HA'AEHO O HAWAII ARTIFACT CATALOG
HANALEI BAY, KAUAI
Compiled by Paul F. Johnston
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The state (SHPO) designated site number is 50-30-03-5000, located at Lat. 22°12.295/Long. 159°30.464. All dimensions are English mensuration (ft/in) since that is the standard to which the ship was constructed. This preliminary catalog is based upon field notes, measurements and x-ray study and may not accurately reflect the object (and/or its contents) once it has been studied further, conserved and/or reduced/cast (i.e. concretions). Desalination in tap and deionized water of all artifacts recovered has been completed. Objects that have been x-rayed and/or photographed are so noted in their descriptions (XR; C[olor]; B[lack]W[hite]). This catalog is under ongoing revision as new information is received.

Key to other acronyms/abbreviations:
BB=Black Buoy (unless otherwise noted, all artifacts were located at the bottom of the referenced test trench).
BU=Dr. Mary Beaudry and Brendan McDermott, Department of Archaeology, Boston University
CAL=Smithsonian Institution Conservation Analytical Laboratory, Suitland, MD (materials analysis and sourcing)
FT-IR=Fourier Transform Infrared Spectroscopy (Walter Hopwood @ CAL—CON21 and CON59 only).
KS=Kelly Smyth, historic ship’s blacksmith visited 4-5 February 2002 and reviewed all ship’s copper and iron
RT=Reef Trench (unless otherwise noted, all artifacts were located at the bottom of the referenced test trench).
SEM=Scanning Electron Microscope (Camie Campbell & Ron Cunningham @ CAL).
SHPO=State Historic Preservation Office, Honolulu, HI.
TAMU=Underwater Conservation Laboratory, Texas A&M University (complex concretion reduction, conservation and/or casting).
XR[1]=Number of concretion x-rays sent to TAMU for use in research and reduction process.
XRD=X-ray diffraction (Camie [Campbell] Thompson @ CAL).
XRF=X-ray fluorescence (Camie [Campbell] Thompson @ CAL).
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<td><strong>BONE (B)</strong></td>
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<tr>
<td>N.B.:</td>
<td>All bones transferred to Dr. Melinda Zeder, Curator, Anthro/NMNH for analysis on 2/XI/95; returned on 17/I/96 w/report.</td>
<td></td>
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<tr>
<td>B1</td>
<td>Intact bone button w/4 holes. Thread (hole area) is inset from rim; back surface is slightly convex. In good condition. Species and element unknown. C/BW.</td>
<td>$1/2 (D) \times 1/8 (T) \times 1/16$ (hole D)</td>
<td>BB</td>
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<tr>
<td>B2</td>
<td>Fragmentary cow (<em>Bos Taurus</em>) lumbar vertebra, transverse process, sawed (probably butchered). BW.</td>
<td>$2^{3/4} \times 1^{1/2} \times 7/8$ (T)</td>
<td>RT</td>
</tr>
<tr>
<td>B3</td>
<td>Cow (<em>Bos Taurus</em>) rib shaft fragment; smooth on one side, rough on the other. All edges are rough; no evidence of butchering. BW.</td>
<td>$3^{1/2} \times 3^{1/4} \times 1^{1/16}$ (T)</td>
<td>BB</td>
</tr>
<tr>
<td>B4</td>
<td>Domestic dog (<em>Canis familiaris</em>) right tibia distal end and shaft; top of proximal end missing. Bone is long and slender, prob. from tall, slender-limbed (gracile) breed. Discolored (blackened). C/BW.</td>
<td>$7^{1/4} \times 7/8 \times 1^{1/2}$ (D)</td>
<td>RT1B</td>
</tr>
<tr>
<td>B5</td>
<td>Pig (<em>Sus scrofa</em>) mandible fragment, in several pieces; prob. from missing section of B6, although no refit possible. BW.</td>
<td>$2^{3/8} \times 3^{1/4}$</td>
<td>RT1B</td>
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<tr>
<td>B6</td>
<td>Male domestic pig (<em>Sus scrofa</em>) lower mandible w/tusks and most teeth intact. Greater than three years of age (Zeder: too old for eating). Portion of mandible at symphysis between left and right jaw missing. One small fragment is a symphysis between right and left mandible, although no refit possible. C/BW.</td>
<td>$9 \times 5 \times 3$</td>
<td>RT1C</td>
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</table>
N.B.: B7–B12 transferred to Dr. Melinda Zeder at NMNH for inspection on 4/X/96; returned 6/XII/96. See her report of 27/XI/96.

**B7** Rib fragment (left) upper portion. Size consistent with large pig (*Sus scrofa*) or smaller cattle (*Bos taurus*). Distal end sawed; proximal head missing though no obvious signs of butchery. Prob. pig. C/BW.

**B8** Triangular bone fragment; prob. upper rib frag. near neck of rib. Consistent in size with B7; prob. the same species. Proximal tip may show signs of butchery. C/BW.

**B9** Right mandible of sheep or goat (caprine). Large older individual at least four yrs. of age or older; third molar fully erupted and in wear. No obvious signs of human modification. C/BW.

**B10** Right humerus (wing) bone of chicken (*Gallus gallus*). No obvious signs of human modification. C/BW.

**B11** Long, slender worked bone frag.; prob a long bone, poss. a tibia. Size prob. indicates cattle (*Bos taurus*). Surface polished. Bone awl/pick? See also C11. C/BW.

**B12** Scapula (left) of cattle (*Bos taurus*). Glenoid process, neck and ca. half of shaft. No obvious signs of human modification. C/BW.

**ANALYSIS:** Patrick V. Kirch, * Feathered Gods and Fishhooks* (Honolulu: UH Press, 1975) 189-93, fig. 170: “awls/picks...may have been used to split leaves into strips for mat-making; others are interpreted as picks for extracting shellfish meat.” Adrienne Kaeppler, 23/VII/01: poss. thatching needle, in which case it might be whalebone.
NMNH Vertebrate Zoology Curator Storrs Olson (SO) inspected the 1997 bones on 12/XI/97.

**B13**  Piece of bone triangular in section; broken at both ends w/ deep dent almost all the way through on one surface. C/BW.  
3 15/16 X 115/16  

**B14**  Fragmentary piece of hollow bone; one end broken off. BW.  
2 3/16 X 3/8  
TREATMENT/ANALYSIS: SO: prob. humerus from small, goose-sized bird; too small to identify positively. Transferred to Dr. Melinda Zeder at NMNH for inspection on 12/II/98. Zeder, 1998:1: Medium size mammal, limb bone shaft frag.  Can’t identify species or skeletal element. Frag. is consistent in size with other dog bones (i.e. **B15**, **B16**, **B17**). Returned 10/XII/02.

**B15**  Two fragmentary hollow, thin, tapered bones: (a) has one end eroded off; (b) has both ends eroded off. Ring Deposit (see **B21**). BW.  
TREATMENT/ANALYSIS: Storrs Olson: not bird; a cat-sized mammal or poss. fish. Transferred to Dr. Melinda Zeder at NMNH for inspection on 12/II/98. Zeder, 1998:1: *Canis familiaris* (dog) is likeliest; 1 rib frag. w/ head matches dog well; the other (**B16**) lacks distinguishing characteristics but is likely the same species. Both would represent a fairly small dog. Returned 10/XII/02.

**B16**  Fragmentary hollow (bird?) bone; upper joint (to pelvis?) intact.  
27/8 X 1/2 X 3/8  
B17  Curved, hollow bone; eroded on all sides. Ring Deposit (see B21). BW.  
1^{1/8} X 7/16  E14


B18  Large mammal bone; poss. toe? Ring Deposit (see B21). BW.  
2^{1/4} X 1 X 3/4  E13

TREATMENT/ANALYSIS: Transferred to Dr. Melinda Zeder at NMNH for inspection on 12/II/98. Zeder, 1998:1: Bos taurus (cow) 1st phalanx; bone is fused, so animal is adult (2+ yrs old.). Returned 10/XII/02.

B19  Squared section cut from upper tip of sperm whale’s tooth (i.e. ivory). 
Ring Deposit (see B21). C/BW.  
2 X 1^{1/2} X 1  E13

ANALYSIS: Jim Mead, Cetologist @ NMNH: from a whale >40-50 yrs old; poss. a female. Adrienne Kaeppler, 24/VII/01: poss. (ivory hook) debitage; poss. walrus rather than whale.

B20  Long section of sperm whale’s tooth (i.e. ivory); two long sides and one end are cut. The fourth surface appears to be part of the tooth’s root. 
C/BW. Ring Deposit (see B21).  
3^{7/8} X 7/8 X 1^{1/2}  E12

ANALYSIS: Jim Mead, Cetologist @ NMNH: thick end has characteristic line bet. dentine and the cement. Adrienne Kaeppler, 24/VII/01: poss. (ivory hook) debitage; poss. walrus rather than whale.

B21  Ivory finger ring; tan color. Found in E12, beneath the “keelson” timber in situ w/many other artifacts (=Ring Deposit): B15-19; W49-50; MISC15; HS41-42; C19 and G48-49. Jim Mead: not bone and not animal ivory; lacks characteristics of whale tooth. Almost certainly vegetal ivory; there are dozens of nuts of appropriate size and density. C (pre/post conservation)/BW/JPEG.  
In. Diam: 11/16; H: 5/16  E12
Out. Diam: 13/16

TREATMENT: Ring sent to TAMU 23/III/98; returned 14/X/99. Dehydrated in ethanol and water, then 100% clean acetone and
vacuumed for 2 hrs. Put in silicon oil w/cross linker, light 8-hr vacuum, excess oil removed and catalyst applied. Ring still has white deposit on external surfaces. See TAMU file B21. Slide with small sample and transparency sent to Dr. Natalie Uhl @ Cornell University 22/V/98 for identification of substance.

