Maritime Museum of San Diego

MAINS'L HAUL

Vol. 45: 1 & 2 Winter/Spring 2009

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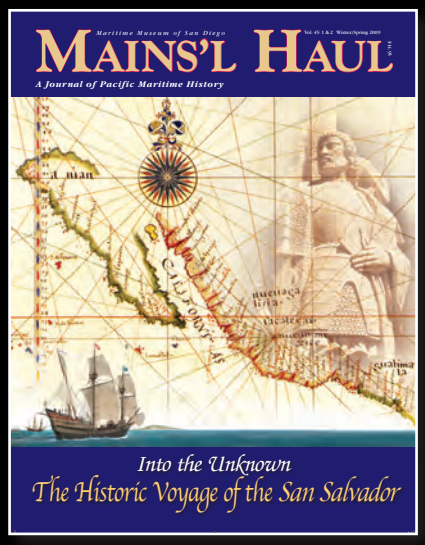
A Journal of Pacific Maritime History



Into the Unknown

The Historic Voyage of the San Salvador

Juan Rodríguez Cabrillo, aboard his flagship ***San Salvador,*** approaches "the closed and very good port" on 28 September 1542



Front Cover: Against the background of Antonio Sanches' 1641 map of the Pacific, from *Idrographisiae Nova Descriptio* (The Hague, Koninklijke Bibliotheek), the *San Salvador* approaches the shores of Alta California as illustrated in Richard DeRosset's painting above.

Inside Front Cover: DeRosset depicts the three vessels of Juan Rodríguez Cabrillo's small fleet as they approach the bay Cabrillo named *El Puerto de San Miguel* (sixty-years later, it was renamed San Diego by Sebastían Vizcaíno in 1602). In view are the galleons, *San Salvador* and *La Victoria*, and the smaller fragata *San Miguel*. Together, they represent the first European contact with the land and peoples of Alta California.

Courtesy Maritime Museum of San Diego
Master Ships' Painter, Richard DeRosset

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

Maritime Museum of San Diego

MAINS'L HAUL

Vol. 45: 1 & 2 Winter/Spring 2009

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FROM THE HELM

by Ray Ashley, Ph.D.

President and CEO,
Maritime Museum of San Diego

Over its history the Maritime Museum has provided the stage for countless varied gatherings but in January of 2009, it became the site of a most unusual conference for a most exotic purpose. Experts came from across the country and from a spectrum of arcane fields and specialized knowledge. They included some of the world's foremost authorities on the history of medieval European shipping and the Spanish maritime enterprise, maritime archaeologists who have excavated Iberian shipwrecks of the sixteenth century, naval architects, authors, educators, Living History interpreters, curators, and master mariners with sea experience in the operation of early modern-era sailing ships. Present also in spirit were names which resonate across time: Oveído, Urdaneta, Diego García de Palacio, Loaisa, Saavedra, Villalobos and Cabrillo. We were there to refine an impression and begin the process of bringing to life a ship which has existed only in imagination for more than four and a half centuries.

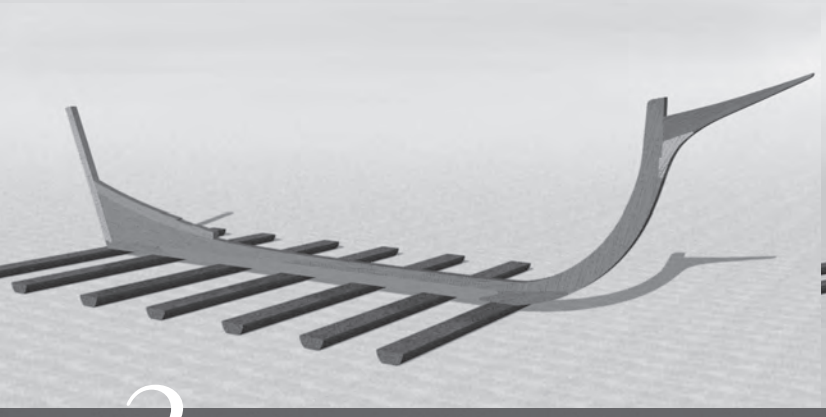
Our discussion began when Dr. Carla Rahn Phillips described how such a process worked in the time before computers, mold lofts, blueprints, plans, tables of offsets, builder's models or half-hulls, and little mathematics other than crude proportions and rules of thumb. *The client and the builder sat down under a tree,* Dr. Phillips noted*, and talked about the ship: general principals and type, what its function was, how much it was to carry, how far it had to sail, how long it was to last, how much it would cost. The discussion might be animated by a few scratches in the dirt to get the ideas across. Then the builder went off and constructed the ship from what was in his head.*

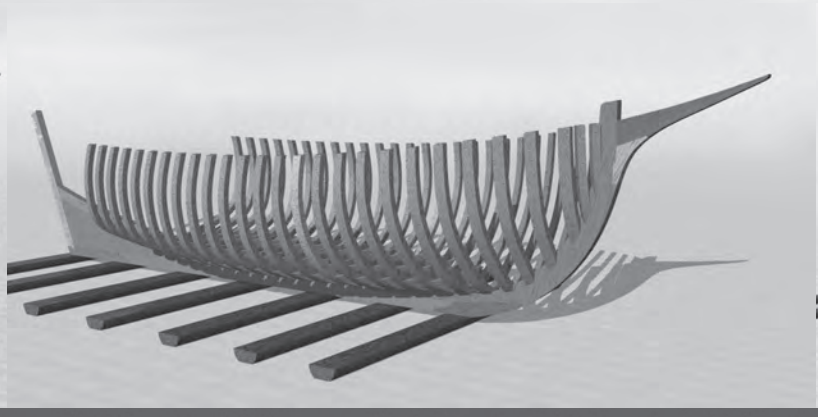
Over the next two days we more or less followed in kind. We talked about the voyage *San Salvador* had made and its historical context. We discussed her menu of missions as a museum ship: what the *San Salvador* is supposed to do and what she didn't need to do (for instance, the reconstructed ship doesn't need to prove that a group of 16th century Spanish sailors *could* have made a voyage from New Spain to the Pacific Northwest and back). We talked about her size, appearance, and details of construction and fittings, starting from an existing Melbourne Smith design for the *San Salvador* now several years old, updated by a review of period imagery and more recent evidence from archaeological analysis and archival research. Finally, we considered the systems which would allow her to fulfill her promise: propulsion, rig, armament, etc.

What we didn't discuss because no one present ever thought to question it was why we would want to do such a thing in the first place – build a ship so thoroughly hidden in the mists of time that we found ourselves engaged in an historian's version of what the fictional geneticists of *Jurassic Park* were doing when they brought the dinosaurs back to life. If *San Salvador* and her famous captain are wrapped in enigma, at least their purpose was tangible: sail to China, find a strait to the Atlantic, discover opulent new civilizations to exploit, or all three. What is our purpose?

The most mundane reason perhaps would be economic benefit, both for the Maritime Museum and for our local economy. Elsewhere in the country replica ships which evoke the Age of Discovery are the most successful of all historic ship museums. Before the *Mayflower* replica appeared in Plymouth more than half a century ago, there was but a nascent heritage tourism industry in New England. Proceeds from the *Mayflower* helped build the Plymouth Plantation Living History complex for which she remains a portal and helped transform an esoteric pursuit into a major industry. Today, the *Mayflower* alone still draws double our own annual attendance. The Jamestown ship replicas, now on their third iterations, annually draw twice what the *Mayflower* does and in 2007, when they were the centerpiece of Virginia's 400th anniversary celebration of the English settlement, they drew more than one million paid visitors. The *San Salvador's* story predates both and she will be the only Age of Discovery ship on the West Coast. The collateral benefit to the regional economy for the presence of a working replica of the *San Salvador* will be tens of millions of dollars annually. Moreover, as a fully operational ship, the *San Salvador* will form the centerpiece of a "sailing museum" (also including *Californian* and *Surprise*), which can travel to other California ports, thus vastly increasing our potential audience and stimulating a regional demand for heritage tourism sadly under addressed in Southern California.

San Salvador will become one of our most important regional educational assets, augmenting the Maritime Museum's existing award-winning educational programs. The ship already materializes in the life of every fourth grader in California taught in accordance with the state curriculum standards. Moreover, every year many California teachers now travel to Virginia in a special program





funded by the Williamsburg Institute to experience what life was like on such ships during the Age of Discovery because no such vessel exemplifying the California story presently exists here.

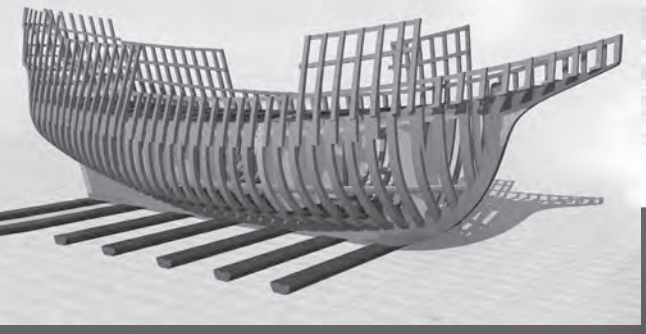
The *San Salvador* will place all of our other ships and the exhibits they contain in a logical and obvious narrative context. In our evolving collection of ships, the Maritime Museum is growing towards a mature, comprehensive, and unique storyline which utilizes ships as living history experiences to explain the relationship between the sea and a great seaport community across the span of time. During the course of a Museum visit, it will be possible to learn firsthand what it must have been like to stand into unknown seas on a sixteenth-century Spanish galleon, to explore the Pacific on board an English frigate in the days of Captain Cook, to sail the California coast during the Gold Rush in a revenue cutter, to round Cape Horn in a windjammer, and to probe the deepest depths of the ocean in the research submarine USS *Dolphin*, all ships linked both to San Diego's own history and to the larger context of world events which have shaped our destiny.

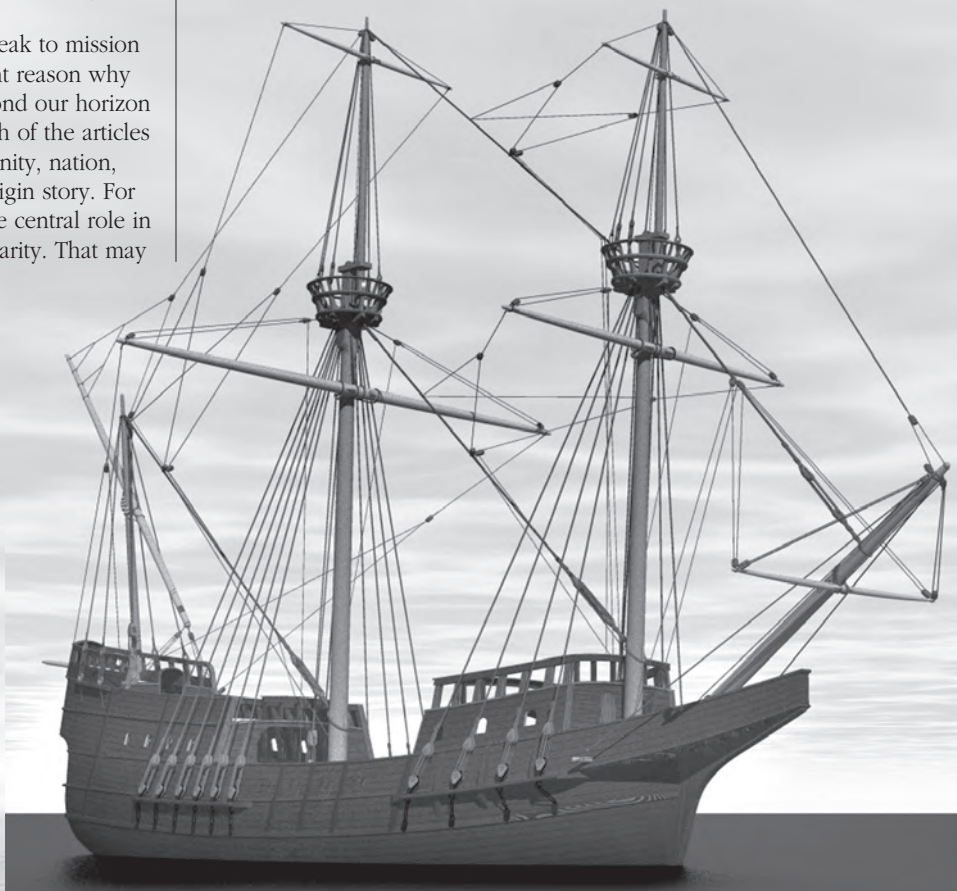
San Salvador will enhance the experience and the size of the Museum's devoted following of volunteers. As a living, fully operational ship, *San Salvador* will evoke as no book, or static museum exhibit, or permanently moored vessel can, an entire age now far beyond living memory and bring it to life. That capacity will contribute additional impetus to the dynamic synergy which has grown with the addition of each active vessel to our fleet: *Pilot*, *Californian*, *Surprise*. The simple fact is that our ships sustain themselves as living beings in continuing to function as living beings, drawing the many volunteers we depend upon by virtue of experiences that can be replicated nowhere else and are a joy to share.

There are many other tangible reasons which speak to mission and bottom line, but I suspect that they mask a latent reason why the *San Salvador* is now approaching from just beyond our horizon and the clues to its genesis are contained within each of the articles in these pages. It is impossible for any tribe, community, nation, or people to conceive of itself as such without an origin story. For more than a century we have given *San Salvador* the central role in ours, imagining her with ever more definition and clarity. That may be why we want her to materialize, of course, but not why we *need* her to. In one of the articles to follow, you will see a medieval T-O map of the world as it was once envisioned by Europeans before the great Voyages of Discovery. It was a circumscribed world flowing through time in a preordained pathway from creation to apocalypse, surrounded by a threatening oceanic barrier which inspired only fear. The problem with that map is that it never really went away because it was always less a representation of the outer geographical world than of our internal beliefs and doubts. Some variant of that T-O map is contained still in the psyche of every child, every community, and it is that map which comes to the fore whenever we are threatened by crisis. In essence, it's a map to the edge of the unknown and to the edge of despair, for it provides no compass course to the other side. But to succeed, every child, every individual, every society needs some means to imagine their way across that terrible dark sea, the confidence to set out, and a belief that they will make the distant landfall.

Origin stories vary from one society to another. But for us, for our origin story, there has only ever been one conveyance, one ship, *our* ship, which was purpose built to defy the map of scripted boundaries, to carry us beyond its terrifying edge, and to prevail.

In this series of 3-D illustrations, Naval Architect Doug Sharp, of Sharp Design, is in the process of designing and building the galleon *San Salvador*. While Mr. Sharp recreates the *San Salvador* frame by frame graphically with astonishing accuracy, we anxiously await driving in the "whiskey spike plank."





Acknowledgements

This issue of *Mains'l Haul* has come to fruition thanks to the participants who attended the *San Salvador* mini-Conference in January 2009 and who contributed to this issue, as well as many ancillary MMSD members and volunteers, patrons including city, state and federal agencies who continue to support the Maritime Museum of San Diego's efforts to bring the Voyage of Discovery to life.

With Gratitude,
Neva Sullaway, editor

Attendees at the *San Salvador* mini-Conference spent several days in January 2009 discussing and analyzing the design and building of the *San Salvador*. Farthest left: Maritime Museum's Captain Chris Welton, Engineering Dept. Head; (forward) Captain Eric Speth, Maritime Program Manager at the Jamestown /Yorktown Foundation; Ann Collins, Writer/Photographer; (to her left) Dr. Carla Rahn Phillips of the University of Minnesota; and Bob Munson, historian at Cabrillo National Monument; and (standing behind them) Dr. Timothy Runyan of the Maritime Heritage Program (NOAA).



Front Row: Dr. Iris Engstrand, University of San Diego; Dr. Ray Ashley, President and CEO of the Maritime Museum of San Diego; Captain Bruce Linder (USN, Retired); Neva Sullaway, Editor, *Mains'l Haul* and Chris Frost, immediate past president of the Board of Trustees, MMSD. Sitting behind the wheel is Dr. Filipe Castro of Texas A & M and farther aft Robert Schwemmer, Channel Islands National Marine Sanctuary (NOAA). Additional Board Members including the *San Salvador's* Naval Architect, Doug Sharp, and MMSD staff (not pictured) attended the Conference.

Photo by Maggie Piatt-Walton, MMSD

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www.sdmaritime.org

Partners in the *San Salvador* Rediscovery Voyage



Our dedication to chronicling the building of the *San Salvador* and assisting in an oceanic educational exchange stems from our mission to help the public understand the ocean.

As NOAA continues its 200 years of science, service and stewardship of the Nation's maritime environment, we look forward to being involved in the historic rediscovery voyage of coastal California and the offshore Channel Islands.

The *San Salvador's* very appearance will inspire interest and curiosity, which can be transferred from the dock to the deck each time she heads to sea. People will ask how the seafarers of the sixteenth century managed to cross the ocean and endure every sort of weather condition and sea state in a vessel so small and crude-looking. How did they manage to develop such skills as shipbuilding, navigation, as well as basic survival skills?

As we question the motives and courage of these seafarers, we may also consider the native people who lived along the coast and on the Channel Islands, how they had voyaged into the ocean for thousands of years prior to the arrival of the Europeans. Native Americans had knowledge of the sea and boats that enabled them to hunt mammals and fish, and cross miles of open water. Varying cultures mastered the ocean and learned to live from its bounty.

Our knowledge of the ocean is largely based on the adventures of men and women who have probed its mysteries. Our understanding of the sea begins with the creation of the sailing ship. The *San Salvador* will be a vehicle of discovery and an active, working vessel to excite and fascinate all who venture aboard her.



Photo courtesy of NOAA

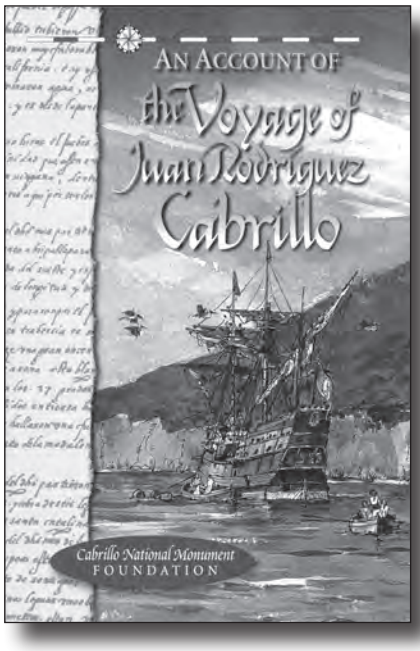
We look forward to being a part of the *San Salvador's* Rediscovery Voyage.

Timothy J. Runyan, Ph.D.
Manager, Maritime Heritage Program
Office of National Marine Sanctuaries
National Oceanic and Atmospheric Administration

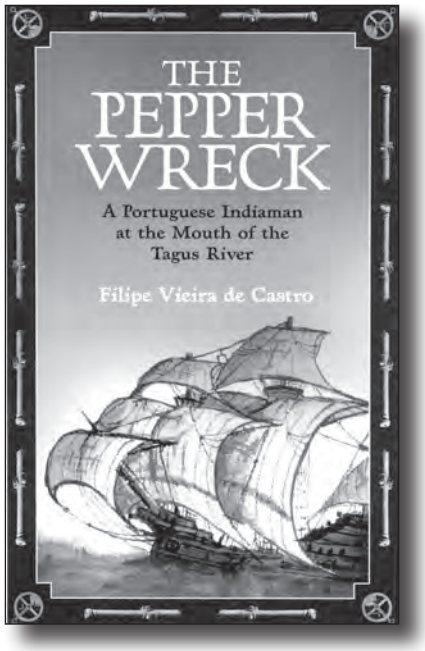
Photos by Robert Schwemmer, Maritime Heritage Program, NOAA

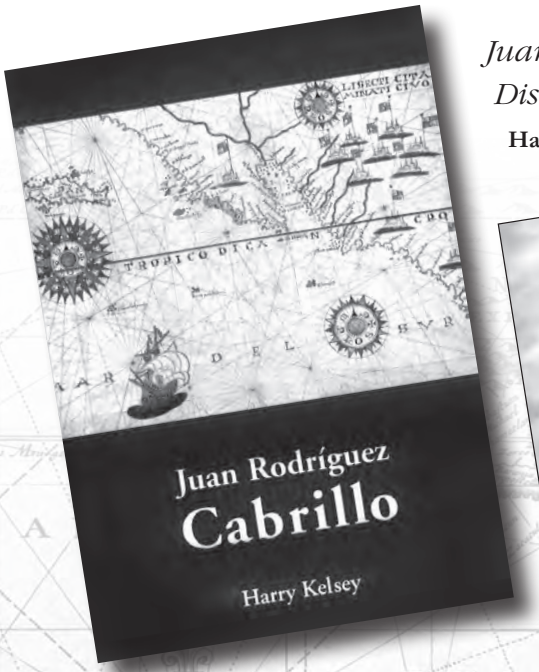
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An Account of the Voyage of Juan Rodríguez Cabrillo

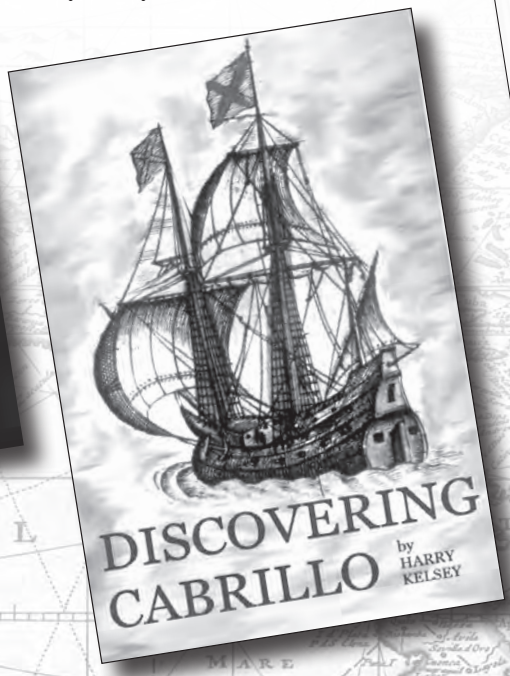


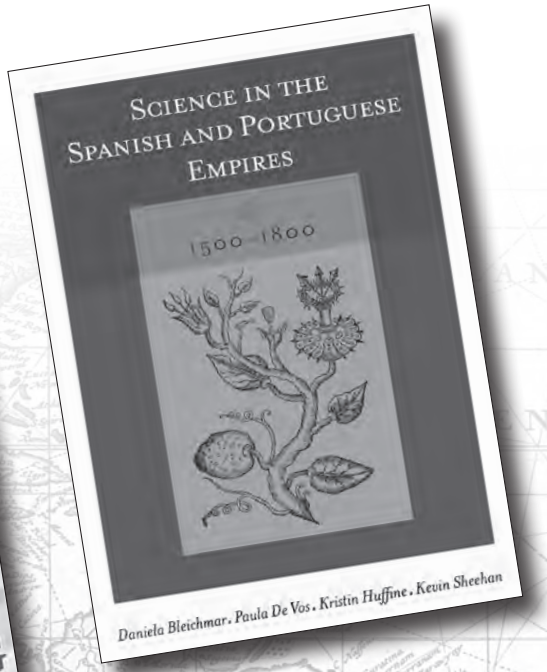
The Pepper Wreck
Filipe Vieira de Castro





Juan Rodríguez Cabrillo Discovering Cabrillo
Harry Kelsey





Science in the Spanish and Portuguese Empires, 1500-1800
Daniela Bleichmar, Paula De Vos, Kristin Huffine, Kevin Sheehan

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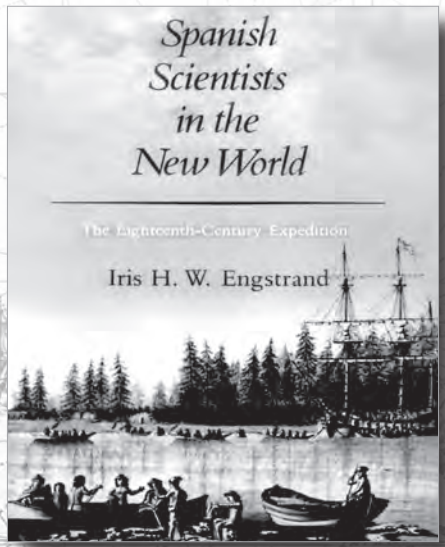
Spain's Men of the Sea
(translated by Carla Rahn Phillips)

The Treasure of the San Jose
Los Tres Reyes
Six Galleons for the King of Spain
Carla Rahn Phillips

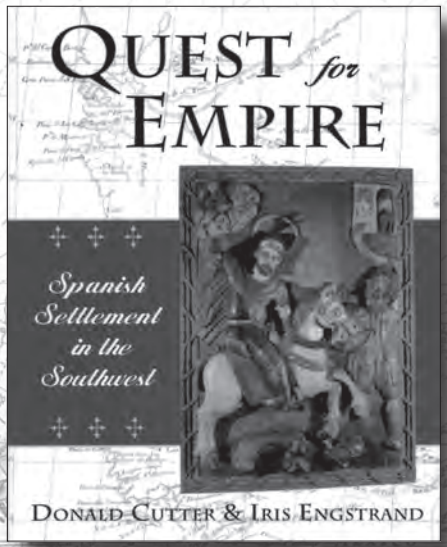


The Worlds of Christopher Columbus
William D. Phillips, Jr. & Carl Rahn Phillips

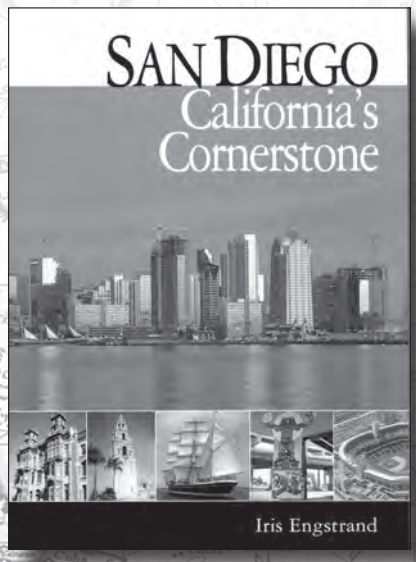
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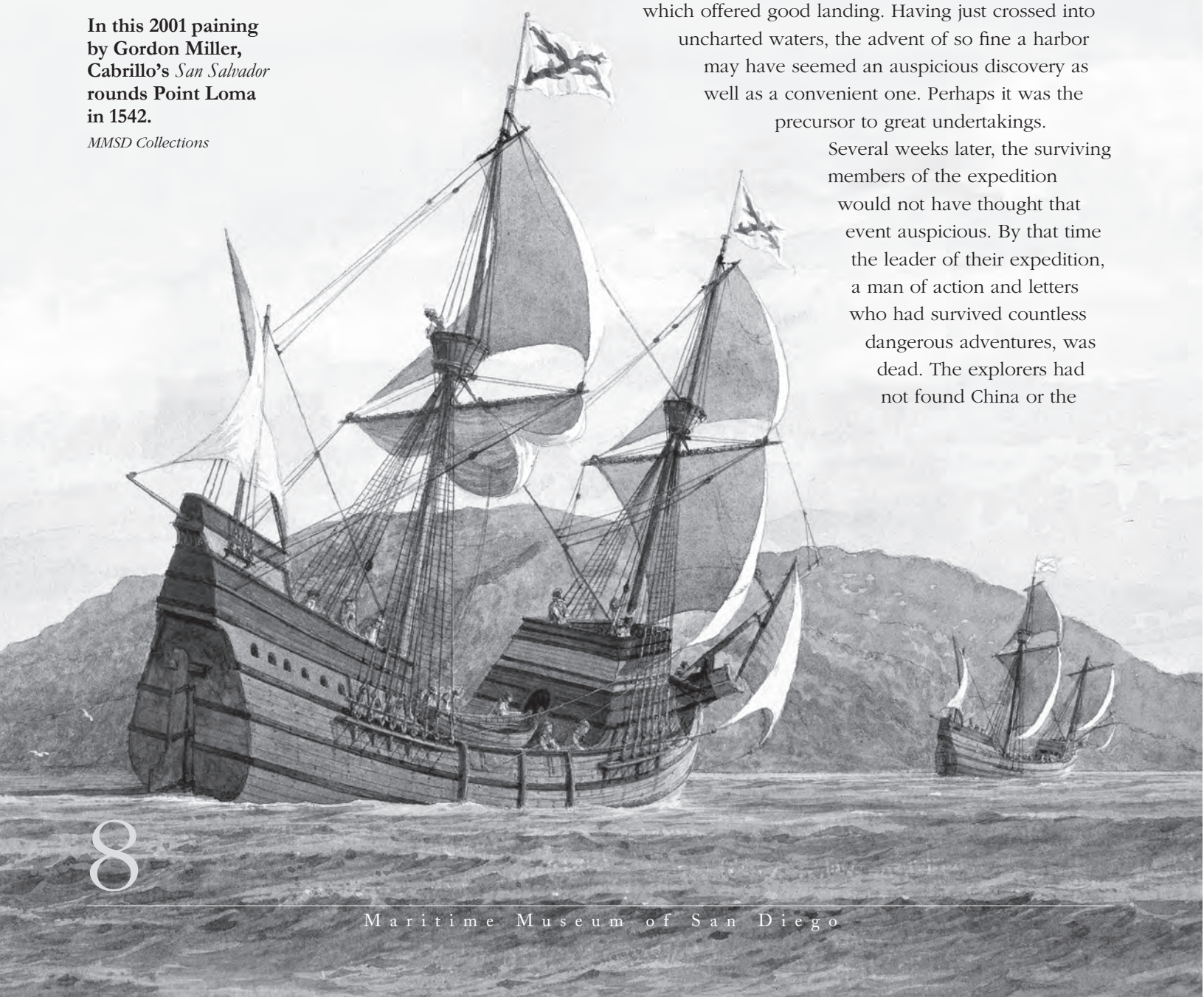


San Salvador

California's

On 27 September 1542, lookouts on three Spanish ships working their way slowly up a barren coastline sighted a distinctive wooded promontory to their north. Its aspect seemed to indicate a good anchorage, perhaps even a harbor. They confirmed this impression by sailing into it the following day and anchoring in the calm water beneath the headland, adjacent to a little sand and cobble spit which offered good landing. Having just crossed into uncharted waters, the advent of so fine a harbor may have seemed an auspicious discovery as well as a convenient one. Perhaps it was the precursor to great undertakings.

Several weeks later, the surviving members of the expedition would not have thought that event auspicious. By that time the leader of their expedition, a man of action and letters who had survived countless dangerous adventures, was dead. The explorers had not found China or the



In this 2001 paining by Gordon Miller, Cabrillo's *San Salvador* rounds Point Loma in 1542.

MMSD Collections

Origin Story

By Raymond E. Ashley, Ph.D.

kind of winds that would suggest a direct route or return from the Far East. They had found no indications of any strait connecting this ocean to the Atlantic, no islands replete with pearls, no great cities, no sources of silver or gold. Though the expedition had numerous encounters with the peoples who inhabited these lands, they did not seem members of complex and wealthy civilizations or proprietors of abundant resources. The ships had probed the empty ocean far to the northwest and had found only storms and death, neither of which held much value for the trading interests of the Spanish empire. So unpromising were the prospects of this new land that more than two centuries would pass before any Europeans could be tempted to establish a permanent settlement. The logs of the voyage, navigational information, first-hand accounts, and depositions would go missing from the historical record as would the flagship *San Salvador,* along with the only image ever painted of her. Even the names they had given to the places they discovered, such as the name they gave to that first harbor "El Puerto de San Miguel," would be changed. Having failed in all aspects of their mission save one – to return and report what happened – the voyage would have seemed a disappointment best forgotten.

What they could not have known was that they had indeed sailed into waters of great undertakings. Sixty-five years before the first permanent English settlement on the North American continent, eighty years before the *Mayflower* crossed a much smaller ocean to New England; Europeans sighted, charted, and made first contact with the native inhabitants of what would one day be the west coast of the United States. When the small *San Salvador* entered the harbor the Spaniards called San Miguel, the galleon was perhaps the most powerful vessel in the Pacific Ocean. It was this same harbor that would one day project a strategic concentration of U.S. naval power. The coastline might have seemed unpromising, but



Ray Ashley, Ph.D. is the President and CEO of the Maritime Museum of San Diego and a long-time member of the maritime community. Ashley came to his present position in 1996 following a career that includes experience in ship preservation, conservation, shipbuilding, historical scholarship, publication and teaching at the university and community college levels. Ashley is a licensed shipmaster with sixty-thousand miles of open ocean experience in command of a variety of vessels and rigs. He has sailed on the *Star of India* as navigator for twenty-one of her modern voyages. He received a BA in Anthropology from the University of California, San Diego, an MA in Maritime History and Underwater Research from East Carolina University, and a Ph.D. in the History of Science and Technology from Duke University. Dr. Ashley serves on the boards of the Council of American Maritime Museums, Sea Education Association of Woods Hole, MA, the North American Society for Oceanic History, the Nautical Research Guild Editorial Board, the American Sail Training Association, Cabrillo Festival, and the San Diego Port Tenants Association; he is the U.S. West Coast advisor to the World Ship Trust and President of the American Ship Trust. In 2007, Dr. Ashley was Conference Chair for the Eighth International Maritime Heritage Conference, hosted by the Maritime Museum of San Diego.

California which is bounded by it today, if ranked as an independent nation, has the world's sixth largest economy. All of these things, which from the vantage point of 1542 would have seemed so unlikely, came about in ways complex beyond imagining. Perhaps for the very reason that it was so preposterous and complex, we are drawn to that beginning as a way to explain, understand, and validate ourselves. From our vantage point, naturally, that beginning now seems equally as incomprehensible, alien and inaccessible. So much so that we have found only one certain means to take us to that strange shore, and ironically it is by the same means. For more than a century, with continuity and obsession, we have been conjuring in our commemorative imaginations that ship for which there are no plans, no precise dimensions, no images, and no known remains.



Juan Rodríguez Cabrillo, whose flagship she was, is almost as enigmatic. We are not entirely sure where he was born or into what circumstances, or when and why he came to the New World. Though he is frequently spoken of as Portuguese, this was derived from a somewhat ambiguous reference in a 1615 compilation of Spanish voyages to the Indies by the historian Antonio de Herrera. His career was spent entirely in the service of Spain. We are not sure what the name Cabrillo signifies, as it was a name he gave himself toward the end of his life after he had acquired property and social standing to differentiate from all the other Juan Rodríguez's of his time. It is unclear where he learned the skills to build boats and ships, to navigate, or write reports. We don't know exactly where he died and though a cryptic artifact was found on Santa Rosa Island in 1901 that some people believe is his headstone, it is probably a fraud. We know he died in a wilderness far from home in mundane circumstances due to complications of either a broken leg or broken arm. And, of a life that was adventurous, dangerous, violent, and long by the standards of the time, he spent only the last eight weeks of it in California.

And yet, if one does an internet search of the name Cabrillo, it will likely turn up hundreds of things bearing his name: churches, schools, beaches, parks, freeways, streets, hospitals, hotels, colleges, aquariums, lighthouses, performing arts centers, shopping malls, residential complexes, retirement homes, marinas, yacht clubs, restaurants, daycare centers, and car dealerships. The second most visited National Monument in the United States is located on the headland he once gazed upon in making his landfall and is named for him. A lonely windswept point on San Miguel Island has a monument to him, as do landmarks in every port in the state. His ship, the *San Salvador*, has appeared on the US 29¢ postage stamp, and can be found in art deco pictographs throughout Balboa Park, in the mural inside the Avalon Casino, in the outdoor atrium of the San Diego Municipal Complex, in the Santa Barbara Courthouse, and the center of the seal of the City of San Diego. The *San Salvador* sails in reconstruction as a children's media center in the Point Loma branch library and is the subject of artistic renderings of the voyage by fourth graders throughout the state. None of California's millions of residents, visitors, political leaders, celebrities, or artists in all of its history have managed to inspire so much willingness to identify a pivotal point in our history as this mysterious individual who first sailed into its unknown territory and then vanished into its landscape

a few weeks later. Ironically, though none of the names he invented for the places he saw survived, the name he invented for himself trumped all of them. For whatever he was in his life: conquistador, patron, community leader, shipbuilder, navigator, explorer; he has clearly become something else now. His subsequent career transformed events he could never have imagined.



Transformative Worldviews - 14th Century to the 16th Century

To have a sense of the kind of worldview Cabrillo may have held as he attempted to probe its unknown extent, it might be helpful to have a view of that world, or at least a view of how it had changed so abruptly. When they conceptualized their known world, medieval Europeans prior to Cabrillo's time tended to think of it as a T inside an O, forming the continental divisions of Asia, Africa and Europe. Such T-O maps were oriented east-up, as east was believed to be the direction to the Garden of Eden. Jerusalem was located at the center of the world, as befit the site of Christ's resurrection. In fact, in its resemblance to a cross, the cartographic representation of world geography functioned as an augury of the Christian narrative and perhaps even contained clues to the prediction of the Apocalypse. In the most elaborate illuminated renditions, such as the fourteenth century Hereford Map, the Indian Ocean was shown as a closed sea, the Red Sea was pigmented red (naturally) and the more one moved outward from the center the more confrontations one might expect with monstrous creatures and races. Outermost of all and surrounding the known world was *Oceanus Mares*. This was not the ocean pathway to the Indies, however, it was the ocean of nightmares, marked in such maps by the iconography of death. In practice, the European medieval ocean was something best used as an efficient but tentative shoulder route, creeping from port to cape to port along the coast as though in a river, with occasional crossings to nearby shores, preferably those within sight. Even used in this way coastal navigation was problematic. In 1291, for instance, a well-funded and well-equipped expedition led by the Genoese brothers Ugolino and Vadino Vivaldo attempted to repeat earlier legendary exploits by Phoenicians and Carthaginians in sailing and rowing coastwise from



The fourteenth century Hereford Mappa Mundi, ca 1300, represents one of the most elaborate T-O maps framing a worldview laden with religious symbolism, and placing Jerusalem at the center of the world with the Red Sea moving outward from the center toward increasingly threatening forces.

the Mediterranean and around Africa to India. Their two galleys rowed proudly through the straits of Hercules (Gibraltar), altered course to port and were never heard from again.

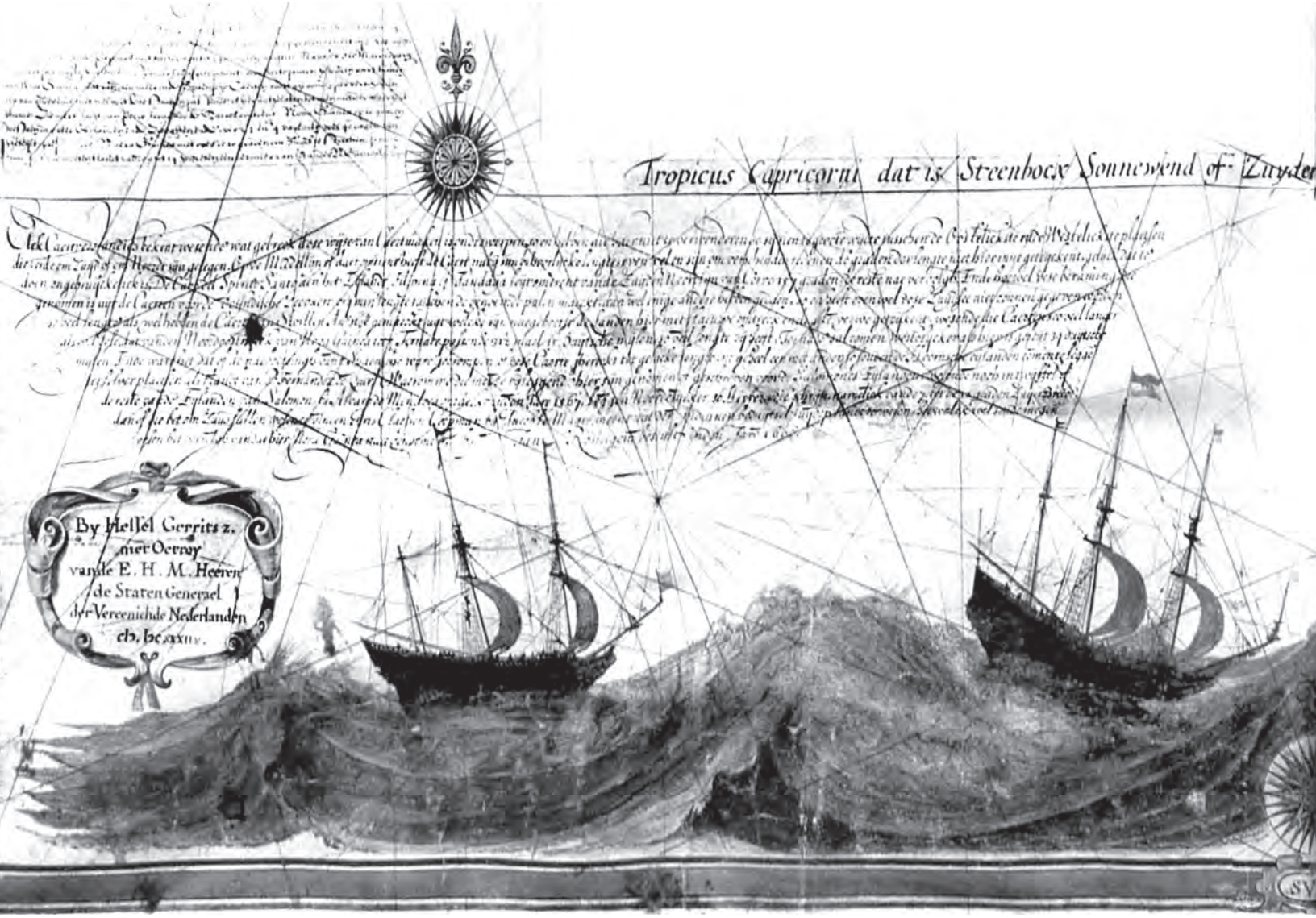
T-O maps were not the products of a society one might predict would someday establish worldwide seaborne empires. In the middle of the fourteenth century, for instance (the time of the Hereford Map), one might have thought China the most likely candidate for such an enterprise. China was the wealthiest and most powerful society on earth for most of the preceding twenty centuries and possessed a well-developed maritime capacity, expansive oceanic trading networks, and a systematic approach to gathering knowledge. In keeping, the spectacular fifteenth-century voyages of Zheng He might have begun a cycle of seaborne empire had they uncovered anything the Chinese felt was really worth the trouble.

By comparison to the Hereford map, the al-Idrisi map composed for Roger II of Sicily in 1154 from the compilations of Arab seafarers reveals a rational and useable cartography largely devoid of religious narrative. The map contains lines of latitude and depicts bodies of ocean as elements of a functional geography rather than as a symbolic barrier separating planes of existence. This too is understandable given the extensive Arab maritime trading networks which spanned the Indian Ocean and eastern Mediterranean. The Islamic world of that time also contained many libraries, medical schools, and astronomical observatories known to the West. By contrast with an Arab world that was relatively cohesive in acceptance of other belief systems, Europe was deeply religious, fractious, violent, involved in failed crusades, and in retreat. By the middle of the fifteenth century that retreat was beginning to look like a rout when the Ottomans took Constantinople, the city which had stood as a European bastion in Asia for a thousand years and, perhaps as ominously, the Venetians and Genoese began to gradually lose to the Ottomans their options as intermediaries in the spice trade as well as their access to the forest resources that underpinned their naval power.

To what then, can we attribute what seems at this distance like a metahistorical role reversal? How was it that, by 1530, less than a century after the fall of Constantinople, the maritime empires of Spain and Portugal controlled most of the world's strategic maritime choke points: Gibraltar, Calais, Malagasy, Hormuz, Aden, Malacca, the Isthmus of Darien, and had licensed all of the maritime trade of the Indian ocean, and sat astride the American continent poised for a potential Pacific route to the Indies and return? Even more amazing, how was it that the combined worldwide enterprise of both Spain and Portugal in the mid-sixteenth century was achieved with such breathtaking economy of force; an institutional establishment of soldiers, sailors, factors, functionaries, and political leadership that seldom numbered more than 10,000 men?



This map was drawn by the Moroccan cartographer al-Idrisi (with south up) for King Roger of Sicily in 1154.

