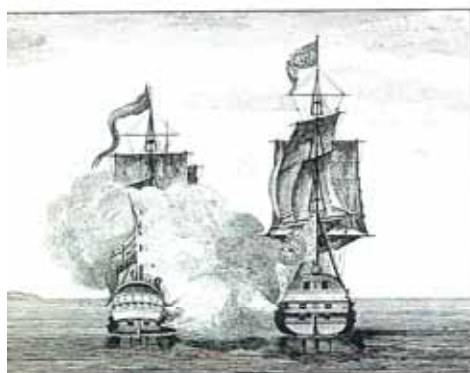


# MANILA GALLEONS DISCOVERED OFF GUAM

by Robert F. Marx, FN '59



*Millions of Spanish silver coins like this one were shipped from Acapulco to Manila aboard the Manila Galleons.*



*Battle between British warship which captured this Manila Galleon.*

**L**iving in the Space Age it seems natural for us to perceive our earth as a whole, a globe turning in space among the stars, in harmony with the planets. Satellites can locate land masses and seas, measuring them and the distances between them with great accuracy. Thus, the planet is reduced in terms of distance and time, both real and perceived, to dimensions never dreamed of by the intrepid ancient mariners who set forth on uncharted seas to explore unknown worlds.

How can we begin to imagine the awe and dread of those men whose concept of the world and the ability to manage it was so limited? In addition to very real hardships they also were at the mercy of superstition which filled the seas and their shores with monsters. Reality was bad enough—journeys by sea were measured in months and the risks so great that an average of ten percent of all ships were lost on long voyages.



*Ming Dynasty porcelain such as these pieces were carried on the Manila Galleons, some carrying over a half million pieces of porcelain.*

Photos By Author

In spite of this men sailed for distant lands drawn by the hope of riches. Tales of golden Nipango (Japan) after all propelled Columbus on his first voyage of discovery. It was the great wealth of the Orient which also lured the Spanish to the Philippines soon after their discovery by Magellan. Spain established a royal shipping line, the Manila Galleon, to link the mother country to the new colony. For three centuries, between 1565 and 1815 the Manila Galleons made annual crossings between Mexico and the Philippines. During the heyday of the Pacific galleons, Manila was the entrepôt for oriental trade and the queen of Asian marts. Her strategic location made her the "Queen of the Orient" attracting ships bearing cargoes from as far away as Arabia and the east coast of Africa.

The galleons and their voyages are a source of endless fascination. Writers of fiction imbue them with romance and high adventure. Scholars and underwater archaeologists focus on their influence on international commerce and the colonial history of the Hispanic American Empire.

The Manila Galleons were the largest vessels sailing during the Spanish Colonial Period; some were as huge as 2,500 tons. Not sleek and graceful, they were short, broad, cumbersome ships characterized by a half moon shape with high fore and stern castles. They had four decks and carried as many as 100 bronze cannon. The sails were enormous, marked with the blazing insignias of Royal Spain and the Catholic Church. Most of the Manila Galleons were constructed in the Philippines of durable hardwoods but a few were built in Cambodia and Thailand. The Philippine hemp which provided excellent cordage for the Spanish ships soon gained worldwide acceptance. The galleons had an Achilles heel—they drew as much as 35 feet of water which caused many of them to wreck on shallow reefs and shoals.

The galleons embarked on their westward voyages from Acapulco in Mexico in convoys of two to five. A single galleon might carry more silver than an entire fleet sailing between Vera Cruz and Spain. On average they carried between one and three million pesos as registered cargo as well as large amounts of unregistered gold. The ingots and chests of coins were stored over the keel in the main hold.

Sometimes the ships were so laden they needed no ballast rock to stabilize them. An estimated one-third of all the silver and gold mined in the Spanish New World made its way to the Far East aboard the lumbering Manila Galleons which also carried supplies to colonists in the Marianas and the Philippines.

Slipping down to about 12 degrees of north latitude to pick up the easterly trade winds, they rarely encountered foul weather during the four to six weeks it took to reach Guam or one of the other Mariana Islands, where they stopped for "refreshments" and to deliver supplies to the colonists.

It took another six weeks to reach the Straits of San Bernardino on the eastern end of Luzon in the Philippine Archipel-

chest of jewelry and gems—pearls, diamonds, emeralds, rubies and sapphires.