ANALYSIS: Rick Rogers, e-mail of 1/X/97: plant ivory was/is (?) an Indonesian export product; some sort of palm nut. Around the time of the recent ban on animal ivories, it was touted as an alternative; not much came of it. Sampled at NMAH by H. Alden/CAL, 30/1/98. N. Uhl, 9/XI/01: “the material may indeed be vegetable ivory from palms. I saw what I think are scleroids in both cross and long-section. They look like the photos in the enclosed xerox and resemble scleroids in the endosperm of Phytelephas seeds. Phytelephas as you may know is one of three genera of South America and Panama, which are known as the Vegetable Ivory palms.” PFJ: Dr. Uhl offers another person to contact in Denmark, who has worked extensively on the seeds, but in returning the biological slide to me it went through anthrax irradiation. The two slide transparencies were melted and the clear slide covers that held pictures are now a dark burgundy. I do not know what sort of condition the biological sample may be in.

See also CON151, which has a large mammal bone embedded in it.

1998

Dr. Mindy Zeder inspected the 1998 bones on 25 February 1999; see notes from Bone Review, 25/II/99

**B22** Disk-shaped bone frag. w/1 preserved original surface. C. 1/2 (diam) X 3/8 (t) E15

**ANALYSIS:** Zeder, 25/II/99: medium mammal (pig sized)—could be top of radius?

**B23** Section of bone w/1 end well preserved (joint); other end decomposed. 2-3/8 X 1 E15
In 2 pieces. Pig knuckle? Human (see below). C.

**ANALYSIS:** Zeder, 25/II/99: pelvic piece, prob. pig. >Zeder for further analysis. Zeder 19/IV/00: not pig pelvis, humerus or femur. Too dense to be bird? MZ intuition: young animal (bone sponginess and thinness of outside of bone). MZ retained **B23** and will show it around at NMNH. Bruno Frolich, NMNH Anthro., 20/XI/01: poss. 1st metatarsal foot bone) and distal ‘head’ of poss. 1st metatarsal of a sub-adult human (cortical bone v. thin). See BF report of same date.

**B24** Dark green, flat section of curved bone; no ends preserved. C. 2-3/4 X 1-1/2 X 3/4 (t) E16
ANALYSIS: Zeder, 25/II/99: left ischium (pelvis) from pig; prob. younger than B43.

B25 Long bone w/1 end intact and the other partially decomposed. C. 12 X 1-7/8 E18


B26 Section of long, tapered bone—poss. worked? C. 2-5/8 X 1/2 X 1/4 (t) E18


B27 Fragmentary bone joint. Human (see below). C. 2 X 1-1/2 X 7/8 (t) E18


B28 Large tooth, worn on chewing surface. C. 2 X 1-1/2 X 5/8 (t) E18

ANALYSIS: Zeder, 25/II/99: left lower 3rd molar of small, adult cow (erupted and worn).

B29 Section of bone, decomposed at both ends. Human (see below). C. 4-3/4 X 3/4 E18

ANALYSIS: Zeder, 25/II/99: tibia-esque bone from young mammal (or big bird?). >Zeder for further analysis. Zeder 19/IV/00: definitely humerus (upper arm bone); possibly human child. Zeder retained to show to NMNH physical anthropologist. Which side? Bruno Frolich, NMNH Anthro., 20/XI/01: Human humerus, child, 4 yrs old, +/- 1 yr. See BF report, same date.

B30 Chicken-thigh-sized bone; 1 end missing. C. 2-3/8 X 3/4 E18

ANALYSIS/TREATMENT: Zeder, 25/II/99: human metapodial (hand or poss. toe bone [not finger]). Doug Ubelaker, NMNH Anthro,
1/VI/99: 2nd or 3rd human right metatarsal (foot arch); older than age 10. Distal end of bone missing; no observation of epiphyseal union possible. This bone was desalinated in deionized water with the rest of the bones, kept wet and shipped with B35 to Nancy McMahon via FedEx on 17/VI/99.

**ANALYSIS:**

**B31**  Surface frag. of bone—no ends preserved. Broken in 2 pieces during shipment. C.  3 X 3/8  E18

**B32**  Small, blackened tooth w/slightly worn chewing surface. C.  5/8 X 3/8 (t)  E19


**B33**  Small, blackened bone in 2 pieces; joints on both ends. Bird? C.  15/16 X 5/16  E19

**ANALYSIS:** Zeder, 25/II/99: almost completely disintegrated; not identifiable. Photo >Zeder.

**B34**  Small, intact bone; both ends (joints) preserved. Bird or rodent? C.  5/8 X 1/4  E19

**ANALYSIS:** Zeder, 25/II/99: smallish phalange/1st phalanx of carnivore; could be dog. >Zeder for further analysis. Check w/Mike Carleton, NMNH Mammals. Doug Ubelaker, NMNH Anthro, 1/VI/99: proximal phalanx, too small and wrong morphology for human. Epiphysis united=mature animal.

**B35**  Long, thin bone; both ends partially decomposed. Somewhat triangular in section. C.  13-1/2 X 3/4  E16

**ANALYSIS/TREATMENT:** Zeder, 25/II/99: long human fibula. Doug Ubelaker, NMNH Anthropology, 1/VI/99: adult-size human fibula but both ends missing (i.e. right/left side not easily derived). Post-mortem erosion. This bone was desalinated in deionized water with the rest of the bones, kept wet and shipped with B30 to Nancy McMahon via FedEx on 17/VI/99.

**B36**  Long section of bone (rib?), split along length. No signs of workmanship.  11-1/4 X 7/16  E26

B37  Long section of bone (rib?), split along length. No signs of workmanship. 8-1/4 X 3/4  E26


B38  Frag. of flattened, blackened bone w/swelling on 1 side (to missing joint). 5 X 1-5/6 X 1/2 (t)  E19

ANALYSIS: Zeder, 25/II/99: right ulna of big, adult pig (since fused).

B39  Curved rib bone (cow?); decayed w/no ends preserved. Greenish patina. 7-3/4 X 7/8  E20

ANALYSIS: Zeder, 25/II/99: rib; poss. human (size) or could be big pig or small cow. Doug Ubelaker, NMNH Anthropology, 1/VI/99: not consistent with human (too robust).


B41  Long sliver of bone, tapering to blunt point. Edges worn. C. 8-3/4 X 1-1/4  E21


B42  Partially blackened tooth w/1 end worn and the other broken. C. 1-3/4 X 3/4  E21

B43  Blackened pelvic bone frag.—dog/pig? C.  3-1/2 X 2-1/2  E22

ANALYSIS: Zeder, 25/II/99: right ischium and pubis from young pig pelvis (unfused).

B44  Gray/green bone frag. w/1 swollen end. C.  3-1/2 X 2-1/2  E23


B45  Flattened, curved section of bone w/part of 1 end preserved—other decayed. C.  2-1/8 X 1-3/4 X 3/8 (t)  E24


ANALYSIS: Zeder, 25/II/99: right ischium (pelvis) fragment from young pig.

B47  Flat bone frag.—both ends decomposed; gray discoloration. C.  2-3/4 X 1-1/4 X 1/4 (t)  E24

ANALYSIS: Zeder, 25/II/99: left ischium from very young pig, so different individual from either B24 or B43.

B48  Large bone end, w/straight-cut butcher saw marks on 1 end. C.  4 X 2-1/2  E25

ANALYSIS: Zeder, 25/II/99: sawn cow femur. >Zeder for further analysis. Zeder 19/IV/00: distal femur of right cow leg. Distal end unfused=not a calf. Could be several years old (up to six)=edible. MZ will do age research on it.

B49  Long, serrated animal tooth w/intact root and chewing surfaces. C.  2-3/4 X 1 X 1/2 (t)  E27
ANALYSIS: Zeder, 25/II/99: lower left cheek tooth from equid (donkey/mule); prob. smaller than horse, and sharp, V-shaped cusp indicates donkey likelier (due to size and cusp).

2000

B50 Long bone w/1 end intact and the other partially eroded away. 6-1/4 X 1-1/4 E34
Goat/sheep? C.

ANALYSIS: Zeder, 26/XI/01: left fibia of sheep/goat; unfused @ both ends=<24 months old.

B51 Thick bone; 1 end intact and the other half-eroded away. Beef? C. 6-3/4 X 2-1/8 E36

ANALYSIS: Zeder, 27/XI/01: cow right metacarpal. Unfused @ end=2-3 yrs. Old.

B52 Rib bone w/1 end and part of joint on other end eroded away. C. 6-3/4 X 1 X 3/8 E41

ANALYSIS: Zeder, 27/XI/01: left rib frag., cattle-sized animal.

