ribbons.

Notes

1. The catalog and analysis of the porcelains will be provided in a forthcoming monograph by Edward Von der Porten, *The Early Wanli Ming Porcelains from the Baja California Shipwreck Identified as the 1576 Manila Galleon* San Felipe, San Francisco, 2010.
2. Clarence Shangraw and Edward Von der Porten, *Kraak Plate Design Sequence, 1550-1655*, San Francisco: Drake Navigators Guild, 1997. Materials from the Baja California wreck enabled the author to refine the dates of the early part of the sequence.

Across the Seas of Time

An Artist's Vision

Gordon Miller

In the next few pages, we are fortunate to present additional works by Gordon Miller, who has skillfully captured the *Wreck of the* San Felipe (front cover), so that we may look back in time and see and feel the tragic moment of her loss upon a sand shelf in Baja California in the sixteenth century. Here Mr. Miller gives a rare glimpse into his own background and inspiration, while we may study his ships poised in five historic moments, spanning four centuries.



I was born in Winnipeg, about as far from saltwater as you can get in Canada, which might explain my early attraction to the sea. In 1950, I moved to Vancouver to attend the Vancouver School of Art. During summers, I worked as a seaman on British Columbia Coast Steamships, sailing among Vancouver, Victoria, Nanaimo, Seattle, Prince Rupert and Alaska. After graduating, my professional career included graphic design for Canada's two national TV networks, and graphic, industrial, and exhibit design for a Vancouver design firm. This period involved installing exhibitions at Montreal's Expo 67 and the new Vancouver Museum. It was during this time I learned drafting skills that proved to be useful later. Soon after the museum opened, I became its chief designer, which also included responsibility for designing exhibits and catalogues for the Vancouver Maritime Museum.

In 1976, I retired to go sailing, and to test my chances in the world of freelance design. This led to commissions from the Museum of Anthropology in Vancouver, the Royal British Columbia Museum, the Museum of Civilization in Ottawa, the National Film Board, and some educational publishers. This was a period of extensive and satisfying ethnological research, where I had the opportunity to survey many abandoned native villages on the north Pacific coast, and to illustrate accurate reconstructions of them. It was also the beginning of a deep interest in history.

Those are the easy facts; the intangibles are more difficult. I don't know where my fascination for boats originated, or my interest in art. My family had a canoe at our cottage on Lake Winnipeg which I was forbidden to use. I have no artistic ancestry that I know of, and no hoary sea captains in my family's distant past.

The art school didn't provide a very technical education. Watercolors, my medium of choice, was barely mentioned, so I am still learning the hard way, by trial and error. The school did, for the first time, introduce me to the artistic community and professional artists. It also instilled in me the importance of good craftsmanship, and most important of all, enthusiasm for work.

For the last twelve years I have been able to indulge my interest in maritime history. My original intention was to illustrate a few of the important events of early contact and the fur trade era on the Northwest Coast, roughly the fifty years between 1770 and 1820, including Captains James Cook and George Vancouver, the Spaniards, and the first Americans to trade with the natives. This period lies long before the age of photography, so I am dependent on good and reliable historical references, of which there are often far too few. For reconstructing the ships of any period, my preferred resource is the actual plans, and it is fortunate that these are becoming more readily available. Where plans don't exist, I sometimes research and draft my own. To help in visualizing the ships, I have often worked from simple models quickly constructed from paper. Now, with a digital camera, instead of sketching a model at arm's length, I can take photos from a variety of angles, until I have the perspective and attitude I am looking for.

Early on I was lucky to be encouraged by Hewitt Jackson, a first-class maritime historian and knowledgeable

and accomplished Seattle artist. He was very generous with the excellent and detailed plans he had produced, and diplomatic and helpful with his criticism. Later I had the good fortune to know the late Ray Aker, who gave generously of his time and provided me with plans and copious notes of the vessels he was researching. Ray was also wonderfully tactful and helpful with his criticisms.

I am determined to depict all events and locations as accurately as possible. I have visited and photographed many of the sites I have illustrated, and these always produce the most authentic and satisfying paintings. For distant places I will never get to, I have a large and growing picture file, augmented by traveling friends with cameras pressed into service.

I have no idea where or when inspiration will strike, but logs and journals are a primary source. It is a magical moment when research reveals unanticipated details that immediately suggest a paintable image. My choice of subject is often simply influenced by the information available. The contemplation and planning of any project is always the most exciting period, and watching the painting materialize, especially if it is going well, is usually fairly satisfying. Before I start any painting, I want to know all I can about the prevailing weather, the state of the sea, the location, and time of day. After the final drawing is transferred to paper or canvas, the sky is always completed first; it is the most important element, and influences the character of the light in the whole painting. The sea is tackled next, and not until it is finished are the ships and crew added.

I consider my paintings to be illustrations, not works of art, and I am comfortable with that idea. What is most important is that I approach each subject with passion and enthusiasm, and as honestly as possible. Because I haven't had to rely on the sale of my work, I can paint for my own amazement, and not for wide public appeal, but it is always a happy occasion when an illustration provokes a positive response. Every new work is a new challenge, and the real reward is seeing an image come to life on paper.



Lübeck **circa 1390**

Toward the end of the twelfth century, northern German merchants began to join together for mutual protection. These trading alliances, called "Hanse," grew to include at least sixty cities plus more than 100 affiliated towns, and dominated trade in northwestern Europe for the next four centuries. Known as the Hanseatic League, it was a loose but effective alliance that negotiated trading privileges, regulated prices, collected tariffs, maintained primitive navigational aids, and provided protection for its members. The trading centers became wealthy with ever-increasing trade in furs, lumber, cloth, grain, honey, salt, herring and cod. Central to the success of the Hanseatic League was the cog. Although the Norse had elegant and seaworthy vessels, they had too small a carrying capacity to satisfy the ambitious Hanseatic merchants. What emerged to fill this need was the cog, a simple, rugged, double-ended, clinker-built ship with a single mast amidships and with a single square sail set on a yard.



Bartolomeu Dias off the Cape of Good Hope, 1488

The southern tip of Africa was finally rounded by Bartolomeu Dias in February 1488. He sailed with two fifty-ton caravels and a smaller store ship with provisions to extend the range of the voyage. They left Portugal toward the end of August 1487, making directly for the Congo to resupply. At the secure harbour of Angra dos Aldeas, they left the supply ship to await their return. At a bay they called Angra dos Voltas (Bay of Turns), they were forced to tack about for several days, and shortly afterward they encountered fierce storms and head winds. When the weather finally moderated they had lost sight of land. They turned east to pick up the coast again, but after many days of sailing they realized they had passed south of the continent and altered to the north to come onto the coast again. At present day Mossel Bay they fell in with the land. The storms they had weathered had exhausted and frightened the crew, and with provisions running low they became more and more reluctant to continue. Dias retraced their course to the southwest, and in the vicinity of the Cape they went ashore, planted a cross, and left to find their supply ship.

Manila Galleon in the North Pacific, 1565

In 1519, the Spaniards founded the city of Panama which was to become the center of their naval operations on the Pacific Coast for the next three centuries. The incredible wealth of the Inca, seized by the Spaniards, had rescued the Spanish Crown from bankruptcy and financed its expanding empire. Expansion into the North Pacific allowed Spain to establish several naval bases on the Pacific Coast from which treasure galleons sailing between Manila and Mexico made annual voyages. At first, the Spaniards had no understanding of the wind circulation in the Pacific Ocean and the ships leaving from Manila continued westward back to Spain, or surrendered to the Portuguese instead of battling to windward against the steady Pacific tradewinds. But in 1565, under the direction of Andrés de Urdaneta, ships leaving the Philippines sailed north until they came to the latitude of the northwest trades and rode these strong, steady winds back to the Americas. A defector from the fleet, Alonso de Arellano, made it back to Acapulco first using Urdaneta's information, but the honor of solving the puzzle of the wind patterns was rightly bestowed on Urdaneta. For the next 250 years, the treasure galleons followed this route, sailing east between 30°N and 45°N, until they raised the North American continent. Then they followed it south to Acapulco.



San Carlos in the Golden Gate, 1775

On the evening of 5 August 1775, the small 79-foot Spanish paquebot *San Carlos* became the first European vessel to enter San Francisco Bay. She had been dispatched from San Blas to enter and chart the bay that had been seen five years earlier by Gaspar de Portolá on an overland expedition, but whose seaward entrance had not been discovered. In command of the expedition was twenty-nine-year-old Juan Manuel de Ayala. A half hour before sunset, the *San Carlos* was about two miles south of Bonita Point, with a good southwest breeze and fair tide, and with the entrance to the bay in sight. The launch, which had been sent ahead to sound the narrows, had disappeared behind Point San José, and as darkness fell the tide turned against them. The decision was made to continue and, with a moon rising ahead in a clear sky at about 8:30 P.M., the *San Carlos* passed through the narrows. She held to the north along the Marin shore until the wind died, and she was forced to anchor to prevent being set backward by the strong current. In twenty-two fathoms she lay all night off what is now known as Old Sausalito. At six in the morning, the *San Carlos* was joined by the launch, which had found a safe anchorage for the night inside the south side of the narrows.





Prince of Wales in Rose Harbour, Queen Charlotte Islands, 1787

Captain James Colnett was a former British naval officer who spent the summer of 1787 on the Northwest Coast in the 200-ton ship *Prince of Wales*, owned by Richard Etches and Associates, with the 50-ton sloop *Princess Royal* as her tender. On 21 August, he discovered the anchorage of Rose Harbour, on Houston Stewart Channel, in the southern Queen Charlotte Islands. Colnett was in the territory of the Kunghit Haida, who were constantly around the ships and whose customs and appearance are richly described in his journal. In the next century, Rose Harbour became the site of a major whaling factory.

The Research Teams on Land and by Sea

Much of the porcelain analysis depended on two persons: the late Clarence Shangraw, retired senior curator of the Asian Art Museum of San Francisco, and Sheila Keppel, adjunct curator of Asian art at the University of California, Berkeley, Art Museum. Shangraw had worked with the author on earlier Manila galleon cargos at Drakes Bay, Alta California, and contributed many insights into the nature of this cargo. Keppel often worked in the field, and contributed significantly to the on-site identifications and subsequent analyses. George Kuwayama, curator of Oriental art at the Los Angeles County Museum of Art, was the first to publish some of the sherds and created key links between some of the early finders of the sherds and the archaeologists who organized the expeditions from 1999 onward. A thorough restudy of most of the porcelains was accomplished in 2008, with John Joseph Temple making the on-scene arrangements, and Luz María Mejía Ramos, Saryl Von der Porten, and the author conducting the recataloging, photography, and analyses.

Tererese Tse Bartholomew helped with the identification of the marks and contributed significantly to the explanation of the symbolism of the birds, plants and animals depicted on the porcelains. Jo Ann MacKenzie identified many of the birds depicted on the porcelains. Milbrey Polk provided a possible solution to the puzzle of the "banner" carried by the animal on an unusual type of porcelain.

Porcelain photography through the years was done mainly by Robert Allen, Jinky and Michael Gardner, and Lucinda Navarre.

The field work that uncovered all the porcelains has involved many dedicated people through the years. Leading much of the effort has been nautical archaeologist Jack Hunter, who has worked closely with the author on land and sea since the earliest days of the project. Also crucial to the success of the search were the beachcombers who located the site and provided essential on-site knowledge in a difficult environment. They include Jeff Ferguson, Jeff Lough, Stephen Lowe, F. Gene Luke, Leysl Muñoz, Lucinda Navarre, Michael Raven, and Don Schaeffer. Our on-site coordinator was Clayton Krause.

Geologists Curtis Ebbesmeyer and Gustavo Ortega worked on understanding the dynamics of the beaches and artifact deposition patterns. Archaeologist Eric Ritter's work on Native-American sites provided context for the work. Magnetometer specialist Sheldon Breiner, metal-detector specialist Steven Keppel, remote-sensing specialist Amy Day-Lewis, and ground-penetrating radar specialist Meg Watters provided crucial field technology. Mexican field archaeologists and photographers included Patricia Carrillo, Roberto E. Galindo Domínguez, Norma Alicia García Huerta, Jesús López, Edgar Merino, and Carmen Rojas Sandoval. Visiting Mexican scholars included Julia Bendimez Patterson, Lucila León, and Luis Sánchez. U.S. field workers and photographers were Laura Allen, Mark Allen, Christin Aliotti, Allen Amsbaugh, Ken Anderson, Walter Anderson, James Anselmino, Raymond Ashley, Michelle Breiner, Sisi Brimberg, Ted Driscoll, Al Ducheny, Carolina Shepard Espinosa, Fritz Faber, John Foster, Margaret Foster, Michael Foster, Jinky Gardner, Kerri Kinoshita, James Larrick, Elizabeth Luke, Marco Meniketti, Peter Miller, Armand Neukermans, Richard W. Rogers, Russell Skowronek, Beth Slevcove, Robert Uhlmann, Eric Von der Porten, Cathy Von der Porten, Peter Von der Porten, and Kevin Von der Porten.

The unsung work of coordinating everyone's activities at the headquarters motel, managing finances, and registering, numbering, and cataloging artifacts as they came in from the field has been managed on all the expeditions by Saryl Von der Porten, often aided by other team members.