The Manila Galleons carried from 300 to 800 passengers and crew. Their provisions consisted mainly of weevily biscuit, salted fish and meat, and rice and beans. Water was carried in large earthenware jars or sealed bamboo tubes. On the eastward voyage rain was collected by hanging mats from a jacksay stretched along the bulwarks.

Manning the galleons was never easy, for few wished to make a career of the hazardous voyages. On the eastward bound voyages, which lasted about six months, more than a fifth of the men generally died due to shipwreck, epidemics, thirst or starvation. On one such voyage in 1657 all 450 souls perished when a smallpox epidemic swept through a ship which was found drifting unmanned off the Mexican coast by fishermen. For an individual the key to profit lay in contraband and once a man had successfully completed a couple of voyages and feathered his nest, he typically preferred to retire while still in good health.

Life aboard was hectic and difficult. Cabins, passageways, storerooms, and decks were stacked with bales and chests so gear and stores were often inaccessible or misplaced. There was very little space for working the ship and accommodations were far from luxurious. Water was re-

served for essential needs. Bathing was not reckoned among them so the stench must have been unbearable. All in all, a crossing must have been a nightmare to be endured so that one might become rich.

The Italian traveler, Gemelli Careri, sailed on a galleon in 1697 and wrote:

The Ship swarms with little Vermin the Spaniard call *Gorgojos*, bred in the biskit so swift, that they in a short time not only run over cabins, beds and the very dishes the Men eat on, but insensibly fasten upon the Body. There are several other sorts of Vermin of Sundry Colours, that suck the Blood. Abundance of Flies falls into the Dishes of Broth, in which there also swim Worms of several sorts. I had a good share in these Misfortunes; for the Boatswain, with whom I had agreed for my Diet, as he had Fowls at his Table the first Days, so when we



*Gold and ruby ring recently recovered from a Manila Galleon.*

ago. The Straits kindled anxiety in the most seasoned mariners—both outward and inward bound. Of the 129 Manila Galleons lost over the centuries almost 100 met their doom within a 50-mile radius of the entrance to the Straits of San Bernardino.

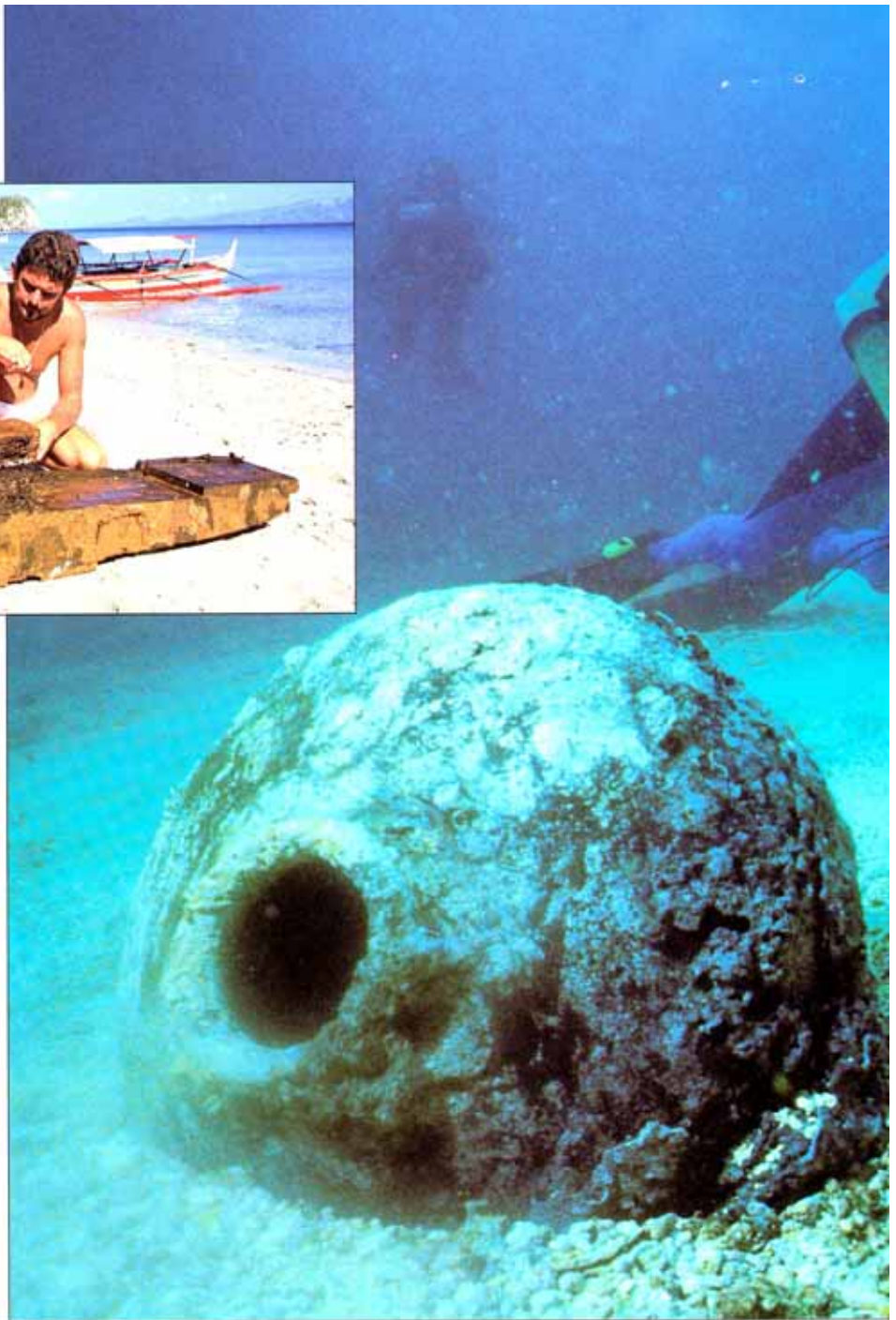
The treasure the galleons unloaded in Manila was used to buy the varied products of the East. Spanish coinage spread throughout the Orient and was legal tender there even after the end of the Manila Galleon era. The Spanish government made efforts to slow the drain of silver to China and other Asian countries by imposing trade restrictions; but the insatiable hunger of Europeans for exotic Oriental goods made it impossible to control. The bulk of the cargoes aboard Acapulco-bound ships were silks, porcelains, and spices, but the most valuable were myriad objects fashioned by Eastern artisans in gold, silver, copper, ivory, jade, sandalwood, and onyx as well as