CERAMICS (CER)

N.B. All ceramics are wheel-thrown unless otherwise specified. SG=Steve Gould preliminary assessment. Laboratory analysis by BU=Dr. Mary Beaudry and Brendan McDermott, Department of Archaeology, Boston University. Ceramics were forwarded to BU for analysis on 17/X/95 and returned on 6/III/96. Susan Lebo (SL) of the Anthropology Dept. at the Bishop Museum examined the ceramics on 31/XII/96 and XX/XII/03.

CER001 Chinese, ginger jar, stoneware, base fragment, gray matrix, brown natural clay slip (interior) and green glaze (exterior). C/BW. 3¹/₄ X 2¹/₄ X 3³/₁₆ (Twall) RT
X ³/₃₂ (Tbase)

ANALYSIS: SG: part of ginger jar for preserved ginger. SL: Ginger jars occur in a variety of shapes and sizes and with several kinds of glazes. The term “ginger jar” is a generic term and does not correlate with contents. Several types of green-glazed stoneware jars were
made, including a rotund form and a straight-sided, multi-faceted jar. Both were used to hold various preserved foods, including chopped garlic, sliced turnip, green onions, sweet gherkins, green plums, and preserved fish. The straight-sided jars also contained fish pastes, cosmetics, and medicinal creams (Lister and Lister 1989; Ritchie 1986). Some ginger jars have been found in Hawai‘i in assemblages dating after 1850.

**CER002**  Chinese, small jar (food or spouted) or liquor bottle, stoneware, wheel-thrown, 2 X 1\(3/8\) X 1\(1/8\) (T)  
body fragment, gray matrix, natural clay slip (interior and exterior). C/BW.

**ANALYSIS:** SG: part of shoyu pot for cooking/gee oil. Could also be “bean pot” used in later 19th century (1880s–ca. 1900). BU: Chinese stoneware body fragment from straight-sided jar. Light gray body, dark brown glazed exterior and brown interior w/ somewhat lighter speckles. SL: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

**CER003**  Chinese, liquor bottle, stoneware, wheel-thrown, base only fragment, pale pinkish to light gray (two-tone paste indicative of uneven firing), brown natural clay slip (interior, exterior not present). C/BW.

**ANALYSIS:** SL: These mass-produced spirits bottles may have contained a variety of alcoholic beverages. The style found on this site corresponds with the second of three styles described by Olsen (1978). They have been found on many late 19th-century sites in New Zealand, Hawaii, and the American West (Lister and Lister 1989; Brott 1989; Ritchie 1986). BU: Triangular coarse earthenware fragment. Body light brown to light orange (near interior surface). Apparently from vessel of large diameter (ca. 8 in [20 cm]), but has thin walls for such a large vessel. Unlikely to be a flatware due to its curvature. Unglazed, light orange interior, w/grayish-green exterior glaze dulled poss. by long sea water exposure. Does not resemble English or American types.

**CER004**  English-American, hollowware, pearlware, body fragment, white to -white matrix, clear glaze with slight blue tint/puddling, handpainted “Annular” banded motif (three brown bands) and bright green fragment which may be of “mocha” motif, badly waterworn. C/BW.
ANALYSIS: SL: annular banded is all on hollowwares (cups, bowls, tankards); the projected interior diam. will tell (Coke can=cup). SL, XII.03: Annular banded decorations involves the use of applied horizontal bands or stripes of colored slip. Dipt or mocha is a type of decoration achieved by dipping or brushing an acidic mixture into an area of colored slip, often in various shapes (Majewski and O’Brien 1987; Sussman 1997). Annular decorations date from about 1790 in England and c. 1850 on the U.S. mainland. They occur on pearlware tablewares date c. 1790-1820, while mocha decorations date c. 1795-1840 (South 1977). BU: Worn, triangular hollowware body frag. of annular type. Glazing worn off both interior and exterior, leaving exterior underglaze decoration of three brown stripes and a trace of green at one corner. Without glazing, creamware or pearlware is indeterminate. Annular creamware mfg. dates=1780–1815; annular pearlware mfg. dates=1790–1820.

CER005 Chinese, large storage jar, stoneware, wheel-thrown, body or base fragment(?), pale buff to pinkish tan matrix, brown natural clay slip (one surface). In 3 pieces. BW.

ANALYSIS: SL: Some sort of stoneware; American stoneware didn’t come to HI. SL, XII/03: Large stoneware storage jars of various shapes, sizes, rims, and glazes served as containers for an assortment of liquids. These liquids include peanut oil, vinegar, bulk wine and bulk soy sauce. Such containers are widely documented at sites in Hawaii and the American West beginning in the mid-19th century (e.g., Goodwin et al. 1996; Lebo 1997; Lister and Lister 1989; Brott 1987; Pastron 1981). BU: Coarse earthenware of unknown vessel type, in three heavily-concreted pieces. Body is pinkish-orange w/ no discernible glazing beneath surface concretion. Odd shape w/ no flat surfaces suggests poss. a roofing tile frag. Pinkish-buff body reminiscent of Spanish majolica.

CER006 Red brick frag. (± half), discolored on one edge. American(?), Type 17, orange-red, worn fragment with slightly rounded edges, four original surfaces remaining (max. width and thickness determined), portion discolored (black), mortar adhering. BW.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture. BU: Well-fired brick
frag. Some white surfacing at one end suggests it may have been used for building purpose or poss. from ship cook stove.

CER007  Thick ceramic tile (?) frag. w/partial “R” and stepped fillet/lip. C/BW.  4¹/₄ X 3¹/₈ X 1/₂ (Tmax)  REEF
Chinese, large storage jar, stoneware, wheel-thrown, body or base fragment(?), pale buff to pinkish tan matrix, brown natural clay slip (interior), possible “H” or “Y” or upside-down “A” on interior. (not trench)

ANALYSIS: SL: prob. a large Chinese storage vessel. Has brown glaze on interior, “H” or “Y” or upside-down “A” on interior. SL, XII/03: Large stoneware storage jars of various shapes, sizes, rims, and glazes served as containers for an assortment of liquids. These liquids include peanut oil, vinegar, bulk wine and bulk soy sauce. Such containers are widely documented at sites in Hawaii and the American West beginning in the mid-19th century (e.g., Goodwin et al. 1996; Lebo 1997; Lister and Lister 1989; Brott 1987; Pastron 1981). BU: Thick, coarse earthenware frag., resembling cement. Prob. from a large, flat object (tile or covering), but only part of rim/lip with fillet is preserved. Upper surface extensively pitted, prob. due to seawater immersion, preventing determination of glazing, decoration, etc. Underside smooth, in better condition, partially imprinted with an “R.” Best impression: 20th century, or no earlier than late 19th century.

CER008  German, bottle, stoneware, wheel-thrown, body fragment, gray matrix,
2 X 7/₈ X 3/₁₆ (T)
brown- gray salt glaze (interior and exterior). Heavy throw marks. C/BW.

ANALYSIS: SL: CER8 and CER22 are the same. These bottles were mass-produced in Germany, although many are stamped “Nassau.” They commonly contained mineral waters, which were bottled in Europe beginning in the late 18th century. Their production continued into the 20th century. They were widely imported into the U.S. beginning in the 1840s (Greer 1981; Munsey 1970; Schultz et al. 1980). BU: Stoneware bottle body frag., ca. 2¹/₄ – 3¹/₂ in (6–8 cm) in diameter. Body is both light and dark gray from uneven firing never reaching the center. Grayish-brown slipped interior and brown exterior glaze, well-worn from being underwater and therefore impossible to tell whether or not saltglazed. Prob. 19th or early 20th century American.

CER009  Chinese, small food jar or spouted jar, stoneware, wheel-thrown, body
3¹/₄ X 2¹/₄ X 1⁸/₃₂ (Tvariable)  BB
fragment, gray matrix, brown natural clay slip (interior and exterior; interior only lightly covered). Prob. part of CER14. C/BW.

ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii
beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986). SL: may be part of CER14; prob. part of a food/shoyu jar w/distinctive base. SG: Prob. shoyu pot; possibly “bean pot.” Very common in late 1800s. BU: Chinese brown stoneware vessel frag, poss. from spouted jar or some type of storage vessel (cf. Jerry Wylie and Richard E. Fiske, “Chinese opium smoking techniques and paraphernalia,” in Priscilla Wegars (ed.), Hidden Heritage: Historical Archaeology of the Overseas Chinese (Amityville, NY: Baywood Publishing Co.) 255-306; Donna M. Garaventa and Allen G. Pastron, “Chinese ceramics from a San Francisco dump site,” in Albert E. Ward (ed.), Forgotten Places and Things: Archaeological Perspectives on American History (Albuquerque, NM: Center for Anthropological Studies, 1983) 295-320 and figs. 2-4). Poss. from same vessel as CER14.

CER010  Chinese, small food jar or spouted jar, stoneware, wheel-thrown, body-base 4^{15/16} (OutDiamBase)  
BB  
fragment, brown natural clay slip (interior and exterior). C/BW.  
ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986). SG: base of shoyu pot. BU: Base sherd for Chinese brown stoneware spouted jar; see references for CER 9, above. In four pieces, with a diameter of 6–6\(\frac{3}{8}\) in (15–16 cm). Foot and underside of base are unglazed. SL: prob. part of a food/shoyu jar w/distinctive base.