Mr. Rodrigue Lévesque made the history of the *San Felipe* accessible by creating his twenty-volume *History of Micronesia*, with its translations of many useful documents. Mr. Lévesque answered my initial inquiry by immediately identifying the *San Felipe* as the only eastbound ship lost between 1574 and 1576, the period we had identified by porcelain analysis, and pointing out the relevant documents.

Mr. E. W. Giesecke introduced me to Mr. Lévesque's work and gave me his contact information. Mr. William Koiiman of the J. Porter Shaw Library in the National Maritime Museum, San Francisco, made a copy of the *History of Micronesia* available.

— Edward Von der Porten
Project Organizer

Acknowledgements continued...



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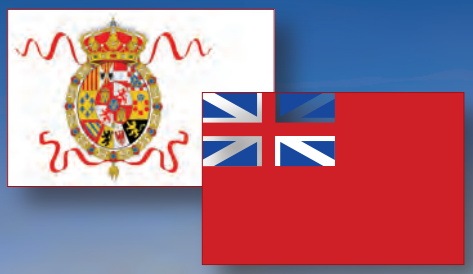
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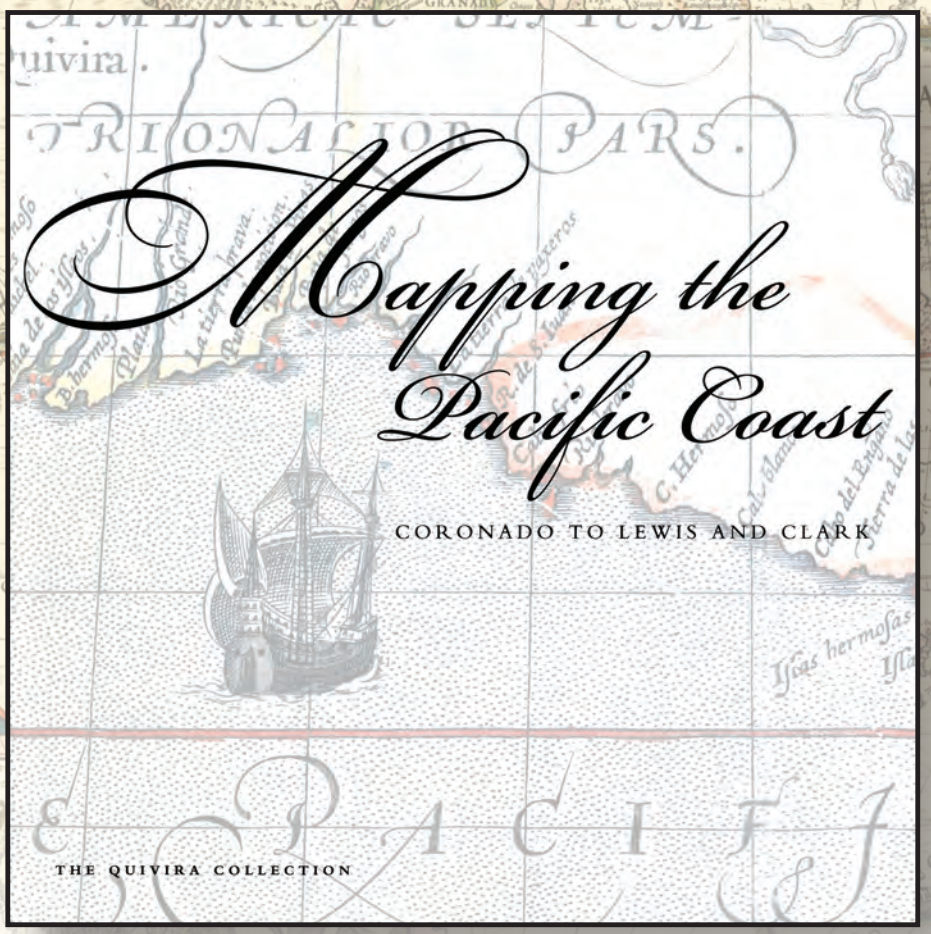




Enlightened Voyages

Epic Journeys that Changed the Pacific

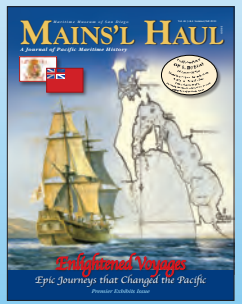
Premier Exhibits Issue



Mapping the Pacific Coast
Coronado to Lewis and Clark

The Quivira Collection – is the title of the Maritime Museum's latest world-class exhibit and of the exhibit's beautifully illustrated book by the collection's owner, Henry Wendt. The Quivira Collection, on exhibit in the Gould Gallery until March 2011, is composed of 45 magnificent maps, books and illustrations dating from 1544 to1802. Spanning 260 years of discovery and exploration in the Age of Enlightenment, the exhibit offers an extraordinary journey through one of the most important epochs in human history.

* Mapping the Pacific Coast *is curated by Eric Stanley, Sonoma County Museum.*
For additional information on the Quivira Collection see:
www.mappingthepacificcoast.com
and www.Envisioningtheworld.com



Front Cover: The Maritime Museum has launched its newest exhibit ***Enlightened Voyages,*** curated by Dr. Kevin Sheehan and Exhibits Director Maggie Walton, transforming the Museum's HMS *Surprise* into the 24-gun frigate HMS *Dolphin*. By tracing the historic voyages of the HMS *Dolphin* and the Spanish packet boat *San Carlos* in the late 18th century, the exhibit recreates the two voyages which changed the fate of empire-building in the Pacific, and would ultimately lead to the Spanish settling of San Diego in 1769.

Front Cover painting by Gordon Miller of the *San Carlos in the Golden Gate*, 1775.

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MAINS'L HAUL is published by the Maritime Museum of San Diego, wind and weather permitting, aboard the ferryboat *Berkeley*.

MAINSAIL HAUL–An order in tacking ship bidding, "Swing the main yards."

Maritime Museum of San Diego

MAINS'L HAUL

Vol. 46: 3 & 4 Summer/Fall 2010

A Journal of Pacific Maritime History

Enlightened Voyages



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Enlightened Voyages



Special Thanks to our Contributors:
Henry Wendt, Collection's Owner
and author of *Mapping the Pacific Coast*



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Artist: Richard DeRosset



Artist: Bruce Dragoo

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FROM THE HELM

by Ray Ashley, Ph.D.
President and CEO,
Maritime Museum of San Diego

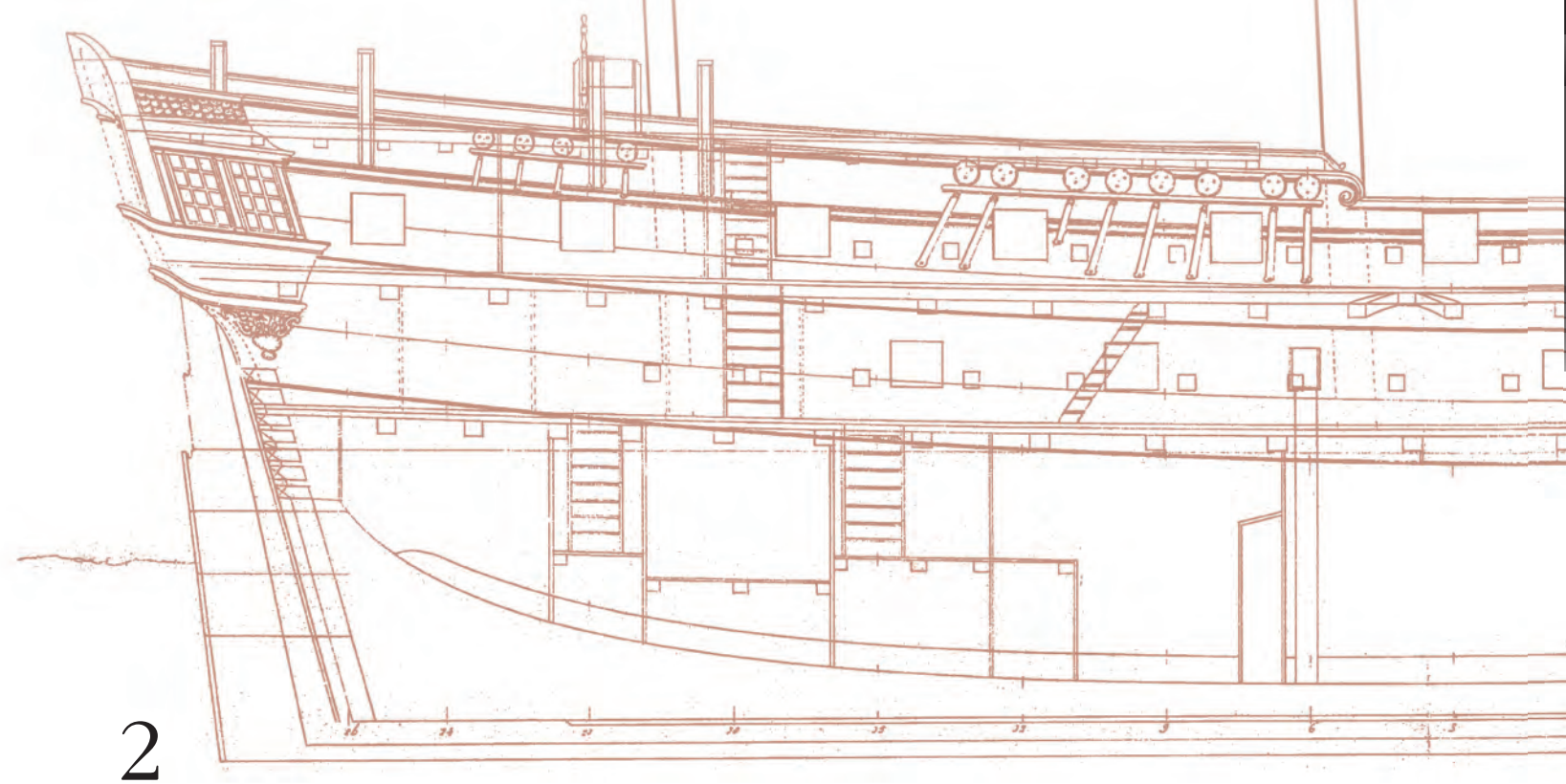
This issue of *Mains'l Haul* focuses on two of our most recent exhibits, one temporary and one permanent: *Mapping the Pacific* and *Enlightened Voyages*. Each of these exhibits addresses the chronological theme of Pacific seafaring that has governed the growth of the Maritime Museum of San Diego in recent years, touching upon every aspect of what we do: from educational programs, to collections, to the choices we make regarding the ships we add to our fleet, and the way we tell our stories. Each of these exhibits in turn derives from the general question: how did Pacific seafaring influence the turn of events that shaped the world we live in today?

The stories themselves, of course, are rooted in questions more specific than that. Why, for instance, did Spain, after discovering and claiming California in 1542, wait two and a quarter centuries to do something about it? And why then, after its long decline from superpower status of the sixteenth century, did Spain suddenly feel the need to colonize territories formerly deemed worthless, and challenge the rising might of other European states in an expensive contest for them? Finally, why did Spain, a traditionally Catholic power, agree to such a contest on unfamiliar terms: not by military might or by religious zeal, as in former times, but through the emerging tools and concepts of rationalism, including astronomy, botany, oceanography, cartographic survey, medical research, and ethnology?

The short answer was that Spain was provoked to it. As the conventional story goes the Russians, the French and the British started to project themselves into the Pacific and Spain had to respond. But such things had happened many times before without this outcome. This time it was different, exposing a vast empire to something it had never encountered before nor had scarcely dreamed of.