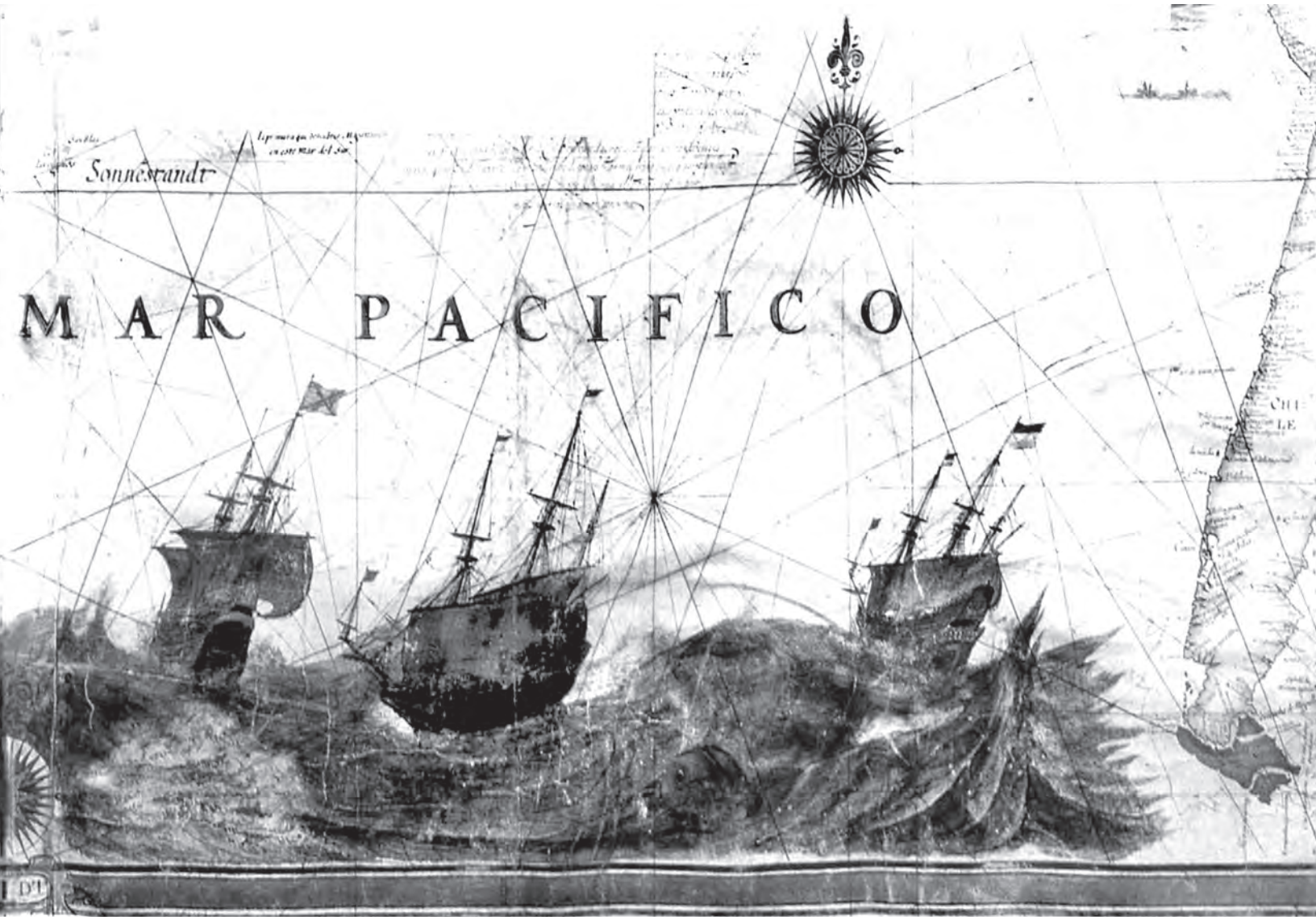


Detail from Hessel Gerritz Pacific Ocean, ca. 1622

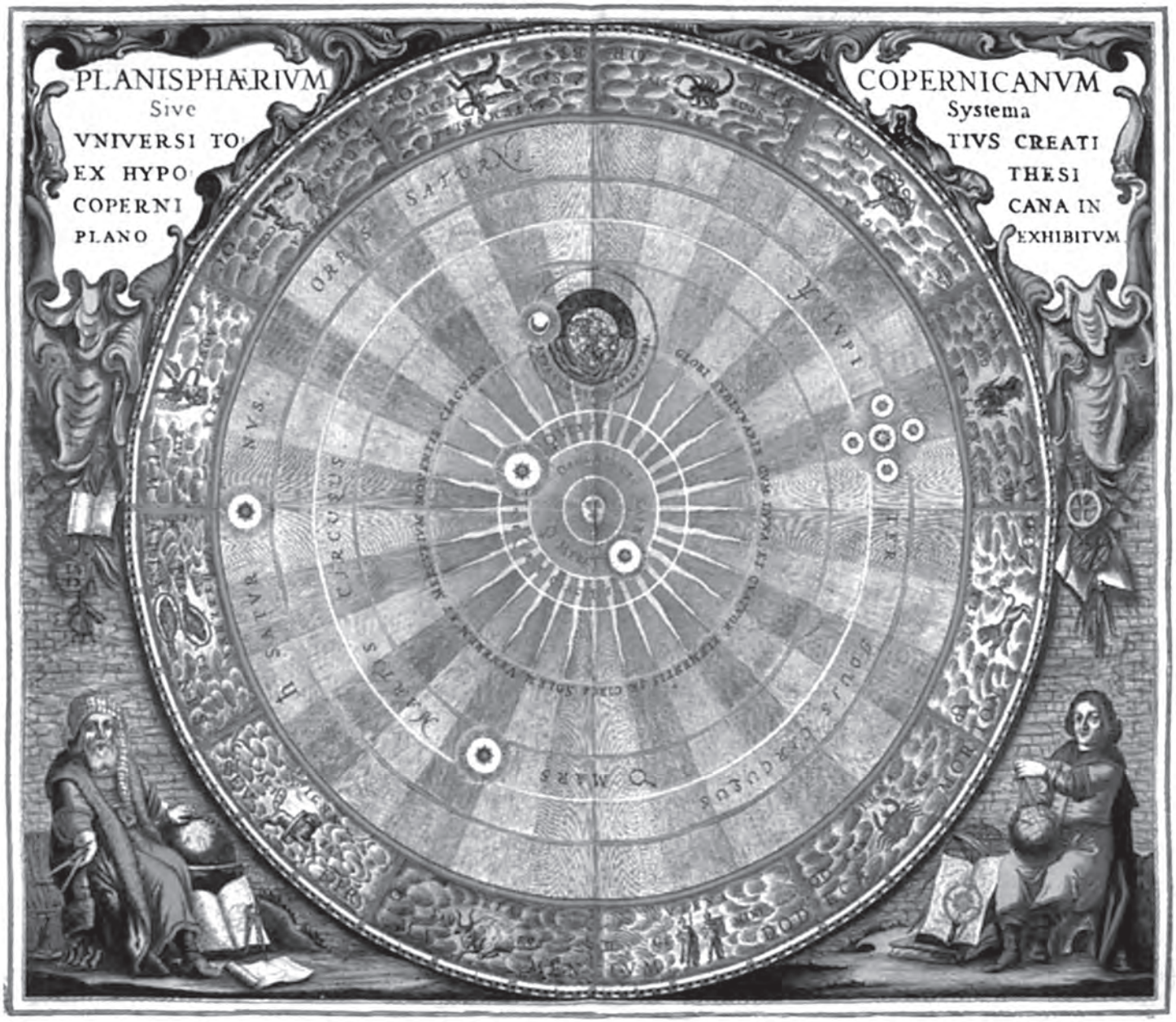
Bibliothèque Nationale, Paris

The Technological Surge that Reshaped Geographic Boundaries- The European Oceanic Sailing Ship

As many historians have argued, with varying degrees of willingness to invoke a deterministic model, the advent of the European oceanic sailing ship at the beginning of the sixteenth century constituted a far-reaching technological revolution that conveyed to Europeans an unprecedented advantage, perhaps the most consequential technological revolution of history. It allowed Europeans the means to reverse their long decline and then to parlay that advantage by incorporating the wealth of new territories and trade routes into oceanic empires of worldwide reach. The first large-scale technological system (with the possible exception of the chariot in antiquity), the oceanic sailing ship was also the last transportation and communication system in which people, treasure, commodities, ideas, and power all moved in the same system instead of, as today, in different specialized channels. The oceanic sailing ship was comprised of three



attributes combined effectively for the first time: a heavy commodious hull capable of standing up to heavy seas for months at a time while carrying enormous weights in cargo, provisions and armament; sufficient artillery to destroy any other type of vessel and to deter attack from other European ships; and a rational system of navigation which fixed positions in absolute rather than relative systems of reference, facilitated depiction of wind systems, and was recognized as a means to substantiate claims of ownership. The system was more than just the ships. It relied on interlinked support institutions such as shipyards and ordnance foundries, systems for procurement of timber and naval stores, victualling depots, boards of trade, navigation institutions which codified practice and collated, produced, and protected secret geographic information, and which along with military engineering, artillery, and mining institutionalized the role of mathematics and instrumentation in investigating and manipulating the natural world for gain. These ships and their supporting institutions were not simply the machinery of profit-seeking ventures, they were essential components of modern states. Going beyond the hardware, the requirements of navigation for oceanic trade and empire imposed across these institutions a rational view of the

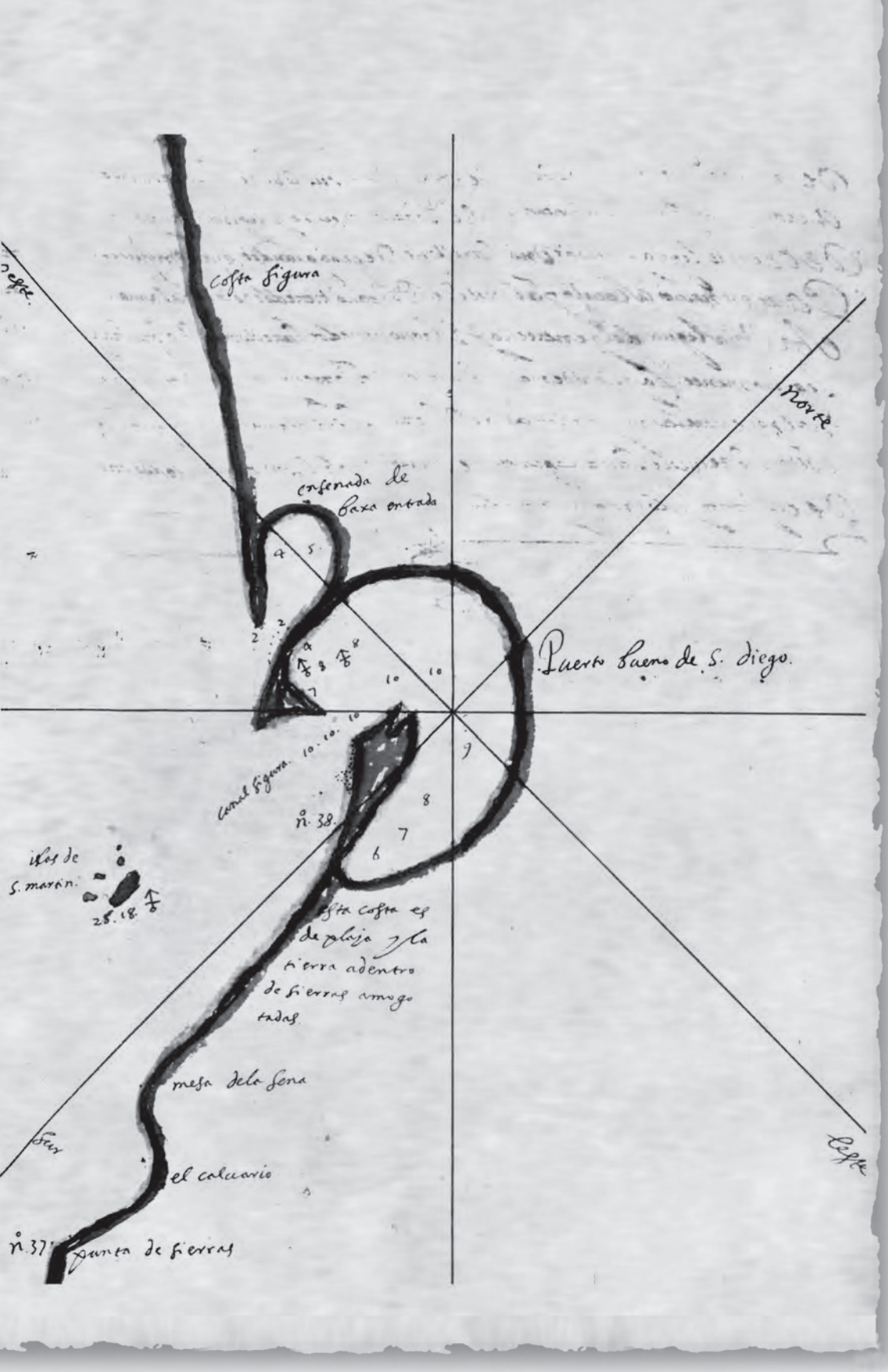


Copernicus's world system challenged the traditional view of the solar system by placing the sun at the center with the earth, moon and other planets revolving around it.

world which affected and reinforced change in the larger paradigm. At the very moment when Cabrillo's ships sailed into the bay they named San Miguel, a Polish astronomer on the other side of the world was completing work on a treatise that dispensed with an overly elaborate theocratic version of the universe that had prevailed since antiquity and proposed instead a far simpler arrangement based on quantified observation that placed the sun at the center of our planetary system. Copernicus's *De revolutionibus orbium coelestium* would become the founding work of the scientific revolution. While the voyage of the *San Salvador* was certainly not the first early modern expedition, it may have been the last such voyage of the medieval world.

As the galleon and her consorts made their way up the Baja California coast, *San Salvador* represented the furthest salient of this technological revolution into unknown regions of persisting medieval fantasies. The first wave of this revolution had carried Cabrillo as a young man across the Atlantic to the West Indies and then to Vera Cruz with Pánfilo de Narváez to join with Cortés' army. He contributed to its momentum with the boats he constructed for the amphibious attack across Lake Texcoco, which took the Aztec capital, and again when he built Alvarado's fleet of ships for the discovery of a new route to China, *San Salvador* among them. And the surge was cresting still in 1542, when she carried Cabrillo to his final destination and starring role in California's origin story.

As the episodes of Cabrillo's life and the Voyage of Discovery he made are the subject of other papers within this issue of *Mains'l Haul*, we will pick up the story of his career as it continues after his death. Though it failed in its primary objectives, Cabrillo and his voyage enjoyed an immediate but brief afterlife in cartography and in the litigations over his estate in Guatemala. The geographical information gleaned from the voyage, including the harbor of San Miguel, found its way into European maps in subsequent decades, though examples such as Paolo Forlani's map of 1566 persisted with the notion that China lay at the end of a manageable coastal voyage to the northwest bisected by a strait that connected the Pacific to the Atlantic via an all-water route across the top of North America. Perhaps more importantly, information concerning the prevailing westerly winds that stymied their attempts to follow the coast may have helped crack the code of Pacific wind patterns necessary for development of a two-way transpacific route between New Spain and the Indies. This route became practical in 1565 when the Spanish established themselves in the western Pacific with a base in Manila. The voyage itself was the longest regular trade route of the age and its eastbound leg was one of the most dangerous routes of maritime history. In an effort to locate harbors of refuge for the eastbound galleons making their way to Acapulco after months at sea, the merchant explorer Sebastián Vizcaíno in 1602 conducted the second survey of the coastline Cabrillo had explored. It was Vizcaíno who took advantage of Cabrillo's faded presence in the records, and lack of precision in his descriptions and latitudes, to rename the prominent islands, headlands, and bays, including Cabrillo's first harbor in Alta California, San Miguel, which he renamed San Diego. Vizcaíno's voyage also produced the earliest large scale maps to survive in which we can recognize familiar geographic features of California's coast depicted in rational form. In overwriting Cabrillo's geography and place names, Vizcaíno nearly succeeded in erasing him from history.



The map shows San Diego Bay as renamed by Sebastián Viscaíno and drawn by his cartographer. It was produced in Spain in 1603.

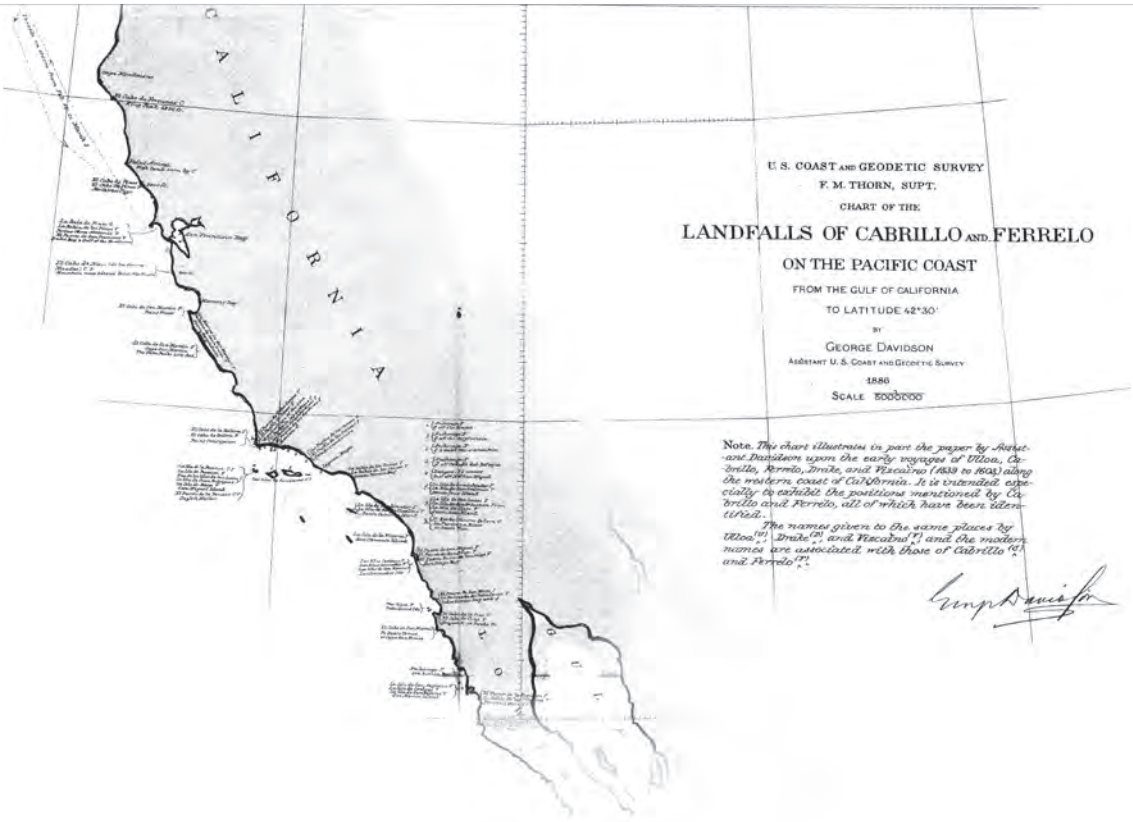
From the Archives of the Indies in Seville, Spain

Cabrillo Reclaims California

Many years later when the ships of other nations roamed the Pacific at will, Spain seized upon the colonization of California as a strategy for the defense of its Pacific monopoly by denying the use of it as a base to other European sea powers. In the end, it proved to be a futile defense. The exploration, classification, interpretation, and exploitation of the Pacific became a primary objective for the entire European Enlightenment, led by Britain, France, and Russia. Following the age of great Pacific voyages of exploration, the distant Spanish outpost became Mexican and then American, as succeeding waves of immigrants from around the world poured into California searching for gold, land, and livelihoods. Until late in the nineteenth century, most of those immigrants came by sea and many of them were of seafaring stock.

By the late nineteenth century California's teeming offshore waters and expanding demand for protein made fishing seem an especially attractive livelihood to immigrants from traditional fishing communities with similar climates and topography, such as mainland Portugal and the Azores. Given the insecurities of immigrating to a new land from half-way around the world, it's hardly surprising that some of them should find a special connection, identity, and sense of ownership in the heroic exploits of a great seaman explorer who not only made the first claim on their new homeland, but was a countryman from their storied past. The mystery and ambiguity of Cabrillo now was an advantage, a figure who could be claimed both as Spanish and Portuguese. Moreover, for an entire state filled with hopeful newcomers, Cabrillo as hero-navigator and self-made man embodied the ultimate newcomer, legitimized by the patina of distant history. Even better, Cabrillo's voyage gave an upstart California its origin story, older than New England's, older than Virginia's, older than almost anywhere in the United States.

If Cabrillo made any maps, none have survived. It is ironic that his return to prominence is portended in a unique 1886 U.S. Coast Survey chart. Through most of U.S. history, the country's foremost scientific institution was the U.S. Coast Survey, now known as the National Oceanic and Atmospheric Administration. Among the first and most important contributions of the Coast Survey were detailed maps and nautical charts, and like the maps of all hydrographic offices of this period, each one was a tool of surpassing precision and a masterpiece of rationalism, its unassailable authority presumed in the spare rendering of the facts: no baroque cartouches, pictograms of ships and sea monsters, foliated compass roses, or portraits of explorers associated with national claims of territory.



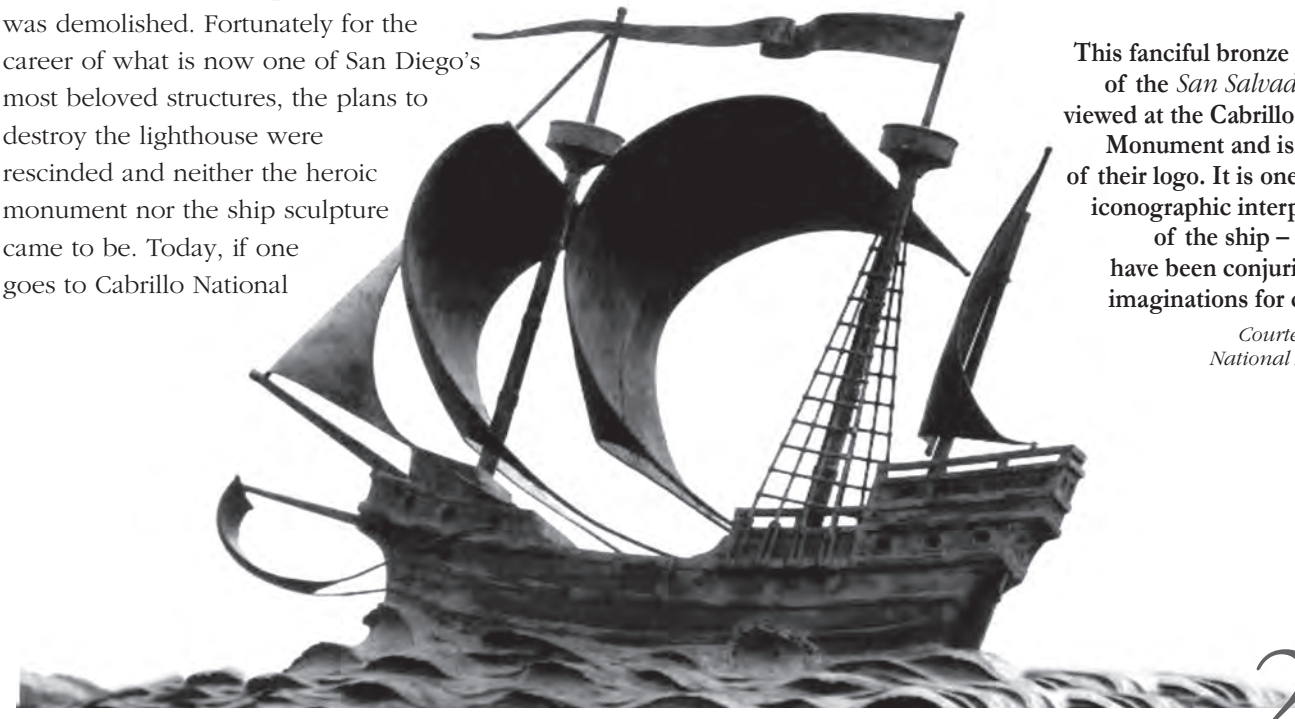
In 1886 the U.S. Coast and Geodetic Survey produced this unique chart marking landfalls of earlier discovery voyages.
Courtesy the author



It is noteworthy that in 1886 the U.S. Coast and Geodetic Survey produced a chart by George Davidson called "Landfalls of Cabrillo and Ferrelo [sic] on the Pacific Coast" (Bartolomé Ferrer was *San Salvador's* chief pilot and Cabrillo's successor in command of the expedition). This was no ordinary nautical chart with notations reporting reefs and changes in magnetic variation. Rather, through a succession of notes and stories associated with the places they had explored during the voyage, all carefully arranged in proper coordinates, Davidson filled his geography with signifying narrative, in principle not unlike what the T-O maps had once done in depicting a medieval world centered on Jerusalem and ringed by a sea of death. At one stroke Davidson had reversed Vizcaíno's notations and through the offices of the U.S. Coast Survey, Cabrillo claimed the territory once more, precisely at the moment in California's history when the first wave of Portuguese immigrants were pouring into California and ranging its bays, coastlines, and offshore waters in search of fish. *San Salvador* had begun her voyage back to life.

In 1892, Cabrillo landed once again in San Diego to commemorate the 350th anniversary of his first landfall in what was now the United States. Though there was no *San Salvador* to debark from when Cabrillo stepped ashore from a launch rowed to the foot of Grape Street, the moment served as the grand finale of a celebration that included a military parade down Broadway, speeches by civic leaders and throngs of spectators at the landing site. Two years later, it was deemed necessary to dignify the proceedings by the inclusion of Cabrillo's flagship. Since no galleons were readily available the organizers chose the most exotic watercraft at their disposal to portray *San Salvador,* so the Chinese abalone junk *Alta* was pressed into service. In subsequent years *Alta* became progressively more "galleonized" with the addition of a fo'c'sle, stern castle, and yards. Eventually, many of the great period sailing vessels on the West Coast portrayed *San Salvador* in landing reenactments: *Rendezvous*, *Swift of Ipswitch*, *Bagherra*, *Argus*, *California*, *Pilgrim* (now *Spirit of Dana Point*), *Red Witch*, *Lynx*, and *Californian.*

San Salvador also materialized as a focal point in historic narrative art. A sculpture of the ship was proposed by Alan Hutchinson in 1913 (the year Cabrillo National Monument was established) to accompany a monumental statue of Cabrillo, which was to have been erected on the spot of the old 1854 Point Loma Lighthouse after that superannuated structure was demolished. Fortunately for the career of what is now one of San Diego's most beloved structures, the plans to destroy the lighthouse were rescinded and neither the heroic monument nor the ship sculpture came to be. Today, if one goes to Cabrillo National Monument, one finds the heroic nature of the explorer conveyed by a *Padrão* (the stelae once erected on prominent headlands by Portuguese navigators to mark both the furthest extent of their explorations and their ownership of the route) sculpted by Alvaro de Bree and contributed by Portugal to the Pan American Exposition at Treasure island in 1939 and installed at its Point Loma location in 1949. Not far away is the iconic (and wildly fanciful) bronze sculpture of the *San Salvador,* which has been a fixture at Cabrillo National Monument since 1935 and the basis of its logo. In the decades to follow, a number of West Coast artists from Duncan Gleason to Richard DeRosset have found *San Salvador's* voyage an apt subject for their narrative art. More recently, the *San Salvador* has even served as the basis for narrative forms of architecture, as in the children's media center at the Point Loma branch library. In the accumulation and distribution of such representations in public art, in public performances and landing reenactments, in the telling of the Cabrillo story as part of the California curriculum standards, and in the assignment of Cabrillo to place and business names from national monuments to strip malls, the *San Salvador* has grown to become the ubiquitous, if subliminal avatar of the California and especially the San Diego origin story. We have been building the *San Salvador* in our imaginations for generations. Now it is time for her to materialize in tangible form.

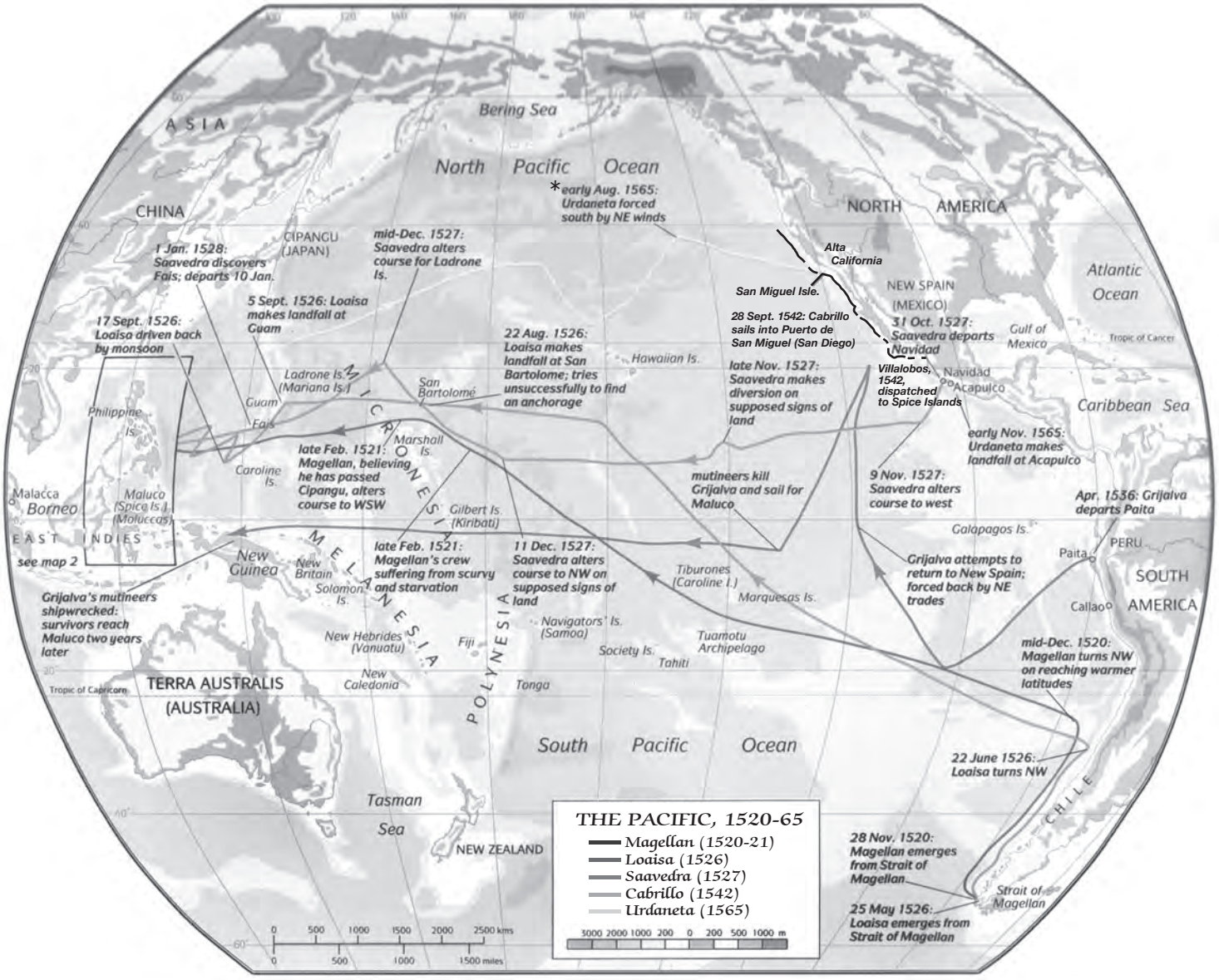


This fanciful bronze sculpture of the *San Salvador* can be viewed at the Cabrillo National Monument and is the basis of their logo. It is one of many iconographic interpretations of the ship – a ship we have been conjuring in our imaginations for centuries.

Courtesy Cabrillo National Monument

Pacific Exploration in the Early Sixteenth Century

By Carla Rahn Phillips, Ph.D.



Illustrated are the Pacific voyages from Magellan/Elcano in 1520-1521 to Urdaneta in 1565. While Juan Rodríguez Cabrillo sought to examine the north Pacific coast in 1542, it was Andrés Urdaneta who deciphered how to sail eastward across the Pacific from Asia to the Americas. His discovery finally made it possible to develop trans-Pacific trade.

Expanded from the Times Atlas of Exploration

In the Age of Exploration

For the history of San Diego, Juan Rodríguez Cabrillo's 1542 voyage marks a beginning—the discovery of the magnificent bay that defines the city even today. Yet in a broader context, Cabrillo's voyage lies in the middle of what we might call the "heroic age" of global exploration. That age began with the voyages down the African coast and into the eastern part of the "Ocean Sea," the Atlantic Ocean, in the half-century before Columbus's historic 1492 voyage. Some historians would argue that the "heroic age" ended with the Magellan/Elcano westward circumnavigation in 1519-1522. Others would argue that the heroic age lasted until James Cook's accurate mapping of the Pacific Ocean in the late eighteenth century. The latter view is appealing, but I would argue instead that the heroic age of exploration lasted only until 1565, when Andrés Urdaneta figured out how to sail eastward across the Pacific from Asia to the Americas. Urdaneta's discovery finally made it possible to develop trans-Pacific trade, a goal that had eluded Magellan and every subsequent European voyage into the Pacific for four decades. After Urdaneta, however, Spanish merchants and mariners knew how to navigate in the Pacific, even though much of its vastness remained unexplored. Cabrillo's 1542 voyage—midway between Magellan and Urdaneta—lies within the heroic age of global exploration, when Pacific navigation was still largely unknown to Europeans. That is worth emphasizing because European explorers, mariners, merchants, missionaries, and settlers had long since domesticated the trans-Atlantic routes between the Old Worlds of Europe and Africa and the New World of the Americas.[1]

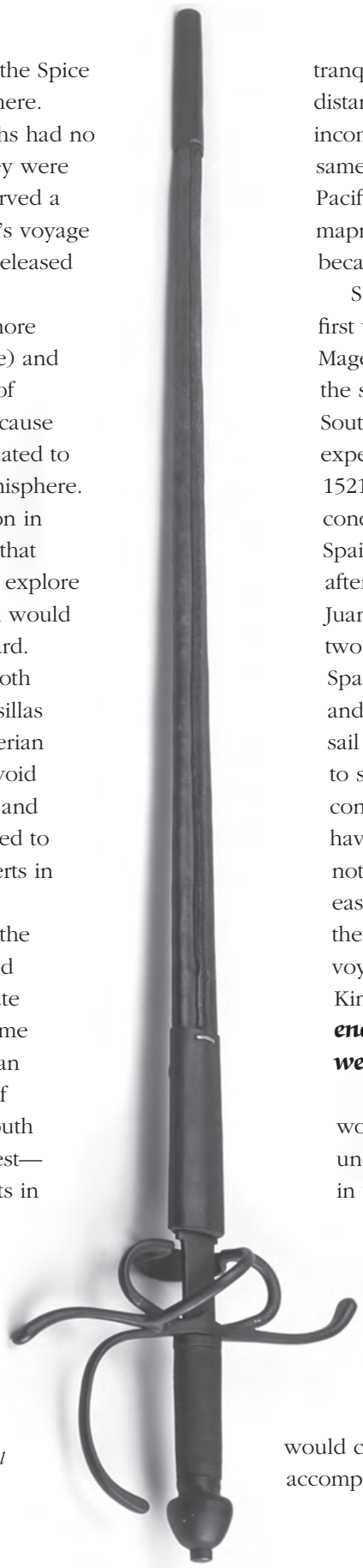
Carla Rahn Phillips is Union Pacific Professor in Comparative Early Modern History at the University of Minnesota, Twin Cities. A seventh-generation Californian, she specializes in the history of Spain and the Age of Exploration. Among her many publications in maritime history are *Six Galleons for the King of Spain* (1986); *The Worlds of Christopher Columbus*, co-authored with William D. Phillips (1992); and *The Treasure of the* San José (2007).

By 1509, just seventeen years after Columbus's first voyage, dozens of expeditions sponsored by Spain or Portugal had mapped hundreds of islands in the Caribbean and the Atlantic coastlines of Central and South America from Tampico to Brazil. Similarly, in North America rival voyages sponsored by England and Portugal had defined the outlines of hundreds of miles of coastline and come upon one of the earth's richest fishing grounds off the coast of Newfoundland. In the process of all of these voyages, hundreds of European mariners sailing for one or more of the rival monarchies had learned most of the secrets of the Atlantic Ocean. Their loyalties were as changeable as the tides. Just as the Genoese Columbus had shopped around for royal backers in Western Europe, the Venetian Sebastian Cabot served both the Spanish and English crowns at one time or another. The Florentine Amerigo Vespucci sailed alternately for Portugal and Spain, as did the Portuguese Magellan. Born into the minor nobility, Magellan began his maritime career serving the Portuguese crown on the route around Africa to India and the Spice Islands. Finding his ambitions for social advancement thwarted by Manuel I of Portugal, he offered his services to the teenaged King Charles I of Spain. Magellan's historic voyage to Asia, in fact, was

designed to further Spanish interests in the Spice Islands, countering Portuguese claims there. Although the various European monarchs had no qualms about employing foreigners, they were not pleased when their own subjects served a rival. King Manuel considered Magellan's voyage an act of treason, even though he had released Magellan from his service.

The rivalry between Spain (or, more precisely, the Kingdom of Castile) and Portugal defined the early days of European global exploration, in part because both Iberian kingdoms were ideally situated to pioneer in navigating the Southern Hemisphere. To solve competing claims to exploration in the Atlantic, Spain and Portugal agreed that Portugal would have exclusive rights to explore south and eastward of Iberia, and Spain would have exclusive rights to explore westward. The papacy brokered the deal, which both countries ratified in the Treaty of Tordesillas in 1494. To keep peace between the Iberian powers, it was important for Spain to avoid encroaching on the Portuguese sphere, and *vice versa,* but both Iberian powers aimed to establish trade and seek Christian converts in Asia.

Vasco Núñez de Balboa was part of the flurry of Spanish explorers who followed Columbus, all of them looking for a route through the western lands so as to resume the voyage toward Asia. Balboa joined an expedition in 1509 exploring the Gulf of Darién at the juncture of Central and South America—a potential opening to the west—and helped to set up Spanish settlements in the region. In September 1513, after crossing the Isthmus of Panamá, Balboa and his companions were the first Europeans to gaze upon the ocean that Magellan would name the Pacific for its seeming tranquility. Assuming that Asia lay a short distance farther on, Balboa had no idea of the incomprehensible vastness of the Pacific. That same inability to form an accurate sense of the Pacific confounded European explorers and mapmakers for over 250 years, even as they became experienced Pacific mariners.



Courtesy Cabrillo National Monument Foundation

Scarcely three decades after Columbus's first voyage, the Portuguese explorer Ferdinand Magellan pioneered the Spanish route through the strait that bears his name near the tip of South America and across the Pacific. The expedition reached Guam in the spring of 1521, even before Hernán Cortés completed his conquest of the Aztec empire in Mexico (New Spain). Magellan was killed in the Philippines after intervening in a local power struggle, but Juan Sebastián de Elcano successfully brought two dozen men from the expedition back to Spain in one ship, by way of the Indian Ocean and around the southern tip of Africa.[2] To sail back across the Pacific—in other words, to stay within the Spanish sphere and avoid confrontation with the Portuguese—would have been more prudent, but they could not find the proper currents to carry them eastward. When they arrived in Iberia in 1522, they had accomplished the first European voyage around the world. Elcano wrote to King Charles I that ***we have discovered and encircled the entire world; going to the west, we have returned from the East.*** [3]

Had Magellan lived, presumably he would have followed the same route. He understood the monsoon wind patterns in the Indian Ocean and had sailed on Portuguese voyages to India and back. It is important to distinguish between choosing the route for its practicality and choosing it for the fame of completing the first circumnavigation. The fame sought by Magellan and his companions would come from the wealth and prestige that accompanied royal favor. The main purpose of

the voyage from Spain's point of view was to stake out Spanish claims in a part of the world where the Portuguese were already established, at the same time avoiding the restrictions imposed by the Treaty of Tordesillas. The Magellan-Elcano voyage accomplished that goal, extending the Iberian rivalry from the Atlantic into the Pacific. The first global circumnavigation was an unintended consequence, not the aim of the voyage.

To make the westward route to Asia profitable, Spain had to find a return route eastward across the Pacific. It made sense to launch Pacific voyages from the lands in the Western Hemisphere that Spain was already colonizing, primarily New Spain or Perú. However, repeated failures to find the return route across the Pacific forced survivors from a series of Spanish expeditions to return to Europe via India and Africa, along routes dominated by the Portuguese and with Portuguese permission, sailing around the world by default. Of the many voyages after Magellan and Elcano, several stand out, if only for their bad luck.

García Jofre de Loaísa led an ill-fated expedition across the Pacific in 1524, just a few years after the first epic circumnavigation. Loaísa lost three of his seven ships to mishaps and desertion early in the voyage, before even attempting to cross the Pacific. Shortly after emerging from the Strait of Magellan in June 1526, the caravel *San Lesmes* vanished in a storm, never to be heard from again, though persistent oral traditions suggest that some survivors settled on various Polynesian islands. The expedition continued to be plagued by misfortune, and Loaísa himself died during the Pacific crossing, but the remnant of his expedition made it to the Moluccas, or Spice Islands.

One of the ships that had deserted Loaísa at the Strait of Magellan carried news of the expedition's troubles to Mexico. After hearing the story, Hernán Cortés himself funded a voyage across the Pacific in 1527, under the command of his cousin Álvaro de Saavedra. Saavedra was supposed to locate and reinforce Loaísa's expedition and find out if the Portuguese were encroaching on the part of Asia that Spain claimed under the Treaty of Tordesillas. With three ships and 100 men, Saavedra left the Mexican coast in November 1527 and ran into a fierce storm in late December that scattered the tiny fleet. Only Saavedra and his flagship reached the Moluccas.

The other two ships were never heard from again, though various writers have claimed that the storm might have blown them to Hawaii, given the position of the fleet when the storm hit and the direction of the winds. In the Moluccas, Saavedra and the remnant of Loaísa's crews worked together against the Portuguese and managed to buy a shipload of spices and attempt a return voyage across the Pacific. They failed to find a southern route in the latter half of 1528 and turned back to make needed repairs. Sailing northward in mid-1529, the ship reached 31 degrees North before giving up the attempt and returning to the Moluccas.



Above: Pictured is a nao (1520, Flemish ship) with a round tuck, three masts, and sternpost rudder. From the Miniature prayer book of Charles V., this is thought to be a representation of the vessel that brought the seventeen-year-old Charles of Ghent to Spain in 1517 to take up his kingship.

The manuscript is in the Monastery of San Lorenzo de El Escorial. National Patrimony of Spain

Saavedra himself had died at about 26 degrees North, though it is not clear exactly where. Like the 'lost caravel' of Loaísa's outbound voyage and the two missing ships from Saavedra's outbound voyage, the latter's failed attempt to return by a northerly route has inspired claims that the ship reached some part of the Hawaiian Islands. No evidence has been found in the written record to support any of those claims, however. The one certainty is that a series of Spanish expeditions from Magellan onward failed to find a way back across the Pacific.

Their failures stranded all the survivors in the Moluccas, maintaining a tenuous Spanish presence there while holding out against Portuguese pressure. Their presence added substance to Spanish claims in Asia, as Portugal and Spain negotiated the implications of the Treaty of Tordesillas on the far side of the world. In 1526, King Charles married Princess Elizabeth of Portugal, and in 1529, he sold Spain's claims in the Moluccas to Portugal, although the news did not reach the stranded Spaniards until 1532. With no point in remaining any longer, the survivors from the expeditions of Magellan, Loaísa, and Saavedra reached an agreement with local Portuguese authorities to return to Europe via the Indian Ocean and the Cape of Good Hope. They arrived in Lisbon in 1536, and then traveled to Spain, adding their names to the growing list of Spaniards who had sailed around the world without wanting to do so, defeated by the incomprehensible Pacific. Cabrillo's

maritime career developed in the context of continued uncertainty about how Spain could profit from the westward connection to Asia.

Cabrillo's 1542 voyage, and indeed all of Spain's global exploration, depended upon the availability of ships that could stand up to conditions on the high seas. Europeans had developed such ships over the course of the late Middle Ages, so that by the late fifteenth century, Columbus was able to make his historic voyage in three very small but sturdy ships of the types that had proven themselves in the Mediterranean and the eastern Atlantic.[4]

The Ship - Instrument of Expansion

There is much disagreement about how the famous ships of Iberian exploration developed and how they looked. Few wrecks have been found from the late fifteenth and early sixteenth centuries, and until recently very little research had been done on Spanish ship design.[5] Where documents exist, they often lack the kinds of specific information needed to study design and its evolution, being more concerned with outfitting and provisioning vessels in specific fleets. Much of the pictorial evidence we have for ships of the period comes from paintings, illuminated manuscripts and books, town seals, and votary statues, the latter often donated to churches in supplication for a safe voyage.[6]

These images can often seem laughably out of scale to the casual observer, with human beings nearly as tall as the mainmast, and features of design schematically presented. Moreover, the illustrations and models are often difficult to identify or date with precision. Given the difficulties of visual evidence, and the scarcity of information from nautical archeology and documents, a wide range of opinion exists about nearly every aspect of the history of ship design.[7]

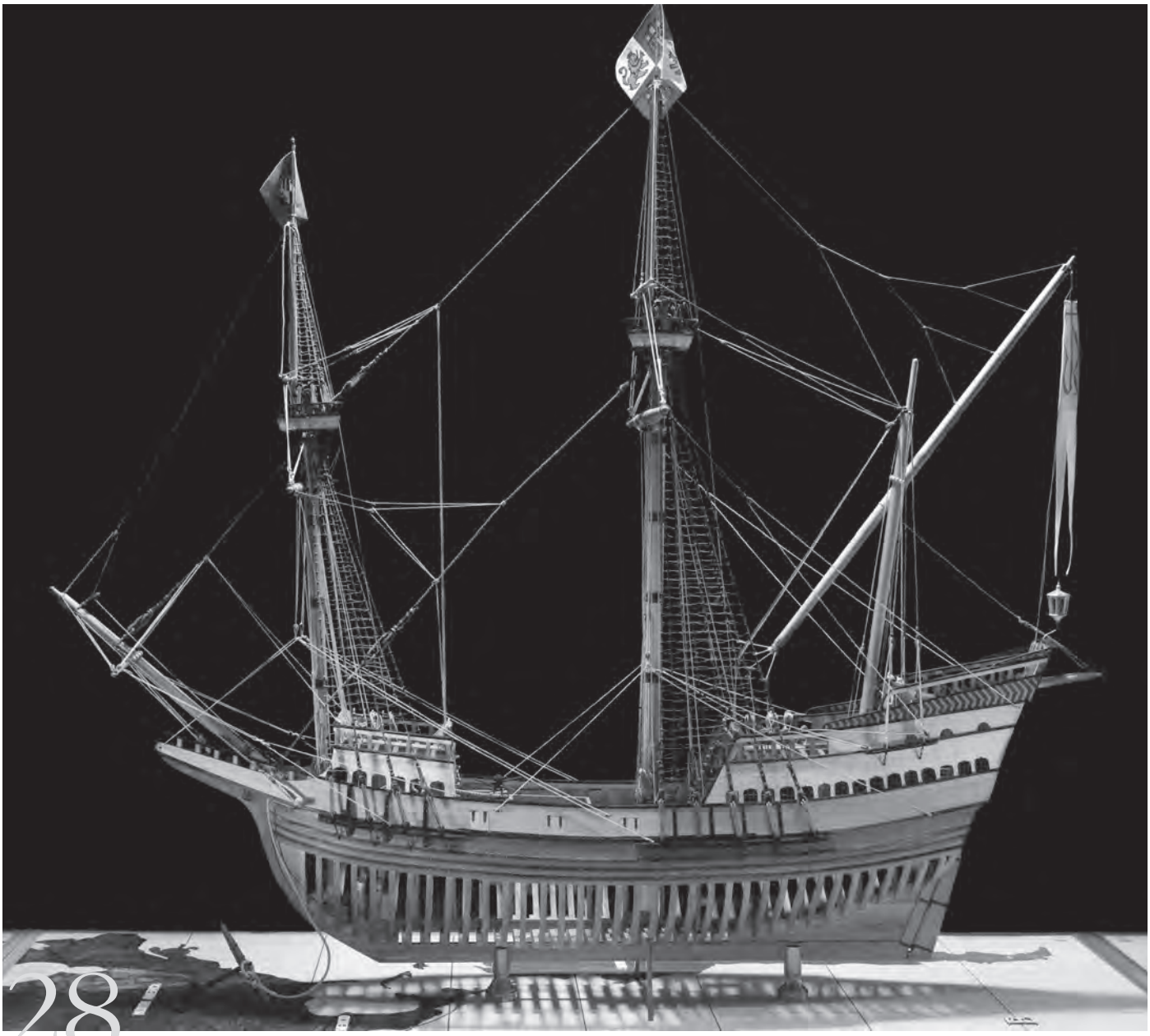
There is general agreement on a few points, however. During the fourteenth and fifteenth centuries, a blending of characteristics from northern and southern European ships eventually produced the ancestors of nearly all later European ocean-going vessels. Mediterranean shipbuilders adopted the northern rig of a square sail on a single mast, as well as a northern-style platform on the mast. They also continued to use ships with a triangular lateen sail, an earlier borrowing from the Islamic world. By the mid-fourteenth century, large ships in various parts of Europe, with a square sail on the mainmast, often added a second, smaller mast with a square sail, or with a lateen sail on Mediterranean ships.[8]

Higher permanent castles fore and aft, thought to have originated for warfare, also aided sailors working the lines of the square sails in both northern and southern versions of this ship, which was called by versions of the name "cog". It usually had a straight sternpost, and a stempost that was curved on southern ships and straight on northern ones. By the early fifteenth century a third mast and sail had been added for balance. The southern method of hull construction—beginning with a skeleton of ribs and planking it afterwards—came to be used in both north and south for larger ships, although it took centuries for some northern builders to master the technique completely.[9]

This model of *San Salvador*, built by Joe Bompensiero and Jack Klein with the assistance of Bob Crawford of the Maritime Museum of San Diego, exhibits the perceived lines of the galleon. However, since no drawings of this sixteenth-century ship exist, her replica design is a much studied object of discussion with ongoing refinements in her overall design.

Courtesy MMSD, Photographed by Ted Walton

The result of this combination of styles was a ship with three masts, the front two (called the foremast and the mainmast) with square sails, and the mizzenmast behind them with a lateen sail. It was steered with a sternpost rudder.[10] With a combination of square and lateen sails and a good steering mechanism, the ship was balanced and maneuverable, able to withstand conditions on the open ocean and to enter and leave ports with some degree of grace and efficiency. From its basic hull design, the ship would develop in several directions, each one suitable for a particular set of needs and circumstances. The vessels commissioned by Pedro de Alvarado in 1539, including the *San Salvador* that Cabrillo sailed into San Diego Bay in 1542, were built in the midst of this extraordinary period in the history of the sailing ship and benefitted from centuries of improvements in European ship design.



During the sixteenth century, every seafaring people in Europe developed a characteristic set of sailing ships to serve their purposes. Spain used several kinds of small ships for patrolling coastlines, sending dispatches, and carrying out other support services, both in Europe and overseas. The workhorses of Spain's transatlantic fleets were the versatile vessels called *naos*—most often used as merchant ships—and galleons—most often associated with defense and warfare, but also able to carry loads of people and cargo efficiently. The multiple uses of the galleon in the early sixteenth century has led some historians to refer to them as "merchant galleons" to distinguish them from later galleons devoted primarily to naval functions. Nonetheless, it is worth remembering that the Spanish galleon continued to be adaptable to various purposes to the end of its career in the early eighteenth century.