*Timbers from a Manila Galleon in the Philippines.*

*Divers at work on a Manila Galleon shipwreck in the Mariana Islands.*



were out at Sea he made me fast after the Armenian manner, having banish'd from his Table, all Wine, Oyl and Vinegar; dressing his Fish with fair Water" ... serving "Steaks of Beef, or Buffalo dry'd in the Sun or Wind; which are so hard that it is impossible to Eat them without first they are well beaten. At Dinner another piece of that same sticky Flesh was boil'd without any other sauce but its own hardness, and fair Water. At last he deprived me of the Satisfaction of gnawing a good Biskit, because he would spend no more of his own, but laid all the King's Allowance on the Table, in every Mouthful whereof there went down abundance of Maggots, and *Gorgojos* chew'd and bruis'd. On Fish Days the common Diet was old rank Fish, boil'd in fair Water and Salt; at noon we had Mongos, something like Kidney Beans, in which there were so many Maggots, that they swam at the top of the Broth, and the quantity was so great, that besides the Loathing they caus'd, I doubted the dinner was Fish or Flesh. This bitter Fare was sweetened after Dinner with a little Water and Sugar; yet the Allowance was but a small Coco Shell full, which rather increas'd than quench'd drought.

The Acapulco-bound voyage which tested the endurance of the passengers and crew also tested the vessel and was one of the longest and most perilous ever undertaken by sailing ships. After passing through the dreaded Straits of San Bernardino, which separate the China Sea from the Pacific, contrary winds and currents forced the galleons to much higher latitudes to pick up the westerlies. During the crossing they were inevitably stuck by many severe storms which, if not full-blown typhoons, were gales of frightening strength. Many times large

amounts of deck cargo had to be hurled overboard to lighten the ship and many seamen were swept into the raging seas.

The galleons attempted to make landfall around Cape Mendocino on the coast of California, but sometimes they were forced to sail as far north as the Aleutian Islands before being able to beat their way down the west coast and eventually reach safe harbor at Acapulco. Once the ships reached this port they were unloaded and their cargoes carried overland by mule train, the majority going to Vera Cruz to be taken by Spanish galleons to





Seville and some going to Panama to be shipped to Peru.