With minor aberrations, Spain enjoyed a monopoly in the Pacific because the Pacific was so vast, the entry into the Pacific so limited and difficult, the available bases so few and under Spanish control, and most importantly, because Europeans restricted to a conventional shipboard diet began to sicken and die from a horrific disease after only six weeks at sea. One can sail almost anywhere in the Atlantic and not be at sea longer than six weeks, but this is not true of the Pacific, and certainly not true in the absence of bases. Any serious attempt to challenge the Spanish required the seizure of bases, and that in turn required the kind of massive naval enterprise impossible in the absence of them. There was simply no way to get a foothold. Not that it wasn't attempted, but when such efforts were made, as in the circumnavigating voyage of George Anson 1740-1744, epic catastrophe was often the result.[1]

Then something extraordinary happened. A relatively small 24-gun frigate, HMS *Dolphin* (for which HMS *Surprise* is a fair likeness) wandered across the Pacific with few losses and no recourse to bases, seemingly at will, in circumnavigating the world. As though to prove this was no fluke, she then did the same thing a second time, discovering along the way a fantastically beautiful island that still lingers in universal memory as the embodiment of paradise, an island that Spain knew absolutely nothing about. The effect was electrifying. The ink on the charts was hardly dry before Spain reached out to secure its Eastern Pacific flank, establishing a chain of European settlements in a territory that would also come to define a notion of paradise to some, first, and most notably among them, San Diego. The Pacific of centuries past ceased to exist and an utterly new one came into being as the greatest of all dark regions was charted, inventoried, and understood in rational terms. The effort reflexively defined the European enlightenment itself just as the participants on those enlightened voyages who had





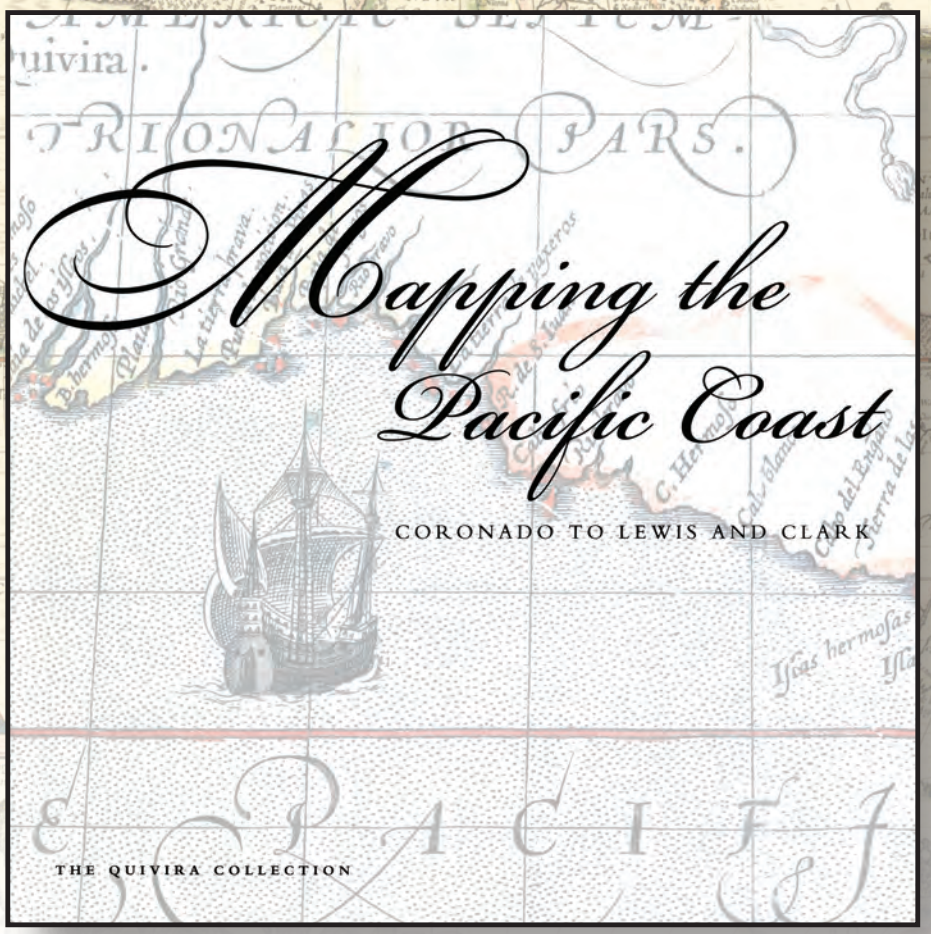
sailed with Cook, Bougainville, La Perouse, Baranov, Malaspina, Bodega y Quadra, and Vancouver gave their names to the places and things they encountered.

In front of you are two aspects of a Pacific emerging from the darkness and two points of view: one experiential as you step onto the deck of HMS *Dolphin* (portrayed daily by HMS *Surprise*) as she attempts to do what no ship before her has ever done - sail twice around the world, and, the other view, the abstraction of that experience over centuries as it unfolds in cartography. In those terms, it is not simply "Mapping the Pacific" you will encounter, but the mapping of a dark and terrible space as it evolves into an enlightened one.

The 18th-century replica frigate HMS *Surprise* (pictured) recalls an era when men-of-war functioned as deep ocean research vessels. Later voyages, such as those of Captain Cook, relied on merchant ships such as colliers that provided far higher storage payloads in relation to their crew. By that time, however, the point had been well made: European warships could seemingly roam the vast Pacific at will. The Pacific was no longer a Spanish lake. Bearing a striking resemblance to the 24-gun frigate HMS *Dolphin*, the Maritime Museum's *Surprise* now tells the story of Pacific voyaging during the Enlightenment and how some of those voyages led to the founding of San Diego.

Photo by Maggie Walton

1 Ray Ashley, "*such a dreadful and fatal passage* – Anson's Arrival in the Pacific," *Mains'l Haul*, Vol. 38:1&2, 36-49.



by Henry Wendt

The maps and illustrations in the Quivira Collection date from 1540 to 1802, a span of 260 years or so. These dates also bracket a period of history unprecedented for the general expansion of knowledge and information. After all, the use of the printed word began with the Gutenberg Bible of 1455. The first application of the new technology of printing to maps and geographical knowledge coincides almost exactly with Columbus's first voyage in 1492. Thus the maps in this collection span the transition from the European Renaissance to the Age of Enlightenment and bear eloquent testimony to the expansion of useful knowledge.



Editor's Note: The exhibit, *Mapping the Pacific Coast - Coronado to Lewis and Clark* - The Quivira Collection, is currently on display in the Gould Gallery aboard *Berkeley*. The maps presented in the following pages are from this extensive exhibit and from the book of the same name. The author and Collection's owner, Henry Wendt, has kindly given us permission to reproduce a few select maps, with his accompanying text, in *Mains'l Haul*.



Abraham Ortelius

Maris Pacifici

Antwerp, 1589

One of the most important maps appearing in Ortelius's popular atlases, this was the first map devoted to the Pacific Ocean, the discovery of which is memorialized by the depiction, with the legend, of Ferdinand Magellan's flagship *Victoria*. This map quite accurately depicts *Nova Hispania* (Mexico) and the California peninsula. The west coast of America is, however, elongated, with a bulge along the 40° N latitude (just north of San Francisco Bay). Nevertheless, many of the place-names from Cabrillo's voyage of 1542-1544 are shown along the coast, including *Cape Mendocino* and *Cape de San Francisco*. *Quivira* is shown to the northeast of *Cape Mendocino*. Japan is moved farther west closer to the coast of the Asian continent. Note the depiction, in the upper left corner of the map, of the Great Wall of China (as reported four hundred years previously by Marco Polo, who even at this date was believed to have been the only European to have seen it).

***Maris Pacifici* suggests a large continent in the Southern Hemisphere. This assumption, widely held at the time, results from calculations of the landmass in the Northern Hemisphere and the theory that there must be an equivalent mass and weight in the South in order to balance the earth on its axis.**



Cornelis de Jode

Quiviræ Regnũ

Antwerp, 1593

This is the first map devoted exclusively to the west and northwest coasts of North America and comes from Cornelis de Jode's atlas entitled *Speculum Orbis Terræ*. Having been issued in only one edition of the atlas, this map is extremely rare.

The title, *Quiviræ Regnũ,* means Kingdom of Quivira. The city of Quivira is positioned on the banks of a river situated below *Cape Mendocino* and above *C. de San Francisco*. The map is beautifully decorated with imaginative drawings of buffaloes, natives in their tents, an Asian ship suggesting trade with the Orient, and two sea monsters. The *Strait of Anian*, separating the two continents, is prominent, as is the Northwest Passage. The implication is, of course, that if one could find a route from Europe to the Kingdom of Quivira, preferably via the Northwest Passage, the Quivirans would point the way to the western route to Asia and thus the spice monopolies of Portugal and Spain could be broken. This notion inspired much European exploration of North America and, in particular, influenced Louis XIV of France, who commissioned several attempts to find the Northwest Passage and who also instructed the comte de Frontenac to proceed overland to Quivira after founding a city (New Orleans) at the mouth of the Mississippi.







Jodocus Hondius

Septentrio America

Amsterdam, 1606

This beautiful and handsomely illustrated map of North and South America appeared in a general world atlas first published by Hondius in 1606 and it was reprinted many times until 1630. It is a stereographic projection with the curvature of the earth displayed by curving longitudinal lines that join at each Pole. Central and South America are portrayed quite accurately, but the extreme western extension of North America is exaggerated. Hondius was one of the first cartographers to include the discoveries made by Sir Francis Drake's raiding expedition against the Spanish empire and Drake's resulting circumnavigation of the globe between 1577 and 1580. On this map present-day California is labeled *Nova Albion*, which is the name given it by Drake, and *Quivira Regnum* has been pushed a little farther north toward *Anian Regnum*.

Inset in the lower left corner is an illustration of Brazilian natives making a local drink. The large ship in the Pacific opposite *Nova Albion* is a Japanese sailing vessel with a large anchor on the bow.





Nicolas Sanson

Le Nouveau Mexique, et La Floride

Paris, 1656

Although not the first map to depict California as an island (the credit, or blame, for that persistent misconception goes to John Briggs's map published in London in 1625), this map is probably the more influential in that it was widely studied and copied throughout Europe. This is the first map of any note to focus on *Nouveau Mexique* and the first map of the area to be produced on such a large scale. New Mexican Indian tribes are identified along the *R del Norte*, or Rio Grande, mistakenly shown flowing southwest rather than southeast. There are new place-names on the west coast including, particularly, the peninsula *Agubela de Cato* jutting to the northwest above *Californie Isle*. Sanson's depiction of the north coast of the island of California with three "fingers" was widely copied by other European cartographers and perpetuated in many later editions of Sanson's own maps.



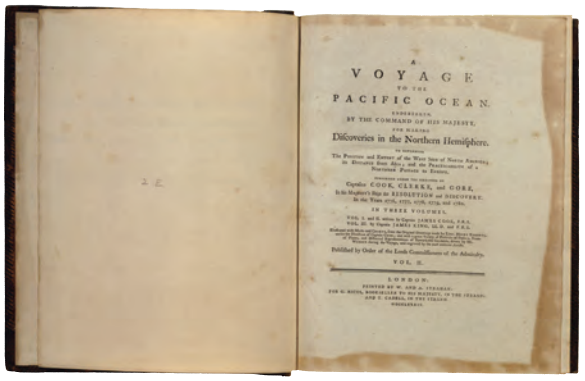
Miguel Venegas

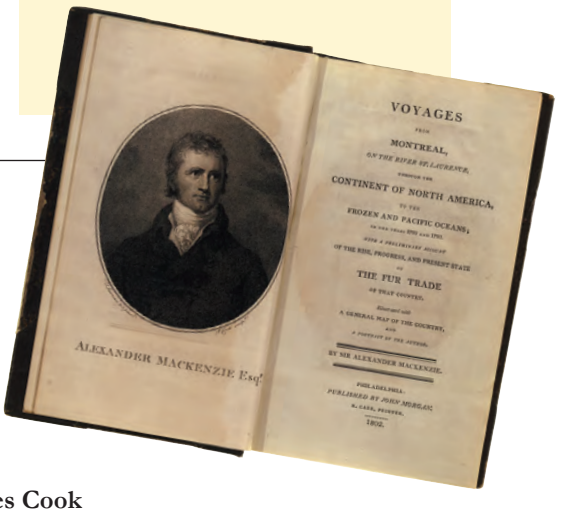
Mapa de la California su Golfo, y Provincias fronteras en el Continente de Nueva España

Madrid, 1757

The Spanish authorities, much like the Russians, preferred as a matter of policy to keep records of their explorations, especially maps, secret. Consequently, published Spanish maps from the Age of Exploration are quite rare. This map drawn by Miguel Venegas, a Jesuit missionary active for many years in New Spain, is based on Father Kino's famous map of 1701, which was published first in Paris in 1705. However, unlike Kino, Venegas shows the full length of the peninsula and includes more place-names and has more updated material. This map, a rare first edition, accompanied the first history of California, *Noticias de la California y de su conquista temporal y espiritual…*, **published in three volumes, by Miguel Venegas, S.J., in Madrid, in 1757.**

Editor's Note: We are able to present in *Mains'l Haul* only a small portion of the *Mapping the Pacific Coast Exhibit*. The exhibit is much more extensive including rare books and illustrations such as those pictured.


A
VOYAGE
TO THE
PACIFIC OCEAN.
Undertaken,
BY THE COMMAND OF HIS MAJESTY,
FOR MAKING
Discoveries in the Northern Hemisphere.
IN THREE VOLUMES.
VOL. II.
LONDON.


VOYAGES
FROM
MONTREAL,
ON THE RIVER ST. LAURENCE,
THROUGH THE
CONTINENT OF NORTH AMERICA,
TO THE
FROZEN AND PACIFIC OCEANS;
IN THE YEARS 1789 AND 1793.
WITH A PRELIMINARY ACCOUNT
OF THE RISE, PROGRESS, AND PRESENT STATE
OF
THE FUR TRADE
OF THAT COUNTRY.
ALEXANDER MACKENZIE Esq.
BY SIR ALEXANDER MACKENZIE.
PHILADELPHIA:
PUBLISHED BY JOHN MORGAN,
1802.