CER011  English-American, large hollowware, redware, wheel-thrown, red-brown matrix, brownish black lead glaze (interior and exterior), badly weathered.  
C/BW.  
ANALYSIS: SL, XII/03: Red earthenwares with manganese-black glaze were primarily utilitarian vessels for domestic and tavern use. They were made in New England west to Ohio, south to Virginia, c. 1780-1870 (Ketchum 1983). Baker (1978) dates these vessels as 18\(^{th}\) or 19\(^{th}\) century (see also Noël Hume 1969; Turnbaugh 1985). Few brown- or black-glazed redware vessels occur in archaeological contexts in Hawaii. The few known examples are from early Honolulu and date before 1840 (Garland 1996). BU: Redware fragment, too small to determine vessel shape or function. Small specks of apparently dark brown glazing on several surfaces. Redware dates from 1700–1830 and is so common that this piece could have been deposited anytime in the 19th century. Modern equivalent: glazed
flowerpots.

**CER012**  Chinese, liquor bottle, stoneware, wheel-thrown, body-base fragment, off-white to tan matrix, brown natural clay slip (interior and exterior), “two-tone” exterior color style (dark brown upper body, lighter brown on lower base and footing). C/BW.

**ANALYSIS:** SL, XII/03: These mass-produced spirits bottles may have contained a variety of alcoholic beverages. The style found on this site corresponds with the second of three styles described by Olsen (1978). They occur on many late 19th century sites in New Zealand, Hawaii, and the American West (Lister and Lister 1989; Brott 1989; Ritchie 1986). SL: part of a wine bottle or tiger jar; postdates site. SG: could date to wreck period. BU: Two frags. of base of vessel or bowl ca. 3\(\frac{1}{2}\) in (8 cm) in diameter. Cream-colored body w/ thin, light yellowish-brown glazing. Does not resemble any familiar English or American type but does bear some resemblance to bowls or “covered boxes” from the Hatcher junk (cf. Sheaf and Kilburn 1988, referenced above). This example, however, bears no Chinese characters on its base like the Hatcher pieces.

**CER013**  Chinese, small food jar or spouted jar, stoneware, wheel-thrown, base fragment, gray matrix, brown natural clay slip (interior and exterior). Poss. part of **CER2**. C/BW.

**ANALYSIS:** SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986). SL: prob. part of a food/shoyu jar w/ distinctive base. SG: Prob. part of shoyu pot. BU: Chinese brown stoneware base frag. to spouted jar ca. 4\(\frac{3}{4}\) in (12 cm) in diameter.

**CER014**  Chinese, small food jar or spouted jar, stoneware, wheel-thrown, body frag. gray matrix, brown natural clay slip (interior and exterior). Prob. part of **CER9**. C/BW.

**ANALYSIS:** SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii
beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986). SL: shoyu pot; postdates site and may be part of CER9. SG: a bit thicker than shoyu pot; poss. “bean pot?” BU: Chinese brown stoneware body frag. in two pieces, poss. from same vessel as CER9.

CER015 Japanese, tea or sake cup, porcelain, rim-base-footing fragment, white to off-white matrix, clear glaze, undecorated. C/BW. 17/8 (H) X 21/2 (LipDiam) BB X 11/4 (BaseDiam)

ANALYSIS: SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations. SL: prob. 1840s/1850s w/establishment of Honolulu’s Chinatown; postdates site. BU: Porcelain teacup frag. slightly less than half the original cup. Cup was just under 21/2 in (6 cm) in diameter and undecorated. Prob. 19th century, but w/o decoration it is difficult to tell.

CER016 English, cup/small bowl, pearlware, body-base-footing fragment, white to off-white matrix, clear glaze with slight blue tint/puddling, undecorated, “Y” mark on base. C/BW. 2 X 21/4 X 7/8 (H) REEF SURVEY

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840. SG: prob. English; poss. American. Ca. 1870s. BU: Earthenware footram base frag., less than 21/2 in (6 cm) in original diameter. Some blue pooling in crevice above footrim, which does not resemble classic pearlware. Thus, this is poss. a later pearlware or early whiteware (1830–1840?), poss. to a teapot-type vessel. Base impressed with a “Y” not matching any known potters’ marks. Nearest comparison: William Absolon of Yarmouth, Norfolk (1784–1815), but Absolon’s mark incorporates several other devices lacking on this piece, and his production period appears to have been too early (cf. Geoffrey A. Godden, Encyclopedia of British Pottery and Porcelain Marks (NY: Bonanza Books, 1964):19). Single impressed letters may also indicate size or color, but they are usually used in combination w/other letters and a full potter’s mark. SL: pearlware; prob. cup (or small bowl).
Summary of 1995 Ceramics (BU): Of the 16 ceramic fragments examined, only the annular ware sherd (CER4) is probably contemporary with the wreck. The Chinese brown stonewares (CER 2, 9, 10, 13 and 14), representing at least three separate vessels, may also date to the wreck, but the type was produced well into the 20th century, so association cannot be positively determined. Same for the stoneware (CER8), redware (CER11) and porcelain teacup (CER15), which also had lengthy production periods. CER16 seems to be mid-19th century; if the potter’s mark could be identified, it could be more closely dated. CER5 and CER7 appear to be late 19th or early 20th century. CER 1, CER3 and CER12 are dissimilar to any familiar American or British wares. They may be Chinese, but without identification their deposition dates is unknown. The brick fragment (CER6) may be from the ship’s cook stove.

See Brendan McDermott, “A Descriptive Catalog of Ceramic and Glass Artifacts Excavated from Hanalei Bay,” Report from Boston: Department of Archaeology, Boston University, 1996. 5 pp. On file at NMAH.

SL: 1995/96 bricks from the site are small; none appear machine-made. The bulk of the trade in ceramics after the 1790s inter-island wars was in pearlwares, which is more prevalent than creamware.

**1996**

**CER017**  Chinese, liquor jug, stoneware, wheel-thrown, body fragment, off-white matrix, brown natural clay slip (interior and exterior), interior “seam” or joint present. BW.

**ANALYSIS:** SL, XII.03: These mass-produced spirits bottles may have contained a variety of alcoholic beverages. The style found on this site corresponds with the second of three styles described by Olsen (1978). They have been found on many late 19th-century sites in New Zealand, Hawaii, and the American West (Lister and Lister 1989; Brott 1989; Ritchie 1986).

**CER018**  Chinese, small food jar or spouted jar, stoneware, wheel-thrown, base frag. tan matrix, brown natural clay slip (interior, exterior not present). BW.

**ANALYSIS:** SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986). SL: postdates site.
**CER019**  English, platter, pearlware, body-flat base (w/o footring), white to off-white matrix, clear glaze with slight blue tint/puddling, undecorated. BW.  

**ANALYSIS:** SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and can not be more finely dated than c. 1780 to 1840. SL: prob. pearlware (slight blue-green tint).

**CER020**  English, plate, pearlware or early whiteware, rim-cavetto fragment, white matrix, clear glaze, undecorated, stained with metal, brick, and mortar concretion adhering. BW.  

**ANALYSIS:** SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Transitional whitewares, introduced c. 1820, generally have a denser paste than pearlwares and their glaze tinge lacks the slight greenish hues sometimes evident on early 19th century pearlwares. Pastes varies from highly porous, like pearlwares, to semiporous, more closely similar to early whitewares (Moir 1987). Like pearlwares, these transitional whitewares often exhibit “edged” motifs, transfer-print designs, or hand-painted patterns. This fragment is undecorated and is too small to distinguish between pearlware or transitional whiteware.

**CER021**  English-American, nappy, yellowware, rim-body frag., yellow matrix with clear alkaline glaze. Relief-molded “wave” pattern on rim interior. BW.  

**ANALYSIS:** SL, XII/03: Yellowwares exhibit a yellow or buff matrix or paste and commonly a clear lead or alkaline glaze. The earliest yellowwares were plain, undecorated wares. Decorated methods were in use in the American yellowware industry by the 1830s-1840s. Yellowware nappies, stacked bowls, were widely produced in both England and the U.S. about 1850-1900 (Ketchum 1987; Leibowitz 1985). SL: British yellow ware, known as nappy. Postdates site; relief mold=1830s/1840s style.

**CER022**  German, bottle, stoneware, wheel-thrown, body frag., gray matrix, brown-gray salt glaze (exterior). BW.  

**ANALYSIS:** SL, XII/03: Yellowwares exhibit a yellow or buff matrix or paste and commonly a clear lead or alkaline glaze. The earliest yellowwares were plain, undecorated wares. Decorated methods were in use in the American yellowware industry by the 1830s-1840s. Yellowware nappies, stacked bowls, were widely produced in both England and the U.S. about 1850-1900 (Ketchum 1987; Leibowitz 1985). SL: British yellow ware, known as nappy. Postdates site; relief mold=1830s/1840s style.
ANALYSIS: SL, XII/03: These bottles were mass-produced in Germany, although many are stamped “Nassau.” They commonly contained mineral waters, which were bottled in Europe beginning in the late 18th century. Their production continued into the 20th century. They were widely imported into the U.S. beginning in the 1840s (Greer 1981; Munsey 1970; Schultz et al. 1980). SL: CER8 and CER22 are the same. Date is good for the wreck. Either British or German; if Brit, then ink or mucilage bottle (only difference is in the lip). If German, a mineral water bottle—very popular in 19th century Hawaii.

