

RESCUE EXCAVATION

The Java Sea Wreck

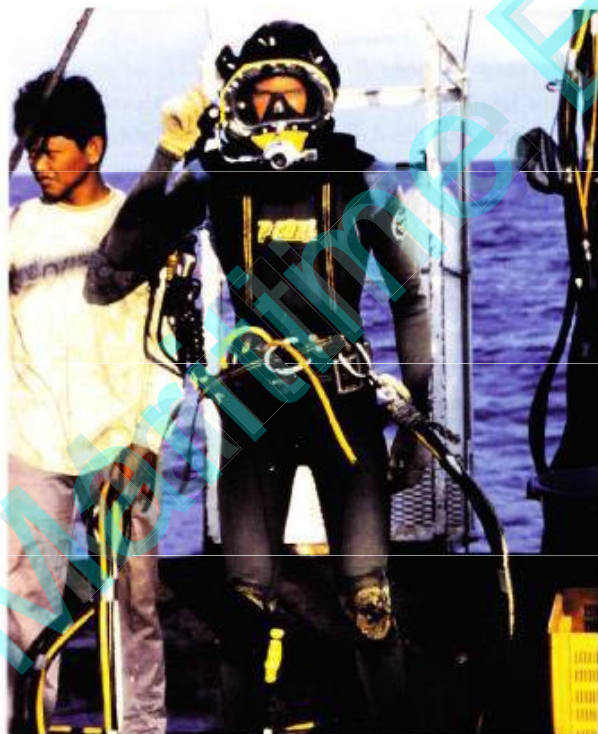
By Dr. Michael Flecker

Photographs are courtesy of Pacific Sea Resources

Seven hundred and fifty years ago, on a tempestuous night in the Java Sea, a heavily laden sailing ship slogged its way through short pitched seas. It was over a month since she loaded 200 tonnes of iron and 30 tonnes of ceramics in Quanzhou in southern China, before sailing on to Thailand to fill the last available hold space with elaborately crafted fine-paste-ware bottles and kendis. The next stop was Sumatra, where part of the cargo was bartered for ivory and aromatic resin. Then down through the treacherous Bangka Strait, where pirates competed with rip currents and reefs to claim unwary ships. Only a week to go before reaching her potential final destination of Tuban in eastern Java.

A Ship Goes Down

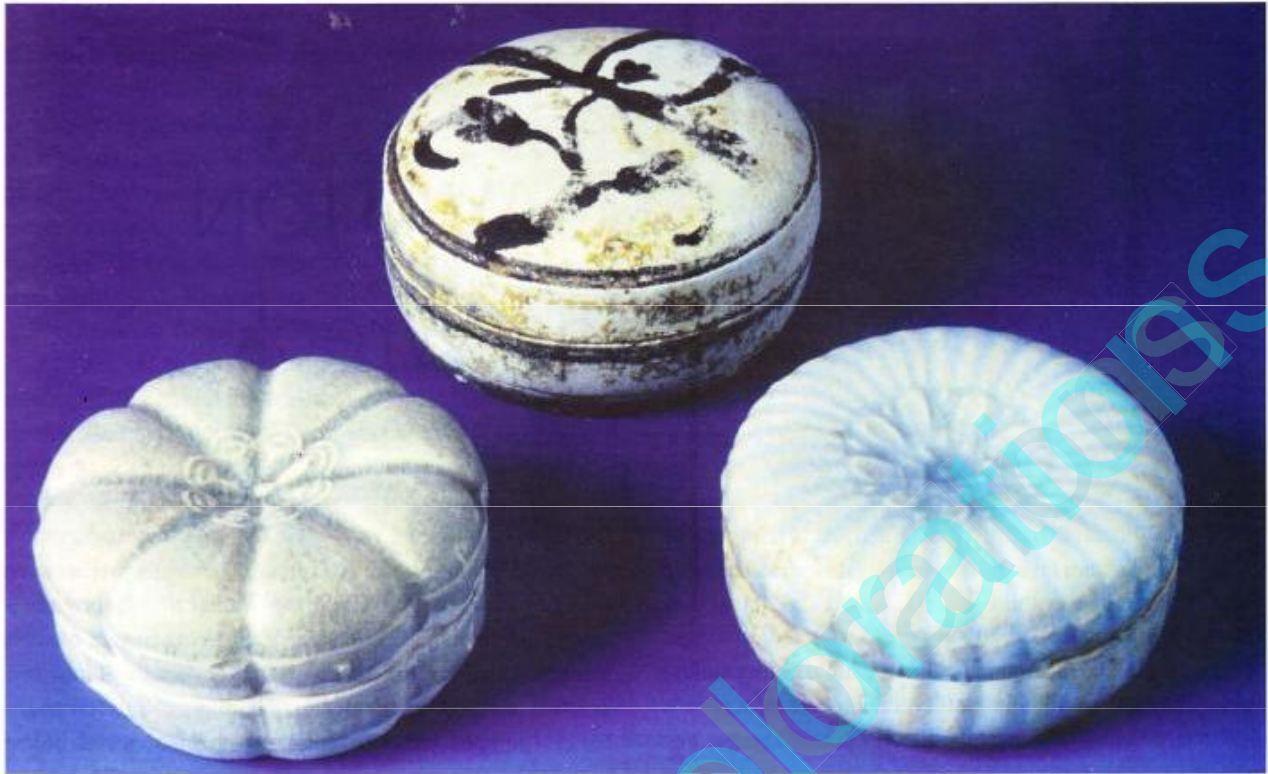
The ship never reached Tuban. Those steep seas were relentless, unseen until a luminous wall buried the bows in a cascade of foam and water. The shuddering impact of each wave worked the hull seams. Hatch covers were torn off. Seamen worked frantically at the pumps, but for every bucket pumped out two entered the jam packed holds. Slowly the ship settled deeper into the water. She moved ponderously, no longer rising to the waves, but submitting to them. The strain on the sail became too great and the mast sheared off at the deck with a violent crack. For a moment she wallowed helplessly, then slowly, gracefully slid beneath the turmoil to the peaceful seabed below.