Left: This extraordinary collection: *A Voyage of the Pacific Ocean undertaken by the Command of His Majesty for Making Discoveries in the Northern Hemisphere…* **by Captain James Cook (vols. 1 & 2) and Captain James King (vol. 3) and Atlas (vol. 4), London, 1784, are from the first edition and form the first official account of Cook's third expedition.**

Above Right: Also on display: *Voyages from Montreal, on the river St. Laurence, through the Continent of North America, to the Frozen and Pacific Oceans…* **by Sir Alexander Mackenzie, Philadelphia, 1802. Originally published as** *Mackenzie's Journal*, **the log recounts the trek of the first European to discover and document the overland route to the Pacific.**

*** The complete Exhibit catalogue,** *Mapping the Pacific Coast*, **by Henry Wendt, can be purchased in the Museum store.**

Enlightened Voyages

Epic Journeys that Changed the Pacific

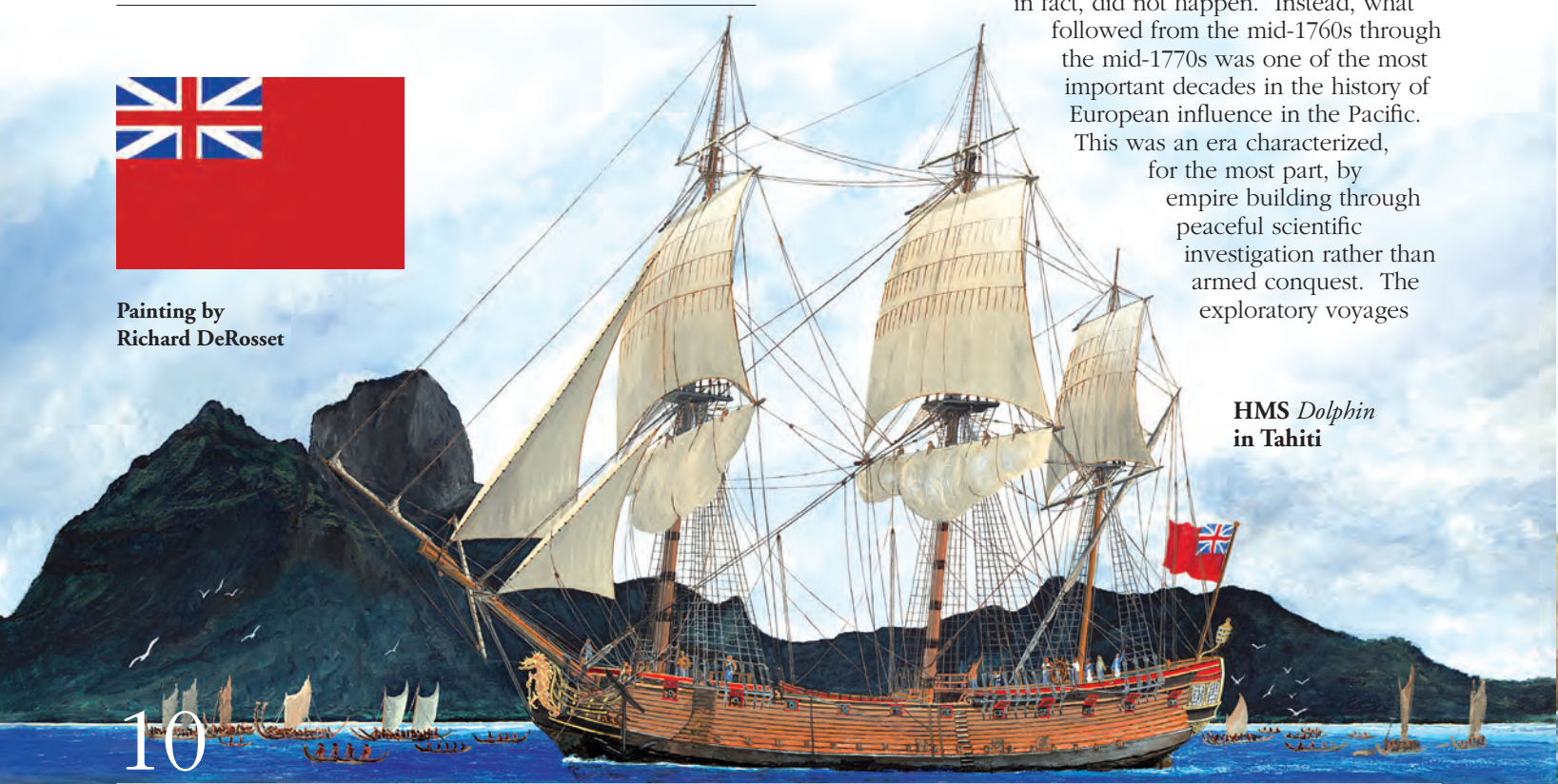
Introduction and Exhibit curated by Dr. Kevin Sheehan / Exhibit Designer, Maggie Walton, MMSD

The Maritime Museum of San Diego's latest exhibit, *Enlightened Voyages: Epic Journeys that Changed the Pacific*, tells the story of the events that led up to the founding of the Spanish port of San Diego in 1769. This history has been presented many times in both scholarly and popular works. Visitors to the Serra Museum and Mission San Diego de Alcalá will find it engagingly interpreted at these historic sites. What makes *Enlightened Voyages* different from the displays found at local interpretative centers? The Maritime Museum's aim is to present – in keeping with its mission of preserving and recounting San Diego's seafaring history – a story that focuses not so much on territorial expansion embodied in the missions and presidios of Upper California, but rather focuses on the vital role of vessels and seafarers in one of Spain's last attempts at imperial expansion in the eighteenth century.

Editor's note: This overview of the Maritime Museum's new exhibit has been prepared by Dr. Kevin Sheehan. The following pages represent a selection of narrative panels currently aboard the HMS *Surprise*. Collectively, they tell the story of two historically significant ships, the HMS *Dolphin* and the Spanish packet boat *San Carlos*, in the founding of San Diego.

The founding of San Diego, the first of the Spanish settlements in Upper California, is closely tied to events that occurred halfway around the world in a Europe torn apart by dynastic rivalries. The Bourbon rulers of Spain maintained close family ties with their French counterparts throughout much of the eighteenth century. Invariably, the Spanish were drawn into the conflicts that periodically erupted between the French and other European powers, most notably the British. Monumental among these was the Seven Years' War (1756-1763), a conflict for supremacy in Europe that was also fought in the Americas. At the end of the war Britain emerged as the dominant European maritime power after soundly defeating the French on land and at sea, as well as effectively neutralizing the Spanish. Chastened by a mediocre performance during the hostilities, Spain now set out on a radical overhaul of her imperial defenses. These outcomes would have profound implications for the Pacific; it was in this oceanic arena that British expansion and Spanish counter strategies would be played out during the remainder of the eighteenth century.

From this perspective it appeared likely that Spain and England would find themselves in a direct competition in the Pacific that would inevitably lead to violent conflict. This, in fact, did not happen. Instead, what followed from the mid-1760s through the mid-1770s was one of the most important decades in the history of European influence in the Pacific. This was an era characterized, for the most part, by empire building through peaceful scientific investigation rather than armed conquest. The exploratory voyages



Painting by
Richard DeRosset

HMS *Dolphin* in Tahiti

in the Pacific sponsored by European rulers resulted in a broad exchange of knowledge between scholars inspired by the philosophical methods of the Enlightenment that valued careful observation and rational conclusions.

The ship that began this extraordinary decade of maritime reconnaissance was a British Royal Navy sixth-rate frigate, HMS *Dolphin*. In 1764, the *Dolphin* set out on a voyage that reflected Britain's new global ambitions. Her commander, Captain John Byron, carried with him secret instructions that specifically forbade antagonizing Spanish authorities. Byron was ordered to reconnoiter the coast of New Albion, a region corresponding roughly to Northern California. Francis Drake had claimed this territory for England in 1579, but it had rarely been visited by European vessels since that time. Byron was also instructed to seek out evidence of a "Northwest Passage" linking the Atlantic with the Pacific, believed to exist somewhere to the north of New Albion. The discovery of this sea route would have had enormous implications for commerce, by opening the North Atlantic world to the emporia of East Asia through a more direct sea voyage. Once in the Pacific, however, Byron abandoned this search, deciding that a speedy circumnavigation was more in the interests of his vessel and crew. The quest for the Northwest Passage would continue to draw British, Spanish, and French ships to the Pacific Northwest throughout the remainder of the century.

No sooner had the *Dolphin* returned to England in 1766, than she was resupplied, placed under the command of Captain Samuel Wallis, and sent to the Pacific a second time. The official instructions were different for this voyage. Wallis was ordered to seek out the elusive southern continent – *Terra Australis* – a quest that had fascinated European navigators since the sixteenth century. Wallis found it almost impossible to make headway against the westerly winds in the southern reaches of the Pacific, and so the *Dolphin* was forced to sail farther to the north than had been initially planned. On June 18, 1767, the weary travelers sighted what they believed to be the mountainous peaks of the southern continent. In fact, this turned out to be the island of Tahiti. Thus began a series of encounters between Europeans and the Tahitians that would be idealized in artistic and narrative form in subsequent decades.

The *Dolphin*'s two circumnavigations, while an achievement in their own right, fell short of the British Admiralty's initial ambitions. The Northwest Passage and *Terra Australis* remained, for the moment, elusive. Nevertheless, these voyages would have a profound impact on other European powers, most notably the Spanish who considered the Pacific their exclusive domain. The reaction of the Spanish crown was swift and decisive, evidence of the effectiveness of previous reforms enacted to better organize colonial government. In 1772, authorities in the Viceroyalty of Peru sent the *Aguila* to protect Spanish interests in Tahiti. Three years earlier in New Spain, the crown's Inspector General José de Gálvez personally oversaw an ambitious plan to secure the Pacific Northwest from encroachment by other rival powers.

Gálvez's plan involved sending four expeditions – two by sea and two by land – to found a series of permanent Spanish settlements in Upper California. The voyage of the Spanish packet boat *San Carlos*, the first vessel to set out from La Paz in Baja California to establish a Spanish port at San Diego, is a story of both tenacity and tragedy. Buffeted by adverse winds and seas, and carrying charts and sailing instructions that erroneously placed San Diego much farther to the north than its actual location, the *San Carlos* underwent a harrowing voyage of 110 days before anchoring at the entrance to San Diego Bay, on the night of May 1, 1769. Sickness devastated the weakened survivors. Within a few weeks dozens of the passengers and crew of the *San Carlos* would lie buried a few yards from the shore.

Despite these inauspicious beginnings, the Spanish maintained their position in San Diego, and also succeeded in sending exploratory parties farther north to Monterey and San Francisco. By the end of the eighteenth century, with their overseas possessions still largely intact, the Spanish appeared to have forestalled the advance of their rivals in the Pacific Northwest.

In the meantime, the Pacific yielded up many of its most closely guarded geographic and hydrographic secrets thanks to a series of European navigators who followed in the wake of the *Dolphin*.



San Carlos **off San Francisco**

Painting by Gordon Miller

Enlightened Voyaging

A New Method of Exploration

By the middle of the eighteenth century, European interest in global exploration had reached new heights. The principal European maritime powers – Spain, Britain, and France – ordered a series of vessels to the distant corners of the Pacific Ocean. Russia too sent explorers eastward across Siberia to survey the North Pacific for the possibility of tribute and trade. The motivation for these voyages was not simply to lay claim to unknown regions. Explorers educated in the principles and methods of the Enlightenment saw these journeys as unique opportunities to study nature through scientific research. The new knowledge thus acquired was based on careful observation and its findings shared through the publication of charts and scientific papers.



Rulers Monarchs and governments, influenced by the philosophy of the eighteenth-century Enlightenment, saw voyages of exploration as a way of building overseas empires based on useful knowledge from the natural world.



[600]

PTEROSPERMUM ACERIFOLIUM. MAPLE-LEAVED PTEROSPERMUM.

Class and Order.

MONADELPHIA DODECANDRIA.

Generic Character.

Cal. Simplex 5-partitus. *Cor.* 5-petala. *Stam.* 20, quorum 5 fertilia. *Capf.* lignosa 5-locularis. *Sem.* alata.

Specific Character and Synonyms.

PTEROSPERMUM *acerifolium*; foliis subrotundis peltatis repando-crenatis.

PTEROSPERMUM *acerifolium*. *Willd. Sp. Pl.* 3. p. 769.

PENTAPETES *acerifolia*; foliis erectis repandis. *Linn. Amoen. Acad.* 1. p. 134. *Sp. Pl.* 959. *Reichard.* 3. p. 331. *Cavan. Dif.* 3. p. 131. t. 44. *Mart. Mill. Dict.*

PTEROSPERMADENDRUM foliis acutis, flore fructuque majore. *Amman. Ganc. Petrop.* 8. p. 216. t. 16 et 17.

VELAGA *xylocarpa*. *Koenig. p.* 389. *Gertn. fruct.* 2. p. 245. t. 133. f. 2.

The first mention we find of this plant is in the eighth volume of the Petersburgh Commentaries, by Professor AMMAN. LINNÆUS established the genus in his Flora Zeylanica, under the name of PENTAPETES, but having afterwards admitted PENTAPETES *phœnicea* as a species, this name is now generally applied to the latter, undoubtedly a different genus, and SCHREBER in his edition of the Genera Plantarum, restored, as nearly as possible, AMMAN's original name, taken from the winged seed, in which he has been followed by WILLDENOW

Books, Charts and Drawings Observing, measuring, recording, and publishing brought the knowledge acquired from scientific voyages to a broader audience.