CER023  Chinese, liquor jug, wheel-thrown, stoneware, body-base frag., off-white matrix, brown natural clay slip (exterior), “two-tone” exterior color style (dark brown upper body, lighter brown on lower base and footring). C/BW.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER024  American(?), brick, Type 3, yellowish-tan, hand-molded, worn fragment with angular edges, two original surfaces remaining (max. width determined), narrow width, porous, compacted matrix.

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Transitional whitewares, introduced c. 1820, generally have a denser paste than pearlwares and their glaze tinge lacks the slight greenish hues sometimes evident on early 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER025  English, plate, pearlware, cavetto-body fragment, white to off-white matrix, clear glaze with slight blue tint/puddling, undecorated. BW.
century pearlwares. Pastes varies from highly porous, like pearlwares, to semiporous, more closely similar to early whitewares (Moir 1987). Like pearlwares, these transitional whitewares often exhibit “edged” motifs, transfer-print designs, or hand-painted patterns. This fragment is undecorated and is too small to distinguish between pearlware or transitional whiteware. SL: dates to period of wreck.

**CER026**  American(?), brick, Type 6, orange, hand-molded, whole with angular edges, all original surfaces remaining (max. length, width, thickness determined), few large inclusions and vesicules, compacted matrix. C/BW.

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (compactness, angularity and regularity of the edges, durability) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates after 1850 (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**CER027**  Chinese, large hollowware/possible teapot, porcelain, body-base-footring fragment, off-white matrix, clear glaze, hand-painted cobalt blue unidentifiable (too small) motif, probably had Canton or Nanking rim border motif. BW.

**ANALYSIS:** SL, XII/03: Canton and Nanking are unglazed blue porcelains decorated with a pseudo-Chinese willow pattern. These ceramics are distinguished by their rim border designs. Canton ceramics have a swag or cloud border, whereas Nanking ceramics possess border designs with daggers or spearheads below the inner edge. The Nanking pattern is more carefully painted in a darker shade of blue and more refined than the Canton pattern. Both patterns were made in kilns in Ching-tê-Chen and were most common during the early nineteenth century (Noël Hume 1970; Schiffer et al 1975). SL: from large Chinese export traveling teapot (Canton/Nanking); high status piece.

**CER028**  Chinese, rice bowl, porcellaneous stoneware, wheel-thrown, rim-base fragment, hand-painted cobalt blue “Three Circles and Dragonfly” motif. foot base diam: 2³/₈ C/BW.
ANALYSIS: SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans (Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawai’i (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. These wares were produced in large quantities from the Ming dynasty well into the twentieth century. The “Three Circles and Dragonfly” motif is known by more than a half dozen names (Lebo 1997). These wares were available overseas prior to 1850, but whether prior to 1825 remains unknown. SL: Chinese porcellaneous stoneware rice bowl with a “Three Circles and Dragonfly” pattern, which handpainted cobalt blue deco. has a variety of names, inc. “Bamboo.” Most common in HI during the 2nd half of the 19th century; a few found in earlier deposits but uncommon until after the estab. of Honolulu’s Chinatown in the early 1850s. See her pers. comms of 21&24/VI/97; her biblio. on this is Jones, Patricia Hagan, A Comparative Study of Mid-19th Century Chinese Blue-and-White Export Ceramics from the Frolic Shipwreck, Mendocino County, CA (San Jose State University Master’s thesis, 1992) and Fred W. Mueller, “Asian Tz’u: Porcelain for the American Market,” in Great Basin Foundation (ed.), Wong Ho Leun: An American Chinatown (San Diego, Great Basin Foundation, 1989) 259-311. Louise Cort, Smithsonian (Sackler), 22/IV/97: coarse blue and white porcelain tableware (food bowl) for the domestic Chinese market; from south-central kiln (Fujian or Guangdong Provinces). Bamboo and plum motifs handpainted on external surface; no pine motifs noticed (=the 3 commonly shown together). Wear patterns consistent with normal use (metal chopsticks). Common to 18th-20th centuries. See Chuimei Ho, “Minnan Blue-and-White Wares: An Archaeological Survey of Kiln sites in 16th-19th Centuries in South Fujian, China,” BAR 428 (1988) 218: pl. 43. Ho now @ Chicago Field Museum; fax: 773/296-6298. Cort: check also California arch. sites w/Chinese present and Christie’s shipwreck auction catalogs.

TREATMENT: bathed in deionized water until salts negligible; slow air-dry.

CER029  English, plate, pearlware, body-base-footring fragment, white to off-white matrix, clear glaze with slight blue tint/puddling, undecorated. BW. 1½ X 7/8 X 3/16 (T) E11

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840. SL: dates to period of wreck.

CER030  English-American, small plate, pearlware, asymmetrical scalloped rim frag., off-white matrix, clear glaze with slight blue tint/puddling, incised and hand-painted blue “edged” motif. C/BW. 1¼ X 1 X 1¼ (T) E11
ANALYSIS: SL, XII/03: A variety of rim decorations were produced on refined earthenwares, including “edged” motifs. The best known of these “edged” motifs is the shell edge pattern. South (1977) dates blue “edged” pearlwares to ca. 1780-1830. Hunter and Miller (1994) identify the asymmetrical, undulating scallop rim with curved lines as dating c. 1775-1800. SL: see George Miller article, *Antiques* (1994) for typology.

CER031  Chinese, large dish (plate form), porcellaneous stoneware, wheel-thrown,  1\(\frac{1}{2}\) X 2\(\frac{1}{4}\) X \(\frac{1}{4}\) (T)  E11 body-base-footring fragment, off-white matrix with clear glaze, hand-painted cobalt blue “Allah” motif. C/BW.

ANALYSIS: SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans (Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawai`i (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. These wares were produced in large quantities from the Ming dynasty well into the twentieth century. Plate or dish forms exhibiting the “Crysanthemum” or “Allah” motif were among the earliest Chinese porcelains and porcellaneous stoneware vessels found in domestic contexts in Hawai`i. These decorated wares probably available prior to 1825 (Lebo 1997). SL: porcellaneous stoneware dish frag. w/handpainted allah or pattern; cf. Willets and Poh. Fits traditional soup/stew dish; also fits communal habits. Has selective value. Orig. 8-12 in. diameter. Most common dish pattern, found at every site in downtown Honolulu.

CER032  Chinese, liquor bottle, stoneware, wheel-thrown, body frag.,  1\(\frac{1}{2}\) X 1\(\frac{1}{2}\) X \(\frac{3}{16}\) (T)  E11 brown natural clay slip (interior and exterior). BW.

ANALYSIS: SL, XII/03: These mass-produced spirits bottles may have contained a variety of alcoholic beverages. The style found on this site corresponds with the second of three styles described by Olsen (1978). They have been found on many late 19th-century sites in New Zealand, Hawaii, and the American West (Lister and Lister 1989; Brott 1989; Ritchie 1986). SL: prob. wine jug; postdates site.

CER033  American(?), brick, Type 12, red-orange, hand-molded, whole with angular  6\(\frac{3}{4}\) X 3\(\frac{1}{4}\) X \(\frac{3}{4}\) (T)  E12 edges, all original surfaces remaining (max. length, width, thickness determined), few inclusions or vesicules, compacted matrix, mortar adhering. C/BW.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been
found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (compactness, angularity and regularity of the edges, durability) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates after 1850 (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**CER034**  
American(?), brick, Type 13, red-brown, hand-molded, worn frag. with four original surfaces remaining (max. width and thickness determined), oversized, porous, compacted matrix, mortar adhering.  

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**1997**


**CER035**  
Chinese, rice bowl, porcellaneous stoneware, wheel-thrown, rim-body frag., gray matrix with clear glaze, hand-painted cobalt blue “Three Circles and Dragonfly” motif.  

**ANALYSIS:** SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans (Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawai’i (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. These wares were produced in large quantities from the Ming dynasty well into the twentieth century. The “Three Circles and Dragonfly” motif is known by more than a half dozen names (Lebo 1997). These wares were available
overseas prior to 1850, but whether prior to 1825 remains unknown. SL: prob. a rice bowl, either “bamboo” or “three circles and dragonfly”; prob. mid-19th c. Very common in HI.

CER036  English, plate, pearlware, base-footing fragment, white to slightly off-white matrix, clear glaze with blue tint/puddling, undecorated, badly waterworn. BW.

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840. SL: blue-tinted, low-fired plate frag., 1850-1910.

CER037  English-American, plate, creamware, rim-cavetto frag., white to slightly cream-colored paste, clear glaze with slight yellowish-green tint, undecorated. BW.

ANALYSIS: SL, XII/03: Creamwares have an off-white or cream body and a lead glaze, which often appears yellowish or yellow-green where it puddles. Production of these wares began c. 1762 and continued through 1820 (Noël Hume 1970, 1973; South 1977). SL: not tinted; 2nd half of 19th c. (size and discoloration make firm date difficult).

CER038  English, possible plate, pearlware, body frag., white to off-white matrix clear glaze with slight blue tint/puddling, undecorated. BW. Poss. from same vessel as CER39.

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840. SL: blue-tinted, low-fired, English whiteware; not ironstone. 1850-1910.

CER039  English, plate, pearlware, body-base-footing fragment, white to slightly off-white matrix, clear glaze with blue tint/puddling, undecorated, discolored
and worn. BW.

Poss. from same vessel as CER38.

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840. SL: blue-tinted, low-fired, not ironstone. 1850-1910; shape probably ca. 1850. SG: prob. from wreck, poss. w/loss of blue coloring.