The author prepares for a dive on the Java Sea Wreck



A stone that once formed part of an anchor is recovered with a lift-bag



A wide variety of covered boxes were found on the site, many with their covers still in place

None of the crew survived. Those that were not sucked down with the ship clung desperately to floating wreckage. They would have been better off staying with the ship. Within days all had perished from thirst and exposure. The junk went down 40 nautical miles from the nearest land, the east coast of Sumatra.

Twenty seven metres below the now calm Java Sea, the ship sat upright and lifeless on a clay seabed. Ropes and tattered sails wafted in the current. This was the first material to go. It rotted and was consumed by marine organisms. The voracious toredo worm quickly got to work on the hull, aided by abrasive sediment laden currents. First the deck house collapsed, then the bulwarks tumbled down to the seabed. The iron cargo, comprised of thousands of bundles of wrought iron bars and stacks of cast iron cauldrons, began to rust. The expanding rust formed a matrix with light sediment and calcareous marine growth. Within a decade the iron had created massive amorphous concretions, moulded to the shape of the hull.

The high stern collapsed, releasing a flood of ceramics. The straw packing for the provincial wares rotted long ago. Wooden barrels holding the finer wares endured for a while, but eventually they too were consumed, leaving discrete piles of glistening bowls and dishes. As the rest of the hull succumbed, more and more of the ceramics, which were originally stowed on top of the iron, spilled out to create a huge ring around the concretions. The concretions them-

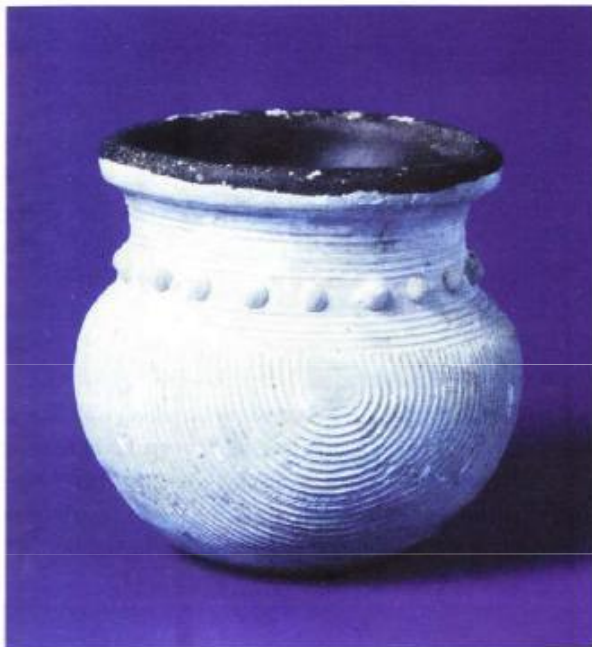
selves slumped through the rotting hull onto the clay, barely changing their original configuration. Over the centuries the ceramics spread further, eventually settling in a state of near equilibrium under a blanket of sediment.

