

Hanalei Redux

By Paul Forsythe Johnston

A Shocking Find

"Hey Paul, you better strap on a tank and come see this," said Steve James, one of the project archaeologists and an incurable practical joker. At the time I was cold, wet and hungry, having just struggled out of my dive gear after a long morning on the bottom of Hanalei Bay. I didn't know whether or not to believe him, but something in his tone prevented any questions. Anyway, he hadn't waited around to chat before ducking underwater again. Moreover, we had just started a new trench at a spot directly on the edge of the reef struck by *Ha'aheo o Hawaii* (formerly *Cleopatra's Barge*), the royal yacht of Hawaiian King Kamehameha II (Liholiho) on April 24, 1824. Steve was the first diver in the trench.



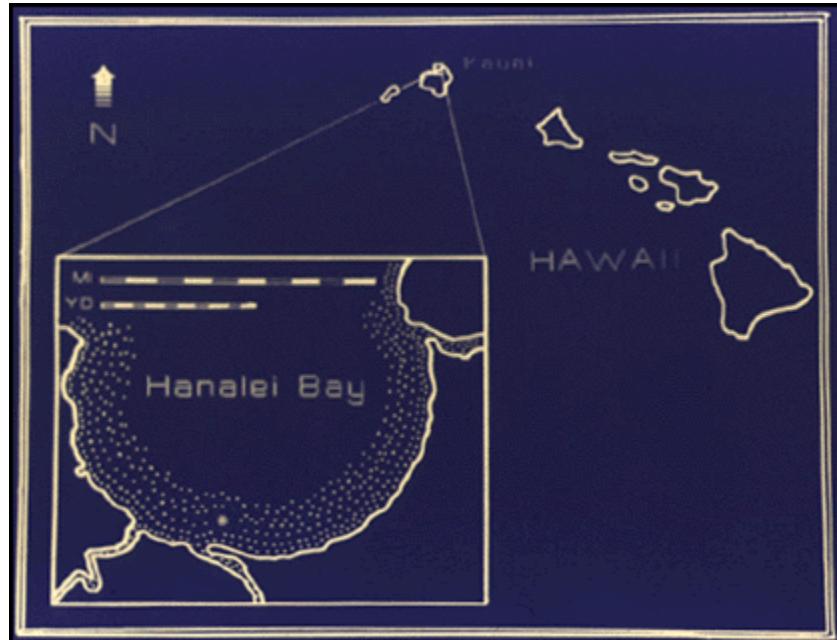
Hanalei Bay, Kauai

Resigned, I fetched a fresh tank, shrugged into the 30-pound buoyancy compensator and tank combination, belted 16 more pounds of lead around my waist, grabbed the underwater camera, spat in my mask and giant-stepped into the bay. I was already plotting heinous revenge if Steve had pulled my leg again. Cold before, I shivered anew when I settled on the bottom and saw inside the new trench below. Steve hadn't been kidding, and he was urgently hand-fanning sand from the rapidly-collapsing sides of the shallow, conical depression to expose his discovery. A single glance confirmed that my principal research hypothesis for the shipwreck, two years in the making, was totally invalid. And it was a thrilling discovery!

For the first three out of the four weeks of the 1996 excavation, the surface of the bay had been too choppy for Capt. Rick Rogers to back R/V *Pilialoha* in close to the reef. As a consequence, we had been forced to set trenches away from the reef edge, in the vicinity of the 1995 trenches. Thus far, the finds had pretty well mirrored the 1995 survey artifacts, and we were resigned simply to find more of the same. In fact, the most exciting event of the entire season had been the failed attempt of a car on the beach one Saturday night to jump the mouth of the Waioli River, and watching the resulting formation of a new local wreck site. However, the chop vanished during the last week, leaving a flat, glassy surface on the bay's waters. Rick carefully backed and moored *Pili* within 18 inches of the jagged edge of the reef, which is only five feet under the water surface.