CER040 Chinese, liquor bottle, stoneware, wheel-thrown, body frag. with “seam” 3\(\frac{3}{4}\) X 3\(\frac{1}{8}\) X 3\(\frac{3}{8}\) E12 or joint present, off-white to tan matrix, brown natural clay slip (interior and exterior). C/BW.

ANALYSIS: SL, XII/03: These mass-produced spirits bottles may have contained a variety of alcoholic beverages. The style found on this site corresponds with the second of three styles described by Olsen (1978). They have been found on many late 19th century sites in New Zealand, Hawaii, and the American West (Lister and Lister 1989; Brott 1989; Ritchie 1986). SL: definitely molded tiger whiskey. The double lip is where the two mold parts were joined together. Foot sherd needed date of this stoneware (not present). In HI by the mid-19th c. SG: prob. shoyu pot or tiger; curve is a little steeper (in the?) late 1800s-1900s.

CER041 Japanese, rice bowl, porcelain, body frag., off-white matrix, clear glaze, 2\(\frac{1}{2}\) X 1 X \(\frac{1}{4}\) E12 undecorated. BW. Same type of vessel as CER44.

ANALYSIS: SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations. SL: porcelain rice bowl, prob. Japanese. Not before 1870.

CER042 Chinese, rice bowl, porcellaneous stoneware, wheel-thrown, body frag., 1\(\frac{3}{4}\) X 2 X \(\frac{1}{4}\) E12 off-white matrix, clear glaze, decalcomania and hand-painted polychrome “Four Seasons” motif applied over the glaze. BW.

ANALYSIS: SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans
(Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawai‘i (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. Large quantities of these wares were produced from the Ming dynasty well into the twentieth century. The “Four Seasons” motif, also known by other names, occurs on sites in Hawai‘i prior to 1850 (Garland 1996; Lebo 1997). SL: either serving or rice soup bowl; its “four seasons” motif is usu. a serving bowl. Decal and hand-painted w/overglaze enamel; mid-19th c. same exterior enamel as CER43 (but not from same vessel). SG: old Chinese crude glaze.

**CER043** Japanese, rice bowl, porcelain, body-base-footring, white to off-white matrix, clear glaze, undecorated, badly waterworn. BW.

**ANALYSIS:** SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations.

**CER044** Japanese, rice bowl, porcelain, wheel-thrown, rim-body frag., white to off-white matrix, clear glaze, undecorated. BW.

**ANALYSIS:** SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations. SL: prob. Japanese porcelain rice bowl rim sherd; diameter is projectable. Not before 1870. Same type of vessel as CER41.

**CER045** Japanese, straight-sided cup, porcelain, body-base-footring fragment, off-white matrix, clear glaze, hand-painted blue unidentified motif. C/BW.

**ANALYSIS:** SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations. SL: Japanese straight-sided cylindrical cup w/hand-painted cobalt blue deco. 1870s-1890s.
CER046  European (possibly Scotland), tobacco pipe, white ball clay, pipe stem fragment, undecorated, worn. C/BW.

1 \frac{1}{2} \times \frac{3}{16} (D) \times \pm \frac{1}{16} (bore)  E12

ANALYSIS: SL, XII/03: This fragment is from a tobacco pipe with a non-detachable stem. Walker (1974) states that white clay pipes were made of ball clay, not the commonly mentioned kaolin. Unglazed, unmarked, long-stem varieties commonly date to the eighteenth and nineteenth centuries. This fragment is undiagnostic and cannot be finely dated. SL: most found on HI sites are from Glasgow, Scotland.

CER047  European (possibly Scotland), tobacco pipe, white ball clay, pipe stem fragment, undecorated, worn. C/BW.

2 \frac{1}{2} \times \frac{1}{4} (diam) \times > \frac{1}{8} (hole)  E12

ANALYSIS: SL, XII/03: This fragment is from a tobacco pipe with a non-detachable stem. Walker (1974) states that white clay pipes were made of ball clay, not the commonly mentioned kaolin. Unglazed, unmarked, long-stem varieties commonly date to the eighteenth and nineteenth centuries. This fragment is undiagnostic and cannot be finely dated. SL: most found on HI sites are from Glasgow, Scotland.

1998

CER048  German, bottle, stoneware, wheel-thrown, body fragment, gray matrix with tan to light rust-colored salt glaze on exterior. C.

1-1/2 \times 1-3/4 \times 1/4 (t)  E15

ANALYSIS: SL, XII/03: These bottles were mass-produced in Germany, although many are stamped “Nassau.” They commonly contained mineral waters, which were bottled in Europe beginning in the late 18\textsuperscript{th} century. Their production continued into the 20\textsuperscript{th} century. They were widely imported into the U.S. beginning in the 1840s (Greer 1981; Munsey 1970; Schultz et al. 1980).

CER049  English, chamber pot, pearlware, one rim-body fragment and two body fragments, white to off-white matrix, clear with blue-green tint/puddling, dark cobalt blue negative transfer print floral motif, broken into three pieces during shipment. C.

Orig. int. diam: 7 \times 1/4 (t)  REEF SURVEY

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840
and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840.

**CER050**  
German, bottle, stoneware, wheel-thrown, body frag., gray matrix with brown natural salt glaze on exterior. C.

**ANALYSIS**: SL, XII/03: These bottles were mass-produced in Germany, although many are stamped “Nassau.” They commonly contained mineral waters, which were bottled in Europe beginning in the late 18th century. Their production continued into the 20th century. They were widely imported into the U.S. beginning in the 1840s (Greer 1981; Munsey 1970; Schultz et al. 1980).

**CER051**  
American(?), brick, Type 16, gray, hand-molded, whole (except chip missing from one corner) with well rounded edges, all six original surfaces remaining, (max. length, width, and thickness determined), narrow thickness, porous, non-compacted matrix. C.

**ANALYSIS**: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii (e.g., Lebo and McGuirt 2000a, 2000b), including extant 19th century brick buildings, this brick likely dates before 1860, but it is unknown if it dates pre-1830. Detailed compositional analysis is needed to identify inclusions and probable place and date of manufacture.

**CER052**  
Chinese, dish, porcelain, body-base-footring frag., off-white matrix, clear glaze, hand-painted cobalt blue unidentified motif, probably had Canton or Nanking rim border motif. C.

**ANALYSIS**: SL, XII/03: Canton and Nanking are unglazed blue porcelains decorated with a pseudo-Chinese willow pattern. These ceramics are distinguished by their rim border designs. Canton ceramics have a swag or cloud border, whereas Nanking ceramics possess border designs with daggers or spearheads below the inner edge. The Nanking pattern is more carefully painted in a darker shade of blue and more refined than the Canton pattern. Both patterns were made in kilns in Ching-tê-Chen and were most common
during the early nineteenth century (Noël Hume 1970; Schiffer et al 1975).

**CER053**  
American(?), brick, Type 6, orange, hand-molded, whole with angular all original surfaces remaining (max. length, width, thickness determined), few large inclusions, porous, compacted matrix, mortar adhering. C.

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (compactness, angularity and regularity of the edges, durability) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates after 1850 (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**CER054**  
Japanese, rice bowl, porcelain, wheel-thrown, body frag., off-white matrix with clear glaze, unidentified hand-painted blue-green and brown motif on exterior. C.

**ANALYSIS:** SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations.

**CER055**  
Chinese, liquor bottle, stoneware, wheel-thrown, body frag. with “seam” or joint present, brown natural clay slip (interior and exterior). C.

**ANALYSIS:** SL, XII/03: These mass-produced spirits bottles may have contained a variety of alcoholic beverages. The style found on this site corresponds with the second of three styles described by Olsen (1978). They have been found on many late 19th century sites in New Zealand, Hawaii, and the American West (Lister and Lister 1989; Brott 1989; Ritchie 1986).

**CER056**  
Frag. of heavy roof tile w/embossed letters: “...MONRA...” C/JPEG.

**ANALYSIS:** SL, XII/03: These mass-produced spirits bottles may have contained a variety of alcoholic beverages. The style found on this site corresponds with the second of three styles described by Olsen (1978). They have been found on many late 19th century sites in New Zealand, Hawaii, and the American West (Lister and Lister 1989; Brott 1989; Ritchie 1986).
ANALYSIS: Vincent H. Hobson (author, *Historic and Obsolete Roofing Tiles* (Evergreen, CO: Remai, 2001), email of 8/VIII/2002: “Your inquiry is unique. The tile is most likely a deposit from the hurricane. I must assume by the marking that it is a concrete tile, possibly with a painted surface. If it is not painted then it is colored throughout the interior of the tile. I am also assuming that the piece size is that listed. Monray Roof Tile, by Monier Company is most likely the tile. Monier was originally an Australian Company and has plants all over the US now. They manufacture several styles of concrete tile. The MONRAY tile is of their older styles from an older plant. When I say older, not historic by any means but 15-20 years old. Monier has either been purchased or merged with Lifetile and is now known as MonierLifetile. They are based out of Irvine California. They do have a plant in Hawaii and a website of: www.monierlifetile.com.”

VHH email of 8/VIII/02: “By the looks of the photo and the color of the concrete it appears as though it would not have had paint but rather the cement would have been "colored through". It is one of their processes. The photo indicates it to be a Monray roof tile (made by Monier)... You may reference my comments should you find the opportunity.”