The size of ships in Spain's Indies fleets varied considerably. Dispatch vessels were often no more than 50-70 *toneladas*; in modern terms, that would mean ships about 15-17 feet wide at their widest point or beam, and about 55-65 feet long on the lowest planked deck. *Naos* and galleons were larger than typical dispatch vessels, and both *naos* and galleons tended to get larger as the sixteenth century advanced. The *nao Santa María,* the largest ship in Columbus's 1492 fleet, was described as little larger than 100 *toneladas,* which in the terminology of the time seems to have meant a ship with a maximum breadth of about 19 feet, and a length on the lowest deck of about 58 feet.[11] By Cabrillo's time the *naos* and galleons used for the Indies fleets typically gauged at several hundred *toneladas.* Both types had about the same range of tonnages and measurements, and both types might carry armament, cargo, passengers, or various combinations of those burdens, depending on the voyage. The main difference between them may have been the way they looked at sea. A galleon probably had a more low-slung profile than a *nao* and a pronounced forward rake, with the aft castle higher than the forecastle. Also, a *nao* in the early sixteenth century often had a rounded stern or tuck, whereas a galleon had a square tuck like a caravel. Given the epoch in which it was built, Cabrillo's *San Salvador* most likely was a "merchant galleon" of about 200 *toneladas* or so, based on a range of evidence from sixteenth-century sources. It would have had two full decks; a half deck aft of the mainmast; a high aft castle; a lower forecastle; three masts, with square sails on the first two, and a lateen sail on the mizzenmast; a beak below the bowsprit; and a square tuck. The length on the lower deck would arguably have been about 75 feet; the maximum breadth or beam would have been about 25 feet; and the depth in the hold would have been about half the beam, or 12.5 feet. All of this is speculative, of course, because we have no contemporary painting or visual representation of the *San Salvador,* and the only written evidence is indirect.

The number of people carried on ships like *San Salvador* varied according to the purpose of the voyage. An ordinary merchant voyage sailing in peacetime might carry a fairly small crew and a sizeable number of civilian passengers; a ship armed for battle would carry a larger crew than a merchant voyage, plus a contingent of soldiers and gunners. Sailing crews worked extraordinarily hard in Cabrillo's day, managing sails made of heavy canvas and lines made of hemp or other natural fibers. One Spanish nautical treatise recommended using 67 pounds of cables and rigging for every *tonelada* of the ship's size. In other words, a galleon of 200 *toneladas* would have carried rigging and cables that weighed about 13,400 pounds dry, and a great deal more wet. The basic crew on a ship that size would have been about 25 or 30 men.

Life Aboard

Very few descriptions of the working life aboard ship have come down through the ages. The crew and their officers were generally too busy doing their jobs to have time to write about them, even if they could write. Passengers on merchant ships had considerable time on their hands, but most of them were too seasick or otherwise indisposed to serve as chroniclers of the voyage. To the passengers as well as the soldiers on board, sailors were a different and alien breed of human being, but the lives of all on board depended upon their skill. To coordinate their movements in handling the extraordinarily heavy equipment on the ship, Spanish crews, like all other seafarers that we know about, used rhythmic chants as they heaved and hauled on the rigging. Each task had its own rhythm, relating the force of the men to the resistance of the material. One sort of chant had a steady marching beat, used to coordinate the footsteps of sailors walking around and around the capstan or the length of the deck to haul up anchors and do other similar tasks. Another type of chant had a slow, regular rhythm for tasks that involved standing in one place and hauling on lines hand over hand. A third sort of chant used a two-part rhythm, coordinating preparation time and action time, for heavy jobs that required standing in one place and hauling with both arms at once, then getting into position for the next pull. In Spanish, the verb *salomar* means to sing or chant these various rhythms, and usually one of the crew's supervisors or an old sailor set the rhythm, either making up words as he went along, or repeating what he had heard all his life at sea. The sailors answered in chorus, or kept silent, as the situation required. An ordinary day at sea had its own steady rhythm for the crew, punctuated by changes in the watch and prayers chanted by young boys called pages, the most junior members of the crew, whose job it was to turn the half-hour sand-clock that kept time at sea.


Arte de nauegar

en que se contienen todas las Reglas, Declara
ciones, Secretos, y Eluisos, q̃ a la buena naue=
gaciõ son necessarios, y se deuẽ saber, hecha por
el maestro Pedro de Medina. Dirigida al sere
nissimo y muy esclarescido señor, don Phelipe
principe de España, y de las dos Sicilias. &c.

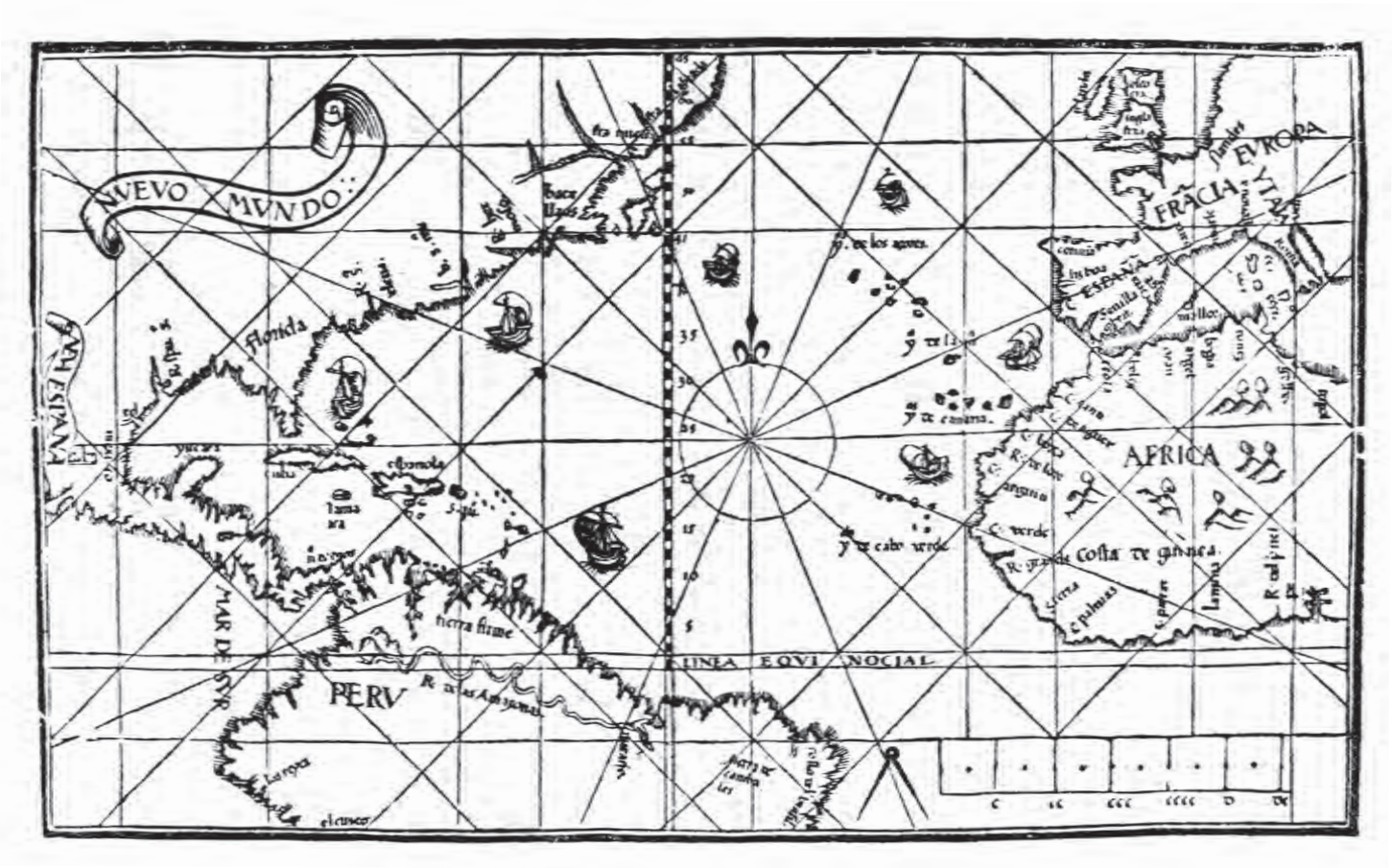
Con preuilegio imperial

The Spaniard Pedro de Medina published the first practical guide to celestial navigation, *Arte de navegar* **in 1545, based on decades of Iberian mariners' experience at sea.**

Courtesy the James Ford Bell Library, University of Minnesota

The Art of Navigation

Keeping time as accurately as possible was crucial for plotting the ship's course. The power of science and observation enabled mariners to locate that most elusive of paths—the track of a ship at sea. With an astrolabe, a compass, a lodestone for magnetizing the compass needle, a sand-clock, and a piece of paper for marking the course, a ship's pilot could interpret the motion of the winds and seas and use the power of nature to serve human ends. That was easiest near a familiar coastline with recognizable landmarks, but the best pilots could calculate the ship's speed and distance traveled in unfamiliar



Above: Map from *Arte de navegar*, showing the Atlantic, and what was known of the eastern Pacific in 1545.

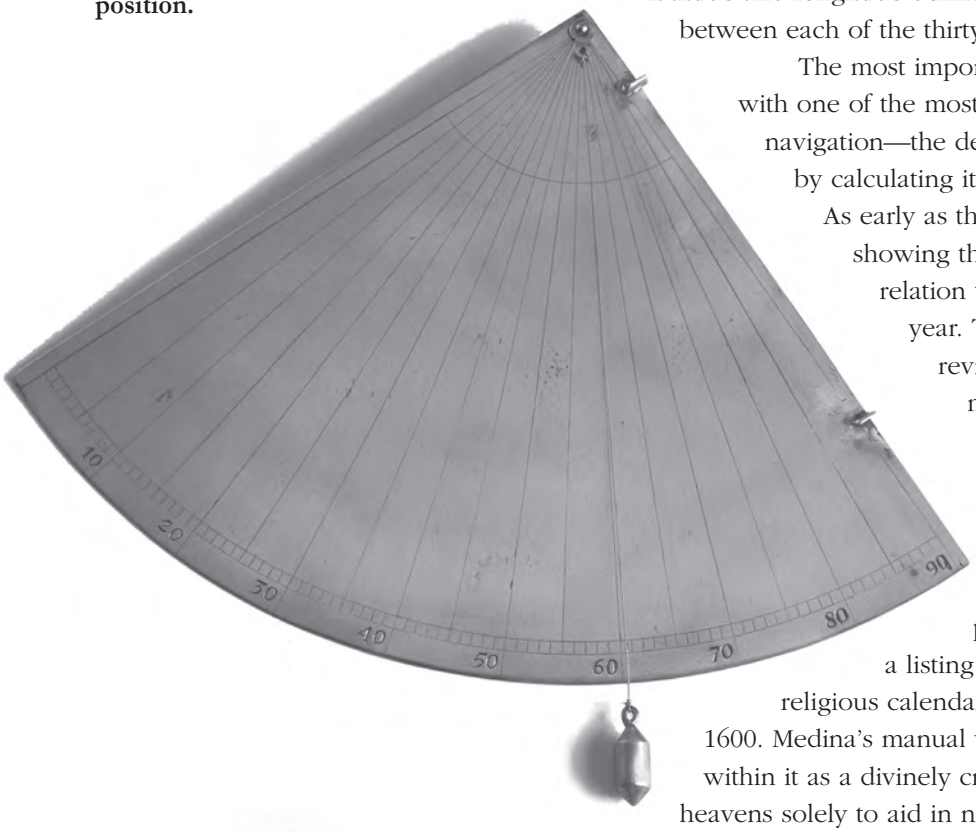
Courtesy the James Ford Bell Library, the University of Minnesota

waters as well. Part science, part craft, and often called art, navigation in the sixteenth century still accepted the definitions of the universe propounded by Claudius Ptolemaeus, or Ptolemy, a philosopher who had lived in Hellenistic Egypt during the second century C.E. Ptolemy assumed that the earth was the center of the observable universe, and both Christian and Islamic science accepted his views during the Middle Ages. In the late fifteenth century and early sixteenth century, printers using the new system developed by Johannes Gutenberg published numerous Latin editions of Ptolemy's treatises on geography and astronomy, adding to the fund of knowledge that the European Renaissance inherited from the ancients.[12]

In 1545, three years after Cabrillo sailed into San Diego Bay, the Spaniard Pedro de Medina published the first practical guide to celestial navigation, based on decades of experience at sea by Iberian mariners.[13] Medina described the Ptolemaic universe with extraordinary clarity, discussing the heavens, the stars, the planets, the sun, and the moon, moving steadily inward until he arrived at the fixed immobile earth, the very center of the world that God had created. Each part of his discussion was designed to instruct, and he took great care to tell his readers the sources of the knowledge he imparted. Where scholars had disagreed over the centuries since Ptolemy's time, he mentioned those disagreements, but never in such detail as to risk confusing the mariners for whom his book was written. Medina provided a reason for everything, including why the sky is blue, how the land and water on the face of the earth are arranged, and how the art of navigation was first discovered.

In the more technical part of his manual, Medina introduced the names and qualities of the winds that mariners relied upon to move their ships in the Age

Below: The quadrant and astrolabe were navigation tools used in the sixteenth century to measure the angle of the sun or North Star in relation to the horizon. These readings were compared to pre-calculated tables, allowing for an estimation of latitude position.





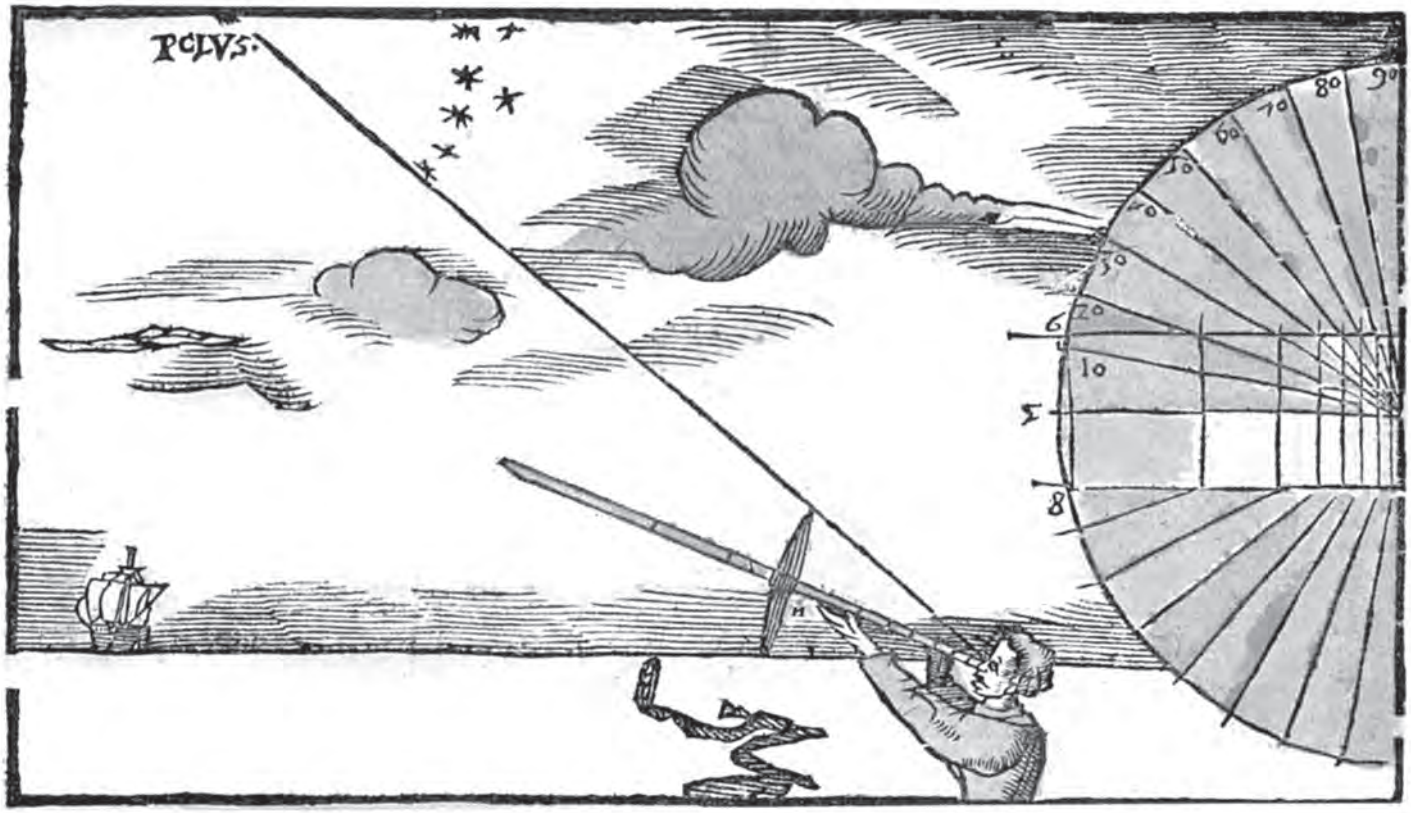
Courtesy Cabrillo National Monument Foundation

of Sail. He also described in detail the marine charts that pilots consulted to plan their voyages. Each of those charts carried a wind rose or compass rose, as they were called, showing the orientation of the land masses to the thirty-two points or winds of the mariner's compass. The lines emanating from those points, called rhumb lines, could be used even by fairly inexperienced pilots to plot a course from one known location to another. More sophisticated navigation required a knowledge of the degrees of latitude and longitude defined by the compass, and the gradations between each of the thirty-two main compass points.

The most important parts of Medina's manual dealt with one of the most crucial components of the art of navigation—the determination of a ship's position at sea by calculating its relationship to a point in the heavens. As early as the fifteenth century, mariners had tables showing the position of the noonday sun with relation to the horizon at various times of the year. These so-called declination tables were revised as more accurate observations were made and recorded with instruments designed to scan the heavens. Medina included in a table the figures for solar declination that he considered the most accurate, and modern scholars generally praise those figures. He also included a listing of the moveable feasts in the Christian religious calendar, from 1545 projected forward to 1600. Medina's manual viewed the universe and man's place within it as a divinely created whole; he did not describe the heavens solely to aid in navigation. In addition to discussing the annual cycle of the sun, Medina explained how to calculate latitude in the Northern Hemisphere by measuring the altitude of the North Star, or Polaris, the only star in the nightly stellar procession that seemed to stay in approximately the same place. One short chapter at the end of the book discussed the stars to sight in the Southern Hemisphere, where Polaris is no longer visible.

Although Medina's book clearly accepted the Ptolemaic universe, decades of celestial observation and global exploration had begun to cast doubts on many of its aspects. The year after Cabrillo discovered San Diego Bay, the Polish astronomer Nicolas Copernicus published a revolutionary treatise in Nuremberg about the shape of the universe and the behavior of observable heavenly bodies. Overturning Ptolemy, Copernicus argued that the sun, and not the earth, was the center of the observed universe, which modern science knows to be true.[14] His book caused a sensation in learned circles in Europe, but it seems to have had little effect upon practical navigation.

The method and instruments used were the same everywhere. In the



This 1594 illustration shows how the cross-staff was used by a navigator to determine latitude by observing the altitude of the Pole Star.

Illustration from G. Willemsen van Hollesloot, Die Caerte vande Oost endeWestzee (1594).

Courtesy the Netherlands Maritime Museum Amsterdam

epoch of Cabrillo and Medina, navigators could use a cross-staff, an astrolabe, or a quadrant. The cross-staff was a simple square-cut wooden staff, about a yard long, with graduated markings and a sliding transom set at right angles to the staff. The end of the staff was held in front of the eye, with the transom pointing up and down. Then the observer slid the transom along the staff until its upper end matched one point of observation and its lower end matched the other. A typical measurement sighted the sun at the upper end and the horizon at the lower end. The mark where the transom crossed the staff was then converted to degrees and minutes by referring to a printed table.

The astrolabe and quadrant were more complex instruments, but with the same purpose—to measure the location of a heavenly body in relation to the horizon. In its simplest form, an astrolable was a flat circle of brass, often empty in the center except for a strip across the diameter, to which was attached a movable pointer called an alidade. To use the astrolabe, a mariner would hang the instrument from a ship's timber and hold it as steady as possible. Good astrolabes could weigh as much as ten pounds, because their weight helped to keep them steady against the motion of the ship. The observer would peer through two viewing holes on the alidade, adjusting the bar until the viewing holes aligned with the body he was observing in the heavens. As the bar was moved, it slid along a scale marked on the circular edge of the astrolabe. Once the object was sighted properly, its angle to the horizon could be read from that scale. By the observed angle, the navigator could ascertain the latitude or north-south position of his ship, either by calculating the change from his earlier sightings or by consulting published tables calculated from the observations of others.



The 1563 publication of Pedro de Medina's, Regimiento de navegación (Seville) further illustrates a ship with a square tuck and sternpost rudder and other characteristics of a galleon. The sails are adorned with the double-eagle of the Habsburg emperor Charles V.

Though Juan Rodríguez Cabrillo died two years before Medina published his first treatise in 1545, Arte de navegar, he was heir to the same body of maritime knowledge and experience that Medina codified over several decades.

Courtesy the James Ford Bell Library, the University of Minnesota

The procedure was similar with a quadrant, a quarter-circle with a simplified version of the astrolabe's scale. After the quadrant was held or hung up to steady it, the whole apparatus was tilted until its two viewing holes aligned with the observed object. The altitude of that object could then be read at the point where a plumb line crossed a scale marked on the quadrant's lower arc. Typically, the scale would be marked not only by degrees of altitude but also by the names of known places where those altitudes had already been measured.

Each of these processes gave an indication of a ship's latitude, or position north to south. For plotting the ship's longitude, or position east to west, the navigator had to calculate how long, how fast, and in what direction the ship had traveled. The sand-clock gave an indication of how long the ship had maintained a given course. A simple observation of how fast the current moved alongside the ship gave an indication of speed, or the pilot might use what was called a log-line. That was a rope wrapped around a spool and attached to a log or other weight at the other end. The weight was tossed into the water, and the ship's speed was gauged by noting how fast the rope unwound from the spool. This was usually aided by observing a series of evenly spaced knots in the rope, so that the speed was gauged in so many "knots." A Spanish shipwreck off the coast of Newfoundland from the mid-sixteenth century contained such a log-reel, which is the oldest recovered to date from any wreck in the Western Hemisphere.[15]

Direction was ascertained by use of the mariner's compass, arguably the most important instrument of all. In his description of the compass, Medina failed to accept the need to adjust for the compass variation between magnetic north and true north, which many mariners before his time had proven to be necessary. That need was addressed by another early Spanish author on navigation, Martín Cortés.[16]

The last sections of Medina's treatise dealt with how the changing positions of the sun related to the phases and positions of the moon, and how both related to the tides that a good mariner needed to know. The *Arte de navegar* was much more than a simple navigation manual, however. It summed up the whole range of scientific knowledge and practical experience that enabled mariners to sail through both familiar and uncharted seas. Despite Medina's failure to adjust for compass variation, and his continued acceptance of the Ptolemaic universe, European mariners in the sixteenth century found his book so useful that they continued to use it. Although Cabrillo died two years before Medina published his treatise, he was heir to the same body of maritime knowledge and experience that Medina codified. That knowledge and experience helped him face the challenges of his historic voyage aboard *San Salvador* in 1542, adding his adventures to the heroic age of global exploration.

Notes

1 Sections of the following survey about early exploration were previously published by the author in various venues, notably "Americas: Exploration Voyages, 1492-1509" (1: 23-28), in *The Oxford Encyclopedia of Maritime History*, ed. John B. Hattendorf, 4 vols. (New York: Oxford University Press, 2007); and "Spain and the Pacific: Voyaging into Vastness," *Mains'l Haul. A Journal of Pacific Maritime History*, Vols. 41, 42 (Fall 2005 - Winter 2006), 4-13.

2 The best recent biography of Magellan by far is Tim Joyner, *Magellan* (Camden, Maine: International Marine, 1992).

3 Quoted in Joyner, Magellan, p. 238.

4 Phrases from the following discussion about Spanish ships were previously published by the author in various venues, notably "Spanish Ships and Shipbuilding in the Renaissance," Cabrillo Historical Association 1, No. 11 (1983):1-24 (published conference papers); and *Six Galleons for the King of Spain: Imperial Defense in the Early Seventeenth Century* (Baltimore: The Johns Hopkins University Press, 1986), esp. Chaps. 2 and 7.

5 Noteworthy recent publications include Roger Smith, *Vanguard of Empire. Ships of Exploration in the Age of Columbus* (Oxford and New York: Oxford University Press, 1993); and José Luis Rubio Serrano, *Arquitectura de las naos y galeones de las flotas de Indias.* 2 vols., Vol. 1 (1492-1590) (Málaga: Ediciones Seyer, 1991).

6 See the illustrations in Gervasio de Artiñano y de Galdácano, *La arquitectura naval española (en madera). Bosquejo de sus condiciones, rasgos de su evolución* (Madrid: Oliva de Vilanova, 1920), and in *El buque en la armada española* (Madrid: Silex, 1981) (hereafter *Buque*).

7 See Archibald Lewis and Timothy J. Runyan, *European Naval and Maritime History,* 300-1500 (Bloomington: Indiana University Press, 1985), pp. 74-137, for a description of this process.

8 Manera Regueyra, Enrique. "La marina de Castilla," in *Buque,* pp. 32-33.

9 Richard Unger, *The Ship in the Medieval Economy, 600-1600* (Montreal: McGill-Queen's University Press, 1980), pp. 222-23.

10 Lawrence V. Mott, *The Development of the Rudder: A Technological Tale* (College Station, Texas: Texas A&M Press; London: Chatham Publishing, 1996); P. B. Naish, "Ships and Shipbuilding," in *A History of Technology*, 3:476-78, ed. Charles Singer, et al. (Oxford: Oxford University Press, 1957).

11 The Spanish reconstruction of Columbus's ships made for the Quincentenary in 1992 were arguably far too large. The reconstructed Santa María measured 25.8 feet in maximum breadth and 86.4 feet in length on the lowest deck.

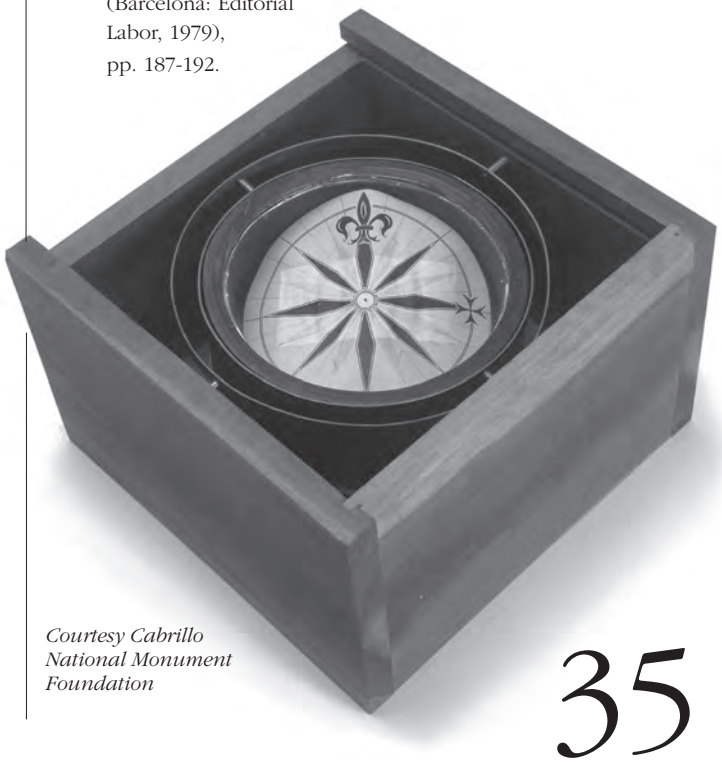
12 For example, Ptolemy, *Geographia* (Venice, 1511); Ptolemy, *Almagestum* (Venice, 1515).

13 Pedro de Medina, *Arte de navegar* (Valladolid, 1545).

14 Nicholas Copernicus, *De revolutionibus orbium coelestium* (Nuremberg, 1543).

15 Robert Grenier, "Excavating a 400-Year-Old Basque Galleon," *National Geographic*, 168(7) (1985): 65.

16 Martín Cortés, *Breve compendio de la sphera* (Seville, 1551); José María López Piñero, *El arte de navegar en la España del Renacimiento* (Barcelona: Editorial Labor, 1979), pp. 187-192.



Courtesy Cabrillo National Monument Foundation



Juan Rodríguez Cabrillo and the Building of the San Salvador

Iris Engstrand, Ph.D. and Harry Kelsey, Ph.D.



The statue of Juan Rodríguez Cabrillo, honoring the first European presence along our western coast and offshore islands, stands atop Point Loma, San Diego, at the Cabrillo National Monument.

Courtesy Cabrillo National Monument Foundation

The conquest of Mexico, carried out between 1519 and 1521, perhaps more than Balboa's momentous discovery of the Pacific Ocean or Magellan's courageous voyage around the world, stands first in the direct chain of events that led to the discovery and settlement of California.[1] The gold, silver, and jewels of the Aztec empire naturally led the Spaniards to believe that other areas of Indian wealth must lie to the south and north of the Mexican capital of Tenochtitlán. The two decades following the initial Aztec defeat witnessed a series of forays into the Pacific that culminated with the voyage of Juan Rodríguez Cabrillo and the European discovery of what became known as the Bay of San Diego de Alcalá on 28 September 1542.[2]

Cabrillo joins the Conquest of Mexico

Some details of the background and early life of Juan Rodríguez Cabrillo have come to light in recent years, but his exact age and place of birth are still unknown. Often

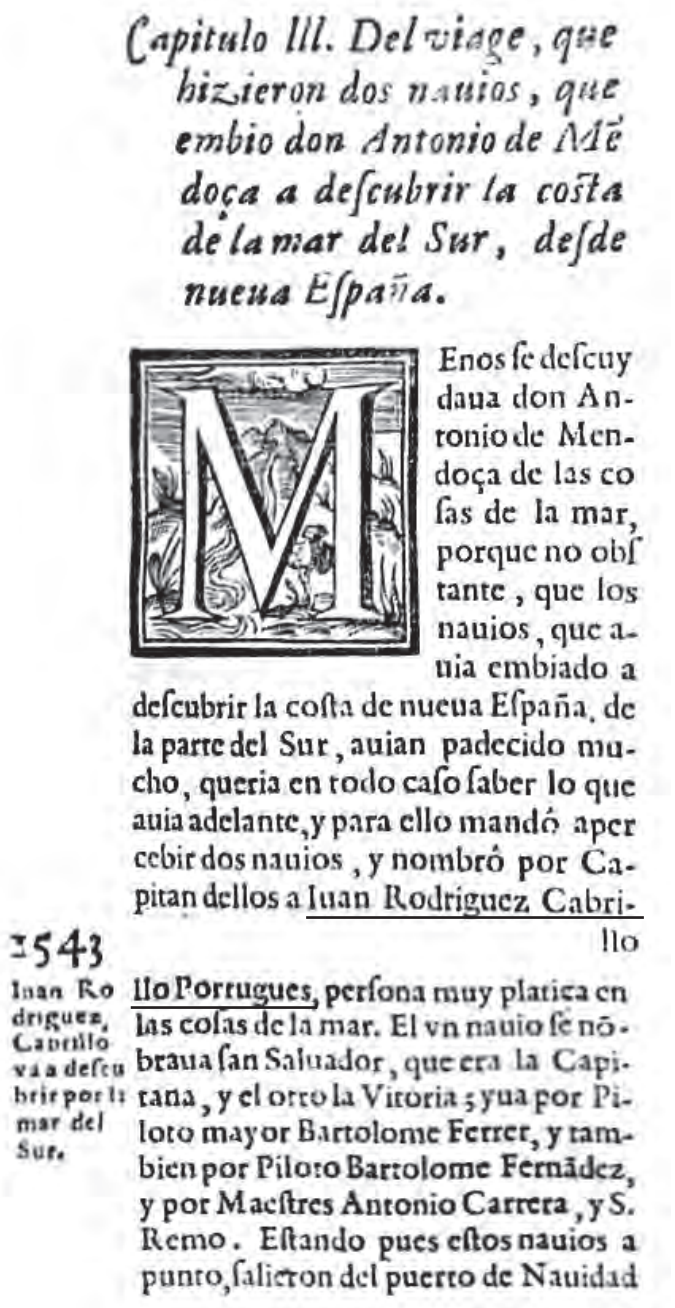
Harry Kelsey is the former chief curator of history at the Natural History Museum of Los Angeles County and currently a research scholar at the Huntington library. He is the author of several books including *Juan Rodríguez Cabrillo, The Doctrina and Confesionario of Juan Cortés, Frontier Capitalist: The Life of John Evans* and *Sir Frances Drake: The Queen's Pirate.*

Iris Engstrand, Professor of History at the University of San Diego, specializes in the history of Spain, Spanish California, and early exploration of the Pacific Ocean. Her research interests range from Spain's role in the eighteenth century scientific enlightenment to San Diego's modern history. Among her publications are *Spanish Scientists in the New World* (1981); *The San Diego Yacht Club: A History* (with Cynthia Dávalos, 2000) and *San Diego: California's Cornerstone* (1981, 2005). She serves as a trustee of the Maritime Museum of San Diego and as co-editor of *The Journal of San Diego History*.

described as "a Portuguese navigator sailing under the flag of Spain," his career seemed to begin on the California coast. Cabrillo's original journal of exploration has not been found, but other documents, including a later copy of a journal, are housed in the Archives of the Indies in Seville. Documents in the Royal Audiencia in Guatemala give information about Cabrillo's service to Spain, family and estates in Guatemala, and activities in California. His surname, which in its correct form would be Rodríguez or Rodríguez Cabrillo, adds confusion to his nationality. If he were Portuguese, his complete name would be João Rodrigues Cabrilho, but he always signed himself Juan Rodríguez in the Spanish way. Cabrillo, a Spanish surname, is unknown as a surname in Portugal, although there are several Portuguese villages called Cabril, from which the name might have been derived, and which claim Juan Cabrilho as their own.

For the past century or so, a few writers have said he was Portuguese, but most historians now think this is an error.[3] The government, his family, his friends, and even his enemies treated him as though he were Spanish. Probably Cabrillo himself did not know who his parents were or exactly where they came from. Certainly he never mentioned their names in any official documents, as men were obliged to do when they gave sworn testimony.

Cabrillo's great grandson later said under oath that his illustrious ancestor came from Spain.[4] Cabrillo's friend Pedro de Ovid swore that he knew this was true, because he came with him in the army of Pánfilo de Narváez. Even so, many people accept the statement of the Spanish chronicler Antonio de Herrera, who wrote more than half a century after the explorer died. Herrera placed the word or name "Portugues" in his text.[5]



Capitulo III. Del viage, que hizieron dos nauios, que embio don Antonio de Mẽ doça a descubrir la costa de la mar del Sur, desde nueua España.

Enos se descuy daua don Antonio de Mendoça de las co sas de la mar, porque no obstante, que los nauios, que auia embiado a descubrir la costa de nueua España, de la parte del Sur, auian padecido mucho, queria en todo caso saber lo que auia adelante, y para ello mandó aper cebir dos nauios, y nombró por Capitan dellos a Iuan Rodriguez Cabrillo

1543

Iuan Rodriguez, Cabrillo va a descubrir por la mar del Sur.

llo Portugues, persona muy platica en las cosas de la mar. El vn nauio se nõbraua san Saluador, que era la Capitana, y el otro la Vitoria; yua por Piloto mayor Bartolome Ferrer, y tambien por Piloto Bartolome Fernãdez, y por Maestres Antonio Carrera, y S. Remo. Estando pues estos nauios a punto, salieron del puerto de Nauidad

Above: From Spanish chronicler Antonio de Herrera y Tordesillas' *Historia General de los hechos de los Castellanos en las Islas y Tierra Firme del Mar Oceano* **(4 volumes), in which he mentions "Juan Rodríguez Cabrillo Portugues," in his historical account written more than half a century after the explorer died. Herrera's statement is at odds with modern historians' accounts.**
Courtesy José Maria Gaztelú, Private Collection, Pamplona, Spain

Cabrillo's Life in the New World

The record of Juan Rodríguez Cabrillo's life begins in Santo Domingo in 1510 when, at the age of twelve, he landed in the New World. He later reached the Mexican coast as a crossbowman with the Pánfilo de Narváez expedition sent out by Governor Diego de Velásquez of Cuba to arrest and return Cortés to Cuba prior to his march against the Aztecs.[6] The Narváez expedition arrived too late to interfere with the siege of Tenochtitlán. Hearing of the governor's plan, Cortés left part of his army inside the Mexican capital under his second-in-command Pedro de Alvarado and returned to Vera Cruz to face the threat from his home base. Defeating the newly arrived Spanish force in a surprise move, Cortés won the Narváez soldiers to his side with promises of gold, and prepared them to attack the Aztec island capital.

Cabrillo thus became a part of Cortés' reinforced army and, because Alvarado had failed to contain the Aztecs, served through the bloodiest battles of the conquest. Cabrillo was placed in charge of building watercraft *(bergantines)* to cross Lake Texcoco in order to attack the Aztec stronghold. Following the defeat of the Aztecs, Cabrillo accompanied Pedro de Alvarado on the conquest of Guatemala and took up residency there. Bernal Díaz del Castillo recorded that Cabrillo ***was a good soldier in the Mexican campaign . . . who later, as a resident of Guatemala, was a very honorable person, and was captain and admiral of thirteen ships on Pedro Alvarado's behalf, and he served his majesty well in everything which presented itself to him . . .*** [7]

Juan Rodríguez, who did not begin to call himself Cabrillo until after 1536, first engaged in farming in Guatemala on the estates granted to him by Alvarado in August 1524. He prospered as a horseman and ranch owner and received permission to look for gold in 1529. He and his friends Diego Sánchez de Ortega and Sancho de Barahona discovered that native Guatemalans in Coban mined gold from the streams within land that Cabrillo controlled. Over the next few years, Cabrillo heard tales of riches to the south in Peru, but in 1532 preferred to sail east across the Atlantic to Spain. In Seville, he courted and married Beatriz Sánchez de Ortega, the sister of his friend Diego and returned to Guatemala with his bride in 1533. The family settled on his vast estates, which by this time were producing corn, beans, and chile in addition to a cash crop of cacao. By 1536, Beatriz gave birth to two sons who were baptized and confirmed in the cathedral church of Santiago. The elder was named Juan Rodríguez Cabrillo while the younger was called Diego Sánchez de Ortega after his uncle.[8] Cabrillo was respected as a man of means—an *hidalgo*— and was involved in considerable business and domestic affairs in Guatemala prior to his association with California.

Prelude to California: Cortés looks toward the Pacific

By 1522 Hernán Cortés had reached the Pacific coast at Michoacán in central Mexico and founded the port city of Zacatula. He ordered construction of four ships for northward exploration, but a lack of supplies and skilled labor slowed progress. Essential European items such as ironwork and rigging had to be transported slowly overland from Vera Cruz. Four ships were nevertheless completed by 1527, just in time to comply with a royal order sending three of them to the Moluccas to strengthen Spanish claims in the East Indies. By that year the crown had established the Royal Audiencia, a judicial body that served as a court of appeals and, in the absence of an executive, as an administrative committee of government. It governed Mexican affairs until 1535, when the Kingdom of New Spain became a viceroyalty and was placed under Antonio de Mendoza, the first Viceroy of New Spain and personal representative of the king. Cortés resented this check on his authority and sought new lands to conquer.

Exploring Baja California

In his exploration of the Pacific, it is thought that Cortés hoped to find both the golden island of the Amazons and the long-sought Strait of Anián, or Northwest Passage to the Atlantic, lying somewhere to the north of the Mexican coast. Cortés outfitted two ventures in 1533 and 1534 that touched on the shores of Baja California. The survivors of the second expedition reported that the natives of their newly discovered island were primitive savages, but had collected an abundance

of pearls. Pearls alone gave Cortés sufficient incentive to plan his own expedition. He was joined by a rush of volunteers who knew the captain's reputation for finding wealth.

Three vessels reached the Bay of La Paz on 3 May 1535. Cortés named the "island" Santa Cruz and founded its first settlement on the dry, rocky coast. Native hostility and a lack of food made it necessary for two ships to return to the mainland for supplies – one of these was wrecked in the Gulf of California – then called the "Red Sea of Cortés." On a second attempt to obtain supplies, only the ship that Cortés himself commanded made it back across the treacherous, stormy waters to La Paz. In the meantime, twenty-three of his men died of starvation on Baja California's inhospitable shore. Cortés took the one remaining vessel and returned to Mexico to get further relief. Finally, toward the end of 1536, prospects of success seemed so remote that Cortés sent ships to pick up the surviving colonists. Thus ended the first in a long succession of attempts to settle California.[9]

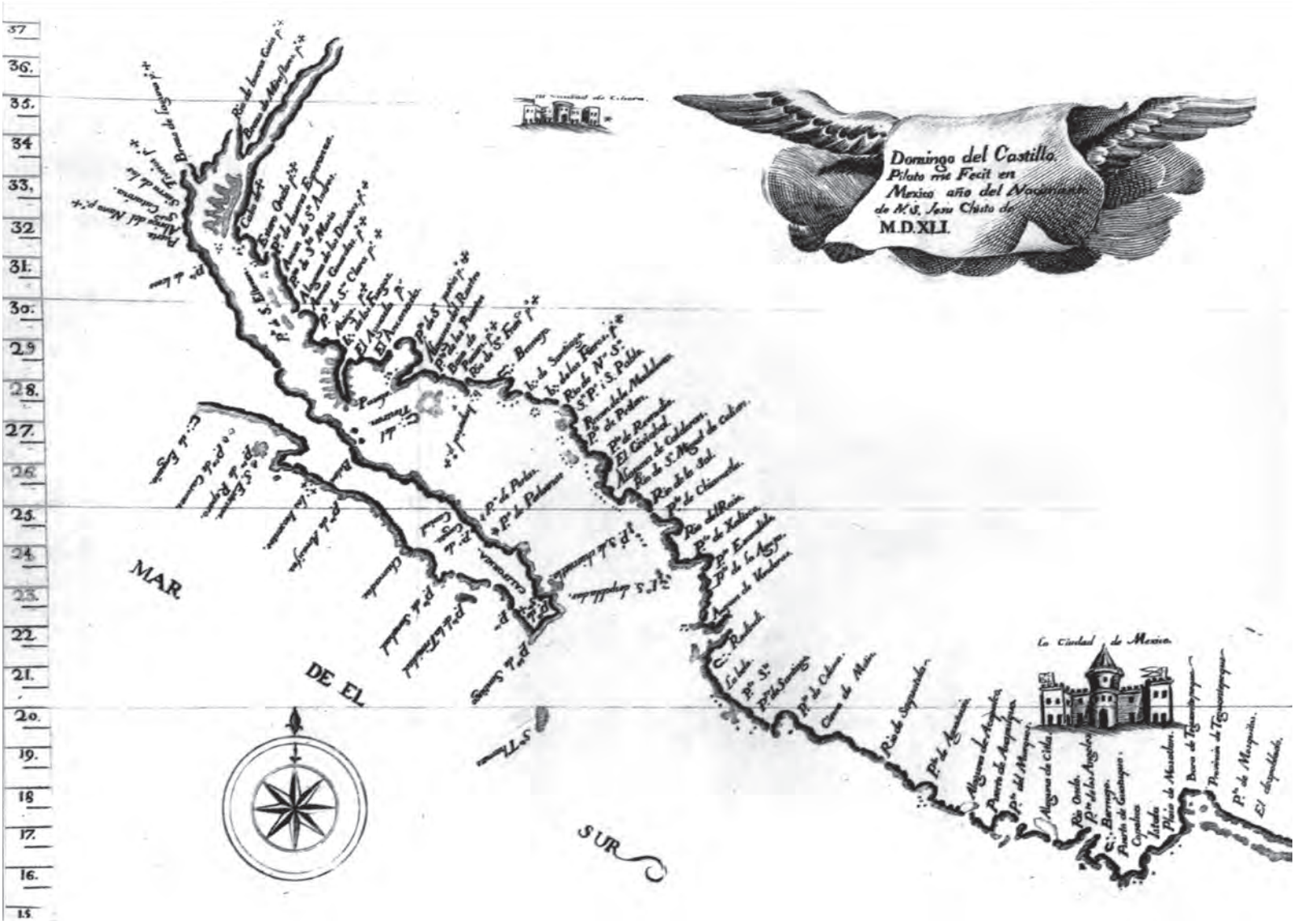


Above: This distinctive map titled *'T Gebiedt van Guadalajara Niew Mexico en Californie enz* **(ca 1656-1665), by French cartographer Nicolas Sanson, supported the myth that California was an island – a misconception which continued well into the 1700s.**
MMSD Maps and Charts Collections

The Ulloa Expedition

In 1539 Cortés issued instructions to the final expedition that, under his direction, would pierce the mysteries of the north. His plans to return to Spain to solidify his territorial claims, however, kept Cortés from accompanying the voyage. Three vessels commanded by Francisco de Ulloa sailed from the port of Acapulco in July of that year; one, the tiny *Santo Tomás* was wrecked in the stormy waters of the Gulf of California before reaching La Paz. Ulloa's fleet, reduced to the l20-ton *Santa Agueda* and its flagship, the *Trinidad*, a 35- to 40-ton vessel not more than forty feet in length, left La Paz and headed across the choppy Red Sea of Cortés to the mainland shore. Ulloa cruised northward to the port of Guaymas, which he named *Puerto de los Puertos* (the Port of Ports), and further on expected to find a passage around the "island" of California. Instead, the ships encountered violent tides caused by the Colorado River descending into the sea at the head of the narrow Gulf. The bleak shoreline, a lonely desert broken by stark mountains, offered few prospects for golden cities, so Ulloa turned southward, the first Spaniard to know that Baja California was not an island.

The two vessels rounded Cabo San Lucas by the end of January 1540, and then sailed up the western shore as far north as the *Isla de Cedros* (Island of Cedars) so named because ***. . . on the tops of the mountains therein, there grows a wood of these Cedars being very tall, as the nature of them is to be.***[10]



Above: The map delineates what was known of the coast of New Spain (Mexico) and the peninsula of California prior to Juan Rodríguez Cabrillo's voyage to Alta California. This copy of the original (now lost), was published in 1770 by Francisco Antonio de Lorenzana in his *Historia de Nueva España.*

Courtesy the Huntington Library

After three months, Ulloa sent the larger *Santa Agueda* home and continued his explorations northward in the *Trinidad* to perhaps Point San Antonio, just south of latitude 30 degrees.[11]

Ulloa's revelation that Baja California was a peninsula aroused little attention and the "island" of California persisted on maps as late as 1784.[12] His expedition, the last with which Cortés had any official connection, nevertheless, faced severe storms to explore both the eastern and western coasts of the peninsula. Their discovery of an island of cedars compensated little for expected cities of gold. Disappointment was great and Cortés, angered at his lack of authority and frustrated by Viceroy Mendoza's constant opposition, had sailed for Spain in 1540. Cortés argued his claims before the royal court, but his lawsuits dragged on before an unmoved officialdom. Years of effort gave him little satisfaction and finally, in 1547, death claimed the unhappy Cortés, first of the Spanish explorers to open the way to California.[13]

The Coronado Expedition

While Ulloa's voyage was still in progress, Viceroy Mendoza organized an ambitious, two-pronged land and sea expedition to find the fabulous Cíbola,

a city of gold somewhere in the interior of the continent. His intentions was to claim the area for Spain. Led by the able Francisco Vásquez de Coronado, the land procession was launched in February 1540 from Compostela, near Tepic, with some 200 horsemen, seventy foot soldiers and nearly 1,000 Indian allies and servants. For the sea detachment, three vessels commanded by Hernando de Alarcón left Mexico in May 1540 with instructions to explore the upper part of the Sea of Cortés and make overland contact with Coronado's soldiers. During August and September, Alarcón explored the lower Colorado River, but a narrow canyon forced him to return downstream at a point south of Yuma, just short of touching California soil. Coronado's expedition returned from its journey across the southwest without finding the alleged golden cities or other signs of Native American wealth.[14]



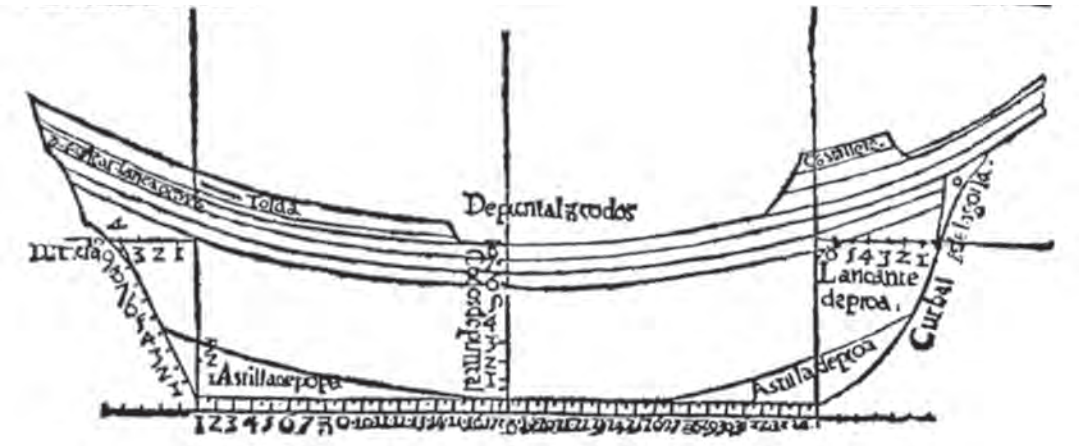
This seventeenth-century sketch illustrates the location of the shipyard at Girabaltique, a short distance up the river from the Guatemalan fishing village of Iztapa.