Hindsight, as they say, is twenty-twenty. In retrospect, perhaps I should have expected something unusual in the last trench of the season. For one thing, archaeological lore is filled with such tales, wherein spectacular discoveries found on the last day of a dig season must be covered over and left unexcavated until the following year. In addition, our penultimate trench, which had been opened nearby, had yielded

something most unusual in the form of a large, long strip of leather. An inordinate amount of ceramics and glass also had appeared in trench E11.



A map of Hawaii and Hanalei Bay. The wreck site at the mouth of the Waioli River is marked by an asterisk on the inset of Hanalei Bay. Map by Kenneth Spaulding.

So I dropped down onto the sandy bottom of Hanalei Bay next to Steve and shook my head in disbelief, for there at the bottom of E12 was an immense jumble of massive hull timbers poking up out of the sand, much like a hyperactive kid's game of pickup sticks. There must have been a dozen of them, jammed against and actually under the coral reef itself. It was a shock, since all of the evidence uncovered on the site to date had told us not to expect much in the way of hull remains. Kicking up to the surface, I collected some underwater tapes and slates, slipped new sheets of drawing plastic into them, and we set to work recording and photographing the freshly-exposed finds. Halfway through the next day, the downpour began.

Normally, rain has little effect on diving operations. However, these were not normal rains. In a little over an hour a foot of rain fell, flooding the entire eastern side of Kauai. The Waioli River swelled up like a recently-fed snake and blew out the sandbar across its mouth, dumping tons of fine silt into the trench and totally obscuring its contents. That afternoon, it was so dark underwater that I got lost at the bottom of E12 and had to abort operations for the day. Time was running out, and we still had to backfill all the trenches over the next three days. The next day, while hand-fanning sand off a timber at the bottom of the trench for photography, a fragmentary piece of red-and-black painted furniture emerged from the silty ooze. Nearly all of its edges were eroded away, but enough remained to verify its overall size and manifest fragility.

It was just too much to handle. Rick dashed off a measured sketch of the delicate find while I shot some photographs, and we were forced to cover it back up with a couple of buckets of sterile sand and fill the trench back in. Despite the temptation, there was not enough time to excavate it safely and it was just too fragile to risk recovery this year.



Diver Rick Rogers sketches hull timbers.

We spent the last two days of the 1996 field season recovering our moorings, securing *Pilialoha* for the open water passage from Hanalei back to Oahu's North Shore and backfilling the trenches. The latter is a relatively mindless activity, wherein the diver straps an extra weight belt of at least 20 lbs. around his waist, drops like a stone to the bottom of a trench and spins in slow spirals around the trench while directing a fire hose against its walls, collapsing them inwards upon themselves. There is little to see and plenty of time to think, so long as you avoid entanglement in the long, high-pressure hose and avoid reflecting on the tiger shark's documented interest in turbulent water. I confess to enjoying the process. In this I am alone among our stalwart crew; nevertheless, my thoughts turned to the furniture fragment and what it could mean in the waning hours of the 1996 season in Hanalei Bay. First, it and the hull remains indicated that there was far more left of King Liholiho's yacht than we had believed only a few days earlier. Second, it had a story of its own to tell, if only we could figure it out. Were we excavating in the bow or stern of the storied ship? Was it a table, bed or bench from the crew area, or a chair from the king's cabin? My imagination soared - could it be the actual throne of King Kamehameha, mute witness to so many of the seminal changes to Hawaiian culture during his short but eventful monarchy? One of the fundamental tenets of archaeological fieldwork is that it can pose more questions than it can answer.

It is now February, and much has been done since the diving ended last July. First, Rick Rogers sent six big, drooling coolers of artifacts back to me in Washington, where they have been rid of all their salts. Whenever these coolers are moved around the museum, I am accused of throwing a party and not inviting my accusers. Lolly Vann, a graduate student in underwater archaeology at East Carolina University, has been busy in the lab cleaning, sorting and conserving the more durable artifacts.