Ahna Ligtenberg Heller, Communication Specialist, MonierLifetile, email 12/VIII/02: “I have found out the "mystery" behind our tile found on the sunken yacht. We did in fact manufacture that tile in Hawaii - but not until the 1960's. Our best guess is that when Hurricane Iniki blew through the island in 1992, the tile was blown off of a roof and out to the Bay. It would be a more interesting story if we had manufactured the product in the 1800's, but that is just not the case. I hope this is helpful to your research.”

CER057 American(?), brick, Type 15, pale pinkish-yellow, hand-molded, worn frag. 4-1/2 X 2-5/8 X 1-1/2 (t) E18 with angular edges, two original surfaces remaining (max width and approximate thickness determined), porous, compacted matrix. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER058 American(?), brick, Type 9, red, hand-molded, totally worn fragment with rounded edges, no original surfaces remaining (no original dimensions determined), porous, non-compacted matrix. C.
ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii (e.g., Lebo and McGuirt 2000a, 2000b), including extant 19th-century brick buildings, this brick likely dates before 1860, but it is unknown if it dates pre-1830. Detailed compositional analysis is needed to identify inclusions and probable place and date of manufacture.

CER059 Chinese, small food jar or spouted jar, wheel-thrown, stoneware, two shoulder-body fragments, tan matrix, brown natural clay slip (interior and exterior). Broken in bucket. C.

ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

CER060 Chinese, ginger jar or other small jar, stoneware, wheel-thrown, body-base fragment, natural clay slip (interior) and blue-green glaze (exterior). Broken into 4 pieces during shipment. C.

ANALYSIS: SL, XII/03: Ginger jars occur in a variety of shapes and sizes and with several kinds of glazes. The term “ginger jar” is a generic term and does not correlate with contents. Several types of green-glazed stoneware jars were made, including a rotund form and a straight-sided, multi-faceted jar. Both were used to hold various preserved foods, including chopped garlic, sliced turnip, green onions, sweet gherkins, green plums, and preserved fish. The straight-sided jars also contained fish pastes, cosmetics, and medicinal creams (Lister and Lister 1989; Ritchie 1986).

CER061 English, plate, pearlware, unscalloped rim-cavetto-body frag., white matrix with slightly bluing in clear glaze, blue hand-painted and incised “edged” motif. C.
ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840.

CER062  Chinese, small food jar or spouted jar, stoneware, wheel-thrown, body-base fragment, gray matrix with natural clay slip (interior and exterior). C.

ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

CER063  American(?), brick, Type 5, red-brown, hand-molded, worn fragment with three original surfaces remaining (max. thickness determined), porous, few inclusions, non-compacted matrix, mortar adhering. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th-century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER064  American(?), brick, Type 4, orange-red, hand-molded, worn fragment with angular edges, well formed, four original surfaces remaining (max. width and thickness determined), small white inclusions, compacted matrix, mortar adhering. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production
on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER065  American(?), brick, Type 17, orange-red, hand-molded, worn frag. with slightly rounded edges, two original surfaces remaining (max. width and thickness determined), mortar adhering.  C.  

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER066  American(?), brick, Type 5, red-brown, hand-molded, worn frag. with no exterior surfaces remaining (no original dimensions determined), porous, few inclusions, non-compacted matrix.  C.  

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER067  American(?), brick, Type 9, red-orange, hand-molded, worn frag. with no exterior surfaces remaining (no original dimensions determined), porous, few inclusions, non-compacted matrix.  C.  

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.
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CER068  Japanese, rice bowl, porcelain, wheel-thrown, rim-base fragment, off-white matrix with clear glaze, undecorated interior, polychrome (blue, green, and brown) hand-painted and stenciled geometric, “rosette” and floral motif on exterior (blue band at base). C.

ANALYSIS: SL, XII/03: The available literature on 19th-century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations.

CER069  Chinese, rice bowl, porcellaneous stoneware, wheel-thrown, rim-body frag. with everted rim, gray matrix with clear glaze, hand-painted “Three Circles and Dragonfly” motif.C.

ANALYSIS: SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans (Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawaii (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. These wares were produced in large quantities from the Ming dynasty well into the twentieth century. The “Three Circles and Dragonfly” motif is known by more than a half dozen names (Lebo 1997). These wares were available overseas prior to 1850, but whether prior to 1825 remains unknown.

CER070  English-American, bowl, porcelain, rim frag., white to off-white matrix, clear glaze, hand-painted “Annular” motif (2 blue bands on interior, 3 bands top to bottom on exterior – 1 thin blue, 1 wide green, 1 wide blue). C.
ANALYSIS: SL, XII/03: The brighter colors and alternative band widths of this annular-decorated fragment indicates it dates c. 1860s-1930s (Majewski and O’Brian 1987).

CER071 American(?), brick, Type 9, red-orange, hand-molded, worn frag. with rounded edges, no original surfaces remaining (no original dimensions determined), black inclusions, porous, non-compacted matrix. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER072 English, possible cup, pearlware, body-base-footring fragment, white to off-white matrix, clear glaze, undecorated. C.

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840.

CER073 American(?), brick, Type 10, red-purple, worn frag. with angular edges, four original surfaces remaining (max width and thickness determined), narrow width, slightly porous, few inclusions, compacted matrix. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.
**CER074**  American(?), brick, Type 5, red-brown, hand-molded, worn frag. with well-rounded corners, one original surface remaining (no original dimensions determined), porous with large vesicules, inclusions, non-compacted matrix. C.

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th-century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**CER075**  English, plate, pearlware, body-base-footring fragment, white to off-white matrix, clear glaze with slight blue tint/puddling, undecorated. C.

**ANALYSIS:** SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840.

**CER076**  Chinese, small food jar or spouted jar, stoneware, wheel-thrown, base only fragment, pinkish to light gray matrix (two-tone paste indicative of uneven firing), brown natural clay slip (interior, exterior not present). C.

**ANALYSIS:** SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

**CER077**  English, platter, pearlware, body-flat base (no footring), white to off-white matrix, clear glaze with slight blue tint/puddling, undecorated, waterworn. C.
ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840.

CER078  Chinese, rice bowl, porcellaneous stoneware, wheel-thrown, rim-body-base-footring fragment, gray matrix with clear glaze, hand-painted “Three Circles and Dragonfly” motif  C.

ANALYSIS: SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans (Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawai’i (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. These wares were produced in large quantities from the Ming dynasty well into the twentieth century. The “Three Circles and Dragonfly” motif is known by more than a half dozen names (Lebo 1997). These wares were available overseas prior to 1850, but whether prior to 1825 remains unknown.

CER079  Chinese, small food jar or spouted jar or liquor bottle, stoneware, wheel-thrown, body fragment, tan matrix, brown natural clay slip (interior and exterior).C.

ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

CER080  English, unidentified tableware, pearlware, body fragment, white to off-white matrix, clear glaze with slight blue tint/puddling, undecorated, badly waterworn.C.

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840
and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment is undecorated and cannot be more finely dated than c. 1780 to 1840.

**CER081**  American(?), brick, Type 7, pale pinkish-orange, hand-molded, worn fragment with rounded edges, four original surfaces remaining (max. width and thickness determined), narrow thickness, porous, unevenly fired, non-compacted matrix (>1/2).

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**CER082**  American(?), brick, Type 9, red-orange, hand-molded, worn fragment with rounded edges, four original surfaces remaining (max. width and thickness determined), black inclusions, porous, non-compacted matrix (±half).

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**CER083**  American(?), prob. brick, Type 2, light yellowish-beige, hand-molded, worn fragment with slightly rounded corners, four original surfaces remaining (max. width and thickness determined), interior fired black (reduced), numerous inclusions, porous, non-compacted matrix.

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.
ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER084 American(?), brick, Type 1, dark red-brown, hand-molded, worn frag. 2-5/8 X 3-1/2 X 2-1/4 E27
with angular edges, four original surfaces remaining (max. width and thickness determined), white inclusions, porous, compacted matrix. C.

CER085 American, nearly intact brown porcelain electrical insulator w/groove in top; threaded inside, off-white matrix with brown glaze. Chip at rim. Embossed letters: “6/M. LOCKE, VICTOR, N.Y.” C.

CER086 Chinese, small food jar or spouted jar, stoneware, wheel-thrown, shoulder-body fragment, gray matrix, brown natural clay slip (interior and exterior). C.

ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

CER087 Chinese, small food jar or spouted jar, stoneware, wheel-thrown, body frag. 2-1/8 X 1-1/4 X 1/8 E27
gray matrix, brown natural clay slip (interior and exterior). C.

**ANALYSIS:** SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

**CER088**  Austria, porcelain teacup frag., inc. base and handle portions. 4 X 1-3/4 X 1-8 E27
White matrix, clear glaze, undecorated. Partial mark on base: “...IAN/CHINA/...henreuther/Selb/BAVARIA/”Haleakala””. C.

**CER088** was manufactured by the Hutschenreuther factory in Selb, Bavaria, founded in 1814 and still operating today as one of the largest European porcelain makers. See Robert E. Röntgen, *Marks on German, Bohemian and Austrian Porcelain* (Atglen, PA: Schiffer Publishing Ltd., 1997) p. 479 and referenced marks as specified. It was called Porzellanfabrik L. Hutschenrauther from 1857-1969.