From Harry Kelsey's Juan Rodríguez Cabrillo, *p. 69, plate 11.*

Viceroy Mendoza, disillusioned by the meager results of Coronado's effort, resolutely turned to the sea with yet another plan to find the elusive Strait of Anián. Pedro de Alvarado, Governor and Captain-General of Guatemala, appeared at the port of Acapulco in 1540 with a fleet of thirteen vessels and offered his services to the crown for Pacific exploration. Close to Alvarado's right hand during the conquest of Guatemala stood Juan Rodríguez Cabrillo, navigator, horseman, captain of crossbowmen, and shipbuilder. When Alvarado became captain-general of the province stretching from southern Mexico to the boundary of Panama, he named Cabrillo to construct a fleet of ships that he could sail across the Pacific to the Spice Islands.

Building a Shipyard

About fifteen leagues (35 miles) due south of Santiago, where the river Michatoya meanders into the Pacific Ocean, lay the sixteenth-century Guatemalan fishing village of Iztapa. Little more than an open roadstead and partially blocked by a huge sand bar, it was still the best seaport on the coast of New Spain. The shoreline was steep, the tides fast and strong, and the channel in a state of constant change during flood season. The anchorage was so hazardous that two ships from Alvarado's first fleet were lost there during the winter storms of 1533.[15] The evidence indicates that the main shipyard



This woodblock sketch shows the method used by Guatemalan shipwrights to compute the proportions of a ship's hull. The illustration is from the *Instrucción náutica* of Diego García de Palacio, who spent several years in Guatemala after the mid-sixteenth century.

was located at Girabaltique, a short distance up the river from Iztapa. There was an abundance of good timber nearby, as well as pita fiber for making cables and rigging. Neighboring villages could provide food at low cost.[16]

Further down the coast in present-day El Salvador was another port, equally open to the weather. This was Acajutla, seaport for the cities of Trinidad and San Salvador. Acajutla featured a dangerous reef across the entrance to the bay, and ships stopped there only with great risk. Yet, interior roads to the coast were so poor that Acajutla was the only port where Salvadoran cacao and other produce could be loaded for shipment to Peru and New Spain. In fact, this was the port where Juan Rodríguez Cabrillo rigged and loaded his ship *Santiago* in 1534, just before Alvarado seized the vessel for his own use.[17] Some additional outfitting of the ships bound for the northwest seems to have been made there.

Shipbuilding in the sixteenth century was more an art than a science. The outcome of any construction project depended as much on the skill and experience of the shipwrights and the availability of materials as on the wishes of the owner or designer. One ship captain complained that "some ships start in the yards as small ones and end as large ones, while others start as large ones and end up small."[18] Ships were seldom built according to plan, and no two ships ever came out looking exactly alike. In Alvarado's first fleet, one ship was a huge three hundred toneles, while the others were only half that size or less.[19]

Building a Fleet

In order for Cabrillo to carry out his plans to build a new fleet, Indian *cuadrillas,* or work parties, were pressed into service, providing timber, iron, sails, cable, tar and pitch, and huge quantities of food for the shipwrights and those Africans and Indians engaged in producing raw materials.[20] It was difficult to keep the work running smoothly. Mayordomo (foreman) Alvaro de Paz found it to be nearly a full-time job locating and shipping the materials Cabrillo ordered for the project. Much of the timber was close at hand, but other supplies had to be brought from the interior provinces. Native workers were used to cut and trim timber, make pitch and rope, and work long hours to build the ships and galleys.[21]

Of the thirteen ships that eventually made up the armada, only a part actually belonged to Alvarado. Several of the vessels were owned by other Spaniards who hoped to make money carrying supplies for the expedition and selling trade goods up and down the coast. Cabrillo had built and owned his own vessel, named *San Salvador,* but usually called *Juan Rodríguez.*[22] There is abundant evidence that sixteenth-century ships flew the banners and ensigns of their owners and their religious patrons. Cabrillo's new ship "flew the banner of an *almirante* from the fore-topmast as *almirantes* of the sea are accustomed to do." [23] The vessel also flew the arms of Alvarado and later those of Viceroy Mendoza. The religious banner probably showed a crucifix and perhaps the words San Salvador.[24]

When Alvarado returned from a trip to Spain in 1539, he brought with him a royal commission as well as huge supplies of sails, rigging, ironwork, anchors and other materials for the fleet. These were landed at Puerto de Caballos on the Atlantic coast, and thousands of Indians were forced to build a road and carry supplies overland from the Atlantic to the Pacific. On his way home Alvarado stopped in San Salvador and reported to the historian Oviedo that he had built seven or eight ships on the Mar del Sur for a trip to the Spice Islands." [25] The entire fleet eventually consisted of thirteen vessels, of which seven or eight were built by Cabrillo between 1536 and 1540.

Although information is lacking on the exact details of the rigging, there is additional evidence about the rigging of the *San Salvador*. Luis González, a pilot on one of Alvarado's vessels, later testified as follows: ***Johan Rs Cabrillo went in his own ship which flew the banner of an almirante from its foretopmast . . . and this witness spoke with his pilot and knew it to be his ship.***[26] Various references taken together generally meant that each of the ships, large and small alike, was square rigged. The foremast was rigged with a topmast. The mainmast, therefore, had to have a similar rig, and there must also have been a mizzenmast, perhaps with a lateen rig.[27] The two-hundred ton *San Salvador* was therefore the *almiranta*, and then designated by the viceroy and probably by Alvarado as flagship of the armada that was to go up the Pacific Coast.[28] Later it would be *La Capitana* because it was commanded by Cabrillo as Captain General.

Before the new armada left to sail up the coast of New Spain, Cabrillo took the *San Salvador* on a trading voyage to Peru. Depending upon the cargo that the ship carried, which may have included valuable horses, Cabrillo could have earned enough to offset the cost of building the ship, which amounted to four thousand *ducados.*[29] The trip to Peru also gave Cabrillo a chance to train his crew and prepare himself for a longer voyage of exploration to the north.[30]

When the new fleet was ready to sail from Acajutla, Alvarado and Mendoza agreed that a new harbor was needed to serve as home port for the fleet. Consequently, they sent Cabrillo to look for a new site, and within a week or two, he discovered a fine port.[31] For a few days the place remained nameless, being called simply "the port of Colima." Finally, Viceroy Mendoza landed there with his own vessels on 25 December 1540, so the port was called Navidad in honor of the Nativity of Our Lord.[32]



Noted are place names and locations which can be used as visual references for Cabrillo's Voyage of 1542-1543. However, many of the place names were changed by the seventeenth-century Spanish explorer Sebastián Vizcaíno. Miscalculations in latitude also created confusion for historians and geographers trying to align historical and modern place names and locations.

From An Account of the Voyage of Juan Rodríguez Cabrillo *(San Diego, Cabrillo National Monument Foundation)*

A Change in Plans

Once there, plans for the destination of the armada were changed. Construction of Alvarado's fleet had proceeded slowly as tools were scarce and Cabrillo, as master shipwright, insisted upon high standards of quality. When the thirteen ships were finally completed in 1540, Alvarado asked Cabrillo to join the expedition in his own *San Salvador* as admiral of the entire fleet.

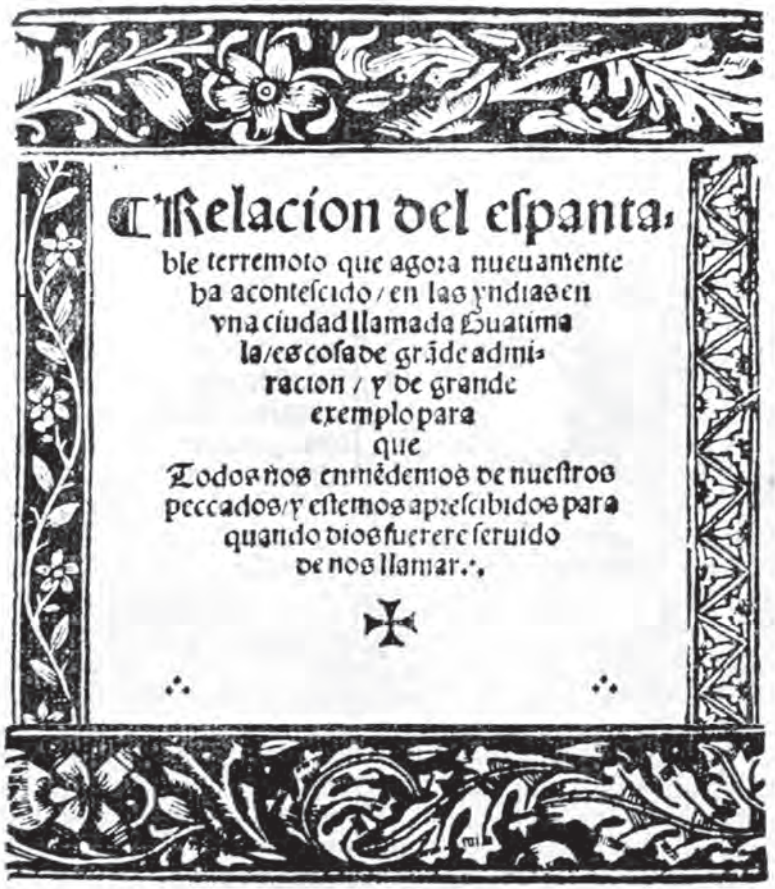
By this time, however, Viceroy Mendoza and Pedro Alvarado had entered into a partnership, agreeing to share profits from the viceroy's overland expeditions and Alvarado's own expeditions to the Spice Islands. They planned to divide the fleet into two parts, one to

investigate islands as far west as the East Indies, and the other to explore the North American Pacific coast "until its end and secret were sighted." Just before departure, however, Alvarado left his ships in charge of Cabrillo while he helped the viceroy put down an Indian uprising known as the Mixton War. This battle, in 1541, ironically cost Alvarado his life-– he was crushed to death under a falling horse.[33]

The untimely death of Alvarado created new problems and delays. Cabrillo returned to Guatemala, taking some of the ships with him. On the morning of 11 September 1541, only a few days after he had arrived, a devastating earthquake hit Santiago. Rain had drenched the land for days, and the earthquake sent tons of mud streaming down the side of a volcano overlooking the town. Cabrillo hurried to Santiago from Acajutla to find his home destroyed but his family unharmed. He spent the next several months building a home in the new capital, now called Antigua, and getting his family settled in their new surroundings. Cabrillo later wrote an account of the earthquake and the damage it had caused, signing it as Juan Rodríguez, *Escribano* (Notary Public).[34]

In the meantime, Viceroy Mendoza took possession of Alvarado's fleet and, showing high regard for Cabrillo, commissioned the Guatemalan captain general to continue the voyage northward along the Pacific Coast in search of the Strait of Anián. His fleet would consist of his own *San Salvador*, a galleon of about 125 by 25 feet, and *La Victoria*, a cargo ship of about 80 feet in length. The *San Miguel*, a small 30-foot vessel (*fragata*) suited for coastal duties, seems also to have been destined to accompany the expedition.

Cabrillo's expedition did not set sail from the Port of Navidad until 27 June 1542, with two and probably three of the vessels of Alvarado's former fleet to explore the remote, uncharted areas of the North Pacific. The remaining vessels were dispatched to the Philippines under the viceroy's cousin Ruy López de Villalobos.[35] Cabrillo's goal, one that had inspired Cortés before him, was to find the Northwest Passage and a shortcut to Oriental riches. The potential rewards propelled Cabrillo and his fellow adventurers into unknown waters further to the north than any yet sailed by European ships.


Relacion del espanta-
ble terremoto que agora nueuamente
ha acontescido / en las yndias en
vna ciudad llamada Guatima
la / es cosa de grãde admi-
racion / y de grande
exemplo para
que
Todos nos enmẽdemos de nuestros
peccados / y estemos apresçibidos para
quando dios fuerere seruido
de nos llamar.

Above: On 11 September 1541, the city of Santiago was devastated by an earthquake. A report of the earthquake was written by " Juan Rodríguez, Escribano." The earliest secular publication known to have been published in the New World was called *Relacíon del espantable terremoto que agora nuevamente acontecído en las yndias en una ciudad llamada Guatimala.*

From the Real Biblioteca de San Lorenzo de El Escorial, Spain

Sources for the Name of California

The *San Salvador* and *La Victoria* cruised northward along the west coast of Mexico, crossed the Sea of Cortés, and proceeded up the Pacific side of what Cabrillo knew as the California peninsula. The name California was already in use by 1542, but its first application, and by whom, remains a mystery. It came into existence about the time of Ulloa's expedition of 1539, but the exact time and, indeed, the exact reason for its appearance are still speculative. Most likely, the name was taken from the fictitious island of California featured by García Ordóñez de Montalvo in his novel *Las Sergas de Esplandián*



Maritime Museum of San Diego's master ships' artist, Richard DeRosset, portrays in his painting the approach of Cabrillo's fleet to the port he would name Puerto de San Miguel.

published in 1508, which featured the beautiful Queen Calafia who ruled over her Island of California where Amazon women carried weapons made only of gold.[36]

The name California has also been attributed to other possible origins. It may have been a combination or derivation of Spanish or other European words. *Cálida* meaning hot or *cal* meaning limestone, may have been joined with *forno* (an old Castilian or Catalan form of *horno*) meaning oven, because the burning, desert lands of the peninsula resembled a hot oven, or the abundance of limestone suggested a lime-kiln. Further possibilities are *kalifon*, Hispano-Arabic for large province; *Calafia* a female form of Caliph; *cala* (Spanish for cove) and *fornix* (Latin for vault or arch); and finally, the name may have been chosen "because an Irishman, who was traveling, said that the island looked like the one where Calpurnius (Califurnio), the father of Saint Patrick was born." [37] Until more definite proof of the word's origin is found, all these choices have merit. Nevertheless, the name selected by Ordoñez for his island of Amazons located very near the Garden of Eden still holds the most widespread support.

Cabrillo's ships entered the Bay of Ensenada, Baja California, on 17 September 1542. The expedition remained in port five days and then continued on, covering from fifteen to twenty miles daily. Within three days they sighted the three Coronado Islands, called by Cabrillo *Las Islas Desiertas* (Deserted Islands) and placed at 34 degrees latitude (about 2 degrees too far north). From these waters the Spanish seamen noticed the smoke of coastal Indian fires and, as they approached the mainland, saw a promising green valley backed by high mountains. On 28 September 1542, the feast day of San Miguel, Cabrillo headed the *San Salvador* and *La Victoria* into San Diego Bay, dropped anchor on the lee side of Point Loma, and formally discovered Alta (Upper) California – as distinguished from Baja (Lower) California.[38]

Cabrillo's San Miguel

The Spaniards stepped ashore and were greeted by friendly Indians whom Cabrillo described as "well built" and clothed in animal skins. The admiral bestowed the name of San Miguel Arcángel (St. Michael Archangel) upon his newly discovered "closed and very good port," but it was changed sixty years later by Sebastián Vizcaíno, the Spanish navigator who chose to honor San Diego de Alcalá instead. Canonized as St. Didacus in 1588, Franciscan Brother Diego's name had become popular in naming ships, forts, and ports during the early seventeenth century. Vizcaíno entered the bay in his flagship *San Diego* on 12 November 1602, the feast day of San Diego de Alcalá. [39]

Three Indians timidly approached Cabrillo's ship, indicating by signs that they knew of other similarly dressed white men, carrying crossbows and swords, traveling far inland. Cabrillo understood from their gestures that these strangers (probably a detachment from Coronado's expedition) wielded lances from horseback and had killed many Indians. For this reason the California natives were afraid, but the Spaniards gave them presents and calmed their fears. When Indians wounded three seamen on a night fishing party near the shore, Cabrillo ordered his crew not to fire on them but to win their confidence. Spain's first visitors to San Diego, called "Guacamal" by the natives, set a precedent of friendly treatment that was followed with few exceptions during the entire Spanish occupation of the territory.[40]

Sailing from San Diego after six days' rest, the expedition sighted the Channel Islands of San Clemente and Santa Catalina. Since the harbor at San Miguel had inadvertently been given the name of the smallest ship in the fleet, these two islands were named La Victoria and San Salvador, after the other two ships.

Off Catalina the Spaniards saw numerous Indians dancing and shouting on the shore, making signs for them to land and sending a canoe to approach the ships. When the sailors went ashore, some of the women ran away, though they quickly returned. After this, as the report has it, "They felt very secure, the Spaniards, the Indian women, and everyone.[41] Though Cabrillo named the Island San Salvador and took formal possession in the name of the king, the men of the fleet called the place Isla Capitana or Juan Rodríguez.[42]



The Voyage Continues

The ships then headed toward the mainland and Cabrillo sighted the bay of San Pedro (his "Bay of Smokes"); they continued a course along the coast and visited the Indian fishing village that Cabrillo called ***Pueblo de Canoas***. Despite winter storms and adverse winds, they reached an area near San Francisco Bay by mid-November. After exploring the coast and islands, Cabrillo returned southward and by Thursday, 23 November 1542, reached the ***Islas de San Lucas, at one of those called Posesión.*** This was no doubt the one now called San Miguel, where there is a small harbor (Cuyler's Harbor) with a narrow entrance. The fragata *San Miguel* was leaking badly so the sailors on board hauled the small vessel ashore and began to repair the damage. Because the small harbor opens to the north, and the heavy swells that accompany the prevailing northwest winds at that time made it a treacherous anchorage, the two other ships probably did not remain long but sought shelter further south.

The Catalina Connection

The island called ***Limu*** in the narrative is said to contain eight towns (though ten names are given). It is a close neighbor to the islands of Ciquimuymu (or ***La Posesión***) and Nicalque, probably Santa Cruz. Limu is the one now called Santa Catalina, the island that Lázaro de Cárdenas and

Francisco de Vargas referred to as ***la isla Capitana***. They referred to it as the most important island discovered on the expedition and the headquarters for all the fleet. They indicated that Cabrillo brought his fleet back to San Salvador (Catalina), which was also called La Capitana since the *San Salvador* was the flagship. To further confuse the naming of the island, it was also "one of the islands called la posesión." [43]

Nevetherless, Santa Catalina was the logical place to spend the winter because the harbor was protected and the Spaniards had previously established good relations with the Indians. Unfortunately the Indians were not happy to see their return and began a series of running battles with them. Vargas recalled that ***all the time the armada was on the Isla Capitana the Indians there never stopped fighting us.*** Some time toward the end of December, Cabrillo sent a party ashore for water, and the Indians attacked. The soldiers, outnumbered, called out to the ship for help. Cabrillo himself decided to rescue them, quickly gathered a relief party and rowed ashore in one of the launches. ***As he began to jump out of the boat,*** wrote Vargas, ***one foot struck a rocky ledge, and he splintered a shinbone.***

Later, in 1560, Cabrillo's son said that his father had a broken leg, while another narrative (that of Urdaneta) reported that he broke his arm close to the shoulder. It is possible that he broke both his arm and leg in the fall.[44]

Wherever the site of the injury, gangrene had severely complicated Cabrillo's injury by the end of December, finally causing the captain's death on 3 January 1543. The crew buried their leader on the barren, windswept island of La Posesión, also called La Capitana. ***Because he died here,*** wrote Cárdenas, ***the island retained the name Capitana,*** although some referred to it as the ***Isla de Juan Rodríguez***.[45]

Shifting winds and sands have covered all traces of the grave. An archeological expedition on Catalina Island in 1894 proved fruitless. Other digs on San Miguel, Santa Rosa and elsewhere have revealed no evidence of Cabrillo's burial place. Cabrillo's final words reflected the spirit of the early Spanish explorers. He instructed his chief pilot, Bartolomé Ferrer, not to give up their projected reconnaissance of the northern coast. The two ships again sailed into the open sea and made their way northward against heavy gales. Finally, driven dangerously near the shore at a point somewhere near the Oregon boundary, they prayed for protection and were saved by a sudden change of wind. The expedition's journal describes few recognizable landmarks, making their exact course difficult to follow, but leaves no doubt about their courage in facing the perils of unknown waters.[46]

Cabrillo's crew, weakened from exposure and scurvy, responded gratefully to Ferrer's order to return home. Separated in storms, the crew on each ship feared that the others were lost, but they finally reunited off Cedros Island. They reached the port of Navidad on 14 April 1543, carrying with them the sad news of Cabrillo's death and the discouraging results of their discoveries. They had found no Strait of Anián, no fabulous Indian civilization, no weapons of gold from an island of Amazons – nothing to enrich or even excite the expectant viceroy of New Spain. And they had not reached the Spice Islands.[47]



This inscribed stone was found on Santa Rosa Island in 1901 and has been the object of much speculation and research regarding its authenticity as a grave-marker for Juan Rodríguez Cabrillo. While it's authenticity is doubtful, it continues the discussion of the explorer's life and death.

Notes

1 Vasco Núñez de Balboa crossed the Isthmus of Panama due south to discover the existence of the Pacific Ocean, which he named the Mar del Sur (South Sea) on 28 September 1513. Ferdinand Magellan, a Portuguese navigator sailing for Spain, commanded a fleet of five ships with 237 men on a voyage to circumnavigate the globe from 1519 to 1521. Only one ship, *La Victoria* commanded by a Spaniard, Juan Sebastián de Elcano, with 18 men returned to Spain. Magellan was killed by natives in the Philippines.

2 See Harry Kelsey, *Juan Rodríguez Cabrillo* (San Marino: The Huntington Library, 198) for a complete biography. James Nauman, ed., *An Account of the Voyage of Juan Rodríguez Cabrillo* (San Diego: Cabrillo National Monument Foundation, 1999) summarizes Kelsey's work and adds a number of illustrations in color. Herbert E. Bolton, *Spanish Exploration in the Southwest, 1542-1706* (New York: Charles Scribner's Sons, 1916), 80-86, includes an English translation of a summary account.

3 See W. Michael Mathes, "The Discoverer of Alta California: João Rodrigues Cabrilho or Juan Rodríguez Cabrillo," *The Journal of San Diego History*, xix (Summer 1973): 1-8.

4 Sworn testimony of Gerónimo Cabrillo de Aldana, 4 December 1617, stating "My paternal grandfather, Juan Rodriguez Cabrillo, came to the New World from the Kingdoms of Spain in company with Pánfilo de Narvaez," AGI, *Patronato* 87, folio 36v.

5 Antonio de Herrera y Tordesillas, *Historia General de los hechos de los Castellanos en las Islas y Tierra Firme del Mar Oceano.* 4 volumes. (Madrid: Imprenta Real, 1601-1615), Chapter 3, Book One, pp. 112-113. Also *Descripción de las Indias Occidentales* (Madrid: Nicolás Rodríguez Franco, 1730), decada 7, libro 5, capitulo 3, p. 89. The reference reads: "…. Named as Captain of those [two ships was] Juan Rodriguez Cabrillo Portugues, a person well informed about the characteristics of the sea." Correa, who was a Portuguese mariner, but not so noted, may have commanded the brigantine San Miguel since its crew was headed by a master. Bartolomé Ferrer was from the Levantine (eastern) coast of Spain and as Chief Pilot was second in command.

6 After Cortés had been commissioned to lead an expedition to follow up the previous voyage of Juan de Grijalva along the Yucatan peninsula by Velázquez, the Cuban governor became suspicious of Cortés's motives given the number of ships and men that he had hired. Believing that Cortés might not return, Velázquez issued an order of arrest and attempted to detain him in Santiago, but Cortés left anyway.

7 Bernal Díaz del Castillo, *Historia Verdadera de la conquista de la Nueva España* (Madrid, 1632); reprinted 3 vols. (Mexico, D.F.; Pedro Robredo, 1939).

8 Kelsey, *Juan Rodríguez Cabrillo*, pp. 62-63. No birth records exist, but there are several legal documents in the Archivo General de Indias, *Justicia*, that give evidence of this information.

9 See Maurice G. Holmes, *From New Spain to California by Sea:* 1519-1668 (Glendale: Arthur H. Clark Co., 1963) and W. Michael Mathes, *The Conquistador in California:* 1535: *The Voyage of Fernando Cortés in Baja California in Chronicles and Documents* (Los Angeles: Dawson's Book Shop), 1973.

10 Holmes, *From New Spain to California by Sea*, 83.

11 See Dora Beale Polk, *The Island of California* (Spokane: Arthur H. Clark Co., 1991), 155.

12 The myth persisted to the degree that Ferdinand VI of Spain issued a Royal Decree in 1747 proclaiming: "California is not an Island." See Polk, *Island of California*, 326.

13 See Lesley Byrd Simpson, ed. and trans., *Cortés: The Life of the Conqueror by His Secretary Francisco López de Gómara* (Berkeley: University of California Press, 1964).

14 Pedro de Castañeda, *The Journey of Coronado.* Translated with an introduction by Donald C. Cutter (Golden, CO: Fulcrum Publishing, 1990); Herbert E. Bolton, *Coronado on the Turquoise Trail: Knight of Pueblos and Plains* (Albuquerque: University of New Mexico Press, 1949).

15 Letter from Diego García de Palacio to the King, 8 March 1576, in E.G. Squier, *Collection of Rare and Original Documents and Relations concerning the Discovery and Conquest of America* (New York: Charles B. Norton, 1860), 32, 107.

16 There seems to be some uncertainty about the location of Girabaltique. Henry Raup Wagner in *Spanish Voyages to the Northwest Coast of America in the Sixteenth Century* (San Francisco: California Historical Society, 1929), 571, thought it was another name for the port of Acajutla, but Iztapa is probably a better guess.

17 Squier, *Rare Documents*, 38-40, 108; Juan Rodriguez, statement made ca August 1541, AGI, Justicia 280, fol. 25.

18 Juan Escalante de Mendoza, "Itinerario de navegación de los mares y tierras occidentales," MS in the Biblioteca Nacional, Madrid, fol. 36. The author lived in Guatemala and Honduras and wrote his manuscript in 1575.

19 Alvarado to the King, 1 September 1532, reprinted in *Libro Viejo*, 282-83. There is some question about his use of *tonel*, which he seems to interchange with *tonelada.* A *tonel* is equivalent to 2 pipas or casks, each holding about 125 gallons.

20 Antonio de Remesal, *Historia general de las Indias Occidentales y particular de la gobernación de Chiapa y Guatemala.* Edited by Carmelo Saenz de Santa Maria (Madrid: Ediciones Atlas, 1964): 201, 245-46; Alvarado to the Real Consejo, 20 November 1535, in *Colección de documentos*, ser. 1, vol. 24, p. 241.

21 Alvaro de Paz, testimony given 15 December 1563, AGI, *Justicia* 290, fol. 81v, 20 May 1559; AGI, *Patronato* 62, fol. 3-3v; letter from the Indians to the King, 15 March 1547, AGI, Guatemala, 52.

22 Testimony given in August 1541, AGI, *Justicia* 280, fol. 25v. In addition to their religious names, Spanish ships were commonly called by the names of their owners or masters. In Alvarado's fleet, the *Diosdado* was owned by Antonio Diosdado and the *Figueroa* by Santos de Figueroa, etc.

23 Diaz del Castillo, *Historia verdadera*, chap. 149, p. 330.

24 Kelsey, *Juan Rodriguez Cabrillo*, 69-70; Testimony of Luis González, 28 April 1560. AGI, *Justicia* 290, fol. 63v.

25 The fleet is described by Gonzalo Fernández de Oviedo in his *Historia general y natural de las Indias, isles y Tierra Firme del Mar Oceano* (Madrid: Imprenta de la Real Academia de la Historia, 1853), 4:20, 23, and by Alvarado in his letter to the King, 28 March 1541, *Colección de documentos*, ser. 2, vol. 2, pp. 1-3. Alvaro de Paz, mayordomo for Alvarado, also confirmed the number. See his testimony of 20 May 1559, AGI, Patronato 62, fol. 3v.

26 Testimony of Luis González, 20 April 1560, AGI, *Justicia* 290, fol. 63v.

27 See Bjorn Landstrom, *The Ship: An Illustrated History* (Garden City, N.Y.: Doubleday & Co., 1961), pp. 112-113.

28 Testimony of Luis González, 20 April 1560, AGI, *Justicia* 290, fol. 63v.; statement by Juan Rodríguez Cabrillo, ca. August 1541, AGI *Justicia* 280, fol. 25-26.

29 A *ducado* in 1500 was worth about $4.00 according to a study made in 1941 by J. Villasana Haggard, author of the *Handbook for Translators of Spanish Historical Documents* (Austin: University of Texas, 1941). It is extremely difficult to place a value on Spanish gold coins of previous centuries because of the variables depending on new discoveries made from time to time.



30 Testimony of Ginovés (Gines) de Mafra, 2 September 1540, AGI, Justicia 280, fol. 25-30; Testimony of Juan Rodríguez Cabrillo, August 1540, AGI, Justicia 280, fol. 25v.-16.

31 Kelsey, *Juan Rodríguez Cabrillo*, 83-113

32 Arthur S. Aiton, *Antonio de Mendoza: First Viceroy of New Spain* (Durham, NC: Duke University Press), 146, note 19.

33 Iris H.W. Engstrand, "Seekers of the Northern Mystery," in Ramon Gutierrez and Richard Orsi, eds., *Contested Eden* (Berkeley and Los Angeles: University of California Press, 1998), p. 83.

34 Nearly half of the residents of the city of Santiago were killed including the governor, Alvarado's family, and 600 Indians. The account written in 1541 by Juan Rodríguez is called *Relación del espantable terremoto que agora nuevamente acontecido en las Indias en una ciudad llamada Guatimala.* Facsimile reprint in Ramón Menéndez Pidal, ed., *Colección de incunables Americanos*, 1: no page numbers. See Kelsey, *Juan Rodríguez Cabrillo*, 90-91. Most authorities attribute the *Relación* to Cabrillo since there was no one else in the city named Juan Rodríguez.

35 Ruy López de Villalobos commanded a fleet of six ships, including the *Santiago* as the flagship, and headed for the Philippines on 25 October 1542. After extensive exploration of the area and having named several islands *Las Islas Felipinas* (The Philippine Islands) for Philip II of Spain, López de Villalobos and his men were driven out by hostile natives. They fled to the Moluccas but were imprisoned by the Portuguese. López de Villalobos died in a prison cell on 4 April 1544, although more than one hundred crew members survived and were sent to Lisbon. Some thirty, including Ginés de Mafra who produced a manuscript on Magellan's circumnavigation, chose to remain. It was published in 1920.

36 The volume written by García Ordoñez de Montalvo, called *Las Sergas de Esplandián* or *The Deeds of Esplandián* was a fifth volume in the popular stories of chivalry in a series about Esplandián's "father" Amadis of Gaul. Ordoñez edited the first edition of *Amadis of Gaul* under the name Garci Rodríguez de Montalvo. In later editions he used Ordoñez. *Las Sergas de Esplandián* was published by Jacob Cromberger in Sevilla between 1508 and 1510 and was widely read by seafaring mariners.

37 Donald Cutter, "Sources of the Name California," *Arizona and the West*, (1961): 233-244.

38 Cabrillo's original log or journal has not been found. See note 42.

39 Herbert E. Bolton, ed., "Diary of Antonio de la Ascensión," *Spanish Exploration in the Southwest:* 1542-1706; W. Michael Mathes, *Vizcaíno and Spanish Expansion in the Pacific Ocean:* 1580-1630 (San Francisco: California Historical Society, 1968). Kelsey, *Juan Rodriguez Cabrillo*, 144, reports that Guacamal was the name the Indians gave to the Spaniards.

40 Herbert E. Bolton, ed., "A Summary Account of Juan Rodriguez Cabrillo's Voyage," *Spanish Exploration in the Southwest:* 1542-1706, 23.

41 Ibid., 24.

42 AGI, Patronato 290, fols, 68-72v. Kelsey, *Juan Rodríguez Cabrillo*, 150, 228.

43 One of the islands called Limu in the narrative of Lazaro de Cardenas and Francisco de Vargas is the one now called Santa Catalina.

44 Ibid., 25. Kelsey, *Juan Rodríguez Cabrillo*, 158. Geaves Kenny, a yachtsman with many years' experience sailing and anchoring in the Channel Islands believes that a skillful navigator/captain who had spent several months in the Channel Islands would not have chosen to spend December and January on San Miguel, but would have returned to a protected harbor on the lee side of Catalina, most likely at the Isthmus. Personal interview, 20 August 2008.

45 There have been attempts to locate any archeological evidence of Cabrillo's burial place on Catalina, San Miguel, Santa Rosa and perhaps other islands, but so far no remains have turned up.

46 The lack of information because of Cabrillo's missing journal is explained by Kelsey, *Juan Rodriguez Cabrillo*, pp. 112-115. The first summary account was prepared in 1543, and contains only eight folio pages. For an analysis of authorship of this "log" see *ibid.*, 168-70.

47 Details of the journey have been taken from several accounts of the voyage compiled after 1543. Possible authors include Juan León (1543) and Andrés Urdaneta.

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TIMELINE



1190 First mention of the use of the compass by European mariners in Alexander Neckam's *De naturis rerum* (predating the chart).

1252 Alfonsine Tables compiled for Alfonso X of Castile, providing the tabular information necessary for celestial navigation (interestingly, the zero was not commonly used in European math at that time, celestial navigation had to be done with Roman numerals until the mid-sixteenth century).

1253 *Pax Mongolica* (Mongolian Peace) allows Franciscan envoy William of Rubruck to cross central Asia.

1260 Kublai Khan of the Mongol Dynasty assumes the throne of his kingdom, founds his capital in Peking (Bejing) in 1263, and brings China under his rule.

ca 1270 The *Carte Pisane* produced the oldest nautical chart extant depicting space as a rational and scaled construct.

1275 Marco Polo, a Venetian merchant, arrives in Peking with his father Nicolo and his uncle Maffeo Polo. They are escorted to the court of Kublai Khan at Shangtu, some 180 miles from Peking.

1291 Final siege of Acre – the last Christian foothold in the Levant falls to Mamluk forces.

1291 The Vivaldi brothers, Genoese merchants, attempt to reach the Indies by sailing counter clockwise around Africa as Carthaginian and Phoenician sailors had allegedly done many centuries earlier. After sailing boldly through the Straits of Gibraltar, they vanish without a trace.

1295 Marco Polo returns to Venice and within a few years is captured by a Genoese fleet and remains in prison until 1299. At this time he writes his famous book *The Description of the World*, also known as the Travels of Marco Polo, which inspires Columbus to search for a shorter route to the Indies.



Mosaic of Marco Polo in Genoa, Italy

1347 The Black Death followed the caravan routes and reaches Cairo killing 7,500 people in six months – it spreads to Europe and continues to wreak havoc killing approximately 30 to 40 million people from 1348-1351 – tremendous trade and economic impact.

1402 Castilian conquest of the Canary Islands begins.



1415 Portuguese capture Ceuta on the African side of the Strait of Gibraltar, their first stepping stone to world empire.

1419 Portuguese discover and begin to colonize Madeira off the coast of Portugal.

1434 Portuguese navigator Gil Eanes (sailing for Prince Henry) is the first to sail beyond Cape Bodajor on the African Coast and return.

1439 Portuguese colonize the Azores

From 1444 to 1446 After a long period of exploratory voyages along the African coast under Prince Henry's tutelage, as many as 40 Portuguese vessels sailed from Lagos, marking the first private mercantile expedition and the beginning of expansive exploration voyages.

ca 1450 A map made by Venetian monk Fra Mauro is a circular planisphere drawn on parchment and considered an important memorial to medieval cartography.

1453 The city of Constantinople (now Istanbul) falls to the Ottoman armies of Mehmet II.

1455 Gutenberg invents modern printing process.

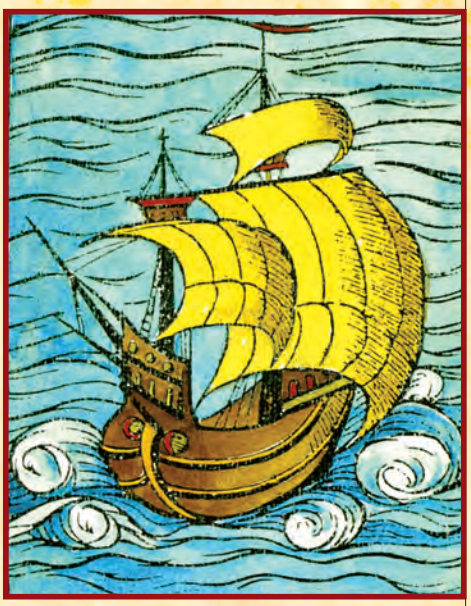
1462 Portuguese found a colony in the Cape Verde islands off the Singhalese coast.

Juan Rodríguez Cabrillo in the Age of Exploration

1488 Bartholomew Diaz of Portugal reaches the Cape of Good Hope, calls it the Cape of Storms, and turns back.

1492 Castilian conquest of Granada completes the reconquista of formerly Muslim Iberia by Christian states. Muslims are placed under Castilian control and Jews are expelled from Spain.

1492 Christopher Columbus, sailing for Spain, makes landfall in the Bahamas.



1493 Pope Alexander VI divides the New World between Spain and Portugal by the Papal Bull *Inter Caetera.*

1494 La Isabela, first permanent European settlement still extant, is founded by Columbus on the island of Hispaniola.

1494 Treaty of Tordesillas gives Portugal exclusive rights to explore south and eastward of Iberia and Spain exclusive rights to explore westward. A Line of Demarcation is drawn around the world to separate the Spanish and Portuguese spheres.

1497 First of three major exploration voyages under Vasco de Gama – he sails to India via the Cape of Good Hope, opening the trade route to the Portuguese.

1498 Columbus discovers the coast of South America on his third voyage.

1499 Italian navigator Amerigo Vespucci explores northeastern coastline of South America.

1500 Pedro Alvares de Cabral lands and takes possession of Brazil for the Portuguese as the part of South America lying east of the line of demarcation. Cabral sails around Africa, discovers Madagascar and continues to India.

ca 1501-1535 For more than 30 years the Casa da India (one of several in a line of Portuguese organizations since the 1400s that managed Portuguese trade in overseas goods) maintained a royal monopoly on the spice trade.

1503 The Casa de Contratación, Spanish counterpart to the Casa da India, collected all taxes and duties, approved all voyages of exploration and trade, maintained all information regarding trade routes and new discoveries, issued passports, licensed captains and administered commercial law. As such, the Casa de Contratación managed the *Padrón Real* (for which there was a Portuguese counterpart, the *Padrão Real).* The official master Spanish chart was used as a template for the charts present on all Spanish ships during the 1500s. It was highly classified and no version of the original has ever been recovered.

1505 Portuguese first visit Ceylon.

1507 Cartographer Martin Waldesmüller produces a world map naming the newly discovered lands "America" after Amerigo Vespucci.

1507 Portuguese led by Alfonso de Albuquerque attacked the Strait of Hormuz (between Persian Gulf & Gulf of Oman).

1508 Vespucci appointed "chief of navigation" and trains new navigators for ocean voyages under the Casa de Contratación.

1508 Garcia Ordóñez de Montalvo in his novel *Las Sergas de Esplandián* featured the beautiful Queen Calafia who ruled over her Island of "California" where Amazon women carried weapons made of gold.

1509 In the Battle of Diu, the Portuguese armada under Almeida defeats the Egyptian fleet and captures their vessels, solidifying a Portuguese stronghold on the Indian Ocean trade route.

1510 Albuquerque establishes a permanent Portuguese colony at Goa on the Indian continent.

1511 Portuguese capture the Straits of Malacca.

1511 Diego de Velásquez establishes a Spanish settlement in Cuba and begins the conquest of the island.

1513 Vasco Núñez de Balboa leads the first European expedition across the Isthmus of Panama – first European to glimpse what he calls the Mar del Sur, later named the "Pacific" Ocean by Magellan.

1517 Considered the beginning of the Protestant Reformation, the reform movement guided by Martin Luther that was in opposition to corrupt practices within the Catholic Church.

1519-1521 Governor Velázquez of Cuba dispatches Hernán Cortés on a reconnaissance mission to mainland Mexico. Cortés' army defeats the Aztecs and claims the territory as New Spain with its capital at Mexico City.



Juan Rodríguez Cabrillo in the Age of Exploration

1519-1522 Ferdinand Magellan leads a Spanish expedition to circumnavigate the globe. He is killed in the Philippines and the surviving 18 men out of 237 complete the journey in *La Victoria* under Juan Sebastián de Elcano.

1522 Knights of St John's stronghold in Rhodes captured by the Ottomans under Suleiman the Magnificent.

1522 Portuguese establish themselves in the Moluccas at Ternate and Tidore – the fabled "Spice Islands".

1523 Juan Rodríguez Villafuerte founds Acapulco which later becomes the eastern port of the Manila galleons.

1524 García Jofre de Loaisa's ill-fated expedition ventures as far as the Moluccas (Spice islands).

1527 Cortés funds voyage led by Álvaro de Saavedra to find Loaisa – both voyages fail to find a route back across the Pacific.

1530s-1540s The principal mapmakers in the Casa de Contratación continue work on the *Padrón Real;* they include Alfonso de Santa Cruz, Sebastian Cabot and Pedro de Medina.

1532 Francisco Pizarro begins the Spanish conquest of Peru.

1535 Portuguese begin to establish themselves in Macau.

1533-34 Cortés sends ships under Fortun Jiménez across the gulf to Baja California.

1535 Antonio de Mendoza becomes viceroy of New Spain. Cortés crosses Gulf of California to enter the Bay of Santa Cruz (La Paz) claiming Baja California for Carlos V.

1536-1540 Cabrillo builds a fleet of 13 vessels in Acajutla (El Salvador) under the directive of Pedro Alvarado.

1539 Under the commission of Cortés, the Spanish explorer Francisco de Ulloa voyages north along the west coast of Mexico. Upon reaching the head of the Gulf of California, he names it the "Red Sea of Cortés." He would eventually sail around the tip of Baja California, sailing as far north as Isla de Cedros, recognizing Baja California as a peninsula.

1541 Francisco Vásquez de Coronado explores the upper part of the Sea of Cortés and lower Colorado River, continuing through the Southwest as far as present-day Kansas.

1542 Cabrillo's fleet reaches the Port of Navidad, but Alvarado is killed fighting in the Mixton War. The viceroy sends Ruy López de Villalobos across the Pacific to establish a Spanish foothold in the East Indies. He is captured by the Portuguese and dies in prison.



1542 Juan Rodríguez Cabrillo, sailing for Spain, commands the first European fleet to sail along the West Coast and to the Channel Islands, reaching as far north as Point Reyes in Northern California.



1543 Copernicus postulates sun-centered universe in his book *De Revolutionibus.*

1543 Three Portuguese sailors arrive in Japan

1545 Pedro de Medina publishes *Arte de navegar.*

1546 Flemish geographer Mercator describes Earth's magnetic poles and in 1569 uses a projection in which one could lay out a line of constant bearing between any two points and sail it as a course.

1565 Spanish settlement established in Florida at San Agustin.

1567 Andrés de Urdaneta, having sailed on the Loaísa expedition, accompanies Miguel López de Legazpi who sets out to conquer the Philippines. Urdaneta discovers the return route across the Pacific along the Japanese current.

1571 López de Legazpi founds Manila in the Philippines for Spain. Manila becomes the Spanish headquarters in the Far East.

1571-1815 Manila galleon trade spans the Pacific and completes Spain's long sought westward link to China.

1571 Battle of Lepanto – The Holy League, a coalition of the Republic of Venice, the Papacy, Spain, the Republic of Genoa, the Duchy of Savoy, the Knights Hospitalers and others, decisively defeat the main fleet of Ottoman war galleys. This turning point protected Rome from invasion and prevented the Ottomans from advancing into Europe, signaling the end of Turkish supremacy in the Mediterranean.

1572 First printed in 1572, *Os Lusíadas,* a Portuguese epic poem by Luís Vas de Camões, offers fantastic (in the Homeric sense) interpretations of the discovery voyages of the 15th and 16th centuries. Central to the epic nature of the poem is Vasco de Gama's narration of the history of Portugal.

1577-1580 Francis Drake, sailing for England, circumnavigates the globe. Anchoring somewhere on the west coast of North America, he claims land he calls Nova Albion, north of San Francisco, for England.

1580-1640 Portugal and Spain are united under Philip II of the Spanish Hapsburgs, but their empires are administered separately.

TIMELINE

1584 Dutch cartographer Lucas Janszoon Waghenaer prints the first atlas of sea charts, *Spieghel der zeevaerdt*, combining a chart-book with an atlas of nautical charts, and sailing directions with instructions for navigation on the western and northwestern coastal waters of Europe. (2 more publications followed in 1592 and 1598.)

1585 Walter Raleigh founds the first English colony in America at Roanoke, VA. Three years after the first settlement, the colonists disappear without a trace.

1586-1588 Englishman Thomas Cavendish, following in the wake of Drake, circumnavigates the globe, carrying home to England great wealth plundered from the Manila galleon *Santa Ana* off Baja California.

1587 Diego García Palacio writes *Instrucción Nautica para el uso de las Naos*.

1588 Amid the Anglo-Spanish War (1585-1604), the English gain naval advantage against the Spanish Armada (1588), resulting in a revolution in naval warfare with the promotion of gunnery, though Spanish power would stay largely intact until the turn of the 17th century.

1591-1594 Founding voyage of the British East India Company to Malaysia and return. The company was incorporated by Royal Charter in 1600.

1592 Juan de Fuca (Spanish spelling for Greek name Ioánnis Fokás) allegedly explores the Pacific northwestern coast for Spain.

1602 Sebastián Vizcaíno, commanding a Spanish expedition, explores the west coast of the Californias, renaming most of the locations previously discovered by Cabrillo. Searching for a port for the eastbound Manila galleons, Vizcaíno sailed into the port of San Miguel for reconnaissance and renamed it El Puerto de San Diego de Alcalá, a Spanish saint canonized as St. Didacus in 1588.

1602 The Dutch East India Company—VOC—is founded as the first multinational corporation and the first company to issue public stock.

1603 Champlain explores the Saint Lawrence River. He later returns in 1608 to found Quebec.

1607 English establish Jamestown, the first permanent settlement on the James River, Virginia. First American ship built in Maine.

1608-1610 Galileo builds telescope and views satellites of Jupiter.

1615 William Schouten aboard the *Eendracht* (from Hoorn in the Netherlands) finds a new route to the Pacific around the tip of South America and names it Kap Hoorn or Cape Horn.