The first Manila Galleon lost was the *San Pablo* in 1568 sailing between the Philippines and Mexico. The northern route hadn't been established and during the night the ship wrecked on the west side of Guam to the great joy of the natives who lost no time in plundering her cargo. Over the next two centuries nine other galleons were lost in the Marianas Islands—then called the *Ladrones* or Thieves because the natives were notorious for grabbing anything not

nailed down. On one occasion they swam out at night and cut the three anchors of a moored galleon so they could later retrieve them.

The most famous Manila Galleon disaster befell the *Nuestra Señora de Pilar de Zaragoza y Santiago*, commanded by Admiral Juan de Echavarria, sailing between Acapulco and Manila in 1690 with a cargo of over a million and a half pesos in registered silver plus a large quantity of contraband. The ship struck a shallow reef off Cocos Island when she tried to anchor off the nearby port of Umatac on

the south shore of Guam, where supplies were to be offloaded and fresh water taken on.

Using kedge anchors the crew managed to pull the ship off but in attempting to round the point of the reef she was driven back onto another section of reef by currents and remained stranded. Another galleon sailing with her, the *Santo Niño*, was unable to help because strong winds forced her to continue onwards toward Manila. During the next three days small boats from Umatac managed to rescue all the passengers and crew, as





*Diver using a metal detector on the site of the Pilax off Guam.*

well as some of their personal possessions and some treasure. But before the bulk of the treasure could be brought ashore a violent storm came up, and the once proud galleon slid off the reef and sank in deep water.

Not all the ships lost in the Marianas were westward bound. Occasionally, when a ship was severely damaged en route to Acapulco and unable to reach Mexico or return to the Philippines, it would make for the Marianas. In 1754, for example, the *Nuestra Senora del Buen Viaje*, after surviving three typhoons which sheared off three of her four masts, attempted to reach Umatac Harbor. En route she anchored off Pago Bay on the eastern and windward side of Guam. A storm drove her up on a barrier reef. Most of those aboard managed to get safely ashore but the ship sank in deep water before any cargo could be recovered.

Until recently the focus of underwater archaeologists has been relatively shal-

low water. Nature dictates that wrecks on such sites can provide a limited amount of data about ship's construction. Soon after wrecking in shallow water, a vessel breaks up and the wooden remains are carried away by seas or current, or they succumb to the ravages of *teredo navalis*, the ship worm. Consequently there are generally few clues about construction and how equipment, stores and cargo were carried.

The ultimate dream of the underwater archaeologist is to find an intact, well-preserved shipwreck such as the seventeenth century Swedish warship, the *Vasa*. She survived due to anaerobic conditions in the cold waters of Stockholm harbor and was raised and preserved in 1961.

To fulfill this dream in the open sea it is necessary to delve beyond the reach of scuba equipment. Exciting technological developments in the past few years, including deep-diving submersibles and

ROV's (remote-operated-vehicles) signal the dawn of a new era in underwater archaeology.

The recent discoveries of the *Titanic* and the *Bismark* by Robert Ballard, FN '78 of the Woods Hole Institution of Oceanography show that man can find shipwrecks in almost any depth of water. The ships can be examined, photographed and objects can even be recovered as they have been from the *Titanic*. During the 1966 search for the H-bombs lost off Spain, the crew of the Reynold's submersible *Aluminant* reported sighting two intact wooden sailing ships in a remarkable state of preservation at a depth of 2,000 feet. With new technology it is feasible to raise entire small ancient ships which may be found intact.

My interest in deep water wrecks was ignited in 1965 when I learned that a fisherman snagged his nets on a Spanish shipwreck in 1,500 feet of water off the Dry Tortugas and brought up an inter-

esting array of artifacts. To verify the location of the site I utilized the old-fashioned method of dragging a mile-long cable between two boats and managed to bring up a large galleon anchor to within 60 feet of the surface before dropping it back on the site. The wooden stock of the anchor had survived—which rarely happens in shallow water. The depth of the site and strong currents kept me from doing anything more at the time.

Thanks to the great advances in oceanographic instrumentation these problems can now be overcome. Recently, I teamed up with Seahawk Oceanographic, a

tions were easy to fix within a quarter mile and I felt the best way to pinpoint them would be to find the places on the barrier reefs where they first struck. I started by searching the shallow lagoons aware that items from the wreck, would have been carried over the reef and deposited in them.