Fishermen's Lucky Find

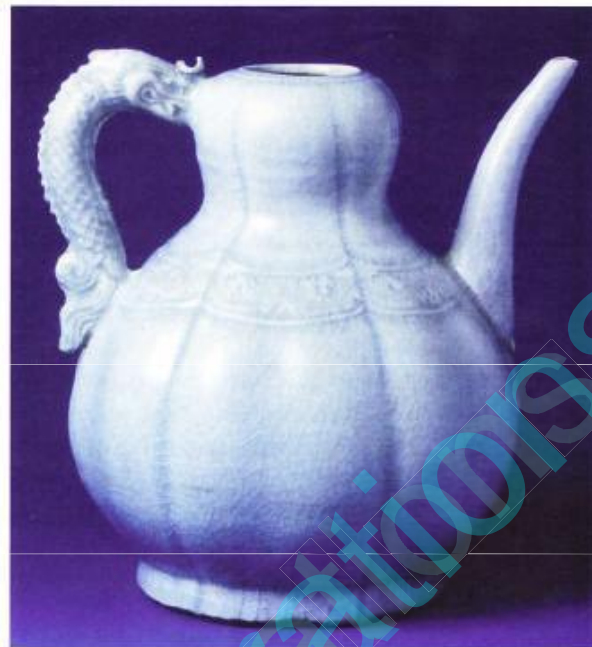
In the late 1980's fishermen in an open boat spotted birds dive bombing a school of fish. As they headed towards the commotion, they noticed that the school didn't move, as they normally do. This was their lucky day. They knew that stationary fish schools often marked isolated reefs, or shipwrecks. When they reached their target, they anchored and started bottom fishing with hand lines. Bingo - big red snapper. This is not a pelagic species.

They filled their boat that day, and took very careful note of the bearing and time taken to get to the nearest land mark, an oil platform some 20 miles away, a flickering orange glow at night the only sign of its existence. Many times they returned to their prolific secret spot. Eventually, a hook caught on a fragment of iron concretion, and entrapped in the concretion was a tiny green dish.

It didn't take long for the divers on their home island to hear about this. Old ceramics wrecks, and World War II ships with cargoes of tin and rubber, are far more profitable than sea cucumbers and aquarium fish. They were soon recovering hundreds of intact green and pale blue glazed ceramics from amongst the shards. But the flood of pieces



An intricately decorated rice measure with a brown glazed interior



A spectacular qingbai glazed ewer with a moulded dragon handle

onto the local antique market didn't go unnoticed. Before long the divers were arrested by an Indonesian navy patrol.

As a safer alternative, the fishermen sold the wreck position to a licensed local salvage company. A barge was mobilised, and the salvage group spent a month or so excavating in various areas around the wreck mound. Unfortunately for them the barge sprang a leak, and to prevent it from sinking on top of the wreck the mooring wires were cut. It drifted clear. Makeshift patches kept it afloat long enough to be docked in Jakarta for repairs. However, the salvage company went into receivership and consequently never returned to the site.

Excavating Below The Waves

Pacific Sea Resources (PSR), the company that carried out the archaeological excavation of the 1638 Manila Galleon, *Nuestra Senora de la Concepcion*, then acquired the site co-ordinates and a license from the Indonesian Government through a locally established company. Having survived the paperwork quagmire, I finally had the pleasure of directing the rescue excavation for PSR.

We mobilised an accommodation and dive support barge in Singapore, cleared in at Belitung Island, and rendezvoused with our Indonesian crew at the wreck site. The moment we were on location I leapt in to inspect the wreck. Despite earlier salvage efforts, the site presented a very exciting picture. A distinct mound rose up to two metres above the gently undulating seabed. While the extremities were out of sight, a vigorous swim with a tape measure confirmed its extent, an oval 70 metres long and 55 metres wide. Fish shrouded monoliths protruded from the centre of

the mound - the iron concretions. Partly buried encrusted ceramics were everywhere. Most were broken, but random hand fanning revealed a beautiful little bowl decorated with a freely incised flower beneath green celadon glaze. Next to it was a delightful moulded vase with a lotus decoration under a pale blue glaze.