The Real Work Begins: Details in the Lab and at the Desk

The laboratory is a story in itself, for I have been loaned a corner of the costume and textile conservation center downstairs in our basement. Along one wall is an immense washing machine that can control regular and dry cleaning times to a second and their temperatures to a fraction of a degree. Over in my corner is a gigantic 6 by 9-foot stainless steel tray table with agitation controls in two dimensions and two-zone water and spray microprocessor controls beyond the imagination. It is in this device that such delicate items as the First Ladies' gowns are washed and treated, and in which all the wet, smelly artifacts from the bottom of Hanalei Bay were first inspected and washed. Now all of them have been photographed, measured and cataloged, and many of the concretions have been x-rayed out at the Smithsonian's Conservation Analytical Laboratory. Paint samples taken from the leather also are under analysis.

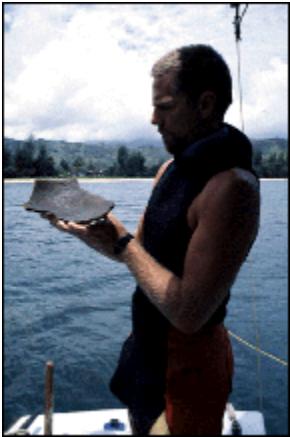


A small Native Hawaiian reef anchor made from lava stone.

Just before Christmas 1996, ship reconstructor J. Richard Steffy of Texas A&M foolishly told me he was coming to the Washington area over the "holidaze" to visit his family, and he was forced against his will to offer opinions of the hull timbers on the spot. A few weeks later, archaeologist Susan Lebo, from the Bishop Museum in Honolulu, made the same mistake and suffered the same fate: she was forced to inspect the ceramics and glass finds. Hawaiian and New England archives have been harassed into sending along copies of their relevant holdings, a highlight of which is the original logbook of the 1820 voyage of Cleopatra's Barge from Boston to Hawaii under Captain John Suter. And at the moment, I am contacting various federal and state agencies to find out about permit renewals for another season in Hanalei.



Animal bones recovered from the wreck. In the center is a cow's tibia bone that has been worked into a long, tapered awl or polished shellfish meat pick.



A fragment of a large, shallow gourd bowl, ostensibly a Native Hawaiian poi bowl.

Examining the Finds

Numerous copper and iron hull fasteners were recovered from various trenches, with a concentration in trench E12 (against the reef). Two of the copper artifacts - a piece of hull sheathing and a copper spike - were especially interesting, for they were clearly reworked artifacts from the hull itself and were therefore Native Hawaiian. The sheathing is a long, folded-over section with rounded edges at one end, clearly demonstrating some sort of reuse possibly as a polisher or buffer. In addition to this, three more were recovered consisting of long, narrow sections of edge segments folded over two or three times. Although identical pieces are preserved within an artifact assemblage at the NMAH from the 1838 wreck of the French frigate *Herminie* in Bermuda, their purpose is undocumented. Perhaps they were used as sheathing seam patches or stored aboard ship as scrap to be melted down and reused.

The 4-1/8-in.-long round copper spike was sharpened to a point at its end, indicating reuse as some sort of awl or shellfish meat pick; sometimes microscopic examination of such a feature can reveal wear patterns suggesting the original use. Five disassociated copper drifts, or heavy structural through-bolts, also were recovered, ranging in diameter from 5/8 to 1 in. Two slightly bent examples were intact; one measuring 2 ft. in length and 3/4 in. in diameter still retained a clinch ring (as a rivet) at its bottom end. Several smaller, square and round copper fasteners also were observed, both set into frame timbers as well as lying alone on the bottom of trench E12; nine were recovered. The most unusual copper artifact recovered during the 1996 season was a small, intact cast copper wedge measuring 2-1/8 in. in length and tapering to a chisel point; its use is unknown at present.



A wooden fragment, possibly of a gun carriage wheel.



A well-preserved wooden block, a type of pulley, strapped with leather-covered rope. The leather may have served an aesthetic rather than protective purpose.



A single-blade folding knife after being conserved and removed from a concretion.