1620 The *Mayflower* lands at Plymouth Rock carrying the Pilgrims to America.

1642 Abel Tasman, sailing for the Dutch, discovers Tasmania and New Zealand.

1697 The Jesuits establish a mission, Nuestra Señora de Loreto, in Baja California.

1740 Voyage of British Lord George Anson disrupts coastwise trade of New Spain and Peru, shows potential danger to Spanish Pacific.

1741 Danish navigator Vitus Bering, sailing for Russia, explores the Pacific from Kamchatka to North America.

1764 John Byron's voyage in HMS *Dolphin* (first ship to circumnavigate globe twice) challenges Spanish control of Pacific.

1768 James Cook's first voyage to set up an observatory in Tahiti to record the transit of Venus across the sun.





Corbeta Atrevida *Malaspina*

1769 Alta California settled at San Diego by Spanish soldiers and missionaries; Russians establish an outpost on the Kamchatka Peninsula

1769 The first Transit of Venus measured throughout the world to determine the distance of the sun from the earth.

1772-1775 Cook's second voyage is the first to cross the Antarctic Circle and disproves the existence of a southern continent capable of habitation.

1776-1778 Cook's third and last voyage during which he discovers the Hawaiian Islands, sails as far north as the Arctic Sea, collects valuable furs in the Pacific Northwest, returns to Hawaii and is killed by natives in Kealakakua Bay.

1785-1787 Ill-fated world voyage attempted by the French Count of La Perouse for purposes of exploration and natural history. (The Expedition dissappeared in the Pacific without a trace in 1788.)

1789-1794 Around the world Spanish expedition of Alejandro Malaspina to end the search for the Northwest Passage and carry out a scientific survey of New World natural resources.

1792-1794 Voyage of British commissioner George Vancouver to meet with Juan Francisco de la Bodega y Quadra to settle boundary questions between Spain and England in the Pacific Northwest. Vancouver visits various ports in California including San Diego.

1815 The last Manila galleon sails across the Pacific.

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Alta California and Spanish Naval Strategy in the Pacific:



An Overview from the 16th Century to the early 19th Century

by Jack S. Williams, Ph.D.

The story of Spain in the Pacific is one of the most remarkable chapters in the history of European expansion. Between the middle of the sixteenth century and the early nineteenth century, Iberian mariners defined and partially charted a body of water that was so vast and complex that it is even now hard to imagine. More remarkably, Spaniards conceived of themselves not only as explorers but as conquerors. In Madrid, imperial administrators envisioned the vast Pacific Ocean on the other side of the globe as a watery highway that connected the staging areas of the New World to the far-flung military bases that were then the most distant outposts of their empire. The dream of a Spanish-dominated Pacific was never fully realized, however, the level of success the Iberians did achieve is nothing less than astonishing.

The remote region of California had a varying degree of importance in Spain's naval strategy. Like so much of the territory that surrounded the Pacific Ocean, it was not seen as having any inherent economic value. The region's Indian people did not have the treasures that inspired the conquistadores who laid waste to the ancient civilizations of Mexico and Peru. From the sixteenth century onward, the Spaniards realized California's ports could provide naval bases for a European rival. If they fell into enemy hands, these outposts would become ideal launching points for attacks on the rich Spanish possessions that lay to the south. California's coastal waters were also a perfect place to ambush the treasure ships – the Manila galleons – that made an annual journey from the Philippines to Acapulco. Throughout the long period that stretched from the sixteenth through the early nineteenth century, Spanish approaches to the colonization of California were tied directly to a perceived need to occupy its strategic ports. This objective, rather than any relentless zeal for extending Christianity, or lust for the acquisition of riches or land, remained the central concern that underlay Spain's commitment of men and other resources to California.

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The Development of the "Spanish Lake" 1530-1600

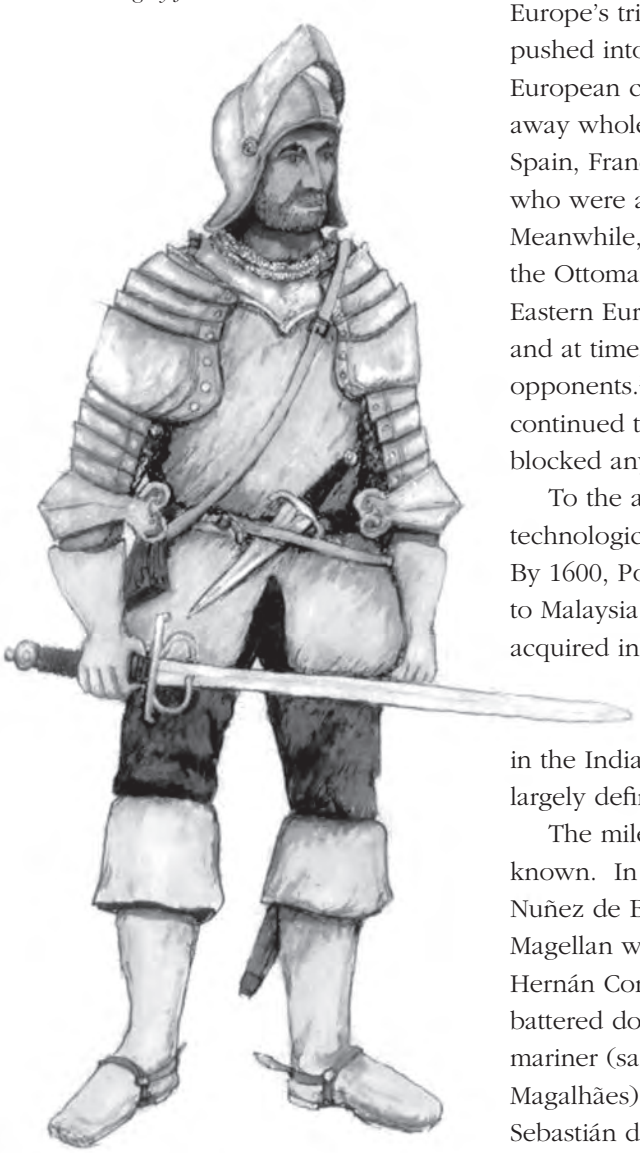
For hundreds of years, political and geographic barriers had set sharp limits on European activity. The Christian world was surrounded in both the east and south by Muslim peoples who controlled the lines of communication and trade with more distant civilizations. To the west of

Left: Flemish engraver and publisher Theodor De Bry (1528-1598) illustrated many texts based on 16th-century European voyages. A detail drawn from a larger engraving shows the iconic depiction of a Spanish galleon in that period.
Rare Book Division, The New York Public Library, Astor, Lenox, and Tilden Foundations

Europe lay an Atlantic Ocean that had become, for all intents and purposes, an equally effective barrier. All this changed radically during the fifteenth and sixteenth centuries. A series of dramatic advances in military technology provided a means to shatter the old barriers. The Europeans combined innovative methods in shipbuilding and artillery manufacture to produce a new kind of mobile gun platform. Although they appear to modern eyes as primitive war machines, the new vessels propelled Europeans into waters they had scarcely known.[1]

The men who manned the galleons in the age of conquest used a mixture of antiquated and contemporary weaponary and equipment.

Drawing by Jack Williams



Another important factor in advancing the Europeans' determination to push East and West in such a short period of time was perhaps the fact that they had faced so many centuries of external threats from Africa and Asia, which made them particularly inclined to seize an opportunity that could give them an advantage. It certainly was not the case that Christian Europe's triumph was inevitable. During the same period that Europeans pushed into the Pacific, Muslim raiders devastated the coastal areas of the European continent. These operations pushed as far north as Iceland, carrying away whole villages of people from the shores of Ireland, Wales, England, Spain, France, and Italy. These men, women, and children, became slaves who were auctioned off in the markets of North Africa and the Near East.[2] Meanwhile, an even greater threat was observed in the armies and navies of the Ottoman Turks. The sultans' expeditions pushed deep into the heart of Eastern Europe. Vast Ottoman naval squadrons menaced the Mediterranean, and at times, threatened to obliterate what remained of their Christian opponents.[3] Meanwhile, to the north, the Muslim descendants of the Mongols continued to raid and destroy the outposts of the Russian Empire. The Tartars blocked any Eastern European movement toward the Far East.

To the astonishment of the Muslim world, the leaders of the maritime technological revolution in the Iberian Peninsula would soon outflank it. By 1600, Portuguese expeditions set up outposts that stretched from India to Malaysia. Spain, which followed the lead provided by the Portuguese, acquired incredible wealth in the Americas before turning its attention to an even more ambitious goal of invading Asia from the west. By 1650, European fleets had cut off the lucrative Muslim trade in the Indian Ocean, and effectively established strategic barriers that would largely define what were still the geographic limits of the Islamic world.

The mile posts that marked the Spanish advance in the Far East are well known. In the wake of Colon's (Columbus') voyages of discovery, Vasco Nuñez de Balboa reached the shores of the mysterious western ocean that Magellan would later name the "Pacific." Fewer than six years later, in 1519, Hernán Cortés began the conquest of the Aztec empire. While Spanish vessels battered down the walls of the splendid city of Tenochtitlán, the Portuguese mariner (sailing under the Spanish flag), Fernando Magellan (Fernão de Magalhães), had reached the Philippines. After Magellan was killed there, Juan Sebastián de Elcano captained the *Victoria's* return voyage to Spain. Spain's long quest to reach Asia from the west had finally been achieved.



The fall of the Aztecs was followed in less than a decade by the conquest of Peru. By 1535, Spain had created a vital maritime link that stretched along the northwestern coast of South America from Panama to Callao. This naval link would remain the primary avenue used to reach much of Spanish South America through the later eighteenth century.[4]

Spanish interest in the Pacific would also be influenced by diplomacy at home. In 1529, the Iberian rulers agreed to the Treaty of Zaragoza, which left much of the Pacific Ocean inside what had been defined as the area rightfully belonging to Spain.[5] By contrast, the route that stretched around Africa to India lay inside Portuguese territory. If Spain was to gain wealth from Asia, it would have to flow through the same western route as the one that had been proposed by Colon.

By the time that Juan Rodríguez Cabrillo set sail in 1542, the world had dramatically changed from the time of Columbus. The Iberians' nascent empires now straddled the globe. This development was of far greater strategic significance than any of the previous events in Europe's struggles against eastern rivals. Westerners had discovered a world that lay beyond the complexity of the Atlantic. It was made up of civilizations they had never

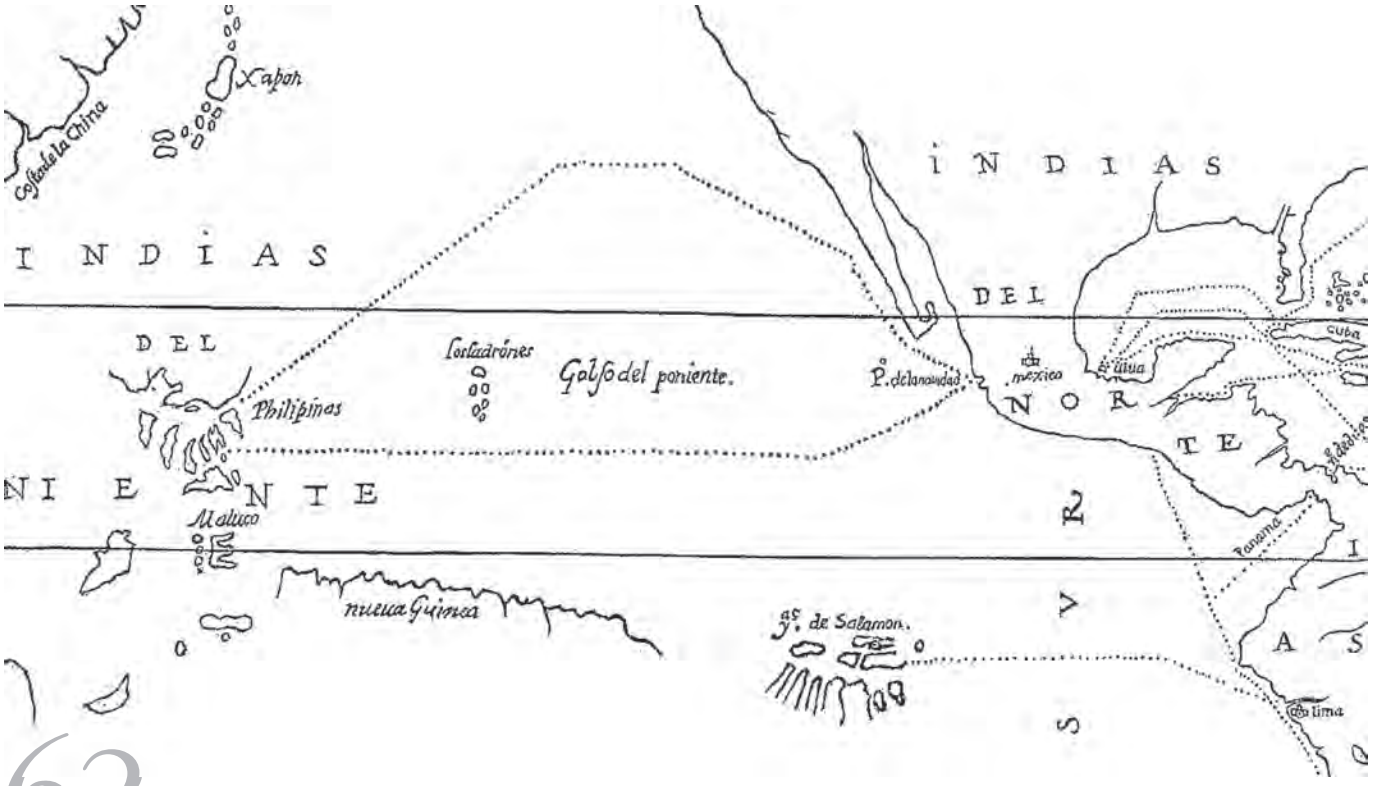
This 1589 map by Abrahamus Ortelius projected the European vision of the Pacific. Most significant is Magellan's *Victoria*, dominating the earliest printed map of the Pacific as she sails under the Spanish flag toward the Far East guided by an angel and with her guns blazing.

The British Library, C.23.e.12(6).

known, of cultures barely understood. The basic impulse of the Europeans was not to develop peaceful relations with these distant civilizations, instead, they quickly expressed their intent on conquest. Despite the obvious logistical problems, they began to conceive of grandiose strategies – of conquering the great powers of the Far East, China and Japan. Nothing seemed impossible.[6]

Imperial ambitions brought Miguel López de Legazpi in 1567 to the strategic islands that lay to the north of Malaysia and the south of Japan. Elcano had brought back word that the islands stood at the threshold of the Far East. The 1565-1572 conquest of the Philippines was launched from the Americas.[7] This expansionism brought the Spaniards into direct conflict with the eastern frontiers of their ancient Muslim foes.[8] It also opened a door to the Spice Islands, China and Japan. The Portuguese had already penetrated into these lands and knew of the riches to be had, and they had begun their own ambitious program of conquest. As early as 1543, their Iberian rival had established contact with the most remote nation – Japan's Empire of the Sun. Portuguese Jesuits soon developed an important role in trade and diplomatic relations between the Chinese and the Japanese. The new naval base at Manila gave Spain an opportunity to disrupt Portugal's growing influence in the region.[9]

With the establishment of the new colony, Spain began to realize its ambition to acquire the spices, silks, porcelains, and other exotic products of Asia. However, there was no easy way to get this treasure back to Europe. In order to go west from the Philippines, Spanish ships would have to pass through Portuguese waters. The only safe route



The Manila galleons followed Urdaneta's (1565) pioneering route for over two centuries.

Detail from the map by Juan Lopez de Velasco (c. 1565-1570), John Carter Brown Library, Providence, R.I.



would be to return to Europe by way of the Americas. Any journey of this type was complicated by the fact that the land mass of the New World did not have an easy passageway to facilitate movement from the Pacific to the Atlantic. Nevertheless, Spain did control the territory that would be required to transport the materials via a short land route. The decision to move forward on this project created the trade route involving the "Nao de China" (known in the English speaking world as the Manila galleon.) These vessels would continue their voyages through the early nineteenth century.[10]

The currents that flowed around the Pacific Ocean would largely determine the pathway of the galleons. Like an immense carousel, a vessel departing Mexico could sail to the southwest, passing into the South Pacific before arriving at Manila. Departing the Philippines, the current would carry ships to the northwest, skirting Japan and sailing far north, before turning once again to the south. The ships generally sighted land along the California coastline, somewhere between San Francisco and Santa Barbara. Sailing southward they could easily find their way to their home port of Acapulco, Mexico.[11]

Juan Rodríguez Cabrillo had reported the existence of a number of ports along the coast of California that might be used by trading vessels. After 1565, Spain's naval strategists would often return to proposals to colonize the region primarily as a means of securing safe havens for these merchant ships. The need for such bases was made all the more visible by the piratical voyage of Francis Drake, a man the Iberians fearfully called *El Draque* (the Dragon). He followed in the wake of the Magellan/Elcano voyage, securing a claim to the circumnavigation of the globe. Drake actually set up a winter's camp on the northern California Coast, and laid claim to the surrounding territory.[12] After 1577, the administrators in Madrid had to accept the reality that the Pacific was by no means as secure as they had hoped.

By the third quarter of the sixteenth century, it appeared that Spain and Portugal were headed for some kind of military exchange.[13] Through dynastic inter-marriage, however, Felipe (Philip) II, the Hapsburg King of Spain, inherited the throne of the second Iberian crown in 1580. While limits were set as to how far he could consolidate the two imperial entities, Felipe nonetheless coordinated their forces and used them effectively in what became a series of wars with the Dutch and British. These conflicts were primarily fought in Europe, but eventually spilled over into the waters of the Europeans' most remote colonies in the Far East.[14]

The high-water mark of early Spanish ambition for California was clearly achieved during the voyages of Sebastián Vizcaíno (1596-1603).[15] The capture of the Manila galleon, *Santa Ana*, in 1587 by the English pirate, Thomas Cavendish, had reinforced the need for timely action in regards to maritime security along the California coast.[16] In 1602-1603, Vizcaíno pushed to the north to find ports that could be used by the Manila galleons on their



homeward trips. When he returned to Mexico, his efforts at court produced a detailed plan for the occupation of the region. Monterey and San Diego were named as locations that would serve well as colonies. Nevertheless, the Crown was persuaded to divert the funds that were initially set aside for the project in favor of a fruitless search for treasure islands in the South Pacific.[17] It would be more than one hundred and fifty years before Vizcaíno's colonization proposals would be acted upon.[18]

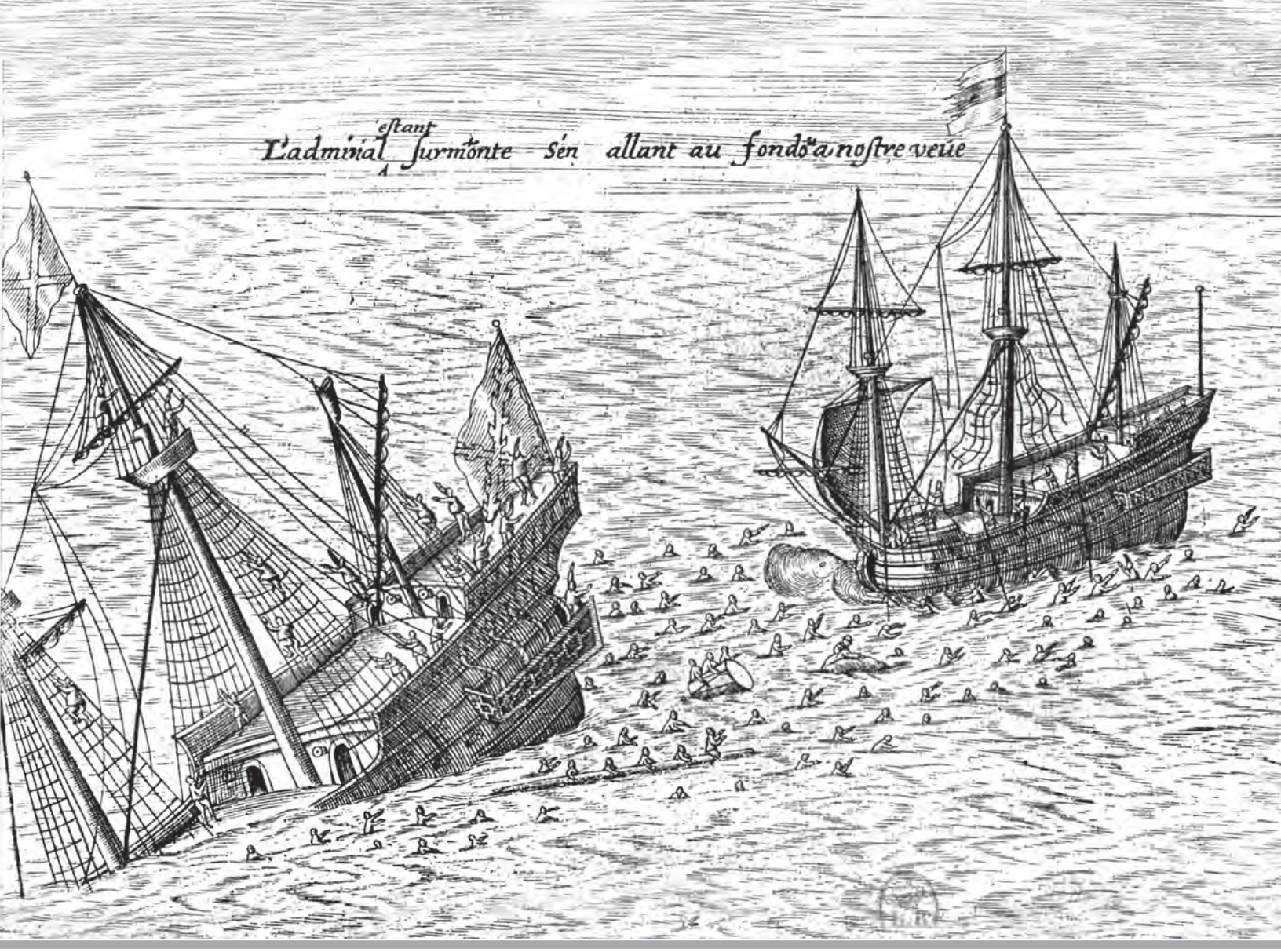
California and Spanish Naval Decline 1600-1700

At the end of the sixteenth century, the Spanish Hapsburg Empire seemed to be on the verge of a period of unprecedented political prominence. No scheme of conquest seemed too unreasonable. During the century that followed, this optimism would vanish. Spain experienced a slow decline as a naval power.[19] By 1700, it was unclear if Spain would be able to defend any of her overseas possessions.

From the beginning, Spanish ambitions in the western Pacific were never as easy to achieve as they had been in the Americas. Native Muslim people of the Philippines offered stiff resistance. Iberian ships also found themselves under siege by Japanese and Chinese pirates.[20] Even greater conflicts were created by Spain's Protestant enemies, especially the Dutch.[21] This emerging nation's maritime capitalists had more limited objectives than the Hapsburgs in Asia. The newcomers were largely focused on profitable trade rather than the occupation of the region.[22] The limited nature of Dutch ambitions would prove more palatable among many of the peoples of the Far East.

Left: Detail from an engraving by Theodor de Bry of a late 16th-century Spanish galleon in Venezuelan waters. By the end of the 17th century the Spanish navy had lost much of the ability that had heralded the advances of the early colonial era. Most of the King's fleet was made up of purchased foreign ships. Spain had fallen behind other European nations in regard to military technology.

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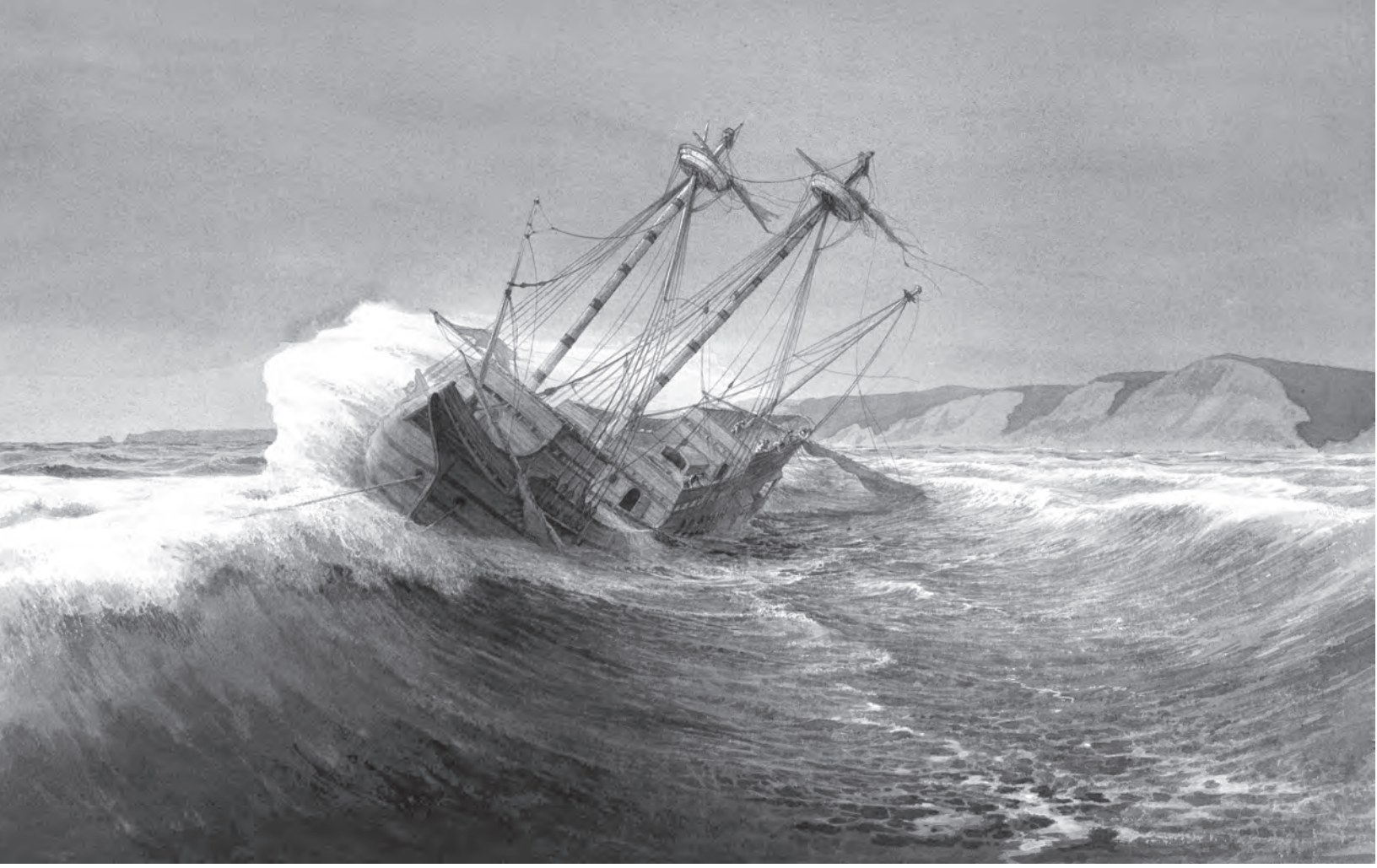


Above: As international conflicts of the seventeenth century continued, Spain was increasingly threatened by the Dutch in the Far East. Illustrated is the Spanish ship, *San Diego*, sunk by a smaller Dutch vessel, the *Mauritas*.

Engraving by Theodor de Bry for de Noort, Olivier, *Description du penible voyage facit entour l'univers du globe t errestre par Sr. Oliver du Nort d'Utrecht, general de quattre navires,* 1602.

The changing circumstances of the seventeenth century would emerge gradually. By 1609, the Dutch, who were once an integral part of the Hapsburg Empire, had become a rival maritime power.[23] Sailing from ports along the coasts of Africa, they struck out at the Portuguese outposts. Over time, nearly all of the Iberian settlements were captured. The loss of these possessions was undoubtedly linked to the disinterest of the Spanish monarchs who ruled Portugal. They focused to a considerable extent on the successful preservation of their increasingly valuable American possessions. When Portugal became an independent monarchy again in 1640, they inherited an empire that would largely be confined to the Atlantic coast of South America.[24]

The remote waters off California witnessed the changing strategic situation. An unstipulated number of Dutch,[25] French, and British vessels appeared to threaten Spain's hold on Northern New Spain. Their crews were made up of privateers and pirates whose primary ambition was the capture of the Manila galleon. It is unclear how many of these freebooters were present, and it is also unclear how far to the north they sailed. Some stayed in the south for extended periods. Their blonde-haired Native American descendants would be recognized among the Indian people who met Spanish missionaries during the eighteenth century.[26]



This watercolor by Gordon Miller depicts Cermeño's Manila galleon, *San Agustin* in 1595, as she foundered along the northern California coastline.

Courtesy MMSD collections

Throughout the seventeenth century, Alta (Upper) California remained a place frequently visited by Europeans, but no colonies were established until the Jesuits founded Misión de Nuestra Señora de Loreto Conchó in 1697.[27] The Manila galleons stopped there to take on water and supplies, and they sometimes foundered on the shoreline.[28] After 1600, Spain had focused a tremendous amount of its Asian strategy on Japan. The coastal tribes witnessed the spectacle of the passage of a Japanese-built galleon sailing southward to Acapulco in 1613. Its commander, Sebastián Vizcaíno, was bringing an embassy of the Shogun's diplomats to the court of the Viceroy in Mexico City.[29] By 1630, Portuguese and Spanish missionaries had made significant progress in introducing Christianity to the southern end of Japan and in cementing a political alliance with the Shoguns. The Hapsburg's ultimate goal was a joint operation that would have seen the conquest (and conversion) of China. For a while, it seemed that this opportunity might take place. Between 1592 and 1598, the Shogun Toyotomi Hideyoshi had invaded Korea. Despite considerable initial progress, this venture ended in failure. The Iberians remained hopeful that a second effort might soon be possible. Their dreams of such an operation ended in 1635, when Japan evicted the Iberians in favor of a more modest relationship with the Dutch. Japan then entered into a period where nearly all western ideas (including Christianity) and technology were rejected. The nation would not return to policies of territorial expansion until the middle of the nineteenth century. In fewer than fifty years, Christianity was outlawed and the small number of surviving converts were driven underground.[30]

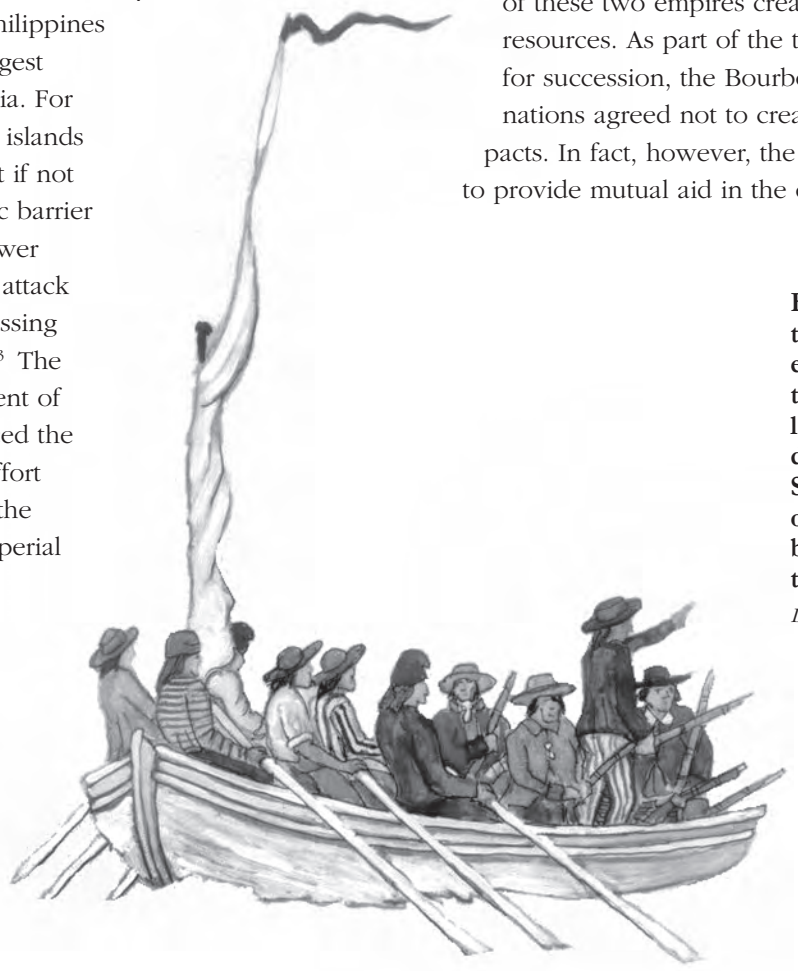
The decline of Spanish naval power in the Pacific can also be linked to other changes.[31] The Iberians failed to keep up with the technological advances taking place in European warfare. The Spanish armies of arquibusers, men armed with pikes and primitive matchlock firearms, and pike men guarding the arquibusers while they reloaded had once seemed invincible, but were defeated again and again in their confrontations with the French. Before 1700, the bayonet and the flintlock musket had rendered the traditional Spanish weapons obsolete. The navy also suffered a sharp decline. Fewer and fewer ships were built in Spain. The shrinking squadrons depended increasingly on foreign-built vessels. As the century came to an end, the royal navy shrunk in size to fewer than twenty-five warships. The regular army could not muster more than 20,000 men. Spain had become a pale ghost of what it once had been.[32]

All the new challenges and losses forced Spain onto the defensive. Strategically, the goal was no longer expansion, but consolidation of what had already been claimed. The Philippines became Spain's strongest defensive point in Asia. For the time being, these islands provided a significant if not impenetrable strategic barrier for any European power that might launch an attack on New Spain by crossing the northern Pacific.[33] The successful development of the Philippines reduced the need for a defense effort in California. Within the context of Spain's imperial decline, it is not too surprising that the region would largely be ignored. There were simply too many other more pressing demands.

The first permanent European colony was finally created in Baja California at Loreto, in 1697. It came into existence under a peculiar political arrangement in which the Jesuit missionaries who led the effort were given extensive autonomy in exchange for providing a safe haven and supplies for the Manila galleons.[34] The Crown's willingness to give up power in the province was based on the reality that Spain lacked the military resources to properly protect what remained a remote region.

The Renewed Abilities of the Bourbon Dynasty 1700-1765

In 1700, the death of Carlos II brought a period of civil war to Spain that ended with the ascension of Felipe V (Phillip V), and the creation of a French Bourbon dynasty.[35] This event had a frightening significance for many rivals of Spain and France as the potential combination of these two empires created a unity of unmatched resources. As part of the treaty that ended the struggle for succession, the Bourbon monarchs of the two nations agreed not to create any over-arching security pacts. In fact, however, the two men secretly conspired to provide mutual aid in the event of any future conflicts.

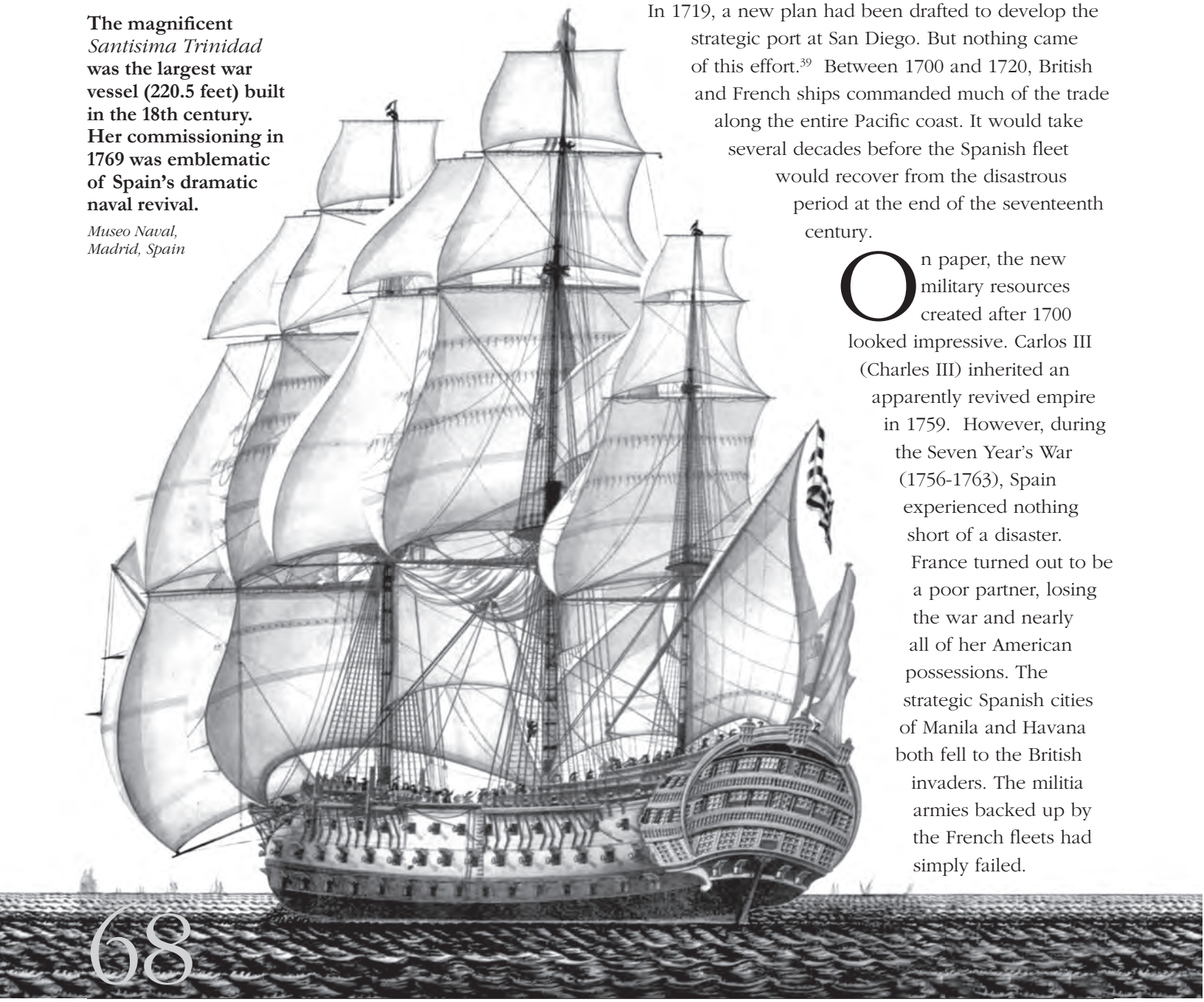


By the 1700s, Spain was forced to consolidate its expansionist efforts and focus on protecting the ports and land areas it had laid claim to. The enormous defensive strategy fell to the Spanish navy, which depended on small launches and packet boats to patrol and defend its territories in the Californias.

Drawing by Jack Williams

Felipe V, and his son, Fernando VI (Ferdinand VI), brought French-style reforms that affected nearly every aspect of Spain's governmental policies. Modernization of the army became a top priority of the monarchy. Meanwhile, France agreed to provide additional naval protection for Spain's overseas empire.[36] In the colonies, much of the reform effort focused on creating large forces made up of militia. By the time of Fernando's death in 1759, considerable progress had been made in creating the new forces.[37]

The reforms had little direct effect on the situation in California. In the far south, the Jesuit mission frontier had made some territorial gains, but proved to be an ineffective deterrent to the old foes. In 1710 and 1721, British privateers set up temporary residence at Cabo San Lucas.[38] Some consideration was given in regard to Upper California. In 1719, a new plan had been drafted to develop the strategic port at San Diego. But nothing came of this effort.[39] Between 1700 and 1720, British and French ships commanded much of the trade along the entire Pacific coast. It would take several decades before the Spanish fleet would recover from the disastrous period at the end of the seventeenth century.



The magnificent *Santisima Trinidad* was the largest war vessel (220.5 feet) built in the 18th century. Her commissioning in 1769 was emblematic of Spain's dramatic naval revival.

Museo Naval, Madrid, Spain

On paper, the new military resources created after 1700 looked impressive. Carlos III (Charles III) inherited an apparently revived empire in 1759. However, during the Seven Year's War (1756-1763), Spain experienced nothing short of a disaster. France turned out to be a poor partner, losing the war and nearly all of her American possessions. The strategic Spanish cities of Manila and Havana both fell to the British invaders. The militia armies backed up by the French fleets had simply failed.

The Final Move Toward Creating a Spanish Colony in California

In the wake of this catastrophe, Carlos III launched a series of dramatic reforms. He focused on the full modernization of the army. The expanded militia forces were to be expanded and supplemented by better-trained regulars. Henceforth, the navy would also be modernized and enlarged to protect Spanish interests around the globe. It was a return to the kind of aggressive offensive policies that had been the norm in the sixteenth century.

The spectacular naval build-up was most dramatically seen in the immense shipyard in Havana.[40] More modern Spanish ships, modeled closely on those from Britain, were built there. Undoubtedly the most impressive of these warships was the *Santisima Trinidad*, the largest vessel of its kind built in the colonial period. By 1769, Spain had revived as a major European naval power. New fortifications and facilities were also added throughout the Caribbean, in the Philippines, and along the coasts of South America.[41]

These new projects were badly needed. In the Pacific, the strategic situation had badly deteriorated. The Dutch were no longer the major threat.[42] They had largely been replaced by the British, who now took a direct hand in Asian affairs from their bases in India. In 1788, the English Crown embarked on a large scale Pacific colonization program in Australia. An equally dangerous threat had been created by the Russians, who had pushed the borders of their empire to the Pacific. In so doing, they had effectively out-flanked the Philippines. A new Pacific route now lay open to the Americas. By 1784, the Czar's vessels had begun to occupy Alaska. It was the beginning of a dangerous era, where the wealthy lands of New Spain and Peru provided tempting targets.[43]

Now, more than at any time in the past, Upper California was a strategic asset that needed to be addressed. If Spain could only secure the region, they could effectively block Russian and British approaches to New Spain from the north. As long as the key ports remained in Iberian hands, an enemy fleet could only move southward by risking an interruption of its lines of supply and communication. No competent European commander would have risked this danger.

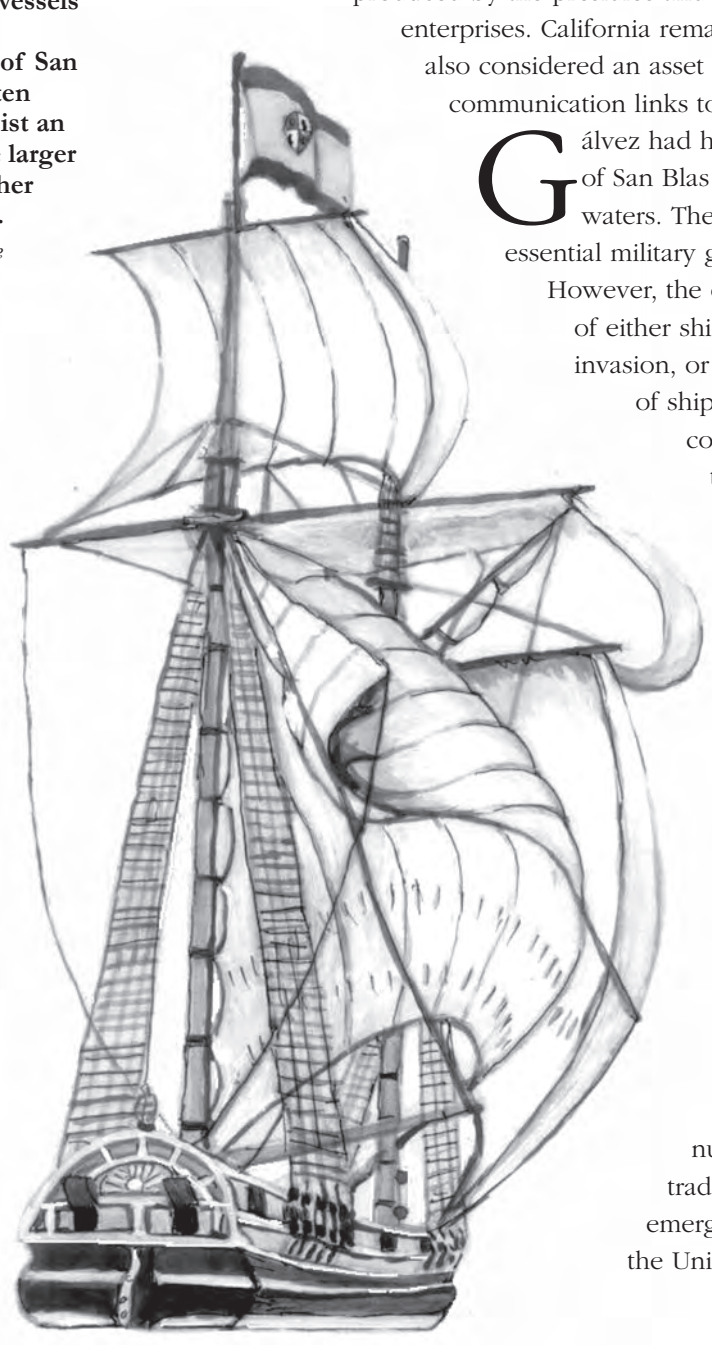
Inspector General José de Gálvez was dispatched to America in 1761 with orders to improve the defenses of New Spain. His biggest problem was his lack of financial resources to solve all of the kingdom's predicaments. He considered the California dilemma with a clear understanding of what needed to be done. However, all the military resources that he could amass did not represent a force sufficient to create or sustain regular outposts in the remote region. Instead, he was forced to find some other kind of solution. Ultimately, he developed a plan where Spain would create frontier-style presidios at the key ports of Monterey and San Diego. These semi-self-sufficient military colonies had provided useful service along the northern Indian frontier of New Spain. In order to pacify the Indians and expand the self-sufficiency of the colony, he also proposed to include a series of Franciscan missions. Although schemes of this type had once been popular in the

empire, they had declined sharply after the arrival of the Bourbon monarchs. The new dynasty generally preferred to use military forces and trading posts as the focus of frontier expansion. Gálvez realized that the forces available were too small to really secure California. However, he was convinced that they could at least show some level of Spanish control, and in so doing, discourage the ambitions of Spain's European rivals.

In 1768, Gálvez began to stage the operation that would see the long anticipated colonization of Upper California. He had no illusions about the region being of any inherent financial value. Throughout the remainder of the period of Spanish rule (1769-1821), California remained a strategic military colony that produced no revenues for the King. Whatever resources were produced by the presidios and missions were plowed back into frontier enterprises. California remained a financial loss for Spain, but it was also considered an asset essential for their defense of the supply and communication links to Asia.

The modest vessels of the Naval Department of San Blas were often unable to resist an attack by the larger warships of her Pacific rivals.

Drawing by Jack Williams



Gálvez had hoped that the ships of the Naval Department of San Blas would eventually be able to patrol California waters. The royal squadrons provided supplies of essential military goods and luxuries to the new colonies. However, the department never had a sufficient supply of either ships or sailors to effectively face a potential invasion, or even a large-scale raid. A small number of ships were temporarily assigned to protect the coast during periods of declared war, but for the most part California's defense against a seaborne invasion was left to the frontier troops of the presidios, and the Indian militias of the missions.

Throughout the Spanish Empire the inability of the King's fleets to meet the needs of colonists stimulated an opportunity for illegal trade. The weakness of the strategic situation of the province was demonstrated dramatically in the numerous episodes of smuggling and poaching that took place along the California coast. Without ships, or even small patrol vessels, the presidio troops were not able to curb what became a thriving trade, which was illegal but often tolerated as a necessity. By the end of the colonial period the ships of Spain were outnumbered in California waters by those of her traditional rivals, along with those of the new emerging commercial power of North America – the United States.