I started searching the Cocos Island Lagoon with snorkeling equipment for traces of the *Pilar*. Within an hour I sighted iron fittings, pottery, and even a Spanish silver coin. With the assistance of Bob Saylor and Jimmy Rogers, two divers who collect tropical fish for a livelihood, I began searching the seaward side of the reef. It wasn't difficult to find the spot where the *Pilar* had scraped aground. Apparently she was stove in there because we found ballast stones and other artifacts scattered around and embedded in the reef.

Following a trail of ballast and artifacts we traced the route of the ship as she attempted to round the point of Cocos Reef and then we found the place on the barrier reef where she struck again and remained fast for several days. From there we followed still another trail going off into

deeper water and surveyed it using scuba equipment to a depth of 275 feet.

The slope bottoms out at 1,200 feet where I am certain the *Pilar* lies. Don Baker, a diver and excellent draftsman, and I mapped the entire site. I would like to proceed with this project but need to obtain a permit. I am stymied at present because, unfortunately, the government of Guam has no law regarding shipwrecks. But my spirits remain high because the *Pilar* is the first Manila Galleon discovered in modern times.

While trying to obtain excavation rights for the *Pilar* I looked for the *Buen Viaje*. This was easier than the hunt for the *Pilar* because the galleon lies right off the shore of Pago Bay where the University of Guam has a marine laboratory, so I enlisted the aid of some of the scientists there. They told me that after storms, brass spikes, porcelain shards and other artifacts have been found on a beach very close to the lab. Just a week before I

started to search, a member of the staff found a brass trigger guard from a musket and a handful of lead musket balls dating from the time of the galleon's sinking.

Ten minutes into my first dive in Pago Bay I found a galleon anchor embedded in a coral reef and dozens of porcelain shards and other artifacts which came from the ill-fated galleon. Searching visually and using a metal detector we were able to follow the trail the vessel left as she was lifted off the reef by a storm and plunged into deep water. We carefully plotted and mapped the trail from the anchor which led us down to 160 feet. At that depth the ledge abruptly dropped off into the very deep water so common along Pacific coasts.

Once I have the legal rights to work on the sites I plan to do a side-scan sonar survey to find the hulks and then an ROV to investigate them. Efforts to obtain a permit from the government of Guam were frustrating and unsuccessful so, following the advice of counsel, I placed an Admiralty Arrest on both sites to establish ownership. This was done in the United States Federal Court since Guam is a U.S. Trust Territory.

Contrary to international law, the government of Guam claims the right to the shipwrecks. The bitterly debated question was taken to court in a case which was decided in my favor. Guam appealed the decision. The case is presently before the Federal Appellate Court in San Francisco and it may be a year before a ruling is issued. Almost every similar Admiralty Arrest has been decided in favor of the party placing a site under arrest, so I am hopeful the court will rule in my favor and that we can continue the exciting Guam Project to show the world the marvels of the glorious Manila Galleons.

**Robert F. Marx, FN '59**, has conducted underwater archaeological investigations at more than 60 sites worldwide, published over 500 scientific and popular articles, and produced or shot over 50 documentary films the most recent of which, "The Battle of Quiberon Bay" was made for both French and American television in 1982. In 1962, as co-organizer and navigator of Nina II, replica of Columbus' caravel which sailed from Palos, Spain, to San Salvador, Marx was made Knight Commander in the Order of Isabel the Catholic by the Spanish government.



Diver using an airlift to remove bottom sediment on Manila Galleon site in the Mariana Islands.

Bob Marx

Tampa group, to find the wreck. With the location information I provided, they used side-scan sonar to find the shipwreck. With an ROV they obtained hours of video tape and recovered a bronze ship's bell lying on the surface of the seafloor. Plans are underway to use an even more sophisticated ROV to carry out a thorough archaeological excavation of the site which promises to furnish ample data about seventeenth century Spanish galleons.

The two galleon wrecks off Guam—the *Pilar* in 1,200 feet of water and the *Buen Viaje* in about twice that depth—are deep water wrecks. They are virgin historical time capsules. Their recovery will be very costly but well worth the cost and effort in light of the archaeological information they can provide.

Over the years I have amassed hundreds of pages of original documentation from archives in Spain, Mexico and Manila on both these ships. Their loca-