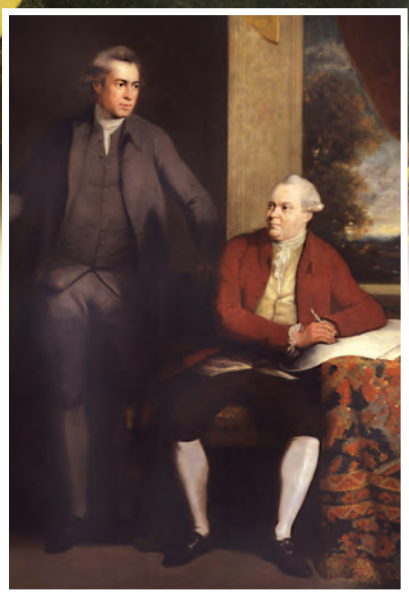




Indigenous peoples Encounters with the peoples of the Pacific fascinated scientists, missionaries, and their royal patrons. Indigenous knowledge, hospitality, and natural resources were highly sought after by European voyagers.

In the eighteenth century, European rulers, scientists, and explorers joined forces in a deliberate effort to reach a new understanding of the Pacific Ocean and its bountiful resources.





Scientists Scholars on board the vessels of exploration used them as floating laboratories, and eagerly gathered information on plants, animals,minerals, and other peoples.



Explorers The success of long oceanic voyages depended on the services of expert and innovative mariners.



Ships Experience taught mariners that the most suitable ships for voyages of exploration were sturdy vessels with shallow drafts and good storage.

The Epic Voyages of HMS Dolphin

On April 9, 1765, the British Royal Navy frigate HMS Dolphin entered the Pacific Ocean and began a race for empire that would ultimately lead to the founding of Spanish California.



The 1764-1766 Voyage

The *Dolphin's* commander Captain John Byron carried orders to explore the coast of California, and to determine if a navigable waterway – the fabled Northwest Passage – did indeed connect the Pacific Ocean with the North Atlantic. Byron and the *Dolphin* would never venture as far as the Pacific Northwest. However, the adventures of the *Dolphin* and her crew would cause the Spanish to reconsider their strategy in the Pacific.



The 1766-1768 Voyage

Captain Samuel Wallis was placed in command of the *Dolphin* in 1766 and ordered to find the continent believed to exist somewhere in the South Pacific. Like Byron before him, Wallis found the sailing conditions in the Pacific to be extremely difficult, and he was forced to abandon the search for *Terra Australis*. Instead he came across the island of Tahiti. When Wallis submitted his report of the voyage to the British Admiralty, it contained precise details of Tahiti's latitude and longitude. The British Royal Society decided that Tahiti would be an ideal location to observe the Transit of Venus, and in 1768 sent the *Endeavour,* under Captain James Cook, to visit the island and conduct a series of scientific observations.



Left: This map of the Americas shows clearly the great advantages in finding a new route from the North Sea (the Atlantic) to the South Sea (the Pacific). By avoiding the treacherous voyage through the Strait of Magellan or around Cape Horn, the British stood to gain a more direct route to the riches of Asia and effectively challenge Spain's monopoly in the Pacific.

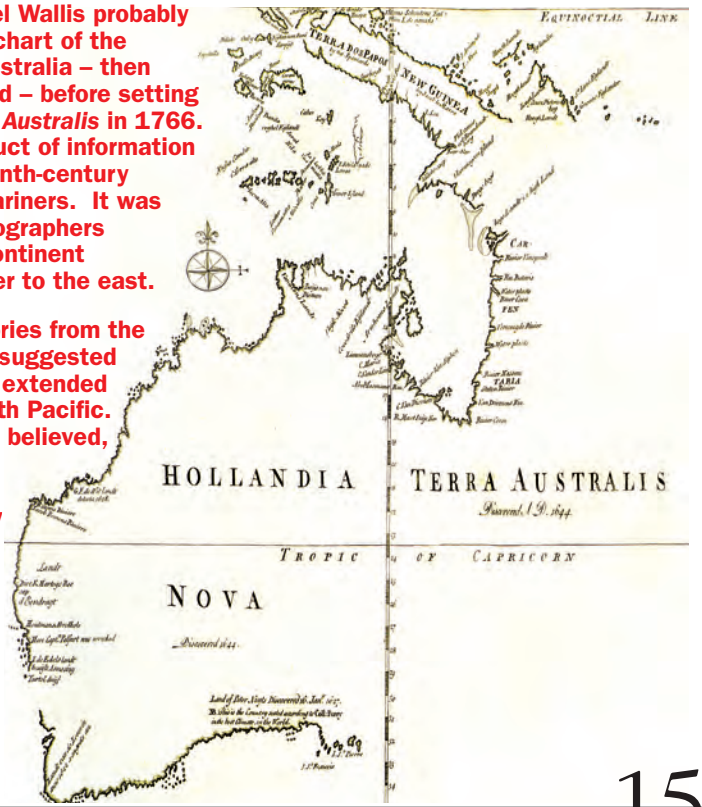


Right: Captain Byron was given secret instructions to seek out New Albion, a region corresponding to Northern California, and claimed for England by Francis Drake almost two centuries earlier in 1579. This detail from a map made by the Dutch cartographer Jodocus Hondius in 1589 clearly shows the reason why Spanish authorities were so alarmed by British interest in New Albion. If British claims had been backed up by an attempt to settle the region, the security of the Spanish Viceroyalty of New Spain (Mexico) would have been severely threatened.



Left: Geographic theories from the sixteenth century on suggested that a vast continent extended over much of the South Pacific. This continent, it was believed, "balanced" the land masses of Europe and Asia. This theory clearly influenced Jodocus Hondius in his 1589 world map portraying European voyages of discovery. The theory was still very much in vogue when the *Dolphin* put to sea in 1764.

Right: Captain Samuel Wallis probably consulted this 1744 chart of the western portion of Australia – then known as New Holland – before setting out in search of *Terra Australis* in 1766. The chart is the product of information gained from seventeenth-century voyaging by Dutch mariners. It was assumed by many geographers that the Australian continent extended much further to the east.



The Dawn of a New Era

Imperial Rivalry in the Eighteenth-Century Pacific



Right: George III of England (reigned 1760-1820) ruled during one of the most important eras in British history. Under "farmer George" Britain experienced a sweeping agricultural revolution and the beginnings of industrialization. British naval victories during the Seven Years' War (1756-1763) laid the way for the expansion of Britain's overseas empire.

British Initiatives

The *Dolphin*'s two circumnavigations (1764-1766, 1766-1768) effectively demonstrated Britain's capacity to capitalize on its naval victories in the Seven Years' War. These voyages also established the first serious and ongoing challenge to Spanish maritime power in the Pacific. Improved hygiene, diet, and navigational techniques increasingly allowed vessels to stay at sea for longer periods. The *Dolphin* demonstrated in a way never before possible that ships, rather than ports, were the key to maritime supremacy and colonial empire.

Until the *Dolphin*'s voyages, two centuries of sporadic British forays into the Pacific like those of Francis Drake (1578-1579), Thomas Cavendish (1587), and George Anson (1741), had focused on capturing Spanish galleons laden with treasure and raiding prosperous Spanish ports in the Americas. By contrast, the *Dolphin*'s commanders – John Byron and Samuel Wallis – received orders to avoid antagonizing Spanish authorities. For the first time, the British came to the Pacific with the aim of discovery rather than plunder.



Spanish Responses

The isolation of Spain's possessions in the Pacific from other European settlements and trade routes had long permitted the Spanish to maintain a minimal military presence in the region. The voyages of the *Dolphin* began a new era of European interest in the Pacific, and caused Spain to reassess its strategic priorities. This led to the formulation of a two-fold plan to increase the security of Spanish imperial claims. First, the Viceroy of Peru sent an expedition to Tahiti to establish a permanent Spanish mission in the islands. Second, the Viceroy of Mexico and Charles III's Inspector General, José de Gálvez, organized expeditions by land and sea to settle Upper California. In 1769 three packet boats, the *San Carlos*, the *San Antonio*, and the *San José,* set out to found a Spanish port at San Diego.

Left: Charles III of Spain (reigned 1759-1788) was one of the great "Enlightened Monarchs" of the eighteenth century. He introduced a series of sweeping changes in Spain's government known as the Bourbon Reforms. Charles rightly perceived the British as his principal adversaries. Under his rule, Spanish policies sought to curb any attempt by other powers to gain a foothold in the Pacific. He strengthened the frontiers of Spain's possessions through the founding of mission settlements in California.



Englishman George Anson's foray into the Pacific in HMS *Centurion* in 1741 was the last eighteenth-century British voyage sent to the South Sea with the express purpose of attacking Spanish ports and shipping. Anson captured the treasure-laden Manila galleon *Nuestra Señora de Covadonga*. With the voyages of the *Dolphin* in the 1760s, the British Crown set in motion a new strategy in the Pacific focusing on exploration.



The Dolphin's Claims to Fame

- The first circumnavigation to take less than two years, (June 1764-May 1766).
- The first ship to circumnavigate the globe twice.
- The first recorded European vessel to visit the island of Tahiti.
- The second ship in the British Navy to be copper-plated below the waterline.



HMS *Dolphin*,
Artist: Bruce Dragoo.

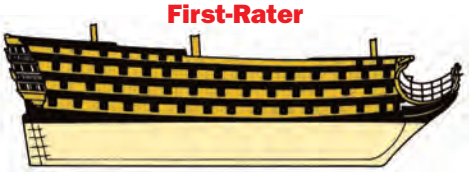
The Dolphin at a glance



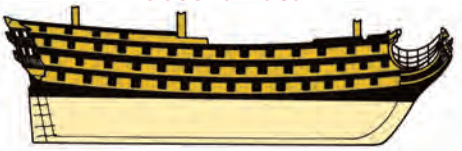
Design:
British Royal Navy 1745 Establishment
Shipyard:
Woolwich Dockyard, United Kingdom
Laid down:
August 3, 1748
Launched:
May 1, 1751
Commissioned:
June, 1752
Class:
Sixth-rate frigate
Length:
113 feet (34 meters) on the gun deck
Beam:
32 feet 1 inch (9.78 meters)
Tons burthen:
511 long tons
Compliment:
160 officers, marines, and crew
Armament:
lower deck:
2 x 9 pounders
upper deck:
20 x 9 pounders
quarter deck:
2 x 3 pounders
Broken up:
January, 1777

How the *Dolphin* compares to other Royal Navy vessels:

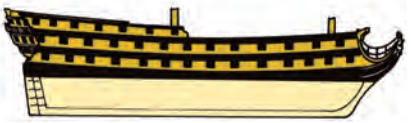
First-Rater



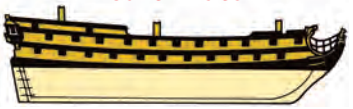
Second-Rater



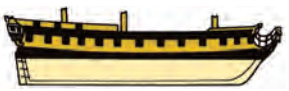
Third-Rater



Fourth-Rater



Fifth-Rater



Sixth-Rater – HMS *Dolphin*



Woolwich Dockyards where the *Dolphin* was constructed.





A Royal Navy sixth-rate frigate, similar to HMS *Dolphin*, on the stocks.

The Captains

John Byron (1723-1786) was forty years of age when he assumed command of HMS *Dolphin* in 1764. Byron had first joined the British Navy as a midshipman in 1740. That year he sailed on the *Wager* in a fleet commanded by George Anson, with express orders to harass Spanish shipping and ports in the Pacific. A violent storm wrecked the *Wager* on the coast of Chile. Spanish authorities eventually captured and repatriated Byron and a small group of survivors. The author Patrick O'Brian fictionalized Byron's adventures on the *Wager* in his 1959 novel *The Unknown Shore*. Critics suggest that Byron's character was used as a prototype for Jack Aubrey in later O'Brian novels.

During the Seven Years' War, Byron took command of a squadron sent to destroy the fortifications at Louisbourg. In 1760, ships under his command defeated a French flotilla at the Battle of Restigouche, thereby ending the last French attempt to resupply their forces in the Americas.

After the *Dolphin*'s first circumnavigation (1764-1766), Bryon was appointed British governor of Newfoundland. He was subsequently promoted to rear admiral and later vice admiral. He fought against the French during the American War of Independence.



Above: Captain the Honorable John Byron. Portrait by Joshua Reynolds, 1759.



Left: Captain Samuel Wallis. Portrait by Henry Stubble, ca. 1785.



Samuel Wallis (1728-1795) was born near Camelford, Cornwall. Wallis entered the British Royal Navy at a young age and served as a junior officer during the War of Austrian Succession (1740-1748). He was made lieutenant in 1748. Wallis was placed in command of the *Dolphin* in 1766 and ordered to seek out the continental landmass known as *Terra Australis*, which European geographers believed existed somewhere in the South Pacific. Like Byron before him, Wallis failed to achieve the objectives set by the British Admiralty. Nevertheless, he is credited with the European discovery of the island of Tahiti. He also supplied invaluable information to James Cook prior to Cook's departure for the South Sea in 1768. Following the *Dolphin*'s second circumnavigation (1766-1768), Wallis was placed in command of a number of British warships, until named a Commissioner of the Navy in 1782 and again in 1787.



Survivors of the wreck of the *Wager*, 1741, from *The Narrative of the Honorable John Byron*, published in 1768.

Paradise Found





Eighteenth-century European artists like William Hodges idealized the natural beauty of Tahiti.

HMS *Dolphin*'s arrival at Tahiti in 1767 began a new era of European interest in the Pacific. For British, French and Spanish explorers, the island now came to represent an earthly paradise.