Our Indonesian divers, deck hands, and boatmen were from Pulau Untung Jawa in the Thousand Island Group. Out of respect for the sailors who were lost on the wreck, and to ensure that no bad luck befell our diving operation, they sacrificed a goat on the bow of the barge and threw rice offerings into the sea. Only then could the grid lines be installed and air-lifts be deployed for excavation to begin.

Not all of the divers were experienced with modern commercial diving equipment and techniques, but they caught on quickly. We used KMB masks supplied with air and communications from the surface. An elevator took us to work, a staging lowered slowly by a deck winch. After an hour and forty minutes excavating on the seabed we would get back into the staging, be winched to the surface at a carefully controlled rate, then quickly strip off our gear and jump into the decompression chamber. There we would sit for the next hour, an uncomfortable oxygen mask strapped over our face, letting the build-up of nitrogen slowly leave our bodies.

The sea life around the wreck was prodigious. The concretions formed an oasis in an aqueous desert. Long time residents included a giant stingray, a lone potato cod, and a pair of moray eels. Goat fish, angel fish, emperors, damsel fish, and blue spotted grouper made the remote site seem like a fringing tropical reef. Red snapper abounded, as did

sea snakes. On one strange day, the divers were harassed by both the snapper and the snakes. The snapper came in close enough to be grabbed by the tail. The sea snakes twisted up between divers' legs and under arms, causing considerable alarm, and they occasionally went for an unplanned ride up the air lifts.

As the divers carefully sucked away the overlying sediment an amazing jumble of ceramics came to light. Intact pieces were put in labelled plastic baskets, which, at the end of each dive, were placed in a large steel basket and winched to the surface. Eager hands pulled the steel basket onto the deck, and carted the ceramics baskets over to the cleaning table. A row of cleaners used water jets, brushes and plastic chop sticks to remove the mud and loose encrustation. The pieces were rinsed in fresh water, logged on a computer database, and then packed in plastic bags to prevent them from drying out. These were in turn packed in foam lined cardboard boxes.

A Wreckage Yields Its Contents

The thousands of ceramics that passed over our cleaning table were made in the mid-13th century, during the Song Dynasty. Most were bowls, ranging from crude provincial rice bowls to very high fired thinly potted pieces decorated with incised clouds and flowers. There were also hundreds of pale-blue glazed covered boxes with a wide variety of moulded floral designs. Many of them had the cover sealed to the base with drips of glaze. They were full of water and mud that had worked its way in through tiny cracks. A wide variety of ewers, boxes and bowls were painted in brown over a cream background. Traces of a lead-green overglaze covered floral scrolling and proud phoenixes. All hands crowded to the foredeck when a perfectly preserved ewer was brought to the surface in the nervous hands of a diver.



A diver uses an airlift to search for ceramics beneath the sediments

Glistening blue glaze covered a lobed body and an elaborately moulded dragon handle. There were earthenware kendis, brown ware jars, jarlets, basins and bottles, vases, black glazed teabowls, and a wide variety of lids.

Hundreds of intact pieces were recovered every day, and not only ceramics. Highly degraded elephant tusks were found under the sediment in the southwest quadrant of the site. There were chunks of aromatic resin. They had become powdery on the outside, but a few millimetres beneath the surface remained glassy and still exuded a pleasant resinous aroma. The ivory could have come from Thailand or Sumatra, whilst the resin was almost certainly from the latter.

Some bronze artefacts survived remarkably well. Scales weights were found in many sizes, all corresponding to units of a uniquely Indonesian weighing system. There were fragments of gongs and offering trays. Two finials, one diamond shaped and the other having the appearance of a