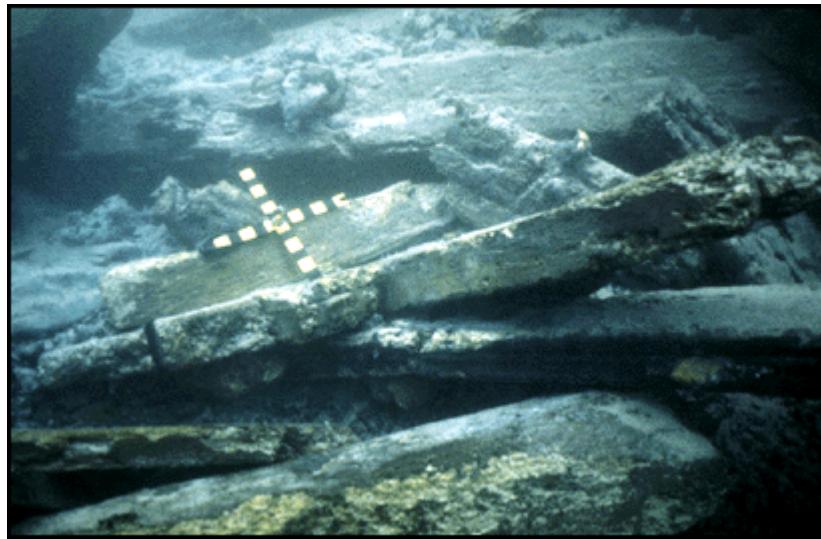
Lead finds included a small, folded scrap of lead sheet probably intended for patching material; five musket balls; a short section of wood-encased lead pipe, and a longer, bent section of lead pipe crimped at both ends. This piece, which measures 18-1/8 in. in length and 1-1/4 in. in diameter, probably represents part of the ship's original plumbing. A Native Hawaiian artifact was recovered in the form of a small, triangular piece of lava pierced from both sides with a hole at one corner. This is tentatively identified as a small reef anchor. Sixty-three concretions of varying shapes and sizes also were recovered and are undergoing radiography and other analyses at this writing.

Eighteen ceramic specimens were recovered from various trenches and from the surrounding reef, including two intact and three fragmentary bricks as well as shards of stoneware, earthenware, whiteware, pearlware and porcelain. Glass finds datable to the period of the wreck comprised case bottle fragments and the corner of a thin, clear window pane with bubble inclusions. The gin bottle remains appear to be from three different containers and therefore begin to build a body of evidence supporting missionary Hiram Bingham's contemporary assertion that spirits caused the royal yacht to wreck. Further research also should reveal whether a clear, very thin-walled curved glass fragment with remnants of fluting along one edge represents a tableware item (tumbler or goblet) from the wreck as well.

Organic Finds

Organic small finds from the 1996 campaign largely mirrored those from the 1995 season, with a few notable exceptions. Among the six bone fragments recovered, only one cattle (*Bos taurus*) and one chicken (*Gallus gallus*) bone could be positively identified; three more are large pig (*Sus scrofa*) or small cattle bones, one of which may show signs of butchery. Another of this group, identified as cattle due to its size, appears to be a tibia reworked into a long, tapered awl or polished shellfish meat pick. The last is the right mandible of a sheep or goat at least four years old. A fragment of a large, shallow gourd bowl ostensibly represents a Native Hawaiian poi bowl.

Several wood samples were recovered for sourcing and identifying. Most were associated with hull remains, although one appears to be a fragmentary gun carriage wheel. Several short sections of rope recovered from trench E12, where the hull remains were discovered, likely are associated with the hull. Two strips of thick leather, both with stitching holes along opposite edges, were found in the same area. The longer sample is 36 in. long, with the stitching along the long edges, remnants of reddish pigment (red lead?) on both sides, and one beveled end. These are tentatively identified as chafing gear, sewn around heavy line to prevent it from wearing through. A well-preserved wooden block (pulley) found in the same area was strapped with leather-covered rope; in this particular instance the leather may have served an aesthetic rather than protective purpose, since it was not intended to slide within its groove.