On June 18, 1767, the voyagers on the *Dolphin* observed a high cloud-covered mountain on the horizon. At first they assumed it was part of the mysterious Southern Continent, *Terra Australis*, that they had been sent to find and explore. George Robertson, master of the ship, remarked in his journal: "...we now supposed we saw the long wished for Southern Continent, which has been often talked of, but never before seen by any Europeans." The land in fact proved to be the island of Tahiti.





A chart of Tahiti and surrounding islands by Captain James Cook.

> "...The country had the most beautiful appearance its possible to imagine... The interior part of the country is very mountainous but there are beautiful valleys between the mountains. From the foot of the mountains halfway up the country appears to be all fine pasture land, except a few places which seemed to be plowed or dug up for planting or sowing some sort of seed... This appears to be the most populous country I ever saw. The whole shore side was lined with men, women and children all the way that we sailed along."
>
> George Robinson, *Journal*, Master of HMS *Dolphin*, Tahiti, June 20, 1767.



Much of the European fascination with the Pacific in the last decades of the eighteenth century can be attributed to the glowing accounts of Tahiti's natural beauty and its people's apparently idyllic lifestyle as written by officers on the *Dolphin* in 1767.

> "It is impossible to describe the beautiful prospects we beheld in this charming spot. The verdure is as fine as that of England. There is great plenty of live stock, and it abounds with all the choicest productions of the earth."
>
> Captain Samuel Wallis's description of the island of Tahiti, 1767.



Noble Savages

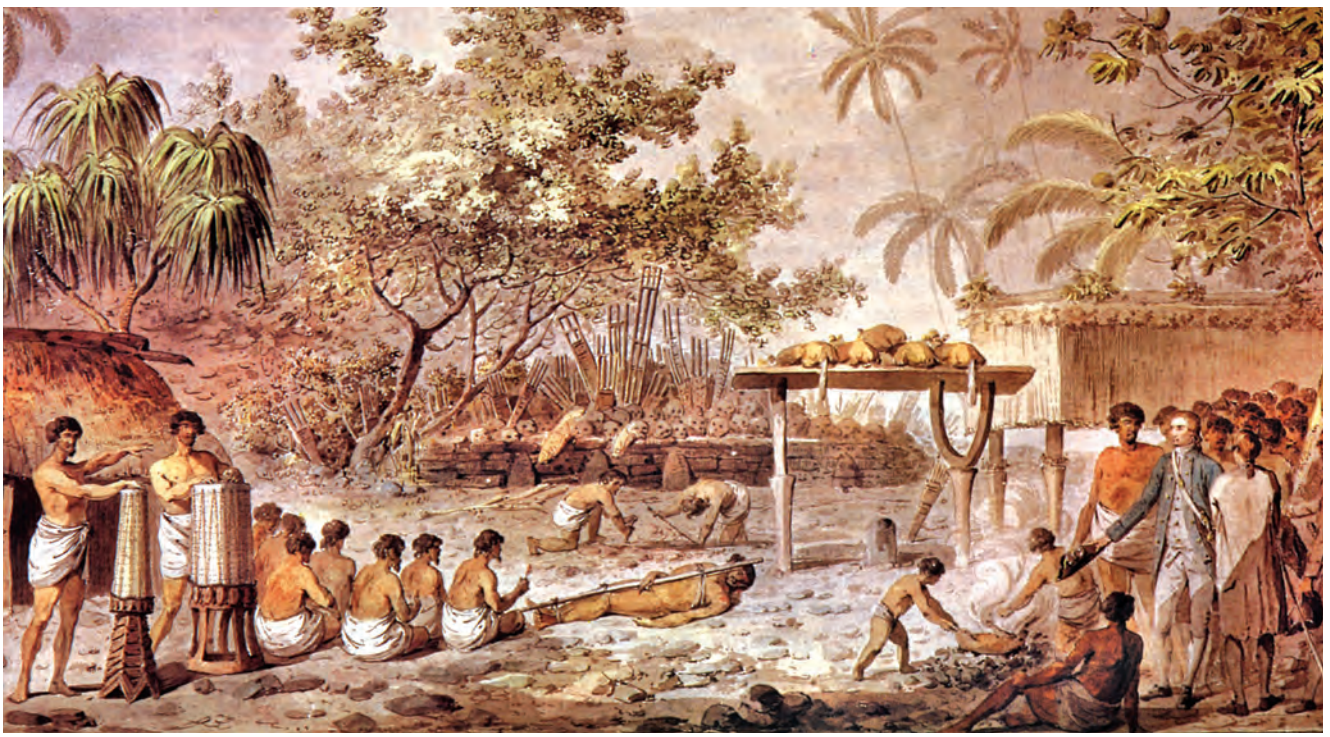
The *Dolphin*'s second circumnavigation (1766-1768) put Tahiti on European charts of the Pacific for the first time. Tales of the hospitality and idyllic lifestyle of the island's inhabitants blended with European philosophers' idealized concepts of the qualities of "natural man." Naïvely, in the European imagination, Tahitian society became an example of an innocent and uncomplicated society.

The French explorer Louis-Antoine de Bougainville first sighted Tahiti on April 22, 1768, less than ten months after the island was claimed for the British crown by Samuel Wallis. Unaware of the *Dolphin's* visit, Bougainville drew up an Act of Possession for France. He named the island La Nouvelle Cythère, after the Mediterranean island of Kithira where, according to Greek mythology, the goddess of love Aphrodite was said to have risen from the sea. Bougainville wrote of his brief visit to Tahiti: "Several times I went on inland walks. I felt as though I had been transported to the Garden of Eden… Everywhere reigned hospitality, peace, joy, and every appearance of happiness."



John Webber, *A Dance at Otaheite*, 1777.

Trained and talented artists, whose task was to record not only the exotic landscape of the South Seas, but also the newly encountered societies and their cultures that so fascinated eighteenth-century Europeans, regularly traveled on later voyages into the Pacific. The artist John Webber, present on Cook's third voyage (1776-1779), provided a glimpse of Tahitian society suitably censored for upper-class English sensibilities.



John Webber, *A Human Sacrifice at Otaheite*, 1777.

Violent Encounters

The clash between the crew of HMS *Dolphin* and the islanders of Tahiti in 1767 shows the darker side of "Enlightened" voyaging.

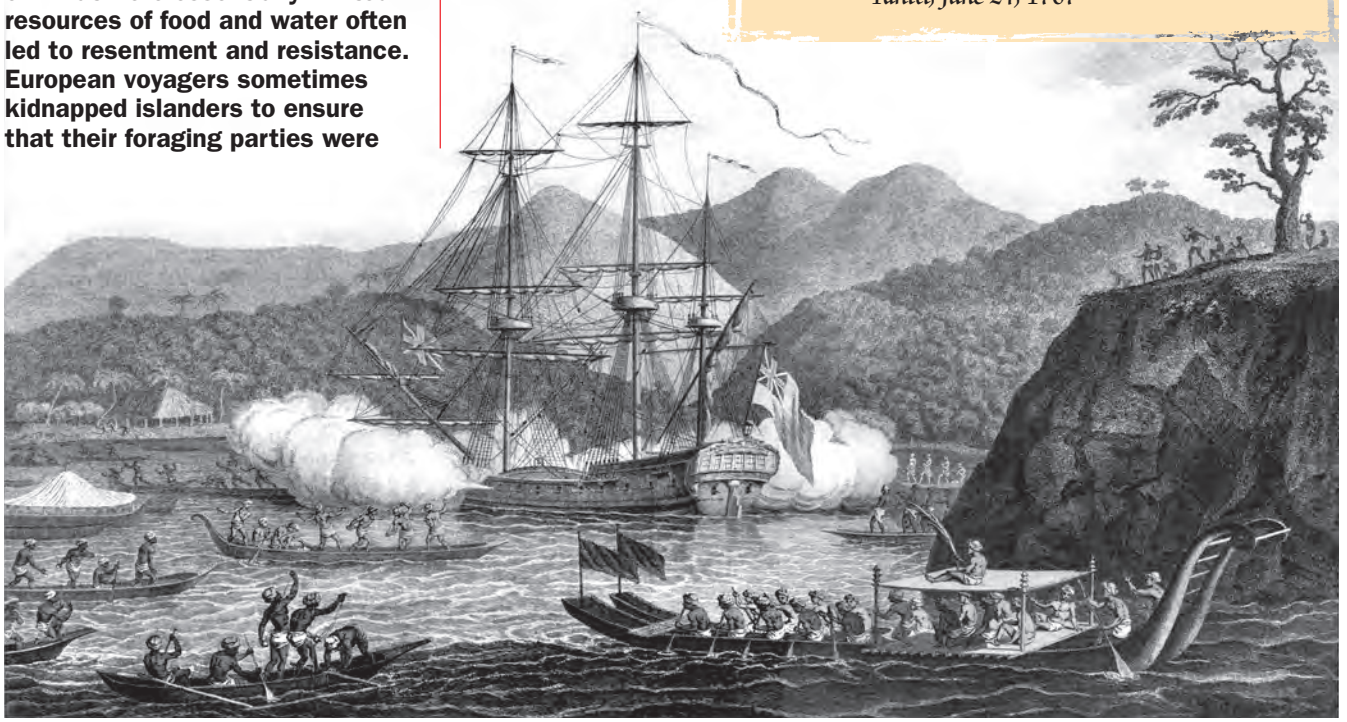
Encounters between Europeans and indigenous peoples in the Pacific during the last half of the eighteenth century were idealized in the concept of the "Noble Savage" constructed by the philosophers of the Enlightenment. In reality, these encounters were governed less by Enlightened principles and more by the pragmatic need to secure resources.

The violence enacted by European voyagers against island inhabitants in the Pacific took a number of forms. Initially, the arrival of a strange vessel may well have been welcomed by indigenous peoples. Over time the demands made by the voyagers on what were essentially limited resources of food and water often led to resentment and resistance. European voyagers sometimes kidnapped islanders to ensure that their foraging parties were left unmolested. The theft of items from European ships and shore parties was frequently repaid with reprisals intended to cause fear. Women on the islands were sometimes subjected to sexual violence as well.

Diseases carried by Europeans to the Pacific also had a devastating effect. In 1768, Captain Cook estimated Tahiti's population at 200,000. By 1810 it had dropped to less than 8,000.

The clash in 1767 between the British and the Tahitians depicted below is arguably one of the most dramatic demonstrations of indigenous resistance to European encroachment in the Pacific, as well as one of the most brutal European responses to a perceived threat.

> *"At this time the whole bay was all lined round with men, women and children, to see the onset which was now near at hand…in a few seconds of time all our decks were full of great and small stones and several of our men cut and bruised. This was so sudden and unexpected by the most of us, that we were some time before we could find out the cause. We then found leniency would not do, and therefore applied the great guns and gave them a few round and grape shot, which struck such terror among the poor unhappy crowd that it would require the pen of Milton to describe…"*
>
> George Robertson, *Journal*, HMS *Dolphin*, Tahiti, June 24, 1767



The *Dolphin* fires her guns at approaching canoes with devastating effect. Following a series of bloody encounters like this, the Tahitians sued for peace, resistance gave way to hospitality, and trading began.

Spain Renews Her Empire

In the last decades of the eighteenth century, Spain set into motion a broad-ranging renewal of its society and government. Reform of the Spanish Navy and a rejuvenation of colonial

The powerful Spanish fleet at anchor in Havana during the Seven Years' War.



A New Navy for Spain

The military reforms under the enlightened Bourbon monarchs enabled the Spanish to react swiftly to English incursions into the Pacific Ocean. An Enlightened education for her naval officers, backed up by an aggressive shipbuilding program, gave Spain one of the largest European navies. These policies would be put to the test with the renewed interest of other European powers in the Pacific.



possessions were key factors in this program of modernization. By the late 1760s, Spain was stronger and more confident than at any time previously in the eighteenth century.





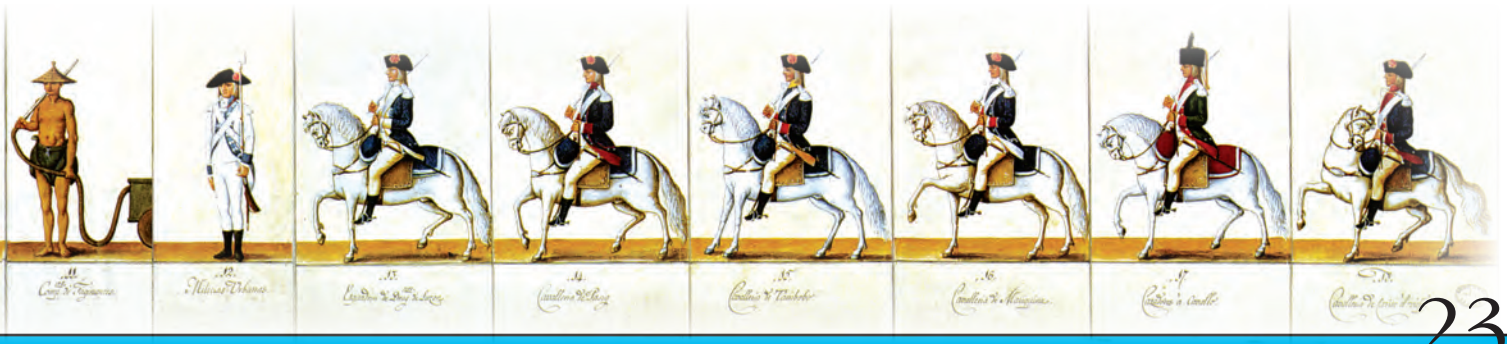
An Enlightened Monarch's Ambitions

The splendor of the Court of Charles III of Spain is summed up in this painting by Luis Paret y Alcazár, c. 1788. The king dines alone, surrounded by his attendants and courtiers. As a servant kneels to present him with the next dish, his favorite dog sits expectantly. Considered one of the "Enlightened Monarchs" of the eighteenth century, Charles presided over a vast empire. His government enacted a series of measures to streamline bureaucracy, improve the economy, reform the military, and reassert territorial claims in the Americas.