After the death of Carlos III (1788), the Spanish navy as a whole entered a period of decline. Carlos IV lacked his father's ambitions and military abilities. His reign was marked by military projects and treaties that almost never benefitted Spain. The worst disaster by far was the destruction of the finest vessels of the fleet at the Battle of Trafalgar (1803). Spain never fully recovered from this disaster.[44]

In Retrospect

The California venture that had been initiated by Gálvez continued to endure during the waning years of Spanish political ambitions. Despite the military shortcomings of the effort, the basic wisdom of his actions were demonstrated repeatedly. Both the Russians and the British laid claims to the area north of San Francisco, although each of these nations enjoyed only limited success in their bids for colonization. The lines of communication and supply to the Philippines remained largely intact.[45] The California outposts made it possible for the Naval Department of San Blas to successfully challenge the British at Nootka Sound (1789). Even after the Naval Department's headquarters fell during the War of Independence in 1810, the colony continued to remain a loyalist stronghold. The troops in the region aggressively resisted the one major assault that took place in 1818. Without the modest forces deployed in California, it is hard to imagine that Spain would have been able to fix the border in its northern position in the treaty that was agreed to by the United States in 1819.

Romantic images of Spain in California remain an important part of San Diego's cultural landscape. Much has been made of the drama that surrounds the story of the mission and presidio. To a considerable extent, people are unaware that San Diego was created first and foremost as a strategic naval base. Despite changes in governments, the city remains linked to strategic military concerns and its position on the Pacific Rim. The man who first envisioned its potential to serve in this role was Juan Rodríguez Cabrillo.

This lithograph by Charles Koppel, 1853, illustrates the San Diego mission of 1813. The mission was moved in 1774 from its original site (now on Presidio hill overlooking Old Town) five miles up the San Diego River (now Mission Valley).

MMSD Raymond Starr Collection



Notes

1 J. H. Parry, *The Discovery of the Sea,* (Berkeley: University of California Press, 1974).

2 Robert C. Davis, *Christian Slaves, Muslim Masters - White Slavery in the Mediterranean, the Barbary Coast, and Italy 1500-1800*, (New York: Palgrave Macmillan, 2003).

3 Fernand Braudel (translated by Sian Reynolds), *The Mediterranean and the Mediterranean World in the Age of Philip II,* Volume 2. (New York: Harper and Row, 1973), 661-678, 836-864, 904-1184.

4 Peter Gerhard, *Pirates on the West Coast of Mexico*, (Glendale: Arthur H. Clarke Company, 1960), 32-35.

5 William Lytle Schurz, *The Manila Galleon*, (New York: P. Dutton and Company, 1939), 20. Spain ceded all claims to the Spice Islands to the Portuguese, but continued to assert rightful ownership of the Philippines based on Magellan's discovery. Ironically, these islands also lay within the latter's powers sphere.

6 Ibid., 30.

7 In 1542, Viceroy Antonio de Mendoza sent Ruy López de Villalobos to relocate the islands, Herbert Eugene Bolton (translator and editor), *Spanish Explorations in the Southwest, 1542-1706*, (New York: C. Scribner's Sons, 1916), 43. The maritime aspects of the conquest were headed by the Augustinian priest, Andrés de Urdaneta, Gerhard, *Pirates on the West Coast*, 37.

8 Bolton, *Spanish Explorations*, 43; John J. Phelan, *The Hispanization of the Philippines, Spanish Aims and Filipino Responses; 1563-1700* (Madison: University of Wisconsin Press, 1959). Schurz, *The Manila Galleon.* Manila was ruled as part of the small sultanate of Sulaiman Mahmud.

9 C.R. Boxer, *The Portuguese Seaborne Empire 1415-1825*, (New York: Alfred A Knopf, 1969), 39-64; Schurz, *The Manila Galleon*, 129-53.

10 Gerhard, *Pirates on the West Coast*, 39-41; John D. Harbron, *Trafalgar and the Spanish Navy*, (Annapolis: Naval Institute Press, 1988), 9; Schurz, *The Manila Galleon.* The voyage from Manila took approximately five and a half months. The voyage to Asia took approximately four months.

11 It was the Augustinian priest Andrés de Urdaneta who was credited with figuring out the northern current (on an expeditionary voyage with Miguel López de Legazpi), which enabled voyages to return from Asia to the Californias. Carla Rahn Phillips, "Spain and the Pacific: Voyaging into Vastness," *Mains'l Haul- A Journal of Pacific Maritime History*, Vol. 41:4 & 42:1 (Fall 2005-Winter 2006), 9.

12 Gerhard, *Pirates on the West Coast*, 61-80; Schurz, *The Manila Galleon*, 303-305.

13 Ibid., 17.

14 Boxer, *The Portuguese Seaborne Empire*, 106-127; Schurz, *The Manila Galleon*, 30-31, 293-295, 303-357.

15 Cortés had led the first aborted attempt at colonization of Baja California between 1533 and 1535. This operation was motivated in part by exaggerated reports of the region's potential as a pearl fishery, Peter Gerhard, "Pearl Diving in Lower California, 1533-1830," *Pacific Historical Review*, 25(1956):239-249. A hostile environment and Indian resistance put an end to this effort.

16 Schurz, *The Manila Galleon*, 305-313.

17 Antonio de la Ascensión (Herbert Eugene Bolton, translator and editor), "A Brief Report of the Discovery of the South Sea." (an account of the Vizcaíno expedition of 1602-1603) in Bolton, *Spanish Explorations in the Southwest*, 104-133; Zephryn Engelhardt (Fray), *Missions and Missionaries of California*, volume 1 (Baja California), (Santa Barbara: Mission Santa Bárbara, 1929), 40-45; Schurz, *The Manila Galleon*, 232-34).

18 Vizcaíno planted only one colony in Baja California, which was ultimately abandoned in circumstances similar to those that had seen the end of Cortés' effort.

19 See **Additional Sources** for further study of this pivotal era in Spain's history.

20 Phelan, *The Hispanization of the Philippines;* Schurz, *The Manila Galleon*, 24-26.

21 Gerhard, *Pirates on the West Coast*, 12-13, 101-132; Schurz, *The Manila Galleon*, 342-57.

22 Ibid., 293-94.

23 Protestant rebels had instigated a revolt in what would become Holland in 1566. Dutch privateers raided the Pacific ports of Peru for the first time in 1599. Another expedition attacked Spanish vessels in the Philippines in 1600, Gerhard, *Pirates on the West Coast,*102-104.

24 Schurz, *The Manila Galleon*, 342-47.

25 Known to the Iberians as "Pechelingues," a term derived from the name of the Island port of Vlissingen, or Flushing, in the Low Countries.

26 Charles E. Chapman, *A History of California-The Spanish Period*, (New York: MacMillan Company, 1921), 172; Engelhardt, *Missions and Missionaries*, 80; Gerhard, *Pirates on the West Coast*, 101-194.

27 In 1632, 1664, 1668, 1679 and 1683, unsuccessful attempts were made to establish a permanent outpost in Baja (Lower) California, Engelhardt, *Missions and Missionaries*, 81-92.

28 Schurz, *The Manila Galleon.* The most famous of the early shipwrecks was that of Sebastián Rodríguez Cermeño, which took place in 1595. He managed to return to New Spain using a small launch.

29 Michael W. Mathes, *Vizcaíno and Spanish Exploration in the Pacific Ocean, 1580-1630*, (San Francisco: San Francisco Historical Society, 1968).

30 Schurz, *The Manila Galleon*, 99-128.

31 The decline of Spain's naval power may well be related to a number of complex issues involving Hapsburg interests (which were not always the same as Spain's). Perhaps a major factor was the departure of the brain trust represented by the elite strata of Jews and Muslims who were forced out of the Iberian Peninsula. These groups represented important forces in the advances made in the previous century. Another important force was the tendency of the Hapsburgs to favor merchants and industrial capacity in other areas of the empire. In general, the specific rights *(fueros)* held by Spanish kingdoms and towns made the crown seek to promote industrialization and increased productivity in the Spanish Low Countries, where their control was more absolute. Finally, it might be simply the case that the Hapsburg rulers of the empire became less competent over time. In the end, the entire edifice of the state became a shadow of its former self. At the same time, England and France experienced a significant economic revival.
(See **Additional Sources** for further reading on Spain in the Pacific and in the Californias.)

32 Harbron, *The Spanish Navy*, 14; Herbert Ingram Priestley, *José de Gálvez: Visitor General of New Spain, 1765-1771*, (Berkeley: University of California Press, 1916), 13; Schurz, *The Manila Galleon*, 49-50.

33 Ibid., 301.

34 Chapman, *A History of California*, 174; Engelhardt, *Missions and Missionaries*, 102-103.

35 The War of the Spanish Succession was waged between 1702 and 1713.

36 The French even replaced the Iberian merchant fleets during the struggle to establish Felipe V on the throne, Gerhard, *Pirates on the West Coast*, 201, Schurz, *The Manila Galleon*, 296. The French role in Spanish maritime activities ended in 1717, after the Iberian conquest of Sardinia provoked a British-French compact. The Spanish-French alliance was renewed in 1733 with the Treaty of El Escorial.

37 Priestly, *José de Gálvez*, 14-15.

38 Gerhard, *Pirates on the West Coast*, 211-15, 226.

39 Schurz, *The Manila Galleon*, 243.

40 In 1726, the royal shipyards at both Cartagena and Havana were rebuilt, Harbron, *The Spanish Navy*, 34. Carlos III would eventually expand the navy from 37 to 67 ships-of-the-line, C.J. Esdaile, *The Spanish Armies of the Napoleonic Wars*, (Manchester: Manchester University Press, 1988), 88. In 1788, the Spanish Navy was the largest in the world, Harbron, *The Spanish Navy*, 7.

41 Harbron, *The Spanish Navy*.

42 The Dutch nation was not inclined to send expeditions to attack the western coast of North America after the Treaty of Westphalia in 1649, Gerhard, *Pirates on the West Coast,* 132. However, Dutch, French and English pirates and privateers continued to undertake hostile operations in the region. There were also numerous attempts at large-scale smuggling operations, Ibid., 197-226; Harbron, *The Spanish Navy*, 79. In 1747, ships of the Dutch East Indies Company peacefully visited the California coast, Peter Gerhard, "A Dutch Trade Mission to New Spain, 1746-1747," (*Pacific Historical Review*, 23(1954):225-226), Schurz, *The Manila Galleon*, 301-302.

43 Christon I. Archer, "The Political and Military context of the Spanish advance into the Pacific Northwest Coast," in Robin Inglis (editor), *Spain and the North Pacific Coast: Essays in Recognition of the Bicentennial of the Malaspina Expedition, 1791-1792,* (Vancouver: Vancouver Maritime Museum Society, 1992), 9-17, Schurz, *The Manila Galleon*, 297.

44 Harbron, *The Spanish Navy*.

45 John Galvin, "Supplies from Manila for the California Missions, 1781-1783," *Philippine Studies Quarterly,* 12(3)(1964), 494-510.

Additional Sources:

There are 241 microfilm reels taken from the Provincias Internas section of the Archivo General de la Nación, México, detailing the history of the northern provinces of New Spain from the early 1700s to the early 1800s. SDSU F-2545, reels 1-241.

Juan Gil, *Mitos y utopias del descubrimiento*, Vol. II: *El Pacífico* (Madrid: Alianza Editorial, 1989). This remains one of the most interesting studies on the Spanish Pacific.

Matt K. Matsuda, "The Pacific," *The American Historical Review* 111 (no. 3, June 2006): 758-780. Provides a very general overview of the historiography of the Pacific, not just restricted to Spain.

Greg Bankoff, "Depends Which Way the Winds Blow: The Shape and Pulse of Spain's Pacific Empire," *Mains'l Haul*, Vols. 41:4 & 42:1(Fall, 2005/Winter, 2006,14-23.

Carla Rahn Phillips, "Spain in the Pacific: Voyaging into Vastness," (same issue), 4-11.

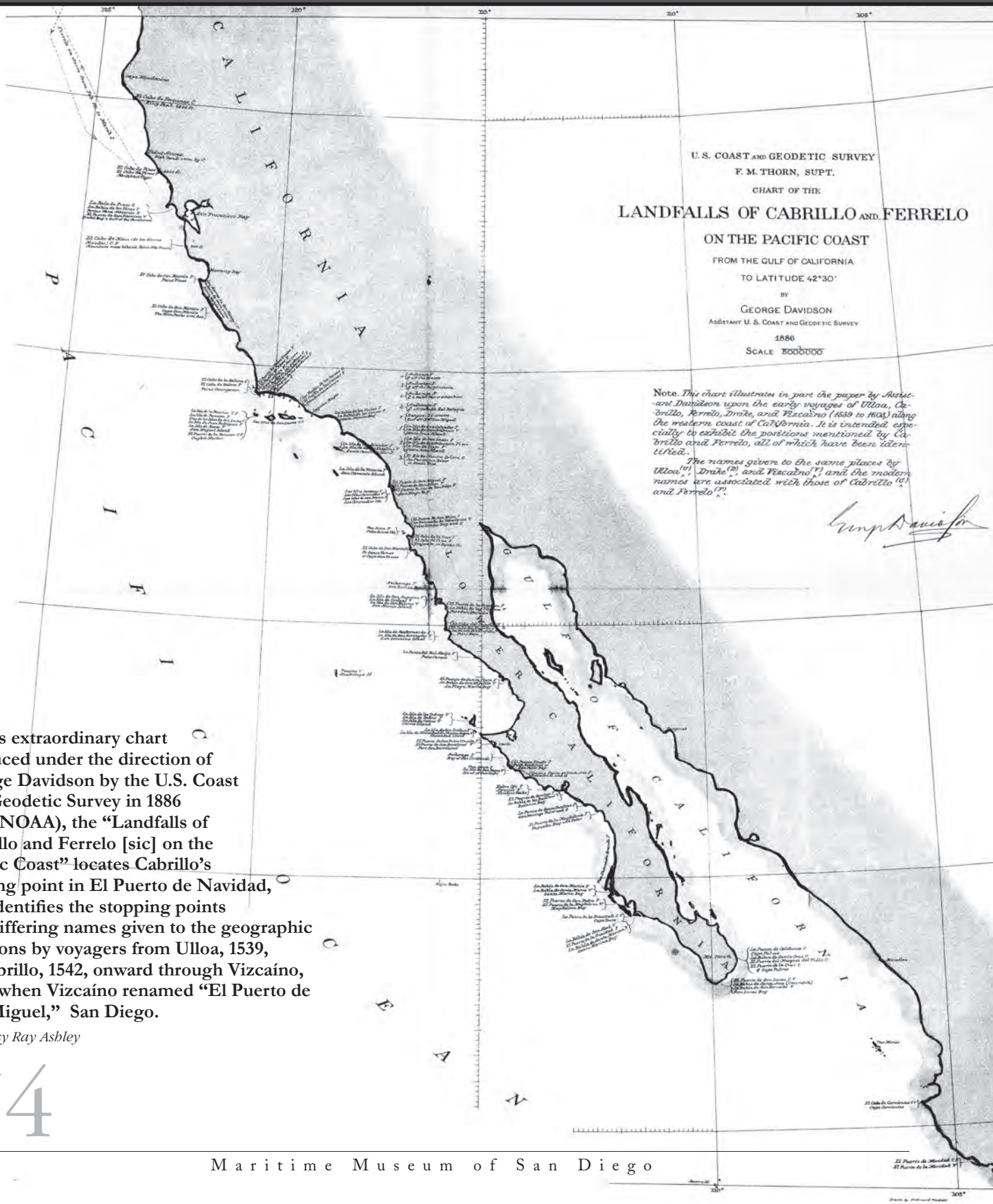
El Galeón de Manila (Catálogo de la Exposición), coordinated by Marina Alfonso Mola and Carlos Martínez Shaw (Madrid: Ministerio de Educación, Cultura y Deporte, 2000). Esp. Carmen Yuste, "Un océano de intercambios," 138-214. Also (although no connection to geographic San Diego), the chapter by Alfonso Mola and Martínez Shaw, "Un mirocosmos: el *San Diego*" about the recovery of remains (with elegant illustrations) of a ship of that name that sank after defeating a Dutch attempt to take Manila in 1600, 259-275.

K. N. Chaudhuri, *Trade and Civilisation in the Indian Ocean: An Economic History from the Rise of Islam to 1750* (Cambridge: Cambridge University Press, 1989). Esp. ch. 6., "The sea and its mastery," 121-137, and ch. 7, "Ships and shipbuilding in the Indian Ocean," 138-159.

Stefan Smith, "The Pacific World, 1500-1900," *Itinerario*, vol. 30, no. 1, 83- 91. Reviews Annickk Foucrier, ed. *The French and the Pacific World, 17th-19th centuries* (Ashgate, 2005); Lionel Frost, ed. *Urbanization and the Pacific World, 1500-1900* (Ashgate, 2005); Tony Ballentine, ed. *Science, Empire and the European Exploration of the Pacific* (Ashgate, 2004).

Chiyo Ishikawa, *Spain in the Age of Exploration, 1492-1819,* (Seattle: Seattle Art Museum, 2004)

A Voyage Recounted



In this extraordinary chart produced under the direction of George Davidson by the U.S. Coast and Geodetic Survey in 1886 (now NOAA), the "Landfalls of Cabrillo and Ferrelo [sic] on the Pacific Coast" locates Cabrillo's starting point in El Puerto de Navidad, and identifies the stopping points and differing names given to the geographic locations by voyagers from Ulloa, 1539, to Cabrillo, 1542, onward through Vizcaíno, 1602, when Vizcaíno renamed "El Puerto de San Miguel," San Diego.

Courtesy Ray Ashley

By Neva Sullaway
with contributions by Raymond Ashley, Ph.D.,
Timothy Runyan, Ph.D., Alex Roland, Ph.D.
and Iris Engstrand, Ph.D.

If you have ever cast off lines from a dock, the feelings never really leave you – of anticipation, of excitement tinged with a little fear. Your throat might be slightly drier than usual while unwinding the bowline from the dock cleat, but as you move away from civilization, an ever so slight hint of breeze created by forward motion releases the hesitation and you are away.

Sunday morning 22 June 2008, we set out from the lively working harbor of Santa Barbara. We're trailing the wake of Juan Rodríguez Cabrillo with a mere four hundred and sixty-six years separating our voyages. Skipper Ray Ashley, President and CEO of San Diego's Maritime Museum, accompanied by his daughter Brienne; Tim Runyan, Manager, Maritime Heritage Program, National Marine Sanctuaries, NOAA (on leave from East Carolina University); Alex Roland, Professor of History, Duke University, and I head out to sea on *Cassiopeia*. Named for the constellation known in Greek mythology as the "Queen" as she sits regally in the Milky Way among a group of bright stars, Cassiopeia is best seen in a winter's night sky. As a 39-footer, based on the sturdy Westsail design, *Cassiopeia* feels strong at the outset and will soon prove her worth.



Crew (seated left) Neva Sullaway, (right) Brienne Ashley, (standing left) Tim Runyan, (right) Alex Roland and skipper Ray Ashley prepare to cast-off lines and venture to the Channel Islands from Santa Barbara Harbor to retrace Juan Rodriguez Cabrillo's flagship *San Salvador's* passage 466 years ago along the California coastline and outer islands. The 2008 captain and crew did indeed experience a Voyage of Discovery.

Photo by Steve Sullaway

There is a question I must ask each time I find myself in slightly peculiar circumstances: *What am I doing here?* Indeed, why would three Ph.D.s, an editor and a college student set off for San Miguel Island thinking they were about to find Juan Rodríguez Cabrillo somewhere out there among the Channel Islands. *Was this a reasonable pursuit?*

As Ray had previously discussed, the intent of the short voyage was to encourage discussions (and insights) concerning the Age of Exploration, the relationship of the oceanic sailing ship to civilization, of navigation to rationalism, and to actually experience a voyage (however minimized and less crude) in the same waters Cabrillo had sailed, with the same kind of sea conditions he had faced.

The plan was to sail west until nearing the latitude of Pt. Conception then lay off on a reach to San Miguel Island, much as *San Salvador* had been forced to do on her attempted passage of Pt. Conception. *San Salvador's* mission, of course, had been a bit grander than ours – to reach the Strait of Anián and to discover the route to the riches of the Far East. Still, like Samuel Eliot Morison in search of the real Christopher Columbus, we embarked believing that we could gain insights into the original voyage denied to land-bound historians ruminating in their cells.

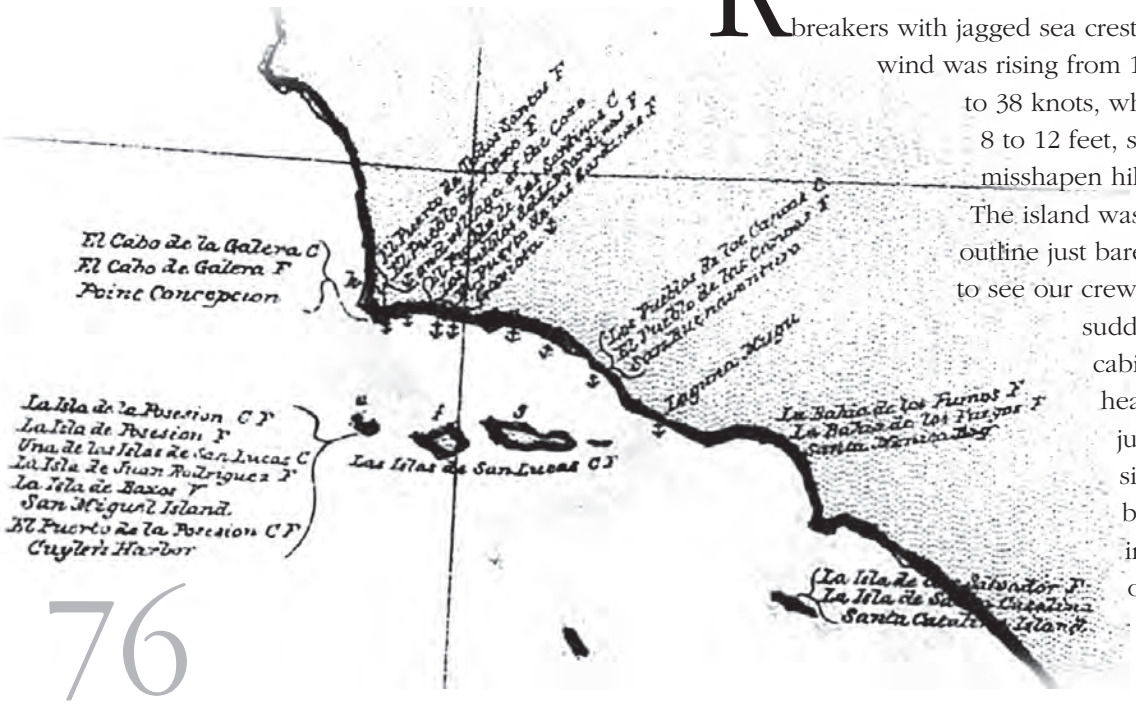


San Miguel Island

Photo by Robert V. Schwemmer, Maritime Heritage Coordinator, West Coast Region, NOAA-Office of National Marine Sanctuaries

I begin to imagine San Miguel Island as a cold, unforgiving place as the wind and swell kick up near Pt. Conception. Though we had been underway for six hours, it all seemed to change in an instant. Lazy billowing sails suddenly needed reefing, not one but two reefs, and the sea was quickly on the rise. The rhythmic sea swell was no longer, it had turned angry and treacherous.

Rollers had given way to a confluence of counter-currents and winds all at odds and building into steep breakers with jagged sea crests pelting the hull. The wind was rising from 15 to 20 knots, then 25 to 38 knots, while the swell rose from 8 to 12 feet, sending us pounding into misshapen hills and gullies of seawater. The island was hidden in the mist, the outline just barely visible, when I turned to see our crewmate Tim, below deck, suddenly thrown across the cabin into the galley...thrown head first into the port dogs, just below where I'm sitting. I can see clearly beyond the ripped flesh into his skull before blood obliterates the view.



Six and a half hours later we are back in Santa Barbara Harbor, having been monitored by Coast Guard personnel prepared to send a helicopter if Tim's wounds bring on symptoms of concussion or shock. Twelve hours after that we prepare to embark again. Tim returned to the dock at sunrise, having spent much of the night in the emergency room getting nineteen staples in his scalp and sporting a head bandage that made him look like a refugee from a Lon Chaney movie. Still, he had slept enough to recover his sea legs and his taste for adventure. I have not forgotten, however, about Cabrillo nor how he died, possibly, at San Miguel Island (called La Posesión by the Spanish explorers; the location of his death is still a source of much contention among our scholars[1]) from a broken leg and/or shoulder injury; how weakened he might have been from scurvy and how gangrene would have set in. I've seen a scraped leg go septic in a matter of hours in the tropics. I have that image firmly embedded in memory – of the flesh being eaten to the bone.



Skipper Ray Ashley at the wheel of *Cassiopeia* on our approach to Santa Cruz Island.

Photo by Tim Runyan

In any case, we set off again, with our sails reefed well before the wind kicked up and with a renewed appreciation for Cabrillo and his shipmates, who did not have the benefits of modern medicine, VHF radio, the Los Angeles Coast Guard, GPS, an automatic pilot, or a roller-furling jib…not to mention my double-stuffed flotation jacket.

We set our new course for Painted Cave at the northwesterly end of Santa Cruz Island, but it's apparent as we knock into the 8- to 10-foot swell that a heavy surge will make anchoring and exploring the cave too dangerous. Ray supplanted our disappointment with stories of his previous journey (with his family) into the dark cavern. The size of it, nearly a quarter of a mile long and 100 feet wide, seemed unbelievable. It was hard to envision rowing into such a dark void and I was not sure I wanted to, but curiosity would have certainly won out had the seas cooperated. Most amazing was the thought that we were about to make landfall on an island where evidence had been unearthed suggesting habitation by an early maritime people who may have been among the first to colonize the New World (on Punta Arena, Santa Cruz Island, radiocarbon dates place such habitation at 8,400 years ago).[2]

We sailed a southeasterly course along the coast making six knots under stays'l alone, searching the small coves, etched from the sharply-sculpted shoreline, for a safe anchorage. My initial impression as the land swept by us was how inhospitable and barren it looked, with parched scrub and only a rare out-cropping of trees. We finally set anchor in Pelican Bay, well-named for its inhabitants.



As the light lowered we could view our own "Painted Cave" while anchored in Pelican Bay on Santa Cruz Island. These were time-eroded walls telling ancient stories in sandstone, bronze and gold tones.

Photo by Neva Sullaway

Discussions

The morning offered a pleasant opportunity for "discussions," with the boat rocking gently in the protected cove, while we were under a constant assault by hungry seagulls and pelicans. Ray reviewed Cabrillo's history: his arrival in Cuba at a young age, his subsequent involvement with Aztec conquests, settling in Guatemala where he would eventually build his fleet and set sail for the mythical land of California with all its promised riches, then farther on in search of the Strait of Anián.

What does this have to do with our twenty-first century existence? We are endeavoring to recreate Cabrillo's ship. With modern tools and modern materials, the Maritime Museum of San Diego will reconstruct history by building the *San Salvador*, an enormous undertaking. I dare not ask the question *Why?* But Ray answers the question before the question can be posed. In order to do this he has to translate his passion into words, and they are very clear and well considered.

> *The ship is the conveyance of our history from the time of the first water-borne vessel moving along the Nile as early as 4000 B.C.E., to the establishment of maritime trades routes with Athens as the center* [ca 700 B.C.E.], *to Ptolemaic mariners from Egypt* [ca 100 B.C.E.] *learning from Indian and Arab seamen how to use the monsoonal winds to drive their ships across the Indian Ocean, along the trade routes. The ship then becomes the focal point, the construct upon which advancements in all of human history are built. It houses every key aspect of our past:*

survival, exploration, discovery, invention, science, technology, power, politics, economies of nations – it was the singular projection of man's inner forces, and purveyor of all he imagined in the outer world. The ship was the dominating force in shaping and reshaping our human history. Throughout most of history, it was mankind's most complex and powerful machine. And now the sailing ship is gone from maritime commerce and remains in our consciousness only through our custodial efforts in preservation, education and in our celebrations of the past.

My thoughts wandered toward Gordon Wood's book, *The Purpose of the Past.*[3]

He makes the analogy:

…history for a society is like memory for an individual. Without memory the individual is isolated, cut off from where he has been and who he is.[4]

And so, as caretakers of our collective maritime memory, I can assimilate the importance of preserving our past through the ship. Without it we are indeed adrift, set off on our twenty-first century island, spinning and swirling in the increasingly accelerated currents of change.

Tim considers the importance of the sailing ship in the historical context:

A ship is alive. It works its way through the sea by force of the wind, current and sail. Under the control of humans who have fastened rudders, tillers, masts, sails and tackle, the ship moves in directions within limits imposed by nature. Rudimentary in appearance, the full-rigged sailing ship was the most complex technological creation of Western society from the fifteenth century until the Industrial Revolution. The ship enabled man to shrink the globe, allowing the transport of people across the oceans and seas in numbers that could form sustainable communities. This enabled colonies such as those established by the English in Virginia, and the Spanish in Mexico. The ship was the agent of transportation, communication and control. The power of the ship was not just in huge timbers or towering masts, but also in the bulwarks bearing guns. Sailing ships became battleships. The Columbus-era ships were not built as warships, heavily armed, but they did carry firearms along with steel swords, pikes, and crossbows. The high-sided galleon, with its raised fore and aft castles provided protection and vantage points from which to return fire. The armed sailing ship enabled Europeans to impose themselves on much of the world…

But what can this sixteenth-century ship teach us now?

This question calls for a multi-faceted discussion of how we can utilize *San Salvador* as an experiential learning environment ranging from teaching kids teamwork, sail training, navigation, marine science, maritime





history and oceanography, to the possibility of using the ship as a research platform – a modern-day floating laboratory taking sea samples for oceanic genomic surveys under the auspices of the J. Craig Venter Institute in San Diego.

Imagine it: twenty-first century technology aboard the deep-bellied sixteenth-century galleon, but not so obvious to the modern eye as to infringe upon the authenticity of the ship; a return to the Age of Discovery aboard a ship whose original mission was just at the borderlands of imagination; aboard a ship that sailed north-by-northwest under dire conditions, searching for a mythical land and an oceanic route to the Far East. By building *San Salvador*, we could move into the past and reconstruct her passage along the California coastline, furthering our own studies of the past while utilizing modern research methods to study marine organisms, which could then become an invaluable resource for our future.

Alex turns our attention to a different matter, far from the twenty-first century.

Why do we keep calling this [Cabrillo's voyage along the West Coast] *the* Voyage of Discovery*, isn't that a little bit problematic?*

He points out:

> *…They* [the Spanish explorers] *were taking what they found and passing it through the filter of what they expected to find…their maps were a mix of what was on the surface and what they thought was on the surface, but there were people already there, the places had already been discovered…it was the Europeans coming with their worldview and mapping what they saw, overlaying it on top of what they expected to see, and to that extent, they were 'inventing' the new world, not discovering it…*

I can't help but interject:

> *The original stories or myths of discovery live with the Native Americans and yet what accounts do we have but European interpretations of their interactions with the Native Americans? In Cabrillo's voyage, for instance, his logs or direct accounts have never been located, so researchers*



In this illustration by Richard Schlecht (in cooperation with the National Park Service), Cabrillo's landing at Ballast point is imagined with Native huts and canoes nearby.

From An Account of the Voyage of Juan Rodríguez Cabrillo, *Cabrillo National Monument Foundation, San Diego, 1999.*

must then rely upon the accounts of the voyage based upon the testimony of the sailors as recorded by the notary of the Royal Audiencia, Juan León [1543]. *León's original report, however, was lost and only a condensed version remains. This condensed account was presumably transcribed by Andrés de Urdaneta* [he might have had access to Cabrillo's logs and charts]*, who then sent the report to Spain where it remains in the Archive of the Indies in Seville.*[5]

The so-called "first contact" accounts then are one-sided at best and are reconstructed stories of what might have occurred from the European vantage. An equally fascinating account, I imagined, might have been offered by the indigenous Americans had anyone transcribed their impressions at that time. How would the Europeans have appeared to them, approaching their shores from the forbidding sea in their strange, oversized, floating structures. Would they have thought these intrepid explorers divine or other-worldly, or is that simply a story we Westerners tell ourselves?

From various accounts, Cabrillo had peaceful interactions with the coastal natives as he sailed northward.[6] Off Catalina, the Spaniards saw numerous Indians dancing and shouting on the shore, making signs for them to land. Cabrillo reported:

Launching a fine canoe containing eight or ten Indians, they came out to the ships. These were given some beads and presents . . . The Spaniards afterwards went ashore and both the Indian men and women and everybody felt very secure.

Tim interjects:

Cabrillo was testing the unknown geography of the Pacific, searching for the imagined Strait of Anián. This was a Voyage of Discovery, not one of conquest. Cultures met, as at San Diego when the Kumeyaay faced Juan Cabrillo and his crew in their first encounter with Europeans. Three of Cabrillo's men were wounded by Kumeyaay bowmen while ashore. Cabrillo did not retaliate. Why? He had participated in attacks on natives in Guatemala under the aggressive Pedro de Alvarado that resulted in the deaths of many natives. Was this a new approach? Throughout the voyage along the Alta California coast, Cabrillo held his forces in check. This was in stark contrast to the tales told by the Chumash and others who knew of the killing and terrorizing of native peoples a short distance inland by members of Coronado's expedition in search of gold. Cabrillo's party, bearded and similarly dressed, signaled guilt by association. Yet the encounters rarely involved the use of force. Four natives did accompany the San Salvador's *surviving crew on the return voyage, allegedly so the Spaniards could learn their language. It is doubtful that the Spaniards knew that there were at least 22 linguistic families and 135 regional dialects to be mastered.*

Hispaniola, which Columbus believed was Cipango (Japan).



I interrupt our discussion of Cabrillo's voyage again, with the pressing, needling question, which I can't get off my mind: *Why weren't the Chinese making exploratory voyages east and south? What forces colluded in sending the Spaniards west and north?* What had pressed Spain, in particular, to explore the West at this particular juncture in history? Why not the Chinese?

This 1513 Ottoman Chart of the New World by Piri Reis, compiled from twenty Muslim and Western maps with a segment of Columbus' map (possibly copied from a map taken from a captured Spanish sailor who had sailed with Columbus), reflects the worldview after the voyages of Columbus.

After close analysis, some Piri Reis scholars concluded that the island (upper-left, appears rectangular) depicts Hispaniola and the peninsula to the northwest of it represents Cuba, also called Mangi, a large peninsula on the Chinese mainland.

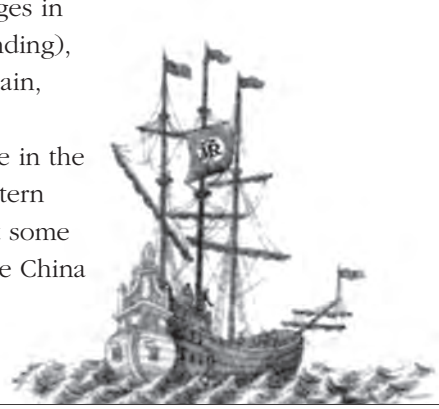
Illuminated Manuscript on Deerskin or Gazelle Hide, Topkapi Palace Museum, Istanbul, Turkey

Alex takes up the question with equal enthusiasm:

> *If you looked at the world from 1000 C.E. through 1500 C.E. China dominated that whole period. China was the richest, most powerful, most accomplished and the largest state, and that remained true as late as the eighteenth century. So, if you were going to hypothesize that one state was going to spread out and colonize the world and make these connections, it would surely be China…and why didn't that happen… Why did the West do it? …As you get closer to the Middle Ages, your second guess would have been Islam. Nothing in the previous history of the Iberian peninsula, save perhaps its role as an outpost of Carthage in Hannibal's attack on Rome, suggested the role it would play in the Western Age of Discovery. Over the course of three centuries, Portugal and especially Spain explored, seized, and clung to a worldwide empire that was the envy and ambition of its European neighbors. While the spreading Islamic empire remained land-bound, Europe came to control some 35% of the Earth's land mass, exporting Christianity, science, technology, and nascent capitalism and importing flora, fauna, minerals, crops, and slaves on a massive scale. Juan Rodríguez Cabrillo and his shipmates were the vanguard of this unprecedented maritime adventure, mapping and claiming the imperial outposts of what historian William H. McNeill has called "The Rise of the West."* [8] *It is neither triumphalist nor inaccurate to say that this activity changed the course of history and shaped the modern world – for better or for worse.*

Upon further research, I discovered that the Chinese had little interest in expanding across the Pacific. Because of the conservative philosophy of Confucianism, they looked inward. They exacted tribute from their neighbors – Korea, Vietnam, Thailand – in exchange for military protection. Because of a "middle kingdom mentality" and reliance upon an agrarian empire, they did not seek maritime expansion. On the other hand, Spain, having just completed an 800-year Reconquest defeating the Muslims and uniting the Iberian Peninsula, was ready to sponsor Columbus to look for a new route to India and send missionaries to continue their goal of religious unity. Islam, torn by internal dissension, was not ready for such an undertaking. Even though the Chinese had made preliminary voyages in 1421 with the armada of Zheng He (Gavin Menzies claims notwithstanding), they eventually recalled the ships and, instead of sending them out again, dismantled the fleet.[9]

Considering the worldview, this places Cabrillo in a supporting role in the great epic of the rise of the West. As he voyaged north along the western coast of the Americas, he expected to find the land mass connected at some point with the east coast of Asia, just as Columbus had expected to see China to the northwest of Hispaniola.



Ray is quick to add his viewpoint. He retraces the history of the Portuguese and Spanish expansion, their unrelenting take-over of trade routes after Columbus' initial discovery, noting that by 1505 essentially all the trade routes in the Indian Ocean had been taken over by the Portuguese permit system, then implemented by force and violence.

> *By about 1550,* Ray adds, *the combined Portuguese and Spanish Empires, counting their military, functionaries and administrators, came to about ten thousand people controlling the economic destiny of one-third of the world's population by virtue of their technological superiority. Perhaps it's the notion of profit and war combined that formed a uniquely European attribute and when they voyaged they were technologically composites of both. The movement of artillery onto sailing ships was a European advancement.* [10]

Alex remarks:

> *McNeill*[11] *suggests that the Chinese didn't take advantage of the possibilities open to them because they made a self-conscious decision that they already had the perfect state. They didn't need all the expanded trade…they had all they needed. Whereas the Europeans were fighting with each other for relative power and at the same time they had grown dependent, especially through the Crusades, on Asian goods that came through the Mediterranean and then passed overland, and that's how the northern Italian city-states were growing rich, the middlemen were growing fabulously rich…So, they figured out if they traded directly with Asia, they could eliminate the middlemen and thereby increase their fortunes. The Chinese, on the other hand, decided they didn't need it…they were a unified state and controlled by a strong central government and weren't fighting with each other. They were not of the mindset of competing for commercial advantage by expansion across the Pacific. So, this is the origin of modern Capitalism, and Capitalism drove the rise of the West.*[12] *It's interesting to view the rise of the West as a canonical account that begins with Columbus and the spread of Christianity, then reaches toward the west coast with California's discovery contingent upon the Spanish coming to California, exploring the coastal and inland routes and then leaving for a considerable length of time because neither the route nor the riches were found…*

Tim comments:

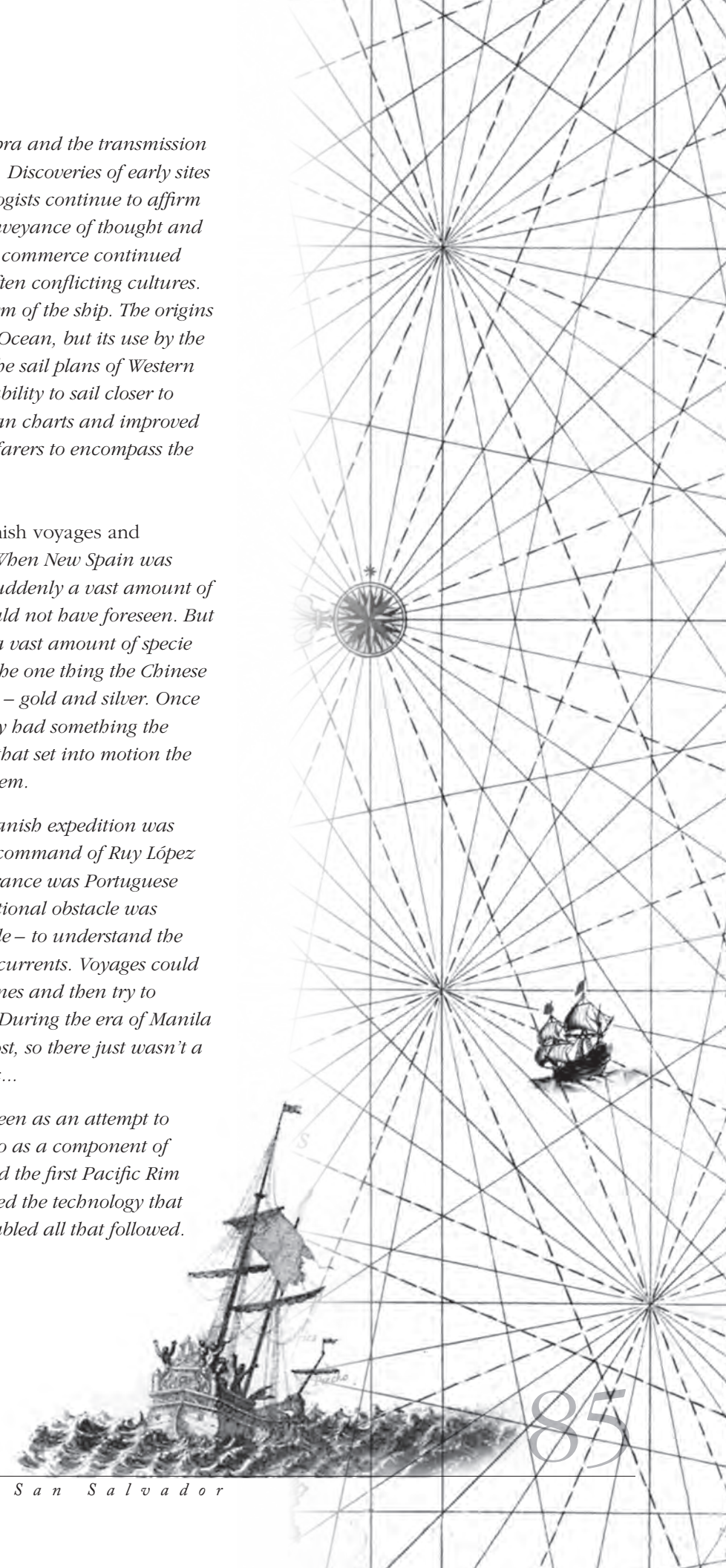
> *It is true that some historians offer an interpretation of Western civilization that moves geographically from east to west – from the Middle Eastern cultures of Mesopotamia and Egypt, to Greece, Rome, Western Europe, the New World of Atlantic Americas, and extending to the Pacific and Asia. But we have learned that this interpretation is incomplete. Significant contributions came from Asia, Africa, and the vibrant cultures inspired by the rise and expansion of Islam. The advance of mathematics and science were dependent upon the*

formulation of Arabic numerals, algebra and the transmission of Greek scientific thought to the West. Discoveries of early sites and shipwrecks by maritime archaeologists continue to affirm the central role of the ocean in the conveyance of thought and ideas as well as trade goods. Maritime commerce continued between merchants of differing and often conflicting cultures. This convergence is reflected in the form of the ship. The origins of the lateen sail extend to the Indian Ocean, but its use by the Arabs and subsequent adoption into the sail plans of Western vessels was of great consequence. An ability to sail closer to the wind coupled with rudders, portolan charts and improved navigational instruments enabled seafarers to encompass the earth.

Ray brings us back to the Spanish voyages and the purpose of our inquiry: *When New Spain was discovered and conquered, suddenly a vast amount of gold was found that the Spaniards could not have foreseen. But once it occurred, suddenly there was a vast amount of specie in the economic system and that was the one thing the Chinese desired that was outside of their realm – gold and silver. Once the Spaniards had gold and silver, they had something the Chinese were willing to trade for and that set into motion the nascence of a trans-world trading system.*

About the time of Cabrillo, another Spanish expedition was sent west across the Pacific under the command of Ruy López de Villalobos, 1540.[13] *The main hindrance was Portuguese control of the East Indies, but an additional obstacle was their inability to crack the oceanic code – to understand the direction of the prevailing winds and currents. Voyages could take up to a year to sail to the Philippines and then try to return via the northern Pacific route. During the era of Manila galleons more than thirty ships were lost, so there just wasn't a reliable route like crossing the Atlantic...*

In that light, Spanish voyages can be seen as an attempt to forge a pathway to China with Cabrillo as a component of the development that ultimately created the first Pacific Rim trading route. Ultimately, ships provided the technology that made expansion possible and they enabled all that followed.





An eroding arch at Santa Barbara Island reflects the power of the sea lashing against the small island for thousands of years.

Photos by Neva Sullaway

Our discussions at an end, it was time to haul anchor and make way south by southeast to Santa Barbara Island. We arrived late in the evening, just in time for a humorous interlude with flying fish flapping onto our decks, choosing the relative safety of the ship rather than the mongering of sea lions. After observing the crowd of seal lions at Landing Cove and the impressive sculpture of Arch Point, we weighed anchor fairly early the next morning and made way toward Catalina.

It was a surprising excursion. I had expected to be greeted by a number of fellow "yachties" on that summer's day. I never imagined glimpsing an ancient carved totem, a school of sharks, porpoises en masse, gaggles of birds – a coastline so incredibly alive that I felt surely we must be worlds away from the ten million people just twenty miles to the east of us.

Had we found Cabrillo in the Channel Islands? Did we successfully delve into four centuries past? Had we learned anything from our short excursion?

As my foot touched land, I realized I had ventured back more than 8,000 years in one week. I had touched the same stones where a native people had once lived thousands of years ago. I had sailed the same course as Cabrillo and viewed the Channel Islands from exactly the same vantage. We had been battered by the wind and the sea and had been turned away from Point Conception, just as the *San Salvador* had been.

My view of Cabrillo's voyage had been altered completely. Juan Rodríguez Cabrillo had sailed into the vast unknown with his small fleet, charting the coastline and offshore islands, communicating with the native people, eventually rounding Pt. Conception and sailing as far north as Pt. Reyes – it was a voyage of epic proportion. But it was also a voyage stripped of its glory as the fleet returned to New Spain without their captain, without riches and without a course made good to the Strait of Anián. Once contemplated, to recreate the *San Salvador* would be to recreate a stunning moment in our Pacific history – a voyage disrupted 466 years ago, now continuing toward the vastness that is our past, present and our future.



Notes

1 Cabrillo National Monument Foundation, *The Account of the Voyage of Juan Rodríguez Cabrillo,* (San Diego: Cabrillo National Monument Foundation, 1999), 78. See also Harry Kelsey, *Juan Rodríguez Cabrillo,* (San Marino: Huntington Library, 1986), 158-159.

2 Dr. Jim Cassidy, "The First Mariners of the New World," *Mains'l Haul*, Vol. 44, No. 3&4, (Summer/Fall 2008), 52.

3 Gordon S. Wood, *The Purpose of the Past* (New York: The Penguin Press, 2008).

4 Ibid. 7.

5 Harry Kelsey, *Juan Rodríguez Cabrillo,* (San Marino: Huntington Library, 1986), 72, 115; see also *An Account of the Voyage of Juan Rodríguez Cabrillo*, (San Diego: Cabrillo National Monument Foundation, 1999), 36, 37.

6 Kelsey, *Juan Rodríguez Cabrillo,* 143, 144.

7 Herbert E. Bolton, ed., "A Summary Account of Juan Rodríguez Cabrillo's Voyage," *Spanish Exploration in the Southwest: 1542-1706*, (New York: Charles Scribner's Sons, 1916), 23.

8 William H. McNeill, *The Rise of the West: A History of the Human Community* (Chicago: University of Chicago Press, 1963).

9 Gavin Menzies, *1421 The Year China Discovered America* (New York: Harper Collins Publishers, 2003).

10 Although the Chinese invented gunpowder ca 850 C.E.

11 William H. McNeill, *The Rise of the West: A History of the Human Community* (Chicago: University of Chicago Press, 1963).