Broken outer hull planks remain fastened to a portion of the hull frame.

The Hull

These remains include what appear to be a portion of one of the ship's ends; partial floors and first futtocks; strakes (some with copper sheathing and lead patching still attached), and a possible deck beam with decking. All the major timbers were disassociated from their original positions within the hull; moreover, many were degraded and missing their edges and ends, rendering detailed measurement and interpretation difficult. Recording was further exacerbated by heavy rains and consequent flooding of the Waioli River, which cut through a sandbar at the river mouth and dumped silted flood water directly onto the site. Without going into too much detail at this point, we currently believe that this hull structure represents portions of the bow area of the ship, although further study is warranted prior to any final conclusions.

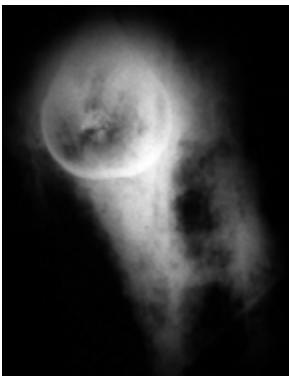
Also located and recorded were two sections of what appear to be molded rails or railings of various dimensions; one with a rounded upper surface appears to be a cap rail, despite its asymmetrical moldings on either side. The other had traces of red pigment on all four sides, indicating the original presence of paint. Samples were taken of all these timbers for wood identification.



Casting from a concretion of a two-tine iron fork missing its handle.

Related Research

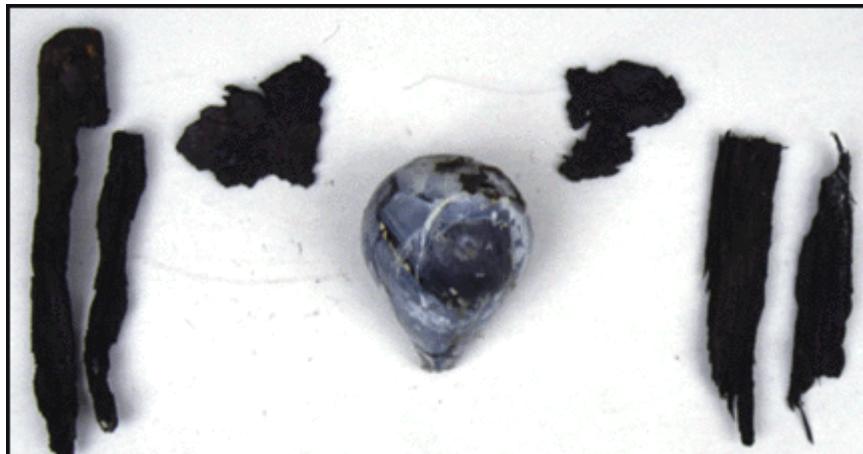
After the 1995 survey and subsequent radiography, several concretions with fasteners or multiple artifacts inside were forwarded to the Conservation Research Laboratory of the Nautical Archaeology Program at Texas A&M University for reduction and/or casting. A majority were wrought iron fasteners of various sizes concreted to other artifacts or to the surrounding sand. These were all mechanically cleaned, and where appropriate, cast with hysol epoxy and cosmetically enhanced to resemble the original artifact. Other artifacts emerging from the reduction process included an iron doorknob with square shaft and a T-shaped iron tool handle and partial shaft in a leather holster, which appears to represent a fragmentary sail maker's heaver or stitch mallet. A curved, wrought iron hook fashioned from flat strapping may be a doubletree, used for hanging pots over a hearth. Other concreted objects include a hollow, ovoid glass bulb and wooden frame fragments from a sand (or "hour") glass; a single-blade folding knife; a two-tine iron fork missing its handle; a rivet-ended and



X-ray of a concretion containing a glass bulb and wooden frame fragments from a sand (or "hour") glass.

washeder wrought iron eyebolt with an iron ring through it, and an eyebolt with a segment of leather-wrapped rope on an iron thimble through it.