Right: The *Santíssima Trinidad*, a masterpiece of Spanish naval architecture, was one of the largest warships ever built in the eighteenth century. Along with dozens of other vessels constructed in Havana in the eighteenth century, she was evidence of the strength of Spanish naval renewal.

Below: Charles III's reorganization of the Spanish military extended to colonial outposts in the Americas and the Philippines. Part of the reform program included sending well-trained Spanish officers to places like the Philippines and California, in the hope that their professionalism would raise the standards of local militias. Elaborate uniforms were designed to increase pride in the military forces, and bring them in line with current European standards of military dress.



The Spanish Plan

Spanish authorities in New Spain and Peru acted with determination to counter the challenge posed by an increased British naval presence in the Pacific.

The Spanish response to the arrival of HMS *Dolphin* in Tahiti in 1787 manifested itself in a number of initiatives. In the South Pacific, authorities in Peru sent an expedition to Tahiti to assert Spanish claims to the islands. In Mexico, the Spanish developed an ambitious plan for the security of the Pacific through the colonization of Upper California.

José de Gálvez: Mastermind of the Expedition to California

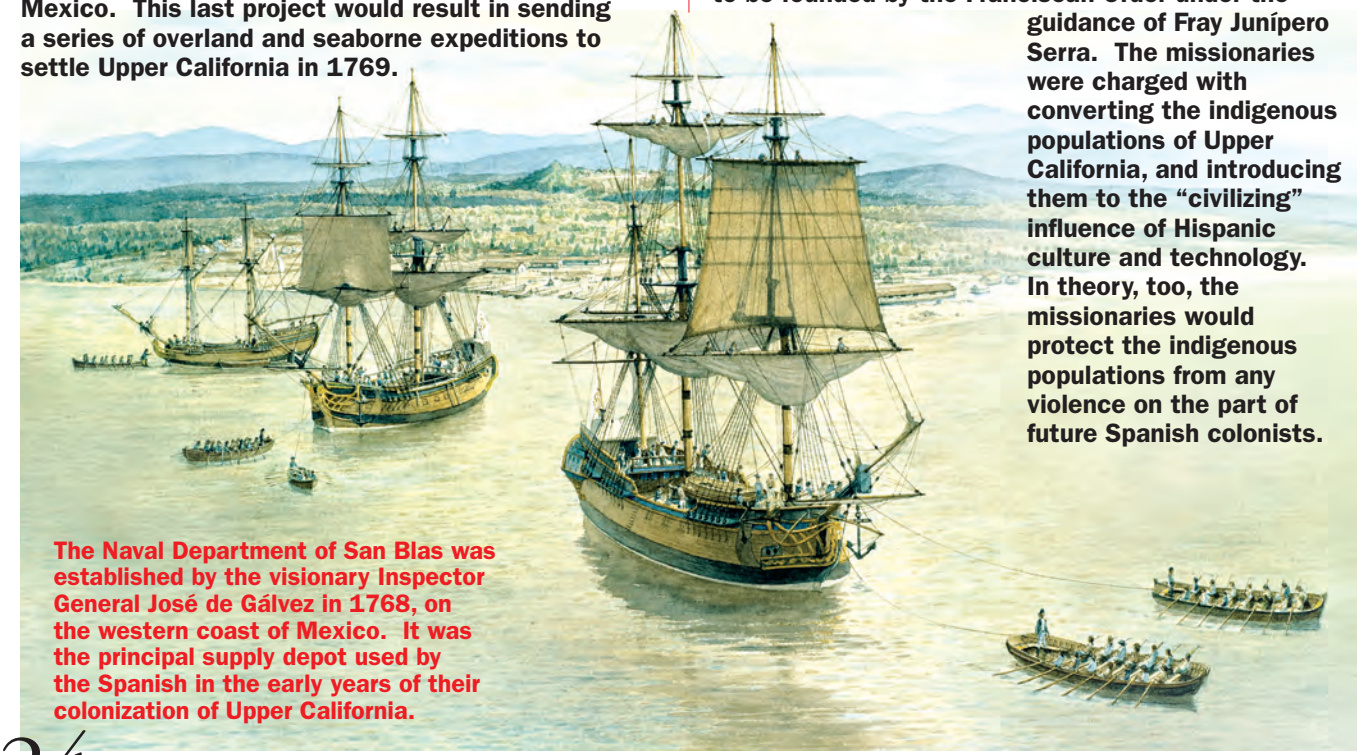
José de Gálvez was born in the province of Málaga, Spain, in 1720. After rising through the ranks of the Spanish bureaucracy, he was sent by Charles III to Mexico in 1765 as Inspector General. Gálvez's mission was to assist in putting the king's ambitious program of renewal – known as the Bourbon reforms – into practice. Gálvez oversaw the expulsion of the Jesuits from Mexico, implemented financial reforms to increase the Crown's revenues, and reorganized the defenses for the northern borderlands of Spanish settlements in Mexico. This last project would result in sending a series of overland and seaborne expeditions to settle Upper California in 1769.



José de Gálvez, Spanish Inspector General to Mexico and the organizer of the colonization of Upper California.

The Plan

Gálvez believed it was essential to establish Spain's legal claim to its northwest frontier through actual settlement, rather than through symbolic acts of possession. Effective possession would be taken through founding military establishments known as presidios. The Spanish initially planned to build two such presidios – one in San Diego, and the other in Monterey. The presidios would protect the harbors at Monterey and San Diego, thus providing secure ports of call for galleons that traveled annually between Manila and Acapulco. The garrisons of these presidios would also protect the chain of missions that were to be founded by the Franciscan Order under the guidance of Fray Junípero Serra. The missionaries were charged with converting the indigenous populations of Upper California, and introducing them to the "civilizing" influence of Hispanic culture and technology. In theory, too, the missionaries would protect the indigenous populations from any violence on the part of future Spanish colonists.



The Naval Department of San Blas was established by the visionary Inspector General José de Gálvez in 1768, on the western coast of Mexico. It was the principal supply depot used by the Spanish in the early years of their colonization of Upper California.

The San Carlos at a Glance



San Carlos.
Artist: Bruce Dragoo



Design:
Adapted by Francisco Pacheco, a shipwright from Veracruz in New Spain (colonial Mexico) from contemporary designs of Iberian packet boats.

Shipyard:
Río Santiago, north of the port of San Blas, west coast of New Spain.

Launched:
Fall 1767.

Purpose:
Troop carrier and transport.

Configuration:
Snow-rigged, two-masted ship.

Length of keel:
64 feet.

Length on deck:
79 feet.

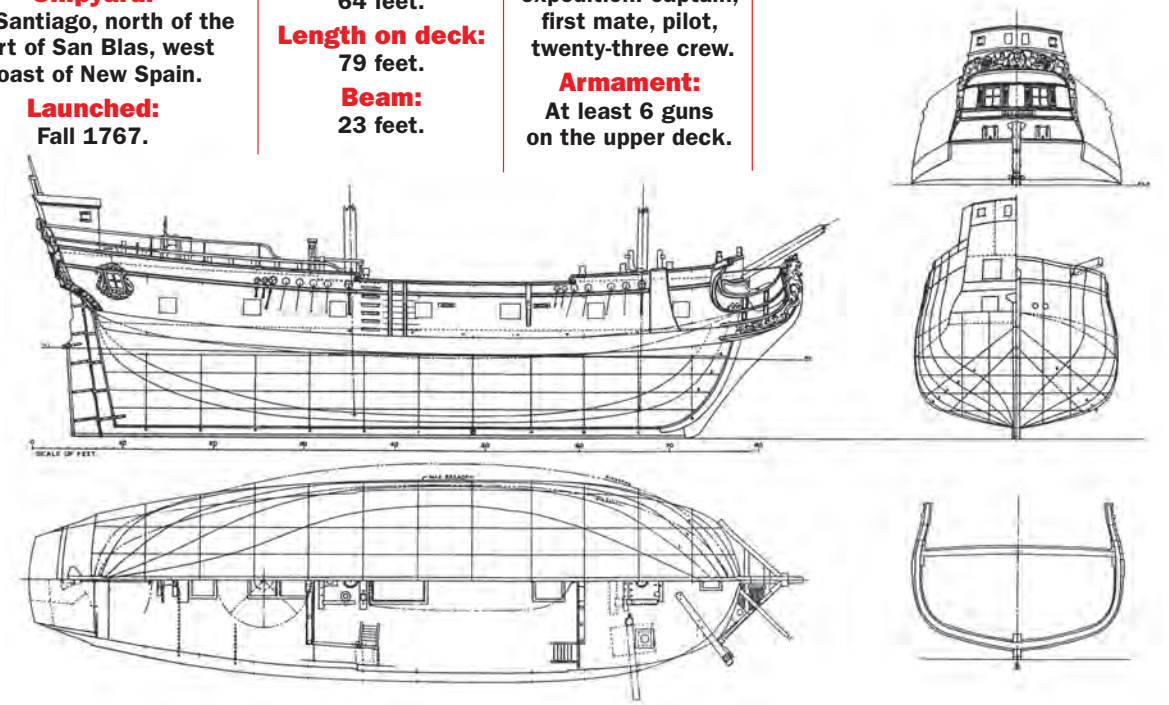
Beam:
23 feet.

Tonnage:
193 tons.

Compliment:
Varied greatly depending on available crew. On the 1769 expedition: captain, first mate, pilot, twenty-three crew.

Armament:
At least 6 guns on the upper deck.

Fate:
After ferrying supplies from San Blas to the new Spanish settlements in Upper California for a decade, the *San Carlos* was sent across the Pacific to the Philippines in 1779 to assist Spanish forces in the event of war with the English. She was either wrecked or broken up at an unknown date.



The Plans of the *San Carlos* by Raymond Aker.

The Perilous Voyage

The voyage of the *San Carlos*, the first of the packet boats to set out on the expedition to Upper California, became a nightmare for its passengers and crew as they battled for 110 days to reach a safe harbor in San Diego.

An Auspicious Beginning

The voyage of the *San Carlos* began with great fanfare. At La Paz in Baja California, the organizer of the expedition, Spanish Inspector General José de Gálvez, went to great lengths to ensure that the packet boat was both seaworthy and well-stocked with supplies and provisions. Gálvez even assisted personally in carrying stores on board. On Sunday morning, January 9, 1769, the Inspector General gave a resounding speech to the assembled members of the expedition. Fray Junípero Serra blessed the *San Carlos* and all on board. The *San Carlos* weighed anchor at midnight.

A Battle with the Elements

Within a few days, things began to go wrong. Attempting to sail north in mid-winter, the *San Carlos* encountered contrary winds and unexpectedly heavy seas. These conditions caused the water casks stowed in the hold to rupture, with disastrous consequences. Her captain, Vicente Vila, was forced to search for a safe anchorage along the arid coast of Baja California to procure fresh water. On the island of Cedros, Vila and his companions eventually found brackish water – too salty to be healthy. The commamder of the detachment of soldiers of the Free Company on board the *San Carlos*, Pedro Fages, assisted in collecting it in barrels. Meanwhile, anchoring close to the shore had proven so dangerous that Vila was forced to keep the *San Carlos* sailing off shore for a week while he waited for enough water to be brought on board.



Painting by Richard DeRosset

A Survivor's Words

"We entered the port of San Diego 110 days after leaving La Paz: but the crew, and the troops aboard – whose fatigue, in so extended and painful a voyage, and in the rawest of winter, could not be less than excessive – arrived in a deplorable state. Scurvy had strongly infected all without exception. Upon entering San Diego, two men were dead of sickness, and most of the seamen found themselves prostrate in their beds. Only four sailors remained on foot and rallied, helped by the soldiers, to trim and furl the sails and perform other manual tasks."