12 Immanuel Wallerstein, *Historical Capitalism* (London: Verso, 1983).

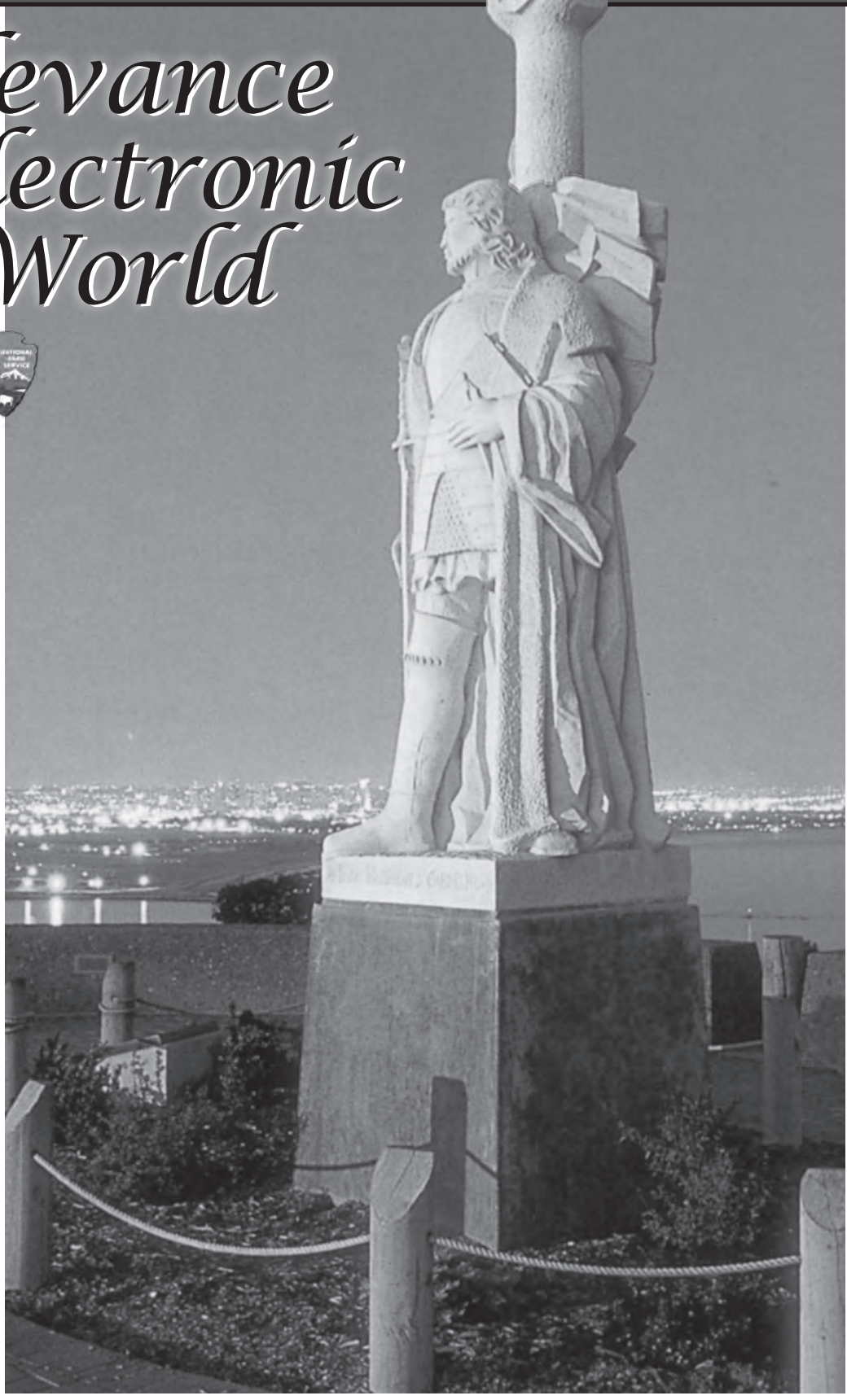
13 Henry R. Wagner, *Spanish Voyages to the Northwest Coast of America in the Sixteenth Century,* (San Francisco: California Historical Society, 1966), 57.

Experience from the Bunkers:

Site Relevance in an Electronic Media World

By Robert Munson, Historian,
Cabrillo National Monument

One of the five primary interpretive themes of Cabrillo National Monument is the story of the Spanish exploration of the Pacific in the sixteenth century. We emphasize the Cabrillo expedition of 1542 as the first European contact with Alta Californian. Not surprisingly, our main challenge in presenting this historic moment in our nation's history is our lack of a tangible link to that time. While we have a one room exhibit on Juan Rodríguez Cabrillo and his voyage, with replica artifacts from that era and other displays, surveys indicate that only



The 14-foot-high limestone statue of Juan Rodríguez Cabrillo stands atop the Point Loma headland, overlooking the city of San Diego and the Pacific Ocean.

Courtesy Cabrillo National Monument
Photo by Richard Cummins

Bob Munson served in the U.S. Navy and was staff researcher at the U.S. Naval History Division and Head of the Naval Photographic Section. After his service, he was a field archaeologist for the Museum of Northern Arizona, Curator of the Bisbee Mining and Historical Museum, and Architectural Historian for the Arizona State Historic Preservation Office, spanning twenty-six years in Arizona State Parks. This included eight years as a Ranger Historian and ten years as Manager of Fort Verde State Historic Park. During this time, Bob also taught history for Yavapai Community College and for the Arizona Historical Society. He has been Historian and Curator at Cabrillo National Monument for six years. Bob has been involved in Living History as both a learning and teaching tool for over thirty years.

three percent of our visitors spend more than ten minutes meandering through the exhibit space. We, in fact, have no tactile means of immersing our visitors in that era, except with our Living History program.

Presentations last about forty minutes, which means we rely on four times the attention span given to the exhibit area, to bring Cabrillo, and the significance of his voyage, to the public. We have seen how important this interpretive approach is in engaging our visitors.

That is why we are excited about the proposed building of Juan R. Cabrillo's flagship, *San Salvador*, and we are working closely in partnership with the Maritime Museum of San Diego. We hope to use our experience in presenting sixteenth-century Living History and place it in the magnificent context provided by the *San Salvador*.



Living History Volunteer Al Wolfing discusses 16th Century navigation and worldview with a young visitor.
Photo by Nancy Munson

Context is critical to understanding

Recently, we have been presented with discouraging observations from both teenagers and young adults: *We don't really need national parks or museums anymore. We can do everything via the Internet, iPod, Wii™, TV, movies….*

It has been suggested in the media that as high as ninety percent of the American public derives its post-high school graduation knowledge of history from movies. The Internet, which can be an invaluable research tool, has been demonstrated to have a great deal of misinformation which repeats earlier mistakes, or takes as fact mere surmise, opinion, or biased interpretation.

If parks and museums are to survive and continue their educational role they must retain a relevance to the public who ultimately are called upon to support them. The common question is: *Why should we put a lot of money into an historic (or natural) resource when that money could update classrooms and/or buy media equipment for schools.* The answer is: **Context, a sense of place, a sense of involvement with something tangible – the ability to make a connection.**



Pictured are Living History volunteers and staff at Cabrillo National Monument who work tirelessly to engage the public and share their knowledge of the sixteenth century. By actively engaging visitors they hope to enliven a portion of our nation's history that helped shape our culture. (From left to right are: John Golda, Patricia Hensner, Al Wolfing, Sue Thing, Eric Thing, Ray Hamel, Sydney Zamudio, Bob Munson, Nancy Munson and Mike Love.)

Courtesy National Park Service

View from the Bunkers

For example, Cabrillo National Monument has a number of bunkers left over from the coast defenses of World War II. So far none of these have been open to public visitation. Yet we get inquiries and requests daily from visitors clamoring to go inside a bunker. These bunkers are concrete boxes buried in the ground. Even when active they were spartan in the extreme. There is nothing to see from the inside except the eclipsed view seaward through an eight inch vision slit in the concrete. Despite this, on those occasions when we have been able to let visitors into a bunker, the effect has been amazing. The visitors were able to absorb the stark reality of that empty concrete box by being physically and emotionally immersed in it. Electronic media can't replace the physical sense of place, even if that sense is physical discomfort.

On one occasion we had a visitor who had spent two and a half years in one of our bunkers during World War II. We allowed him to go into his old bunker. He drew quite a crowd while conversing about his day-to-day existence in the bunker during the war. He noted that the bunkers were cold, the food terrible, watches were 24-hours long, there were no toilet facilities, and he was bored out of his mind. So bored, despite being safe and close

to one of the best liberty towns in the U.S., he finally requested transfer to a combat unit in Europe. The crowd, of all ages, was enthralled. Why? Because they were engaged with a piece of history told by a man who was there and in the very place it happened.

While we cannot achieve the same level of involvement with a sixteenth century Spanish voyage, we can provide the human and experiential link in an accurate context. Our sixteenth-century Living History program at Cabrillo National Monument is conducted in a building built in 1966. Military aircraft screech overhead from North Island Naval Air Station. We speak English, not sixteenth-century Spanish or Portuguese, and, obviously, we can't really be 450 years old. Yet, visitors set aside these intrusions, and move with us into the re-creation of another

The key to understanding our history is to remember that history is not just names, dates, and places – it is people.



Park Ranger Patricia Hensner helps a young visitor try on the clothes she would have worn had she lived in Guatemala in 1542.

Photo by Nancy Munson

era. We become so real to them that many adult visitors converse with us as sixteenth-century personalities rather than as Rangers in funny clothes. With this temporary suspension of belief and a journey back into history, we hope to continue to make the experience real and alive. From this perspective, we look forward to engaging our visitors at Cabrillo National Monument and on the Maritime Museum's *San Salvador*.

What I hear, I forget;
What I read, I remember;
What I do, I understand.

–Ancient Chinese Proverb

Cabrillo National Monument is not just a memorial with a big statue. We are here to help visitors understand a part of our history. It is a history which helped make us the people we are today and which will influence our nation's direction in the future. Historiographer and filmmaker Ken Burns argued recently for the relevance of historical context:

When we're armed with an historical awareness, we are enriched in every dimension. We can solve complex political (and social) problems in the present, ensure ourselves a future, and come to value the importance of place.



Above: Despensero Bob Munson watches over a young visitor who is amazed and intrigued by the size and weight of 1542 armor.

Photo by Nancy Munson

There are a number of Living History interpreters at Cabrillo National Monument. Seven of them portray people who were involved in the great Spanish mapping expeditions of the 1500s, particularly the Cabrillo Expedition. These voyages explored a world as unknown then as outer space is now, using equipment so crude by comparison that it's hard to imagine it. The courage it took to sail a ship, no bigger than a school bus, into an ocean of unknown size, is illustrated by its tragic dimension – on average, half the Spanish explorers never returned – they either disappeared or died on the expedition.

During our Living History presentations we involve the audience by asking volunteers to try the equipment or the clothing worn 450 years ago. To experience the clothing of 1542 is an exercise in courage in its own right. This is something virtual reality can't achieve. Just as jeans and t-shirts

are the status clothes of today's youth, the clothes modeled for the audience were the status symbols for the men and women of New Spain in the sixteenth century. Through the process of putting each item on, the volunteer, in turn, not only shows how Spanish colonial men and women dressed, but gives each member of the audience a physical connection with the past. They learn about such things as the sumptuary laws that dictated what each class of person was allowed to wear in Spanish society. Metal fibers in cloth, decorations, trim, jewels, and pearls were all carefully restricted to higher classes to protect their status and standing in society.

We have had a number of young people participate in these demonstrations and the experience has sparked the inspiration to learn more about Spanish history, their own heritage, and clothing styles in different eras. The feelings, inspiration, and connection experienced may propel a young person into a career in teaching history, or archaeology, drama, theatre costuming – there are endless possibilities. Finally, it has demonstrated that *doing* is often more interesting than *watching*.

When the *Niña* replica was at the Maritime Museum of San Diego five years ago, the most common reactions were: *I can feel it move! What was it like back then? How did they live in such a small place? What did they eat? Where did they sleep?*

As the immersion programs aboard the Maritime Museum's *Star of India* and *Californian* already demonstrate, you don't have those moments of recognition and questioning when seated safely and comfortably on a sofa at home with a remote control in your hand, or with the computer screen, keyboard and mouse in front of you.

Imagine the impression, standing on board the *San Salvador*, immersed in a world fashioned from the past, enlivened by a crew telling stories of their voyage, then your hand reaches out and touches the sixteenth-century ship…

What I do, I understand.



Courtesy Cabrillo National Monument, Painting of the San Salvador *by Richard DeRosset*

San Salvador: the Voyage

by Susan Sirota,
Director of Education, MMSD

On any given school day visitors to the Maritime Museum of San Diego will encounter a gaggle of kids preparing to step back in time as they board our historic vessels. Our ships and collections represent San Diego's impressive maritime heritage and bring our educational programs to life for thousands of school children each year. For some, it is the first time they have ever stepped on a boat, even though they have lived their entire life within fifteen miles of the ocean. As a shipboard teacher, I've seen the impact of these experiences, ranging from the simple to the profound, and the life-long memories culled from active learning aboard our ships.

Instructor Al Sorkin directs his crew as they prepare to raise the morning colors.

Photos from the MMSD Education Dept. Drawings Courtesy the Cabrillo National Monument,Cabrillo Festival Art Contest 2008 (by fourth graders in San Diego-area schools)



of Discovery comes to Life



Susan Sirota joined the Maritime Museum of San Diego staff in 1998 and has been the Director of Education since 2001. Her responsibilities include managing a staff of instructors who teach the science and environmental programs, public programs and Living History programs for the museum. In addition to her role as Education Director, Ms. Sirota has taken on a variety of projects such as administering the Elderhostel program, coordinating a submarine exhibit, and project manager for Festival of Sail 2002. Ms. Sirota moved to San Diego after receiving her graduate diploma in planning and design from the University of Melbourne, Australia, and a Master's Degree in environmental studies. After returning from overseas, she served as an AmeriCorps Watershed community coordinator and developed several community environmental education projects. Ms. Sirota came to the Maritime Museum staff from the San Diego County outdoor education office in order to develop the *Pilot* program.



When the Classroom Sails

The value of school field trips is well documented, but it is our own memory of an elementary outing that tells us the "out-of-the-classroom" experience can be profound. Ships offer a different environment from the traditional school setting, thereby creating a unique educational platform from which students can literally be immersed

in the collective bulwarks of history. The addition of the *San Salvador* to our educational fleet opens possibilities for many new and collaborative opportunities. This article will briefly review the current education programs offered at the museum and explain how the museum intends to implement and integrate the *San Salvador* as an educational platform and expand the museum's capacity for hands-on educational experiences for more diverse audiences.

Ask most educators and they will tell you that field trips are an important component of school instruction. They enable teachers to expand children's learning beyond the walls of the classroom into the vast community outside, providing children with experiences that cannot be duplicated in the school but are nonetheless an integral part of school instruction. Perhaps a field trip can best be described as a living laboratory in which learning is acquired through active hands-on experience utilizing the rich resources of the local community.

Research has shown that field trips are important for many reasons: they increase student knowledge and understanding of a subject, they add realism to the topic of study, and they provide an opportunity to develop and enhance a student's socialization and citizenship skills. For these reasons, programs developed at the Maritime Museum of San Diego have paid special attention to using our collection of ships as primary resources, while providing real application, hands-on learning experiences.

Many Schools already come from Chula Vista Elementary School District.
We have the Board's approval and they love the fact that we learn history while living history.

Tiffany Elementary, Chula Vista

⚓

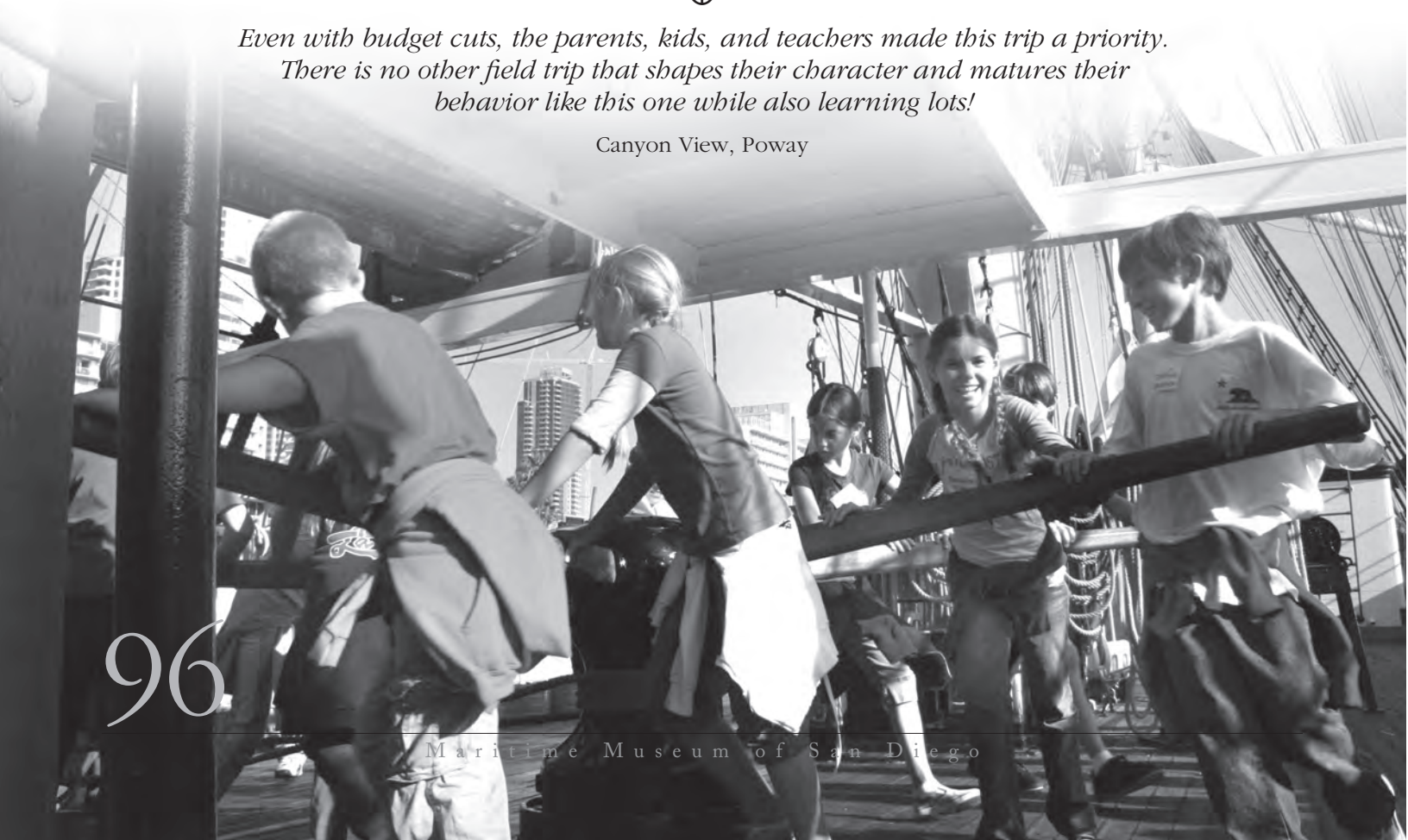
The crew did an outstanding job making 1851 come alive for the kids.
This program deserves all the support it can get.
Please, please, please keep it alive for future students.

Empresa Elementary, Lemon Grove

⚓

Even with budget cuts, the parents, kids, and teachers made this trip a priority.
There is no other field trip that shapes their character and matures their behavior like this one while also learning lots!

Canyon View, Poway



I felt this to be a very intimidating experience – this is not a criticism. IT WAS GREAT! All the information given to us was so…so Important. I learned so much about myself. I loved sitting back and watching, I loved all the orders and information….. It's awesome and fantastic and 200% well done.

Clearview Charter School, Chula Vista

⚓

Teaching the students how to work as a team is paramount. The crew did an exceptional job leaving no student behind. The history lessons were great! The stories tied together and kept the interest of the students. I applaud each and every one of you for putting your passion into your work. It truly shows you love your job and Thank You very much for this learning experience!

Project Exploration, Arizona

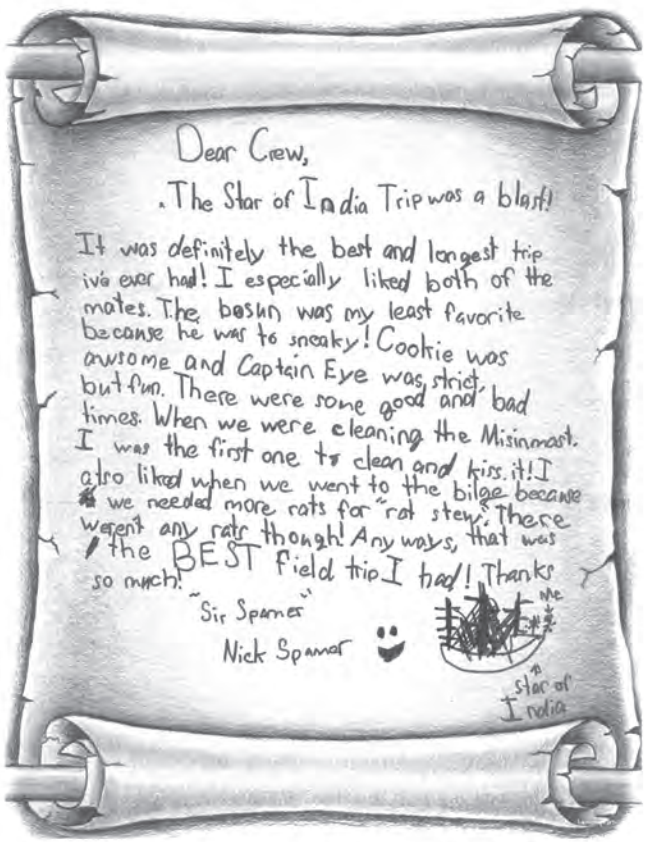
Many Compass Points in Learning

Our understanding of the role of education programs in the museum setting has come a long way since the museum first opened. It comes with the realization that not only do educational programs offer students the opportunity to learn and experience the resources of the community, but also that education programs exist as a repository for people to share their cumulative knowledge and experience. Subsequently, there are several different types of educational programs offered at the museum, and



The MMSD volunteer Sail Crew demonstrate "in-service learning" aloft.

they are administered through different departments, or by dedicated volunteer groups. For example, the original community members who helped restore and later crew the *Star of India* were "learning" as they worked; today we would categorize this as "service learning." As a teaching methodology "service learning" integrates meaningful community service with instruction to enrich the learning experience, to teach civic responsibility, encourage life-long civic engagement and it strengthens the community network for the common good. (And, as anyone who works on ships can tell you, it's a life-long passion.) Our current museum volunteer Sail Crew (157 members in 2009) are organized and administered by the Event and Maintenance Departments. The Sail Crew still tar rigging and sand decks, but they are also enrolled in a sail training program complete with a specialized curriculum, course work and required testing, and supported by its own online newsletter, the *Euterpe Times*. Likewise, museum tours started with a group of wives from the museum membership, leading people of all ages through the *Star of India*. Today, close to 9,000 students a year tour our ships' collections with the help of our volunteer docents numbering 115 active members. The docents undergo an annual twelve-week training & lecture series, complete with curriculum, and its own *Docent Log* publication. The essential partnership between museum staff and volunteers is solely responsible for these important programs and, in turn, for their link to the greater San Diego community.



The Maritime Museum's Education Department is made up of 20 to 30 staff instructors and conducts specialized Living History and science of seafaring programming, primarily for elementary grades K-5 during the traditional school-calendar year. During the busy season, it is typical for us to have three and sometimes six programs per day. Most of our participants come from San Diego city and county schools. The ability to leave the dock with our two operational vessels, *Californian* and *Pilot,* allows us to offer educational daysails, team building, and bay ecology programs for secondary school groups. All of these programs take advantage of the unique shipboard platform, allowing us to use the environment as an integrated context for learning, which has proven to enhance academic performance, improve discipline, thinking skills and interpersonal abilities, resulting from the use of the community and natural environment as a focus for learning in all subject areas. These programs attracted over 15,000 participants last year. And to the extent possible, every young person is encouraged to understand that forever afterward this is *their* ship – it belongs to them (and they belong to her) for the rest of their life, and with that belonging comes the obligation to take care of her and protect her. Within the context of the Maritime Museum and its caretaking responsibility for our maritime history, this is a sacred covenant from one generation to the next. For instance, the *Star of India*'s covenant is now eight generations old.

To the extent possible, our education programs address California State standards for the grades which they are developed. The most popular programs are the 18-hour overnights aboard the *Star of India* and

Californian where instructors interpret the years: 1774 on the eve of the American Revolution, 1851 and the Californian Gold Rush, and 1877 in the great Age of Sail with its immigration themes. While our Living History programs are the most popular and address the state standards, they do not necessarily relate specifically to San Diego's maritime past or to the individual ship's story. To date, the collection of ships that make up the Maritime Museum of San Diego contains only one vessel that actively tells a local story.

Pilot – A Small Workhorse with a Large Story to Tell

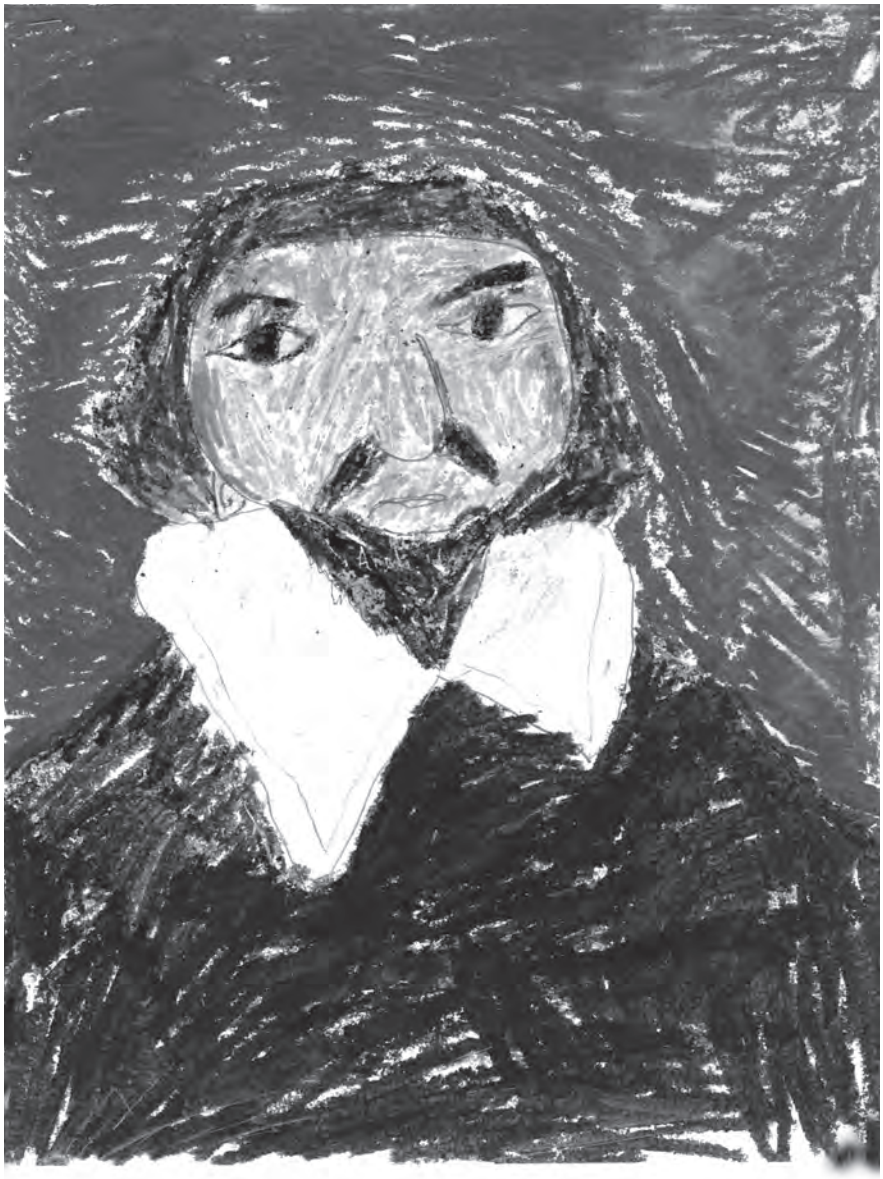
The success of our *Pilot* Program, which explores the local history of the Bay through exhibits at the museum and water quality testing, has shown us the power of connecting students with their local environment. Although *Pilot* is used for an ecology program, students learn the history of the Bay while exploring the link between our maritime resources and our economy. They learn firsthand how those resources have helped shape San Diego's development as a city.

A unique aspect of the *Pilot* program is that the vessel itself represents the ever-changing environment of the Bay and has been an integral part of bringing economic change to San Diego. When large vessels enter harbors, pilot boats escort a pilot, who is a licensed Captain with a thorough knowledge of the harbor. Pilots guide the visiting vessel to its docking location. *Pilot* was built in





1914 at Manuel Goularte's boatyard at the foot of Hawthorne Street and served as the pilot boat for San Diego harbor for eighty-two years. During this time span, *Pilot* saw many changes, from the shipping trade, to the physical and economic changes of the Bay, to a growing military presence, and the rise and fall of our fishing industry, until her retirement to the Maritime Museum of San Diego in 1996. We use *Pilot's* own story to teach our students San Diego's vibrant community history.



Fourth Grader at Dailard Elementary, Richie Gonsalves, skillfully captures his image of Juan Rodríguez Cabrillo.
Courtesy Cabrillo Festival Art Contest 2008

San Salvador – *Time Travel to the Past, Cultural link to the Present*

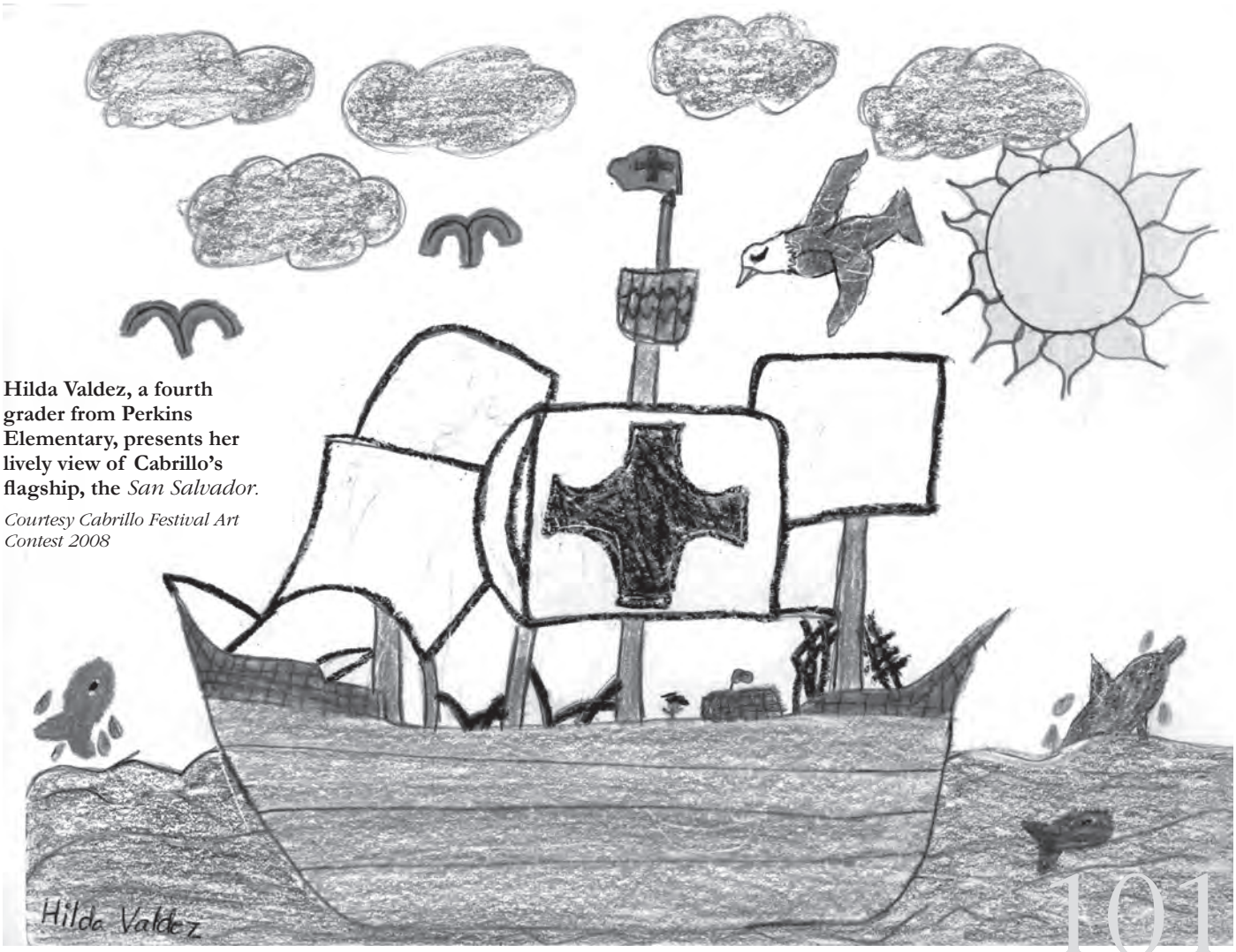
Themes within collections often only emerge when a collection grows. The addition of the *San Salvador* to the educational fleet will give the museum an opportunity to reconnect each individual ship's history to a chapter in local, regional and global maritime history. Moreover, once the *San Salvador* is built we will be in possession of an "origin" ship to tell each of these stories chronologically, as a visitor moves from deck to deck. The *San Salvador* is the logical beginning – it is the first European ship that led to the placement of San Diego on European maps, even though it was under a different name (El Puerto de San Miguel). All societies have their origin stories: Romulus & Remus as the "founders" of Rome, the great canoe voyage from the mythical Polynesian homeland Ha'vai'ke for the Maoris, the First Fleet for Australians, the *Mayflower*, for the British Colonies, etc. For California, the origin story begins with the *San Salvador;* hence the voyages of exploration, in general, and Cabrillo, in particular, are taught to all fourth graders in the state.

It is the beginning of the story for California's maritime history and it allows us to develop a West Coast Explorers unit and curriculum resource, something our teachers have asked us to develop on our feedback forms for the past ten years. The figure of Cabrillo might be a statewide icon, yet Californian fourth graders can rarely tell us about his mission and how it affected California's

history. With the growing Hispanic population in our schools, it would be helpful for students to be able to identify with stories that are relevant to their ancestry. Traditional U.S. history textbooks often begin with Columbus and the colonization of the eastern seaboard, while West Coast exploration spanning parallel time frames only occupies a few sentences. Because there is so little published regarding Juan Rodríguez Cabrillo's voyage of 1542, we have to utilize different types of resources including primary and secondary accounts of the voyage (in the case of Cabrillo, the original logs have been lost). Most importantly, it requires collaboration with leading national scholars, the Cabrillo National Monument and master teachers skilled in the creation of this new curriculum resource. It is anticipated that much of the curriculum used for this program will be generated by schoolteachers who will utilize the resources through a series of summer workshops while *San Salvador* is being built. Of all the ships to tell California's story, there will not be a better deck to walk across than that of the *San Salvador.* It will give students a sense of traveling back in time, while allowing them to safely experience what it was like to be the first Europeans to sight San Diego Bay and to proceed north, into the vast unknown, against strong winds and contrary currents, in a crude wooden ship that was perhaps about the same size of the school bus the students arrived in at the Museum.

To date, there is no other ship in existance that would more directly connect students to West Coast exploration than the *San Salvador.*

The addition of the *San Salvador* allows us to tell a local and regional story on the actual ship upon which the story unfolds. It is anticipated that students will come for a one-hour tour led by a combination of Living History instructors and volunteer docents. This sort of programming will provide a greater number of students with the magical experience of living history combined with a tour coordinated with our Californian



Hilda Valdez, a fourth grader from Perkins Elementary, presents her lively view of Cabrillo's flagship, the *San Salvador.*

Courtesy Cabrillo Festival Art Contest 2008

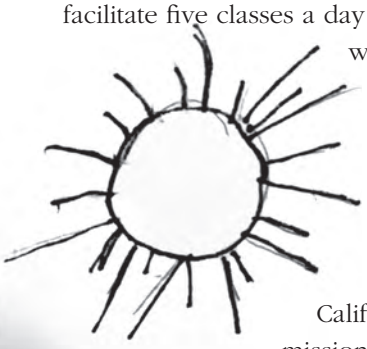




Above left: Artwork by Dana Dalton, St. James Academy.

Above Right: Artwork by Olivia Mott, St. James Academy.





State content standards. The shorter format of this program will allow us to facilitate five classes a day in addition to our regular programs. A major focus will cover standards relating to the description of the social, political, cultural, and economic life and interactions among people of California from the pre-Columbian period to the Spanish mission and Mexican rancho periods. The choice of our characters allows us to describe the Spanish exploration and colonization of California, including the relationships among soldiers, missionaries, and Indians (e.g., Juan Crespi, Junipero Serra, Gaspar de Portolá). For example, visitors will meet with a conquistador who will help students understand: who was Juan Rodríguez Cabrillo? What was life like onboard? When and where did they voyage? What was their mission? They will be able to help identify the early land and sea routes to California and European settlements in California, with a focus on the exploration of the North Pacific (e.g., by Juan Cabrillo, Vitus Bering, Captain James Cook), noting the importance especially of mountains, deserts, ocean currents and wind patterns. Next they will meet with a Franciscan Friar who will explain: who were the missionaries? Why were the missions established? What role did they serve in the development of the state of California? Where were the missions located? They will describe the mapping, geographic basis, and economic factors in the placement and function of the Spanish missions, and understand how the mission system expanded the influence of Spain and Catholicism throughout New Spain and Latin America. Overall, they will be







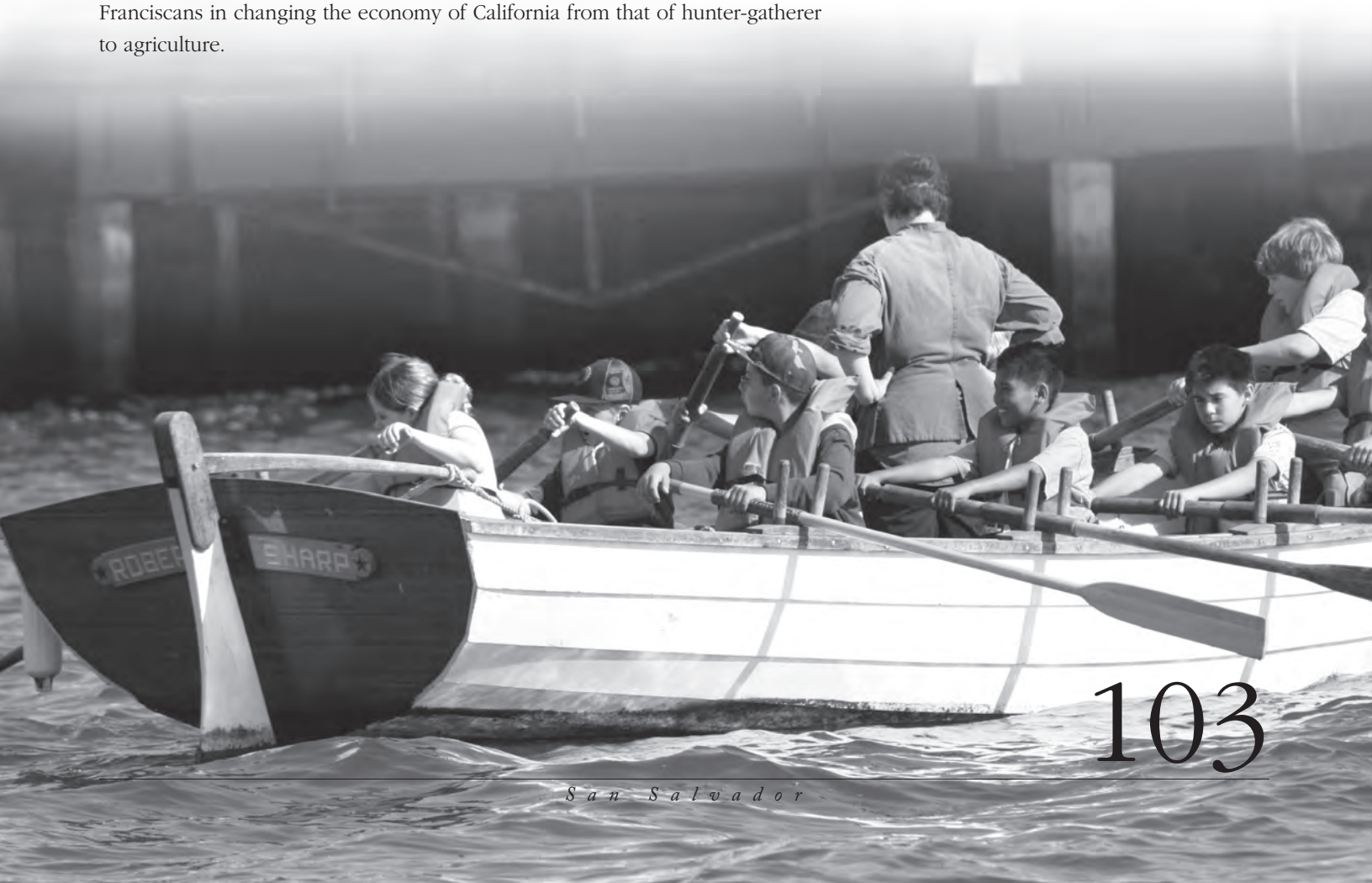
able to describe the daily lives of the people, native and non-native, who occupied the presidios, missions, ranchos, and pueblos of California. And, lastly, students will meet with a Kumeyaay Native American who will explain: Who were the Kumeyaay? Where and how did the Kumeyaay live? What happened to them with the invasion of the Spanish and the missionaries?



Above Left: Artwork by Alyssa Carroll, St. James Academy.

Above Right: Artwork by Ciara O'Shea, St. James Academy.

Our Kumeyaay discussions will include the major nations of California Indians, their geographic distribution, economic activities, legends, and religious beliefs, and describe how they depended on, adapted to, and modified the physical environment by cultivation of land and use of sea resources. Extension activities will allow students to discuss the role of the Franciscans in changing the economy of California from that of hunter-gatherer to agriculture.

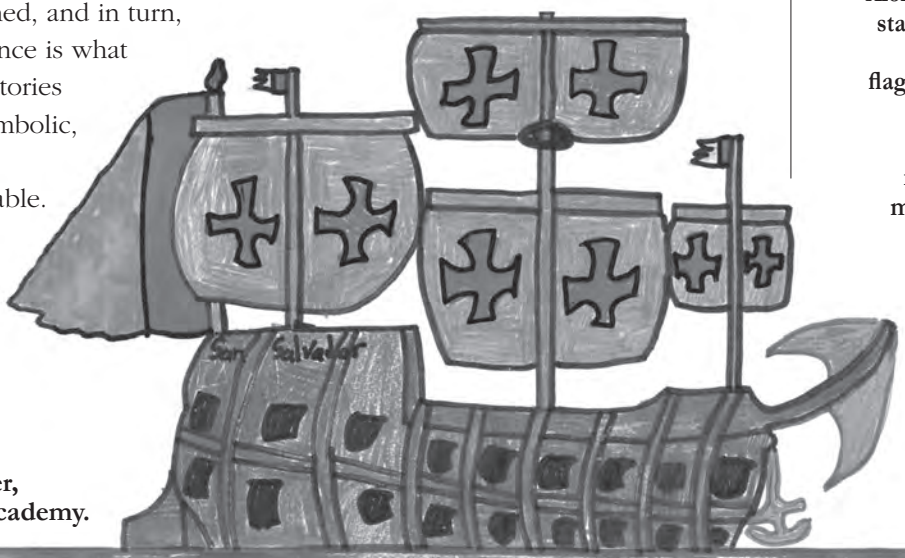








While the value of school field trips can be found in educational literature, we know firsthand from our own experience and evaluations given to teachers at the conclusion of our programs of their profound impact on students. Due to the unique environment of the ship, the total immersion in another time can allow students a hands-on experience that connects a wide range of learning styles, intelligences, and maturity levels, allowing all students to go away with a greater appreciation and understanding of the choices people faced in the past. The *San Salvador,* in addition to the other ships in our collection, has the ability with its narrative to leave students with the impression that *the world we live in was not inevitable; in fact, it was never even very likely*. Unlike the way history is normally taught in a classroom, the past is not a script to be followed by actors played out to a foregone conclusion. There is a reason for this sense of predetermination: history is the search for cause and once established, cause is expressed as dogma, and inevitability is the natural conclusion. Detachment and boredom soon follow. However, people in the past never knew how it was all going to turn out. Instead, the world we now live in had to be created as it was lived, not passively watched unfold by spectators. In keeping with this notion, the world we give to the future will likewise have to be imagined and created, even though we will never know how it will all turn out and if it is the way we want it to be. With this awareness comes a sense of the power of individual action, our responsibility for its consequences, and our obligation to act in good faith. In metaphorical terms, those two things – presented as the **ship** and the **voyage**– can be experienced rather than explained, and in turn, that experience is what makes our stories uniquely symbolic, compelling, and memorable.



Artwork by Cole Mueller, St. James Academy.

Inside Back Cover: San Diego fourth graders Hilda Valdez (left-from Perkins Elementary) and Arturo Ontiveras (right-from Birney Elementary) present their imagery of Cabrillo's arrival in Alta California.

Alongside the US 29¢ commemorative stamp, maritime artist Gordon Miller created another view of Cabrillo's flagship *San Salvador* as she rounded Point Loma in 1542.

Other works from our collective imagination include this colorful mural featuring the *San Salvador*.

From the interior mosaics inside the Avalon Casino, Catalina Island. Photo by Ray Ashley

The San Salvador

Conjured in our Imaginations

Will Sail Once Again



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Exquisite Miniature Ships in Unbelievable Proportion



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of this publication.



HMS *Victory* by Robert Hewitt

Miniatures were generously leant for this exhibit from the private collections of Gus Agustin, Rod Cardoza and Becky Cardoza/West Sea Antiques, Bob Fivehouse, John Fox III, Robert and Laura Kyle, Robert Hewitt, Lloyd McCaffery, Tim Riggs, Philip Toy, and Meriel Joyce Woods. The Maritime Museum of San Diego is deeply appreciative of the support of these individuals, without whom this exhibit would not have been possible.

The curators also wish to extend a particular note of thanks to the Newport Harbor Nautical Museum and San Francisco Maritime National Historical Park for the loan of models for this exhibit.

All photos by Ted Walton Photography

Exquisite Miniature Ships in Unbelievable Proportion

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September 5, 2009 – May 31, 2010



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

MASTERPIECES *in* MINIATURE

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From the Helm

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



Thousands of tourists and local San Diegans pass by the Maritime Museum of San Diego on a daily basis, catching a glimpse of what is undoubtedly one of the most extraordinary collections of historic and replica vessels in the world. The mission of the museum is to preserve these iconic vessels from our oldest acquisition, the *Star of India*, to our latest, the USS *Dolphin*. Over the decades, the museum has also dedicated itself to encouraging onlookers to cross the gangplanks and experience the many faces of life at sea that are encapsulated in the unique stories each of our ships tells. Our aim and hope is that they will disembark with a new appreciation for these machines built to harness and overcome the forces of nature.

Conserving and interpreting vessels in a scale of 1:1 is central to the museum's reason for existence, making it the home of the maritime story of the West Coast. Perhaps less obviously, the museum is also home to a marvelous collection of model ships. Despite their diminutive dimensions, these miniatures also have a special role to play in encapsulating and depicting our maritime history. Lovingly crafted over the decades by master modelmakers, they are our hidden jewels. It is therefore more than fitting that we should host for the second time in less than a decade a truly awe-inspiring exhibit of miniatures whose dimensions and detail rival that of the famed Fabergé Imperial Eggs. *Masterpieces in Miniature* bring together the creations from some of the most important contemporary artists in the field of ship modeling. In their work, fidelity to accuracy and scale combine seamlessly with artistic flair to produce truly inspiring miniatures. Beautifully detailed models created by prisoners of war embody the ideal of artistry triumphing over adversity. The open hulls and decks of the Admiralty-style models draw us within, providing an education in naval architecture. Waterline galleons glide naturally through carved seas, reminding us of an era of exploration and discovery. Highly detailed naval vessels seem to exemplify the ascendancy of technology in modern warfare. Collected together in this exhibit, these ships illustrate a narrative mirroring the broader story our museum strives to tell. Each of our vessels forms part of this vibrant narrative – frequently neglected in both local and global history – that the ship in all its permutations and adaptations has played a vital and transformative role in human societies and cultures.