And speaking of concretions, I have some news regarding the mystery concretion which increase & diffusion editor Bill Yardley turned into a contest. It just came out of radiography and I am sorry to say that all the guesses were off the mark. That included our own leading speculation - a small muzzle-loading sidearm, which many of you also had guessed. In fact, it turned out to be an artfully deceptive grouping of three wrought iron hull spikes. In my estimation, the only fair thing for Yardley to do is to send the most imaginative guesser a first-class round-trip ticket to Hawaii as a consolation prize.



After conservation: the glass bulb and wooden frame fragments of the sandglass are clearly visible.

Next Year?

Next Year? Will another season complete the fieldwork and provide answers to our growing list of questions? The discovery of portions of the hull at the reef, along with the furniture fragment were unexpected and most welcome finds; nothing observed on the site up to that point had indicated that such features would be preserved in the very dynamic littoral environment in which the wreck lies. Equally significant was the small assemblage of Native Hawaiian artifacts from the royal yacht, particularly in light of the paucity of material culture directly attributable to the early Hawaiian monarchy. More research should offer further insights into the significance of these and other finds from the 1996 season, increasing my desire for another diving season. Consequently, I am now seeking state and federal permits for at least one more season of excavation.



King Kamehameha II (Liholiho)

So if any of you should find yourselves in the vicinity of the north side of Kauai next July, pass right on by the plain where the velociraptors roamed in the blockbuster movie *Jurassic Park* and head straight for Hanalei Bay. When you get there, disregard for the moment the beautiful yachts moored in the warm bay waters, framed by the impossibly beautiful cliffs of Hawaii's youth. And pay no attention to the clichéd photo opportunity at the foot of the old sugar pier on the eastern side of the bay, where most of *South Pacific* was filmed. Instead, stroll

down to the western side of the bay, and stop right where the river cuts across the beach and empties into the bay. Look straight out over the water for a big, old blue-gray work boat anchored with a dive flag whipping at the mast head. That'll be us. If you're a strong swimmer and regularly ignore posted warnings about dangerous undertows, paddle on out for a visit. Just don't splash too much, and watch out for hungry tiger sharks on the way. If you make it, we'll offer a quick tour of the boat and a look at the latest finds....

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Aerial view of Hanalei Bay with Mt. Waialeale, the wettest spot on earth, in the background.

Acknowledgments

The 1996 excavation of Ha 'aheo o Hawaii was directed by Paul Forsythe Johnston of the Smithsonian Institution's National Museum of American History. Project staff included Stephen R. James, Jr. of Panamerican Consultants in Memphis, TN and Capt. Richard W. Rogers of Haleiwa, HI. Special thanks are due to Capt. Rogers for the use of his vessel. Topside assistance was provided by Sandwich Islands Shipwreck Museum members Michael Ingraham, Bobby Reis and Robert Spielman.

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Dr. Bruce Coulombe of Waimea, HI kindly made his aircraft available as a platform for aerial photography of Hanalei Bay and environs. Lolly Vann of East Carolina University oversaw artifact desalination and conservation; Thomas Ormsby of the National Museum of Natural History (NMNH) produced artifact drawings and Dr. Melinda Zeder of the NMNH analyzed the 1996 bones. Susan Lebo of the Bishop Museum in Honolulu reviewed the pottery and glass artifact assemblages and generously shared her knowledge of their chronology and contemporary distribution patterns in the Hawaiian islands. Radiography of the concretions was conducted by Camie Thompson and Melanie Feather of the Smithsonian Institution's Conservation Analytical Laboratory (CAL); Ron Cunningham of CAL assisted with the x-rays and is also analyzing the paint samples. Melvin J. Wachowiak, Jr. of CAL provided considerable insight into the furniture find. J. Richard Steffy was kind enough to review our documentation of the hull structure and offer suggestions as to interpretation.