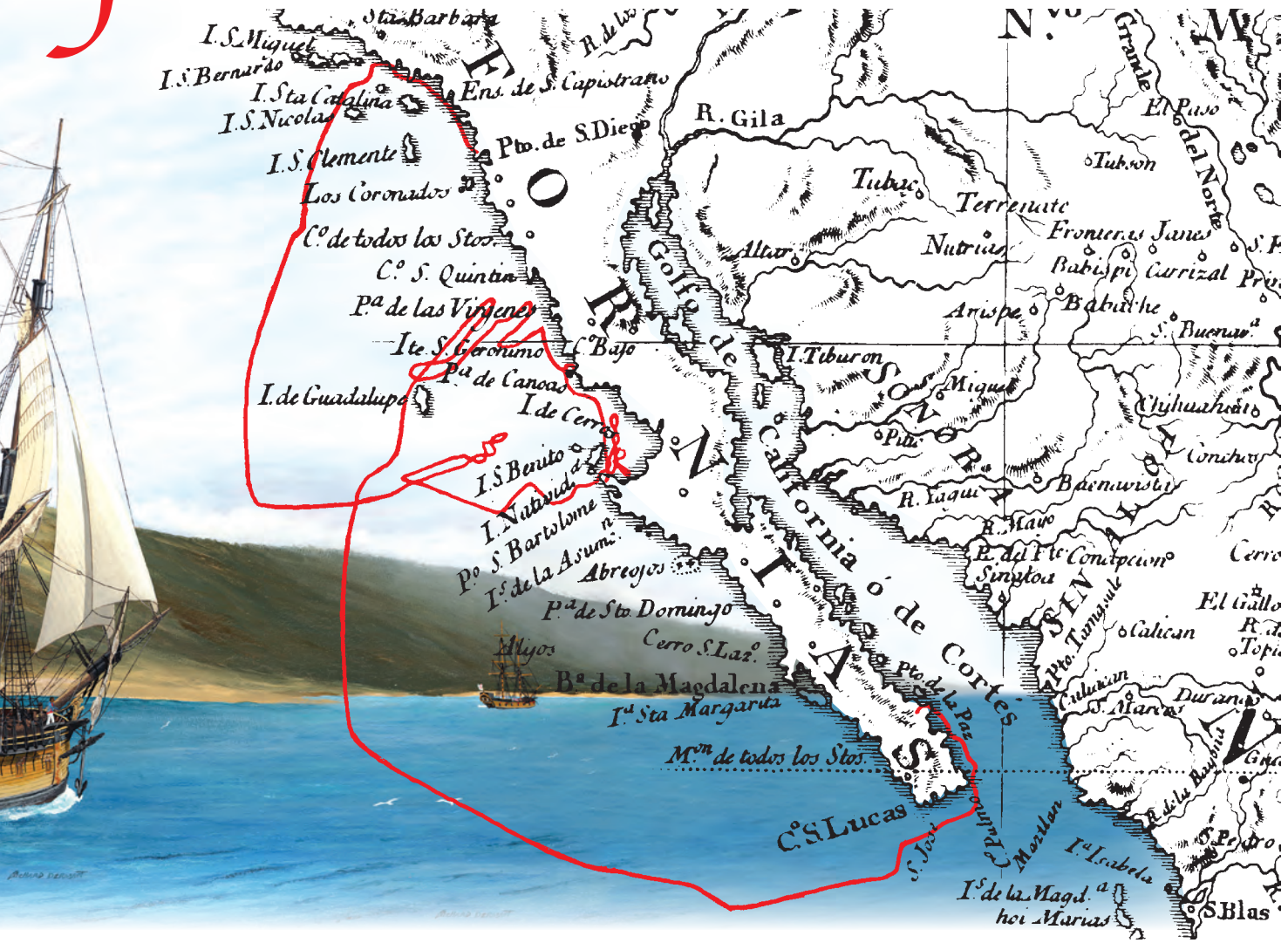
Journal of the Spanish Army Engineer, Miguel de Costansó, 1770.

Mistaken Cartography



Despite these difficulties, Vila and his companions forged ahead with their voyage, determined to reach San Diego. Unfortunately, the sea charts and sailing instructions they had as their guides proved to be dangerously flawed. Believing San Diego to be situated farther north along the coast than its actual location, Captain Vila took the packet boat far out into the Pacific in search of better sailing conditions. Buffeted by strong winds and heavy seas they eventually anchored in San Pedro Bay, near modern-day Los Angeles. The *San Carlos* then sailed south for San Diego. The *San Antonio*, the second packet boat of the expedition, had departed La Paz a month after the *San Carlos*, but arrived in San Diego eighteen days earlier.

of the San Carlos



Serra's Assessment

"The serious disaster on board the San Carlos has been due to two things: The first, because of the poor barrels from which the water had leaked out without being seen, so that from four barrels, not enough water was had to fill one, so they had to come to land to obtain water and what they found was not good and from drinking it the men were soon taken sick. The second reason was that, by an error in which we all were, both His Excellency the Viceroy as well as all the rest, this port was supposed to be at latitude 33 or 34 degrees, north. So at least the authors say, one stating one thing and others another. For this reason the command had been to put well out to sea and to sail north as far as latitude 34, and then to make for the land in search for the port. But as, in reality, the latitude of this place is only 32 degrees, 34 minutes, according to the observations just taken here by the captains, it will be seen that the ship went too far north and when they looked for the port they could not find it. For this reason the voyage was prolonged, and as the crew were already very sick, the cold climate affected them…"

Letter of Fray Junípero Serra to Fray Francisco Palou, San Diego, July 3, 1769.

San Diego Founded

By mid-1769 the survivors of the expeditions sent by land and sea to establish Spanish settlements in Upper California had united in San Diego. From here they would proceed north to found a chain of presidios and missions and create Spain's final imperial frontier.



Above: On May 13, 1769, from a high mesa just south of the present border between the United States and Mexico, the first of the overland expeditions from Lower California caught sight of the San Carlos and the San Antonio riding at anchor in San Diego Bay.





In 1785, the Spanish white ensign was changed to a new red and gold design. From that point on, this new flag was flown by all Spanish vessels in the Pacific.

The principal ports and harbors of Spain's new frontier.



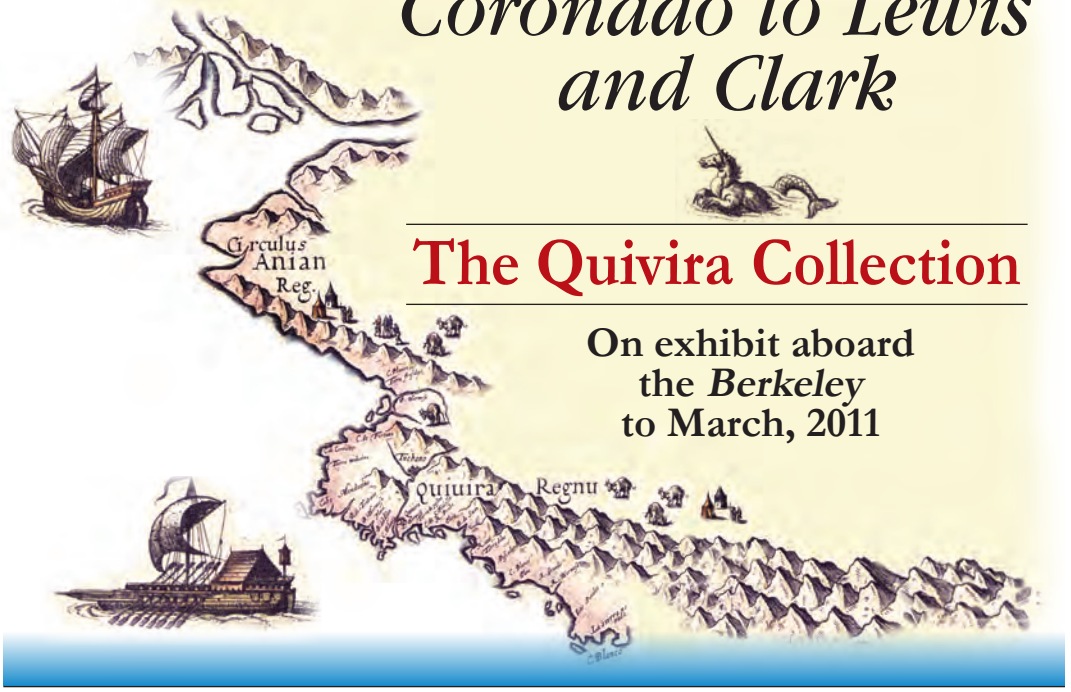
Left: The founding of the Mission at San Diego, July 16, 1769.

"Fray Junípero Serra performed the act of founding the mission at San Diego with a High Mass and the other usual ceremonies… The date was July 16, 1769, on which day we Spaniards celebrate the Triumph of the Most Holy Cross… In this faith and with zeal for the conversion of souls, the Venerable Fray Junípero raised the standard of the Holy Cross, setting it up on the spot which he considered most suitable for the establishment of a town, and within sight of the port."

Fray Francisco Palóu,
Life of Fray Junípero Serra.

Mapping the Pacific Coast

Coronado to Lewis and Clark



The Quivira Collection

On exhibit aboard the *Berkeley* to March, 2011

Enlightened Voyages

Epic Journeys that Changed the Pacific

An ongoing exhibit aboard HMS *Surprise*

Back Cover:

San Salvador

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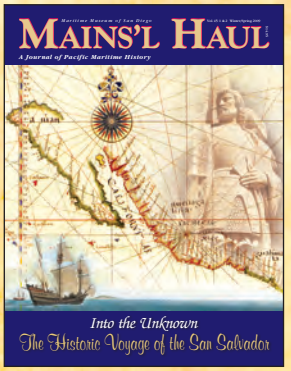
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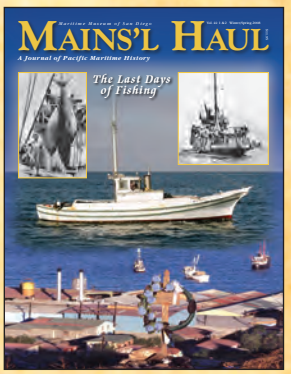
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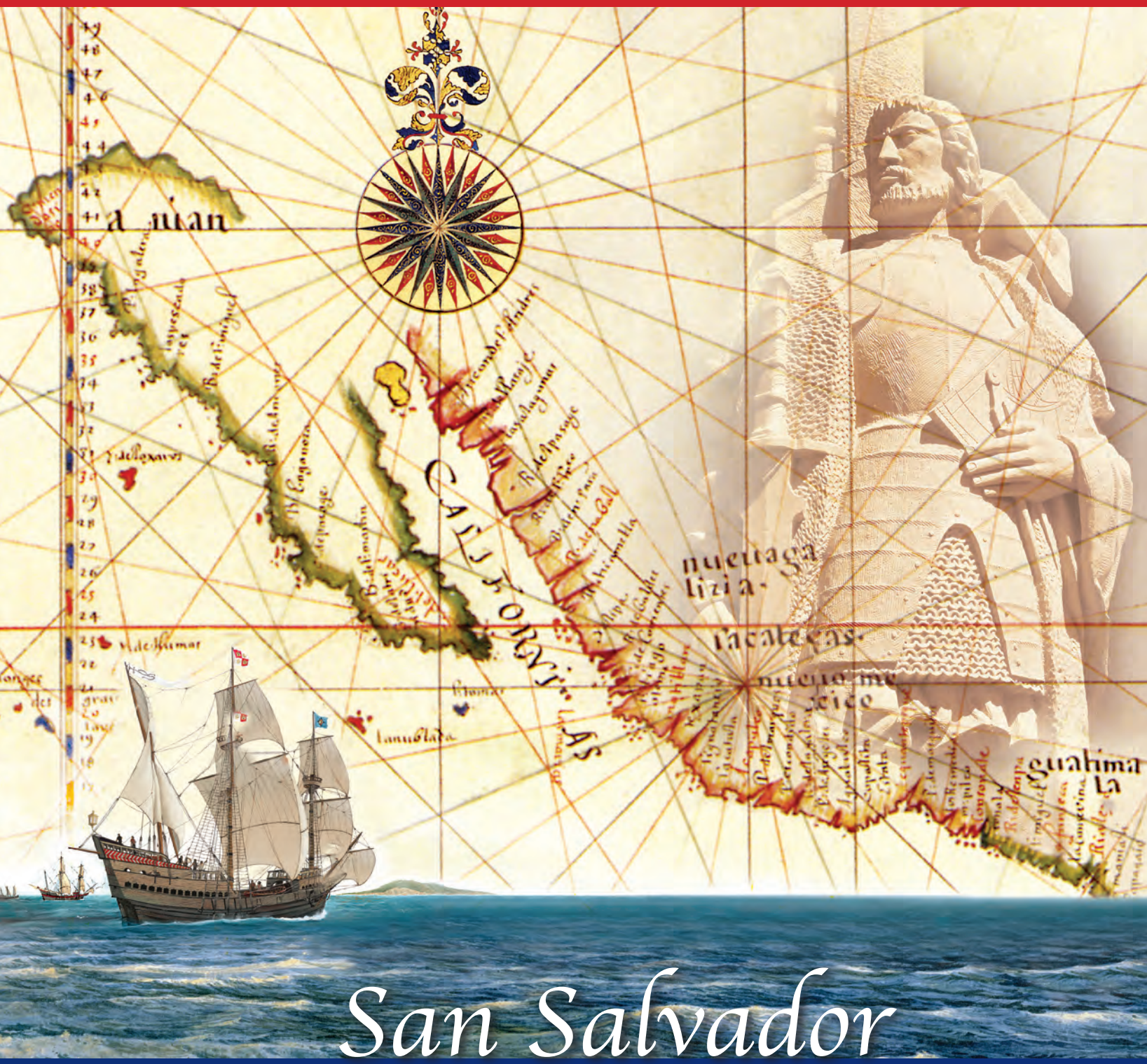
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