Morning Light by Lloyd McCaffery

Lloyd McCaffery sculpted this delicate figure of a now lost figurehead, from a pen and wash drawing by John W. Mason done in the mid-1800s. The figure is carved from boxwood with a pearwood base, and is only three inches in length. The bow was carved from two separate pieces of boxwood. These were soaked in water and then shaped.

An Overview of Masterpieces in Miniature

Kevin Sheehan, Ph.D. Curator/Manager of Collections



In 2001 the Maritime Museum of San Diego hosted an exhibit entitled *Masterpieces in Miniature* under the direction of the previous curator of models, Bob Crawford. Bob collected dozens of miniatures by contemporary masters in the art of modelmaking, creating a superb display. The current *Masterpieces in Miniature* follows the high standards set in 2001. We have adopted the well accepted standard that a true miniature should be of a scale of 1/16 inch to the foot (1:192) or less. Many of the modelers' names will be familiar to those who visited the first exhibit – Gus Agustin, Robert Hewitt, Lloyd McCaffery, Tim Riggs, and Phil Toy. For the most part, their works are held in private collections, and we are fortunate to be able to offer the broader public a rare glimpse of the results of years of their research and craftsmanship. We are also privileged to display for the first time a model of the USS *Oregon* by the unquestioned master in the art of constructing miniature ships, Donald McNarry. As a collection it is no exaggeration to state that the miniatures presented here represent some of the finest works of art in this genre in existence.

This exhibit was designed with the express purpose of not only showcasing the extraordinary modeling techniques of contemporary masters, but also of demonstrating the changes over time that have occurred in the art of miniature ship modeling. The last 200 years of history have had a profound impact both in terms of development in subject matter and also in the evolution of techniques and materials employed. Despite this, there are essential continuities between the exquisite bone models produced in British prison depots two hundred years ago, the charming sailor-made models of the nineteenth century, and the stunning replicas crafted by twenty-first century miniaturists. All these works inspire wonder and awe, and invite the viewer to enter into another world and another time, as argued by the French philosopher Gaston Bachelard in his *Poetics of Space:*

> ***…the minuscule, a narrow gate, opens up an entire world. The details of a thing can be the sign of a new world which, like all worlds, contains the attributes of greatness. Miniature is one of the refuges of greatness.***

We invite you then, to enter through this narrow gate, and to marvel with us, at these superb Masterpieces in Miniature.



Figurehead by Lloyd McCaffery



HMS *Surprise*

HMS Goliath

Artist: French prisoner of war

Full-hull prisoner-of-war model, c. 1803-1815 ❖ LOA **(Length Overall)** 7 ¼″
From the collection of Meriel Joyce Woods

HMS *Goliath* was a seventy-four gun third-rate British Navy ship-of-the-line. Launched at Deptford dockyard in 1781, *Goliath* saw action during some of the most important naval engagements of the Revolutionary and Napoleonic periods, including the Battle of the Nile in 1798, and the Battle of Copenhagen in 1801. This model was made by a French prisoner of war, ca. 1803-1814, and displays some of the classic features of the materials and methods associated with this genre. The turned wooden guns are retractable, being made to run in or outboard. The hull is constructed from planks of pinned boxwood strips. The ship's boats, figurehead, and cross trees are of bone, and display finely carved details. The model is enclosed in its original straw marquetry case, decorated with parquetry designs, and set on four turned bone feet. While named ostensibly after a ship of the Royal Navy, in common with other models made by French prisoners, the scale, lines, and detailing probably have more in common with the French vessels on which its makers would have served rather than any ship-of-the-line in the British fleet.



Royal Navy sixty-four gun ship-of-the-line

Artist: French prisoner of war

Full-hull prisoner-of-war model, c. 1803-1815 ❖ LOA 4 ¼″
From the collection of Meriel Joyce Woods

This prisoner-of-war model represents an unnamed sixty-four gun British warship of the Napoleonic period. Prisoners of war used a variety of materials to produce ship models. Their capacity to adapt artistic and professional skills to a less than perfect working environment indicates something of the indomitable nature of the human spirit, and proves once again that inventiveness finds a natural seedbed in necessity. The French prisoners who produced these miniatures wasted little or nothing of the relatively meager resources at their disposal. Tools were either manufactured within the prisons or bartered from the merchants who regularly visited the thriving markets that grew up in the shadow of prison depots like Dartmoor, Perth, and Norman Cross. Of the raw materials ingeniously employed by prisoners of war, bone was of prime importance, and this at least was cheap and readily available. It is estimated, for example, that meat from five or six bullocks was delivered to the prison depot at Norman Cross on a daily basis. Understandably then, the majority of models produced by prisoners of war were manufactured from bone, with finer detailing in baleen, horn, brass, and wood. The extensive use of ivory throughout this model, however, together with its small scale and fine detailing, suggest the work of a group of highly skilled artisans, and the pocketbook of a rather wealthy client.



Royal Navy ship-of-the-line

Artist: French prisoner of war

Full-hull prisoner-of-war model, c. 1803-1815 ❖ LOA 12 ½″

From the collection of Rod Cardoza, West Sea Antiques

This model exemplifies the principal characteristics of many French prisoner-of-war models. It is made primarily of bone, laid over a carved boxwood hull. The modeling method generally employed by the prisoners of war – that of pinning bone planks to a wooden hull – is readily seen here. It is mounted on its original base of bone and ebony. The rigging has been executed with thread.



Construction Techniques

The construction of miniatures would have been a cooperative venture, rather than the effort of one modeler. A close examination of models of this style reveals them to be the result of techniques akin to those used in a production line. The more enterprising and entrepreneurial prisoners would assemble a group of craftsmen with particular specialties often stemming from their pre-conscription professions – carpenters, cabinetmakers, straw marquetry artists, and carvers. Those with less skill might be employed in the preparation of bone derived from the prodigious quantities of meat delivered to the prison depots on a daily basis. The carving of hulls might be delegated to prisoners with an intermediate range of talents. The true artists focused on carving figureheads and stern galleries. French officers granted privileges of parole in local villages, allowing prisioners the freedom to both cultivate clients and negotiate the acquisition of more expensive raw materials such as ivory and ebony.

Dieppe School ship diorama

Artist: Dieppe school

Waterline diorama, c. 1820 ❖ LOA 4 ½″

From the Richard Steele Collection at the Newport Harbor Nautical Museum

Model ships and nautical dioramas made at the French port of Dieppe in the wake of the Napoleonic wars can be considered the inheritors of the prisoner-of-war modelmaking tradition. Dieppe had been a center for artistic and artisanal activity in the eighteenth century before the Revolutionary and Napoleonic period. Indeed it does appear that many Dieppe craftsmen, having been conscripted into the French Navy, would have had the misfortune of residing in British prisons for long periods during the Napoleonic wars. Having honed their skills by producing models for an admiring British public, in peacetime the prisoners of war returned to France to take up their professions once again. With more plentiful resources, and less harrowing circumstances, Dieppe artisans produced exquisite miniatures well into the 1830s.

This diorama displays the exceptional craftsmanship of the modelers of this school. The model forming the centerpiece of this diorama is made of ivory in its entirety, including its solid carved hull, all the ship's fittings, sails, and rigging. This gives a delicate and translucent quality, particularly when compared with bone prisoner-of-war models. It is set with a dispatch cutter on a carved sea, mounted on a wooden base decorated with ivory motifs, finely turned finials, and surmounted by carved urns, statues, and floral representations.





The *Falls of Earn*

Artist: Unknown

Sailor-made model ❖ Late Nineteenth Century ❖ LOA 10 ⅛″

From the collection of Becky Cardoza, West Sea Antiques



The *Falls of Earn* was a four-masted iron-hulled vessel of 2,386 tons gross, 302.6 feet long, built and launched at Greenock, on the River Clyde, by Russell & Co. in 1884. She was the sixth in a series of eight iron-hulled vessels named after Scottish waterfalls. Her career was relatively short-lived. She capsized and sank in 1892. This polychrome waterline model is set in a lively sea base carved from wood. All sails are set, and together with the white-capped waves the modelmaker clearly wished to give an impression of speed. It is a fine representative of a genre in ship modeling known as the "sailor-made" models.

Sailor-made Models

The majority of these models were made during the 19th century. This period witnessed the ultimate development of the oceanic sailing vessel as a means of extending imperial ambitions, national defense, long-distance commerce, and overseas immigration. Miniatures of this genre were crafted by sailors from their professional knowledge of the working of ships. They were constructed without the advantages of detailed plans depicting lines or rigging diagrams. Like the prisoner-of-war models, these works may well show signs of disproportion, or a lack of true attention to scale. However, they also reveal their makers' intimate knowledge of the mechanics of sailing square-riggers. Their rigging, as in this case, is executed with faithful attention to detail, no doubt gained through years of experience before the mast. Generally speaking, these models were of a small scale, necessitated by the lack of space on board ships where they would have been crafted. They are mostly waterline models, thus avoiding the challenge of representing portions of the vessel unavailable to the maker's eye. Detailing such as ships' wheels, binnacles, and capstans are represented with an "impressionistic" license rather than devotion to complete accuracy. Small fittings like blocks and anchors could be made from lead, while the sea base was carved, usually from a single block of wood. Like most other sailor-made models, the *Falls of Earn* has been colored to present a lifelike appearance.

The *Alice M.*

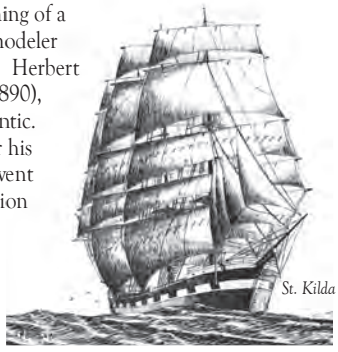
Artist: Herbert Falkland Seeley

Sailor-made model ❖ LOA 5 ¾″

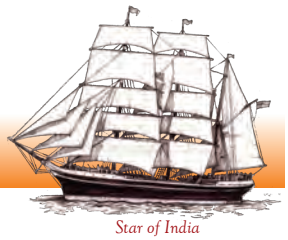
From the collection of the Maritime Museum of San Diego.



This miniature of the *Alice M.* exhibits all the hallmarks of a classic sailor-made model. This two-masted brigantine is rendered with a relatively rough technique. With a lack of sophisticated materials, specialist tools, and in an environment where space was no doubt at a premium, the result was a rustic feel of the model, and was much in keeping with the sailor-made genre. The *Alice M.* is nevertheless something of a rarity in the world of sailor-made models, in that the modeler and other aspects of his artistic talent are known to us. Herbert Falkland Seeley was born onboard a square-rigger (in 1890), captained by his father, while sailing in the South Atlantic. The nearest landfall, the Falkland Islands, accounts for his middle name. Following in his father's wake, he also went to sea. His artistic talent is found in an eclectic collection of works now conserved at the Maritime Museum of San Diego. These include original line drawings of sailing ships and steamers, silhouette style drawings of sailing vessels, and a rare "silk-work" depiction of the *St. Kilda* on which he was born.



St. Kilda


Star of India

HMS *Resolution*, 1667

Artist: Gus Agustin

Half-hull model ❖ Scale 1:384 (1/32 inch = 1 foot)
LOA 5 ¾"



The *Resolution* was built by Sir Anthony Deane at Harwich in 1667, and displays many of the characteristics of other mid-to-late seventeenth-century warships. Brightly painted and richly decorated with carvings, she was intended to be a powerful statement of English naval might and prestige of the Crown. Royal vessels of this size might be conceived of as floating extensions of the baroque façade of palace buildings. Splendor and firepower thus combined to become a visual expression of power.

The model of the *Resolution* illustrates a superb combination of craftsmanship and historical accuracy. This is not only an example of masterful modelmaking, but also a lesson in the utilization of historical, artistic, and archaeological resources with the aim of producing the most accurate rendition possible.

Details for the construction of this model were taken from historical sources, including Deane's *A Doctrine of Naval Architecture*, published in 1670. Drawings and paintings of HMS *Resolution* by Willem Van de Velde the Younger also furnished important details. Indeed, given the paucity of plans for seventeenth-century vessels, marine paintings are an indispensable source for the creation of miniature ships from this period. To this must be added the growing body of knowledge concerning the naval architecture of the period that has been pieced together from the discovery of wrecks.

State Barge, Seventeenth Century

Artist: Gus Agustin

Full-hull model ❖ Scale 1:192 (1/16 inch = 1 foot)
LOA 2 ¾"

In the seventeenth century, ornate barges were used to convey important personages along the River Thames. The modeler is fortunate to have historical sources available to assist in the reconstruction of this type of vessel. In the Royal Naval Museum in Portsmouth Dockyard there is a superbly restored barge dating from the reign of Charles II (1660-1685) that was used during part of Lord Nelson's funeral procession. The National Maritime Museum at Greenwich conserves the plans of a number of barges dating from the seventeenth century. Several plans of English barges can also be found in Chapman's *Architectura Navalis Mercatoria*, published in 1768. Agustin consulted all these sources in modeling this miniature.



HMY *Stuart Royal Yacht*, 1690

Artist: Gus Agustin

Admiralty-style model, fully-rigged

Scale 1:192 (1/16 inch = 1 foot)

LOA 5 ½″



The English word "yacht" is a term derived from Dutch, originally meaning "pursuit ship". These vessels were designed to be fast and maneuverable. In the seventeenth century, such vessels were frequently used to convey persons of importance, such as diplomats and princes. In all, twenty-five yachts were constructed for Charles II during his reign. In general, their configuration followed a number of conventions: they had a single mast, with a gaff-rigged, loose-footed mainsail, a square topsail, and two staysails. This configuration is evident in Agustin's 1:192 scale rendition of a typical royal yacht of the latter part of the seventeenth century.

HMY *Stuart Royal Yacht*, 1690

Artist: Gus Agustin

Admiralty-style model ❖ Scale 1:384 (1/32 inch = 1 foot)

LOA 2 7/8″

Agustin's second depiction of a royal yacht uses a smaller scale and adheres more closely to the traditional norms for the construction of a half-hull model in the Admiralty style. The mast is represented only partially and all standing and running rigging are absent.



Admiralty Models

The style of representing a ship with detailed decoration, exposed interior, stylized framing, and unfinished hull planking below the lower wale, dates back to the middle of the seventeenth century. Various names are used to designate this genre – Admiralty models, Dockyard models and Navy Board models. The original rationale for the construction of such models appears to have been to allow a detailed miniature representation of important design features and decorative fittings for budgetary and planning purposes. The construction of such miniatures by contemporary modelers represents a series of challenges. These include the need for thorough research to ensure accuracy in design, the execution of specific modeling techniques to faithfully represent the intricate framing patterns of such models, and the challenge of carving and molding their elaborate baroque decorations. When a modeler succeeds in these various tasks, the final product is a miniature of extraordinary delicacy and beauty, as is the case with Gus Agustin's *Stuart Royal Yacht*.

Mediator, 1742

Artist: Gus Agustin

Waterline model ❖ Scale 1:192 (1/16 inch = 1 foot)

LOA 5 7/8"



Mediator, 1742

Artist: Gus Agustin

Waterline model ❖ Scale 1:384 (1/32 inch = 1 foot)

LOA 4 ½"

The colonial sloop *Mediator* was built in Chesapeake Bay and launched toward the end of 1741. She demonstrates the characteristics of many contemporary Virginia-built sloops, with a sharply raked mast and very long bowsprit and jib boom. She was first employed in the West Indies as a trading vessel. In 1745 she was purchased by the Royal Navy and sent to England. She was armed with ten guns – probably three pounders – and also eighteen swivel guns. The Royal Navy used the *Mediator* as a patrol vessel in the English Channel. Her career was short-lived, as she was captured by a French privateer near Ostend in late 1745. These two replicas portray her as she would have appeared before her purchase by the Royal Navy.

Waterline Models

A number of the models in this exhibit, including these of the *Mediator* by Gus Agustin, are defined by their construction and display technique as "waterline models". Waterline models are those in which the portion of the vessel normally below the waterline is not represented by the artist. The hull above the theoretical waterline is portrayed either on an ornamental base, or a realistically modeled body of water. The nineteenth century saw the construction of the first true waterline models. Prior to this period, this type of model was virtually unknown, with most accurate models designed or commissioned by shipwrights. Their principal interest had been to accurately depict the entire vessel, and hence the inclusion of details below the waterline.



San Salvador, c.1540

Artist: Robert Hewitt

Waterline model ❖ Scale 1:240 (1 inch = 20 feet) ❖ LOA 4 ½"

The *San Salvador* was the flagship of a small fleet commanded by Juan Rodríguez Cabrillo and sponsored by the Spanish Crown to explore the uncharted reaches of the west coast of North America, in the hope of finding a sea route to China. With no contemporary plans and few illustrations to draw upon, the design of the historical *San Salvador* has been open to much debate. Hewitt's rendition is based on preliminary research conducted by Ray Acker. He has chosen to depict the *San Salvador* as she might have appeared off the coast of California during her voyage of reconnaissance. It was this expedition that revealed the port of San Diego to European eyes for the first time in 1542, and must be considered one of the most important voyages in the history of the exploration of Americas.





San Salvador, c.1540

Artist: Robert Hewitt

Full-hull model ❖ Scale 1:240 (1 inch = 20 feet)
LOA 6"

This model of the *San Salvador* is based on plans drawn up by marine architect Melbourne Smith. Like those of Ray Acker, these plans too have been subject to revision by scholars in the fields of marine archaeology and the history of sixteenth-century Iberian seafaring. This, however, does not detract from what is a marvelously crafted model depicting a mid-sixteenth century Spanish vessel.



Golden Hinde

Artist: Robert Hewitt

Waterline model ❖ Scale 1:240 (1 inch = 20 feet)
LOA 5 ¾"

The circumnavigation of the *Golden Hinde* in 1577-1580 holds a special place in the history of European oceanic voyages in the sixteenth century. Drake's exploits have been recalled by centuries of English seafarers. The *Golden Hinde* traveled along the coast of California in 1579 and was careened just north of San Francisco, before taking a westerly course across the Pacific. Here Hewitt shows her as she would have appeared sailing across the ocean.

HMS *Glasgow*

Artist: Robert Hewitt

Waterline model ❖ Scale 1:480 (1 inch = 40 feet)
LOA 4″

The Royal Navy frigate HMS *Glasgow* was built in 1757, and armed with twenty-five guns. She operated as part of the Royal Navy's efforts during the American Revolution. Her most famous action was against the Continental fleet off Block Island on April 6, 1776. Hewitt's capacity to create a sense of time and place is clearly evident in this waterline model. The *Glasgow* is depicted here "at quarters" with her guns run out, her officers giving orders from the quarterdeck, her lower courses furled, about to engage the enemy.



HM *Fly*

Artist: Robert Hewitt

Waterline model ❖ Scale 1:480 (1 inch = 40 feet)
LOA 3 ¼″

The *Fly* was a cutter brought into the British Navy in 1763. With a large sail area in relation to their tonnage, these types of vessels were extremely fast, yet also stable because of their broad beam. They were used for patrolling coastal areas, carrying dispatches, and also scouting duties. Hewitt has crafted this miniature to emphasize the principal characteristics of these vessels by showing her under full sail, as she races through a light sea. Plans available from the National Maritime Museum at Greenwich allowed Hewitt to reconstruct this vessel with a high degree of accuracy.



HM *Solebay* and *Providence*

Artist: Robert Hewitt

Waterline diorama ❖ Scale 1:480 (1 inch = 40 feet)
LOA 5 ½″ & 2 ¾″

In this lively waterline diorama, Hewitt depicts a famous event in the life of American naval hero John Paul Jones. Outgunned by the British Navy frigate, HMS *Solebay*, Jones' superior seamanship allowed him to escape by cutting across her bow. Hewitt's miniatures, complete with crew in their rigging, give the sense of urgency in this situation. John Paul Jones, standing on the poop deck of the *Providence,* looks back defiantly at the *Solebay* caught off guard.



HM *Supply*, 1759-1807

Artist: Robert Hewitt

Admiralty-style model ❖ Scale 1:240 (1 inch = 20 feet)

LOA 4 ¾″



Built in 1759 as an armed tender, the *Supply* sailed with the first settlement fleet sent by the British government to Australia, 1787-1788. She left New South Wales in 1791, and reached Plymouth the following year. Renamed the *Thomas and Nancy* in 1792, she carried coal in the Thames area until 1806. Hewitt's miniature is constructed in a classic Admiralty or Navy Board style, common from the mid-seventeenth to the mid-eighteenth centuries. The mirrored base provides a clear view of the delicate representation of the hull frames below the wales. The modeler has added an imaginative variation on this theme by also representing the ship's boat as she would have appeared alongside.

HMS *Victory*

Artist: Robert Hewitt

Waterline model ❖ Scale 1:480 (1 inch = 40 feet)

LOA 8″

Flagship of Lord Horatio Nelson at the Battle of Trafalgar in 1805, HMS *Victory* is arguably one of the most famous warships of the Age of Sail. She is the oldest naval ship still in commission, and may be seen today at Portsmouth, England. *Victory* was launched in 1765. As many as 6,000 trees are estimated to have been felled to provide timber for her construction. Built to carry at least 100 guns, she had a compliment of about 850 officers, Royal Marines, and crew. In this model, Hewitt portrays her as she would have appeared after her reconstruction was completed in 1803.



King Chow River Junk

Artist: Robert Hewitt

Full-hull model ❖ Scale 1:240 (1 inch = 20 feet)

LOA 3 ⅛″

Robert Hewitt's model of a late nineteenth-century Chinese junk from the King Chow River won a gold medal and the Dana McCalip award for best miniature at the 2007 Manitowoc show in Wisconsin. Of particular interest is the "anchor" typically found on such river craft. This consists of a vertical pole running through the hull at the bow. When forced downward into the river bed, this would serve to moor the boat. Hewitt's finely crafted figures are again evident in this model, with crew posed manning the lines, going aloft, and preparing food.





Mocha Dick

Artist: Robert Hewitt

Diorama ❖ Scale 1:240 (1 inch = 20 feet)

LOA 2 ¾″

This unusual diorama represents an above and below the waterline view of an encounter between the whalers and the sperm whale known as Mocha Dick. Historical sources suggest that dating from around 1810, Mocha Dick survived more than 100 encounters with whalers off the coast of Chile near the island of Mocha, before being eventually taken. His famous exploits served as an inspiration for Herman Melville's 1851 novel, *Moby-Dick*. This diorama vividly showes the whale turning the tables on his hunters.



Colonial American Armed Sloop

Artist: Tim Riggs

Full-hull model ❖ Scale 1:192 (1/16 inch = 1 foot)

LOA 7 ¼″

This model represents a generic sloop that would have been found in coastal waters during the American colonial period. The earliest sloops appear to have arrived with the Dutch. Ranging from 25 to 70 tons, they had a gaff mainsail, up to three headsails and a square topsail. Their versatility is shown in the different roles they assumed over time. These included coastal trade, whaling, fishing, and privateering. They were also readily employed, as this miniature suggests, as armed vessels during the Revolutionary War.



HM Schooner ***Halifax,*** c. 1768-1775

Artist: Tim Riggs

Admiralty-style model ❖ Scale 1:192 (1/16 inch = 1 foot)

LOA 4 ½″



The schooner *Halifax* was purchased by the Royal Navy in 1768. She was wrecked in 1775. Tim Riggs has represented her here in classic Admiralty style. Some of the deck planking has been left unfinished to reveal the frames below. Of particular note on this model are the details seen on ornamentation around the stern gallery, the faithfully reproduced gratings, and the finely modeled deck armament.

Crooked Stern Junk

Artist: Tim Riggs
Waterline model ❖ Scale 1:192 (1/16 inch = 1 foot)
LOA 5 ½"

In China crooked-stern junks were purpose-built at Fou-chow (Fuzhou) to negotiate the rapids of the Kungt'an Ho (Wu Shan) River, a tributary of the Yangtze. They are a close relative of the similarly employed "crooked-bow junks". Approximately 90 feet in length, their chief cargo was salt. In the case of the crooked-stern junk, the stern is slewed around to bring one of its corners into alignment with the boat's centerline. The junks are controlled by means of large sweep oars. As this superb miniature demonstrates, faithful representation of such simple craft, when combined with dynamic modeling techniques, can produce a stunningly beautiful diorama. Here Tim Riggs shows a junk deftly negotiating the rapids as it makes its way downstream to its destination. The hull for this model was constructed from apple, with the base carved from tiger maple. Copper wire was used for the rigging and the figures were formed on wire frames from gesso.



The Bonhomme Richard

Artist: John Fox III
Full-hull model ❖ Scale 1:450
LOA 5 ¼"

The *Bonhomme Richard*, a frigate in the Continental Navy, was made famous by the exploits and reputation of its captain, John Paul Jones. She was originally named the *Duc de Duras*, built in 1765 for the French East India Company. She was placed in the service of the fledgling maritime forces of the American colonies by Louis XVI of France. John Paul Jones renamed her the *Bonhomme Richard* in 1779, in honor of Benjamin Frankin's work *Les Maximes du Bonhomme Richard* (*Poor Richard's Almanac*). *Bonhomme Richard's* career was short but glorious. After a brief campaign against British merchant shipping, she was sunk following the Battle of Flamborough Head on September 25, 1779.

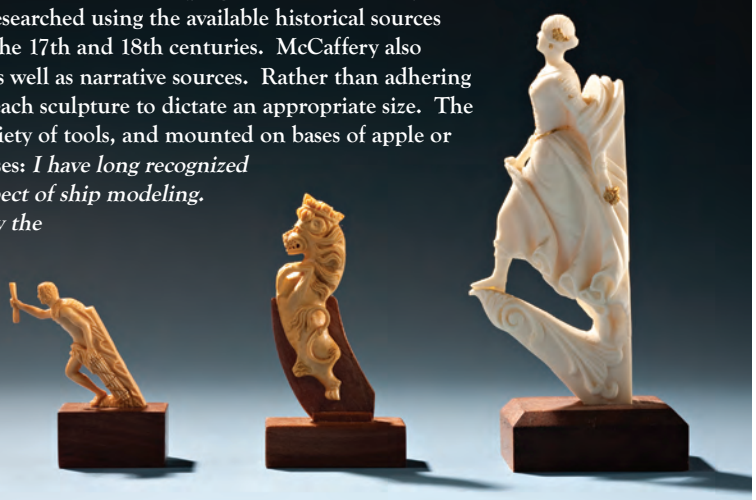


Ships in Bottles

Ships in bottles have long held a fascination for both dedicated modelers and their audiences. While not exactly a closely guarded secret – modelers are only too happy to share the techniques they employ – the image of a fully-rigged vessel within a bottle cannot help but cause a sense of wonderment. John Fox III has developed a variation on this theme by using light bulbs as the delicate receptacles of his delightfully crafted ship models.

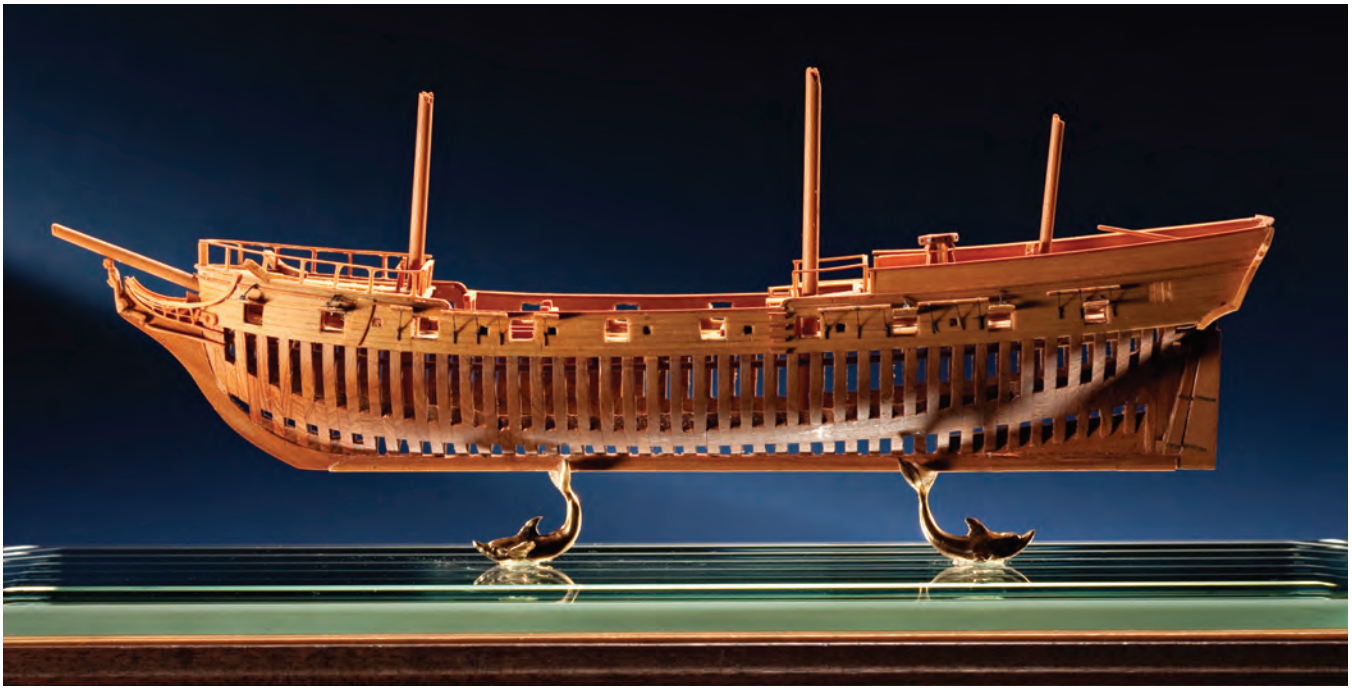
Miniature Ship Figureheads by Lloyd McCaffery

These intricate carvings are part of a growing collection of miniature ship figureheads created by Lloyd McCaffery. Each piece has been thoroughly researched using the available historical sources such as old "dockyard" models produced in England in the 17th and 18th centuries. McCaffery also consulted designs preserved in drawings and paintings, as well as narrative sources. Rather than adhering to a single scale, he has preferred to allow the subject of each sculpture to dictate an appropriate size. The figures have been handcarved from boxwood, using a variety of tools, and mounted on bases of apple or pear. On the crafting of figureheads, the McCaffery muses: *I have long recognized carving as the most challenging, and most rewarding, aspect of ship modeling. This is especially true at the smaller scales. And certainly the focus of all marine carving is the figurehead. These carvings are the most difficult, yet at the same time the most fun part of the whole matter.*



The *Rattlesnake, 1781*

Artist: Lloyd McCaffery
Admiralty-style model ❖ Scale 1:192 (1/16 inch = 1 foot)
LOA 6 ½"



The *Rattlesnake* was an unusually configured vessel designed by John Peck, a Boston naval architect. Despite her relatively small size of 89 feet, she had a separate quarterdeck and forecastle. She was armed with up to twenty guns. During her short career as a privateer in the Revolutionary War period, the *Rattlesnake* wreaked havoc on British shipping along the eastern seaboard. She was captured by the forty-four gun HMS *Assurance* and subsequently converted into a ship of the Royal Navy. McCaffery's admiralty-style model of the *Rattlesnake* is mounted on a mirrored base to allow an unobstructed view of the exposed hull frames. Describing this method of mounting and display, McCaffery writes in *Ships in Miniature: A New Manual for Modelmakers:* ***Since I began to make models with the hull cut away, I have found the mirror mounting to be an ideal way of showing off this feature. The underside of the hull can be seen, of course, but the viewer can also see right up into the hull, and even view the undersides of the deck beams and gratings. This means that all these items must be finished to perfection on the undersides.***

HMS *Britannia*, 1682

Artist: Lloyd McCaffery

Half-hull, Admiralty-style, fully-rigged model ❖ Scale 1:192 (1/16 inch = 1 foot)

LOA 14 ¼"



HMS *Britannia* was a 100-gun first-rate ship built as part of the British attempt to counter Dutch and French naval forces in the last decades of the seventeenth century. She was designed by Sir Phineas Pett. Despite her powerful armament, *Britannia* is known to have fought in only one naval action – the Battle of Barfleur in 1692, which saw the defeat of a French fleet by combined Anglo-Dutch forces.

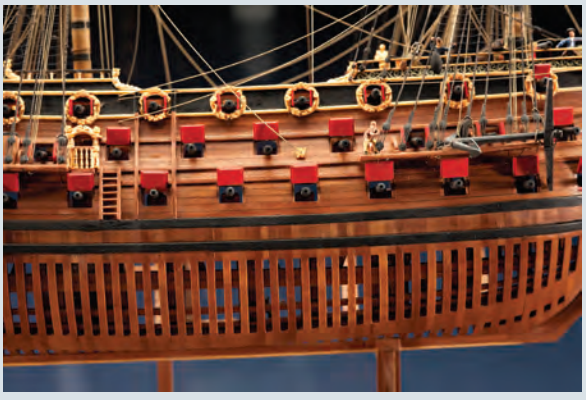
This model is intended by its maker, Lloyd McCaffery, to be the first in a series of three that will illustrate the vessels of the principal contenders for naval supremacy in the seventeenth century – the English, the Dutch, and the French.

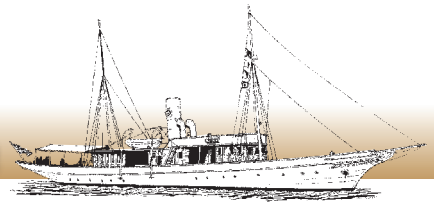
The *Britannia* is not only a beautifully crafted model, but also a thoroughly researched miniature based on a wide variety of historical sources. These include earlier models, collections of plans, and contemporary marine paintings. Among the design features characteristic of English vessels of this period, and faithfully reproduced by the artist with historical accuracy, is the deck planking. This has been laid sprung in, with tapering toward the bow and stern. According to McCaffery, ships' decorations dating from this time were generally unpainted, and hence his *Britannia* displays natural wood throughout. The flags are fashioned from glassine and lashed to flagpoles rather than hoisted with halyards – a much later practice.

McCaffery has included a series of miniature figures molded from gesso, to impart a sense of scale and also breathe life into this marvelous miniature. Among those represented are King Charles II, Samuel Peys, the king's principal advisor on naval construction, a number of crewmen, and the white ship's cat.

The primary material used for the construction of this model was the wood of an ornamental pear tree in Ohio. Dark contrasts are provided with apple. Holly was used for the deck planking. The decorations were carved from boxwood. The rigging is made from a type of nickel-chromium wire, with copper wire used for the ratlines.







Medea

USS *Oregon*

Artist: Donald McNarry, FRSA

Waterline Model ❖ Scale 1:384 (1/32 inch = 1 foot)

LOA 9 ¾"



The USS *Oregon* was a pre-Dreadnought Indiana class battleship. Built at the Union Iron Works in San Francisco, she was launched on October 26, 1893. Serving in various capacities over the next sixty years, the *Oregon* was eventually scrapped in Japan in 1956. Her most famous exploits occurred during the Spanish-American War of 1898. As tensions mounted between the United States and Spain, she was ordered to steam from San Francisco to the Caribbean. Her epic voyage of 14,000 miles in sixty-six days included traversing the Strait of Magellan, and provided added impetus for the building of the Panama Canal. Her participation in action off the Cuban coast earned her the nickname "McKinley's Bulldog".

In this beautiful waterline miniature built by Donald McNarry in 1960, the *Oregon* is portrayed in her heyday prior to World War I. Riding gently and comfortably at anchor, she appears to embody the growing confidence of the United States flushed from victory and newly embarked on the acquisition of an overseas empire.

This quest characterizes McNarry's phenomenal attention to detail and artistry, readily evident in the USS *Oregon*. On the pursuit of accuracy he writes in *Shipbuilding in Miniature*: ***The only limiting factors to the detail included should be lack of knowledge about the prototype, the grossness of the materials to hand and our old enemy time. Everything can be made or suggested to scale (even the hull plate riveting if one has a lifetime to spare!) and nothing should be left out that can be put in. As a mark to aim at, the miniaturist can endeavour to put in as much detail on his miniature as is usually seen on the average ¼in = 1ft model.*** A close examination of the *Oregon* reveals the faithful application of this method, and demonstrates one of McNarry's fundamental theses: ***I believe one of the most important things is to try and build miniature ships instead of ship models.***





Capetown Castle

Artist: Bob Fivehouse

Waterline model ❖ Scale 1:384 (1/32 inch = 1 foot)
LOA 23 ½"



The *Capetown Castle* was built by Harland and Wolff in Belfast, and was launched on September 23, 1937. Seven hundred and thirty-four feet long, with a GRT of 27,002 tons, she could carry 292 first-class and 499 cabin class passengers. She worked initially as a passenger liner for the Union-Castle Line. Like many other vessels in the Union-Castle Line she was named after fictitious castles in South Africa. In 1940 she was requisitioned and converted to a troop ship, continuing in this role until 1946. The post-war years saw her return to civilian service, and she was employed as a mail transport until the mid-1960s. The *Capetown Castle* was sold for scrap in 1967. The hull and deckhouses of this model were constructed from basswood. The decks were overlaid with aspen. Bristol card overlays the deckhouses, and was also used for some of the smaller fittings. Fivehouse also employs other papers, such as drafting vellum to construct fittings. Brass and copper wire were used for the rigging. The water is carved from poplar.

Bob Fivehouse's modeling focuses primarily upon classic, powered vessels from the late nineteenth and early twentieth centuries. The fine detailing found in his miniatures indicates that this genre too can convey an impression of grace and elegance, reflecting solid research and a dedication to accuracy. Like many other modelers working in this scale, Bob readily acknowledges the influence and inspiration of Donald McNarry on his work.

SS Grecian

Artist: Bob Fivehouse

Waterline model ❖ Scale 1:384 (1/32 inch = 1 foot)
LOA 9"

The *Grecian* was built in 1900 by Harlan & Hollingsworth of Wilmington, Delaware. Following a collision with the SS *City of Chattanooga*, she sank on May 27, 1932. Her wreck lies south of Block Island, Rhode Island. This model is constructed from similar materials used for the *Capetown Castle*, with the exception of holly used to create the decks.





Britannia

Artist: Bob Fivehouse

Waterline model ❖ Scale 1:384 (1/32 inch = 1 foot)
LOA 7 ⅜"

The *Britannia* was built in 1896 by McKnight of Ayr, Scotland. This model depicts her as she would have appeared prior to the Second World War. After 1945 her boilers were reconstructed, and she was given two funnels. Apart from time spent sequestered during both world wars, she remained P & A Campbell's flagship until she was withdrawn for breaking up in 1956. Many people in England enjoyed her spacious decks for a day trip from Bristol to the Channel ports. This model utilizes the same materials used to build both the *Grecian* and *Capetown Castle*. Like the *Grecian*, decks are crafted from holly.

San Diego's Miniature Navy

Ship modeler Phil Toy's contributions to this exhibit are marked by a number of unique characteristics. In contrast to the other miniatures on display, Toy's models are fashioned primarily from plastic, augmented by fine copper wire. Thematically he has focused on U.S. Navy vessels that have at one time been stationed in San Diego. His techniques demonstrate a mastery of plastics as a modeling medium, and show the astonishing detailing that is possible in their employment. His waterline miniatures are generally portrayed on vividly modeled and painted seas, generating a sense of speed, power, and purpose. In his modeling, Toy has relied on his extensive knowledge of modern U.S. Navy vessels gained from his service in the Navy, and his avid recording of essential details through the medium of photography.

USS *Southerland* (DD-743)

Artist: Phil Toy

Waterline model ❖ Scale 1:311

LOA 15 ¼"



The USS *Southerland* was built at Bath Iron Works in Maine, and launched on October 5, 1944. Sent to the Pacific, she participated in the final naval campaign against the Japanese. Following the conclusion of the war, the *Southerland* was immobilized for a period in San Diego. She then saw service in the Korean War, 1950-1953, and from 1954 to 1962, *Southerland* served in various roles in the Pacific and Indian oceans. She was overhauled from 1963 to 1964, undergoing extensive modifications. Subsequently, *Southerland* saw action during the Vietnam War. Decommissioned in 1981, the *Southerland* was at that time the U.S. Navy's oldest active Gearing Class destroyer. She was used for target practice and sunk on August 2, 1997. This model depicts the *Southerland* as she appeared following her modifications in the early 1960s.

USS *Preble* (DDG-46)

Artist: Phil Toy

Waterline model ❖ Scale 1:311

LOA 19 ½"



The USS *Preble* (DDG-46) was launched in 1959, having been built by Bath Iron Works, of Maine. She was homeported in San Diego, and saw action during the Vietnam War. The *Preble* was decommissioned in 1991 and later dismantled for scrap.

USS *England* (CG-22)

Artist: Phil Toy
Waterline Model ❖ Scale 1:311
LOA 20 ½″

The USS *England* is a Leahy-class guided missile cruiser. Launched in 1962, she served in every major Pacific engagement from the Vietnam War to Operation Desert Storm. Decommissioned in 1994, she is now part of the "ghost fleet" in Suisun Bay, near Benicia, California.



USS *Schofield* (FFG-3)

Artist: Phil Toy
Waterline Model ❖ Scale 1:311
LOA 15 ¾″

Launched in 1963, the *Schofield* was a Brooke-class frigate. She served in the Pacific during the Vietnam War, and was decommissioned in 1988. She was sunk as a target a decade later in 1999.





USS *Bronstein* (FF-1037)

Artist: Phil Toy
Waterline Model ❖ Scale 1:311
LOA 14 ½″

This waterline model depicts the USS *Bronstein*, named after Assistant Surgeon Ben Richard Bronstein, who was killed in action during World War II. She was built by Avondale Shipyards, in Westwego, Louisiana. Commissioned in 1963, her first homeport was San Diego. The *Bronstein* served until her decommissioning in 1990. Sold to the Mexican Navy in 1993, she has been renamed the ARM *Hermenegildo Galeana* (E-42).

USS *Horne* (CG-30)

Artist: Phil Toy
Waterline Model ❖ Scale: 1:311
LOA 21 ⅛″

The USS *Horne* was built at San Francisco Naval Shipyard, and launched in 1964. Decommissioned in 1994, she was eventually used for target practice and sunk in 2008.



USS *California* (CGN-36)

Artist: Phil Toy
Waterline model ❖ Scale 1:311
LOA 23 ⅛″

The USS *California* is the first ship in her class of nuclear-powered guided missile cruisers. She was built by Newport News Shipbuilding and Dry Dock Company, in Newport News, Virginia, and launched in 1971. She was decommissioned and eventually scrapped in 2000.



USS *John Paul Jones* (DDG-53)

Artist: Phil Toy
Waterline Model ❖ Scale 1:311
LOA 20″

The *John Paul Jones* was built by Bath Iron Works of Maine, and launched in 1991. Armed with some of the U.S. Navy's most modern weaponry and defense systems, she is currently stationed in her homeport of San Diego.



Biographical Notes

Gus Agustin



Born and raised in Chicago, Gus Agustin first became interested in ship models during a visit to Mystic Seaport in the mid-1980s. Since then he has built dozens of models, generally preferring the scale of 1:192. A member of the Nautical Research Guild for over twenty years, Gus has exhibited his models internationally. He has won numerous awards for excellence in ship modeling.

Robert J. Fivehouse



Bob Fivehouse's love for model ships has extended over decades. He began building models in sixth and seventh grade. With few kits available for the ships he wished to model, Bob turned to scratch building his own. Over the years, Bob has constructed models shown at Mystic Seaport Museum and Columbia University. Working in the extraordinary scale of 1:384 (or 1/32" = 1'), Bob's favorite genre are vessels from the Age of Steam.

Robert Hewitt



Originally from Buffalo, New York, Robert Hewitt resides in San Diego. His interest in modelmaking was piqued after visiting HMS *Victory* at Portsmouth. Robert is an active member of the San Diego Ship Modelers' Guild and has shown his work in numerous exhibits and competitions. Vessels epitomizing the Age of Sail are his preferred subject. He works primarily in woods such as pear, boxwood, and holly. As is demonstrated in this exhibit, waterline miniatures hold a particular attraction for Hewitt.

Lloyd McCaffery



Lloyd McCaffery can rightly be considered one of the world's foremost builders of miniature ships. He started building ship models in 1963, and became a full-time ship modeler in 1969. His formal training in art and sculpture in Pasadena, CA, is clearly demonstrated in his finely detailed miniature ships. His philosophy is perhaps best summed up in his own words: ***…it has been my constant goal to achieve perfection in miniature***. McCaffery's output is far more eclectic than that of many other ship modelers. This includes intricate sculptures of miniature dinosaur skeletons and figureheads, as well as ships. An extraordinary selection of figureheads is offered as a special feature in this exhibit. His work demonstrates the achievement of a fine balance between artistic expression, precise detailing, and miniaturization founded on thoroughly researched historical materials. His book, *Ships in Miniature*, published in 1988, provides an overview of his approach to ship modeling.

Donald McNarry



Donald McNarry, now an octogenarian, was born in London, and lives on the southern coast of England. He began exhibiting his models in 1935, eventually turning to freelance modelmaking as a profession. His output has been prodigious: some 350 models held in museums and private collections throughout the world. His reputation as a master in the art of miniature shipbuilding is well known among his peers, and his influence on their modeling goals and techniques is undeniable. His first book, entitled *Shipbuilding in Miniature*, was published in 1955. His subsequent *Ship Models in Miniature*, published in 1975, provides description of his research and models.

Tim Riggs



Schooled by his father in modelmaking, Tim built his first scale model at the age of ten. His work exhibits a level of craftsmanship that demonstrates his professional training as an engineer specializing in tooling. For subject matter, Tim generally focuses on the American Colonial period, but as his contribution to this exhibit indicates, he has been known to find inspiration farther afield. He readily acknowledges the influence and inspiration of fellow Midwesterner, Gus Agustin, on his modeling methods.

Herbert Falkland Seeley



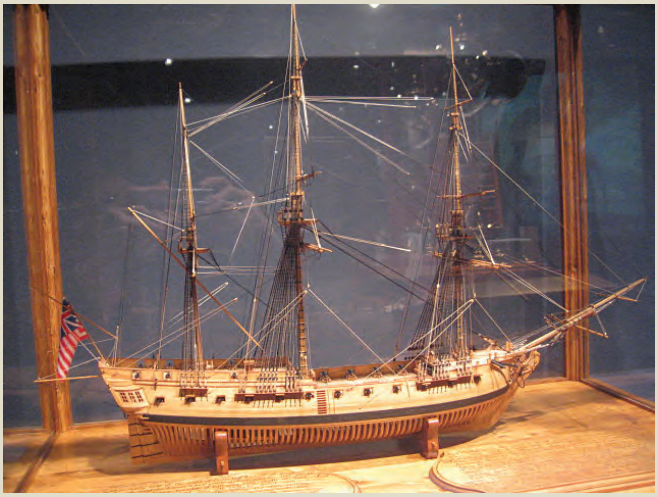
Herbert Falkland Seeley owed his middle name to his place of birth on April 19, 1890, on board the *St. Kilda*, a clipper ship captained by his father, in the South Atlantic, northeast of the Falkland Islands. Seeley followed a family tradition by pursuing the sailor's profession. The surviving examples of his artistic output indicate a fascination with the sea – line drawings of vessels, a rare silk-work painting, ships' profiles, and the "sailor-made" model shown in this exhibit.

Phil Toy



Phil Toy was born in 1950 in Wisconsin, and grew up in Rockford, Illinois. He started building models at the age of ten. He studied political science and economics at Northern Illinois University, later serving in the U.S. Navy as a photo intelligence and air intelligence officer. In contrast to most of the modelers featured in the exhibit, Phil prefers to work in plastic and is a member of the International Plastic Modeler's Society. His principal interest as a modeler is in modern naval vessels.

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