This bronze figurine once formed the leg of a small altar



The purpose of this clay tablet depicting four figures remains a mystery



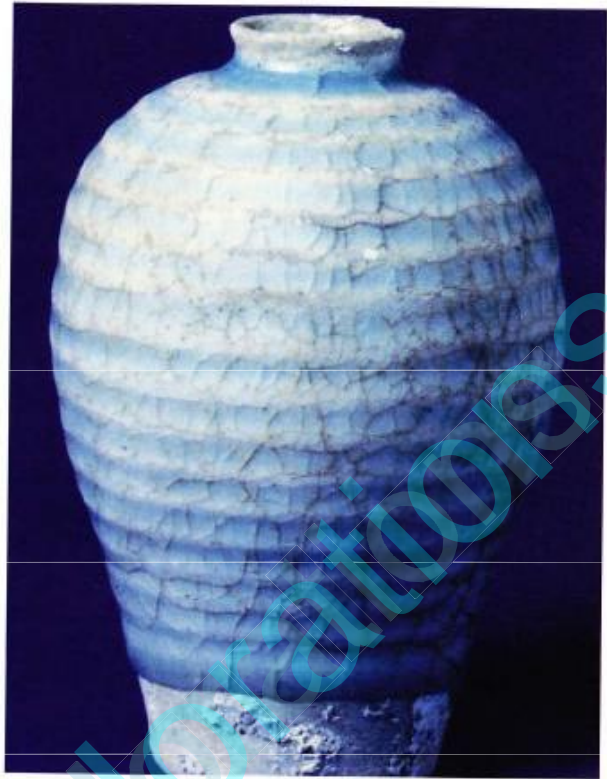
Two celadon bowls with incised cloud and floral decorations

masquerade mask, were from the wooden staffs of a priest. Similar examples have been found in pre-Majapahit Java. Also thought to be of Javanese origin was a bronze figurine of a woman riding on the back of a sea monster. An ancient Javanese folk tale tells of a princess, Sri Tanjung, who passed away before she had time to prepare for the afterlife. She was rescued by a sea creature and whisked off to the underworld. Another figurine is that of a stooped, cross-legged man holding a right angle beam on his head. He is one of four legs of a small altar. Other artefacts included glass fragments and a glass lid, a quartz crystal, a quartz balance weight, sharpening stones, and decorated tin ingots. Not many artefacts survived in the long exposed wreck site, but those that did give an interesting insight into the vigorous trade between China and Southeast Asia, and indeed within Southeast Asia.

What The Find Tells

Almost nothing remained of the ship itself. However the tiny fragments that did survive tell an interesting tale. Two timber species have been identified as mandailis and milkwood, both tropical. One fragment incorporated a dowel hole. Chinese ships were made of temperate species, apart from the rudder, and planks were edge-joined with iron nails, not dowels. And yet the iron concretion configuration strongly suggests bulkhead construction, a Chinese feature that was not adopted in Southeast Asia until well into the 14th century. There is another explanation for the regular gaps between iron concretions: they were left by the rows of thwart beams used in lashed-lug construction. In all likelihood, the Java Sea Wreck was an Indonesian lashed-lug craft, at least 28 metres long, which voyaged to China with a cargo of spices and jungle products to exchange for iron and ceramics. It is a wonderful example of the importance of Southeast Asian shipping during a time when Chinese trade boomed and yet Chinese oceanic shipping was in its infancy.

It took two months, putting in 20 diver-hours per day, to complete the excavation. By the time we had finished, one shipping container was completely filled with ceramics, 12,000



A simple but elegant qingbai glazed meiping vase

pieces in all. This actually left several containers sitting empty on the barge. A rough estimate of the original ceramics cargo came in at around 100,000 pieces, but nearly ninety percent of that had succumbed to the natural wrecking process, fishermen looting, undocumented salvage, and believe it or not, dynamite fishing. With permission from the Indonesian Government, the cargo was barged back to Singapore for the long cleaning and desalination process. Five months later, when all the salt had been leached out of the pieces, they could finally be dried and sorted for cataloguing, study and display. The head of PSR, Bill Mathers, is a pioneer of responsible commercial shipwreck excavation, where archaeological standards are not compromised for enhanced profits. On this project he elected to forego profits altogether and returned half of the cargo to the Indonesian Government, as per the salvage agreement, and donated the other half to the Field Museum of Natural History in Chicago.

In a way it is fortunate that the Java Sea cargo never reached Tuban. A maritime tragedy some 750 years ago has provided us with a time capsule that would never have survived on a land site. It tells far more about the past than stone inscriptions or burial offerings. Every artefact, every piece of stoneware, and all that has been learnt from them, should serve as a memorial to the sailors who perished in that ancient maritime trade.

Michael Flecker, through his company, Maritime Explorations, has been excavating shipwrecks throughout Asia for the past 18 years. He specialises in Asian shipwrecks and cargoes. Notable projects include the 9th Century Belitung (Tang) Wreck, the 10th Century Intan Wreck (the subject of his PhD, the 13th Century Java Sea Wreck, the 15th Century Bakau Wreck, and the 1690 Yung Tau Wreck. For more details, refer to www.maritime-explorations.com