**RESEARCH/ANALYSIS:** SS *Haleakala* was built for the Inter-Island Steam Navigation Co. by the Sun Shipbuilding and Drydock Company of Chester, PA at a cost of $1,027,000 in 1922. Measuring 342.2 X 46.2 X 27 ft and 3676 (gross)/1546 (net) tons and named for a Maui mountain, she was constructed for the “Volcano Route” between Honolulu and Hilo, HI. She began weekend excursions to Kauai in 1925, but these were halted in 1927 and she resumed the Hilo route. In 1930 she was laid up; in 1934 she was chartered to the Alaska Steamship Co. for seven cruises; in 1937 and 1939 she underwent renovations; in 1940 she went back into Hawaiian service for the four-month summer tourist season (In Kauai summer 1940). In May 1942, chartered to the Army Transport Service and went to islands south of Hawaii with cargo and troops; also transported marines around Hawaii. Redelivered to Inter-Island in July 1946, she went to Manila and under joint charter with De la Rama served between Manila and Chinese ports for an unprofitable year, after which she was laid up at Manila and offered for sale, never to return to Hawaii. She went through three more names and owners before she was broken up at Hong Kong in February 1955. The Bishop Museum has two images of her; a port bow shot (N73918-no copy neg.) and a full side elevation (copy neg. #CP115793). Photocopies are in the Correspondence file, courtesy of RWR.


**CER089**  American(?), brick, Type 3, yellow, hand-molded, worn frag. with rounded 4-1/2 X 2-3/8 X 2-5/8 E27
edges, max. width only determined, porous, numerous small orange brick or
clay inclusions, non-compacted matrix. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been
found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production
on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977;
Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from
sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt
2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER090  American(?), brick, Type 17, orange-red, hand-molded, worn frag. with
angular edges, four original surfaces remaining (max. width and thickness
determined), compacted matrix, mortar adhering. Blackened on 1 side. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been
found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production
on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977;
Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from
sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt
2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER091  American(?), brick, Type 17, orange-red, hand-molded, worn frag. with
rounded edges, four original surfaces remaining (max. width and thickness
determined), slightly porous, several large clay inclusions, compacted matrix. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been
found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production
on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977;
Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from
sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt
2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.
CER092  American(?), brick, Type 9, red-orange (with red-brown interior), hand-molded, worn fragment with rounded edges, max. thickness only determined, porous, large black inclusions, non-compacted matrix, mortar adhering. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER093  American(?), brick, Type 8, orange, hand-molded, nearly whole with chips missing, six original surfaces remaining (max. length, width, and thickness determined), porous, significant indentations (some fingerprints) and irregular shape indicating final shaping completed outside wooden mold, porous, non-compacted matrix. 1 side w/blackened surface. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER094  American(?), brick, Type 9, red-orange, hand-molded, severely worn frag. with rounded edges, no original surfaces remaining (no max. dimensions determined), porous, non-compacted matrix. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from
sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER095 Chinese, liquor bottle, stoneware, wheel-thrown, body frag. with “seam” or joint present, tan matrix, brown natural clay slip (interior and exterior). C.

ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

2000

CER096 German, bottle, stoneware, wheel-thrown, body fragment, gray matrix with rust-colored salt glaze on exterior. C.

ANALYSIS: SL, XII/03: These bottles were mass-produced in Germany, although many are stamped “Nassau.” They commonly contained mineral waters, which were bottled in Europe beginning in the late 18th century. Their production continued into the 20th century. They were widely imported into the U.S. beginning in the 1840s (Greer 1981; Munsey 1970; Schultz et al. 1980).

CER097 German, bottle, stoneware, wheel-thrown, body frag., gray matrix (two-tone due to firing), gray salt glaze on exterior. C.

ANALYSIS: SL, XII/03: These bottles were mass-produced in Germany, although many are stamped “Nassau.” They commonly contained mineral waters, which were bottled in Europe beginning in the late 18th century. Their production continued into the 20th century. They were widely imported into the U.S. beginning in the 1840s (Greer 1981; Munsey 1970; Schultz et al. 1980).

CER098 White porcelain base sherd, prob. from drinking cup. C.

ANALYSIS: SL, XII/03: This is a glass jar fragment.
CER099  English-American, small plate, creamware, rim-cavetto fragment, white to off-white matrix, clear glaze with slight yellowish-green tint, undecorated. C.

ANALYSIS: SL, XII/03: Creamwares have an off-white or cream body and a lead glaze, which often appears yellowish or yellow-green where it puddles. Production of these wares began c. 1762 and continued through 1820 (Noël Hume 1970, 1973; South 1977).

CER100  Japanese, rice bowl, porcelain, body fragment, white to off-white matrix, clear glaze, undecorated, very small fragment. C.

ANALYSIS: SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations.

CER101  American(?), brick, Type 1, red-brown, hand-molded, worn fragment, four original surfaces remaining (max. width and thickness determined), porous, large black inclusions and some small white inclusions, non-compact matrix. C.

ANALYSIS: SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER102  Chinese, rectangular or octagonal plate or platter, porcelain, wheel-thrown, rim-cavetto-body fragment, off-white matrix with clear glaze, hand-painted cobalt blue “Canton” rim motif. C.

ANALYSIS: SL, XII/03: from same piece as CER103. Canton and Nanking are unglazed blue porcelains decorated with a pseudo-Chinese willow pattern. These ceramics are distinguished by their rim border designs. Canton ceramics have a swag or cloud border, whereas Nanking ceramics possess border designs with daggers or spearheads below the inner edge. The Nanking pattern is more
carefully painted in a darker shade of blue and more refined than the Canton pattern. Both patterns were made in kilns in Ching-tê-Chen and were most common during the early nineteenth century (Noël Hume 1970; Schiffer et al 1975).

**CER103**  
Chinese, plate, porcelain, wheel-thrown, rim-cavetto frag., off-white matrix with clear glaze, hand-painted cobalt blue “Canton” rim motif.  
1-1/4 X 7/8 X 3/16t  
E33

**ANALYSIS:** SL, XII/03: from same piece as **CER102**. Canton and Nanking are unglazed blue porcelains decorated with a pseudo-Chinese willow pattern. These ceramics are distinguished by their rim border designs. Canton ceramics have a swag or cloud border, whereas Nanking ceramics possess border designs with daggers or spearheads below the inner edge. The Nanking pattern is more carefully painted in a darker shade of blue and more refined than the Canton pattern. Both patterns were made in kilns in Ching-tê-Chen and were most common during the early nineteenth century (Noël Hume 1970; Schiffer et al 1975).

**CER104**  
English, cup, transitional whiteware, body fragment, white to off-white matrix, clear glaze, transfer print floral motif.  
1-3/8 X 1-1/2 X 1/8t  
E33

**ANALYSIS:** SL, XII/03: transitional whiteware: 1820-1870.

**CER105**  
Chinese, ginger jar or other small jar, stoneware, body frag., gray matrix with alkaline(?) glaze (interior and exterior).  
4 X 2 X 3/16t  
E34

**ANALYSIS:** SL, XII/03: Ginger jars occur in a variety of shapes and sizes and with several kinds of glazes. The term “ginger jar” is a generic term and does not correlate with contents. Several types of green-glazed stoneware jars were made, including a rotund form and a straight-sided, multi-faceted jar. Both were used to hold various preserved foods, including chopped garlic, sliced turnip, green onions, sweet gherkins, green plums, and preserved fish. The straight-sided jars also contained fish pastes, cosmetics, and medicinal creams (Lister and Lister 1989; Ritchie 1986).

**CER106**  
Chinese, unidentified jar, stoneware, wheel-thrown, body-handle frag., off-white matrix, possible alkaline or brown natural clay slip (interior and exterior).  
3-3/4 X 3-1/2 X 1/2t  
E34

**ANALYSIS:** SL, XII/03: Large stoneware storage jars of various shapes, sizes, rims, and glazes served as containers for an assortment of liquids. These liquids include peanut oil, vinegar, bulk wine and bulk soy sauce. Such containers are widely documented at sites in
Hawaii and the American West beginning in the mid-19th century (e.g., Goodwin et al. 1996; Lebo 1997; Lister and Lister 1989; Brott 1987; Pastron 1981).

CER107  Chinese, rectangular or octagonal plate or platter, porcelain, wheel-thrown, rim- cavetto fragment, off-white matrix with clear glaze, hand-painted cobalt blue “Canton” rim motif. C.

ANALYSIS: SL, XII/03: Canton and Nanking are unglazed blue porcelains decorated with a pseudo-Chinese willow pattern. These ceramics are distinguished by their rim border designs. Canton ceramics have a swag or cloud border, whereas Nanking ceramics possess border designs with daggers or spearheads below the inner edge. The Nanking pattern is more carefully painted in a darker shade of blue and more refined than the Canton pattern. Both patterns were made in kilns in Ching-tê-Chen and were most common during the early nineteenth century (Noël Hume 1970; Schiffer et al 1975).

CER108  Chinese, liquor bottle, stoneware, wheel-thrown, body fragment, brown natural clay slip (interior and exterior). C.

ANALYSIS: SL, XII/03: Mass-produced stoneware food and beverage containers from China were widely available in Hawaii beginning in the 1850s with the establishment of Chinatown in Honolulu. This fragment is too small to differentiate between a food jar or spouted jar. Food jars held one to two pounds of dry or non-viscous foods such as salted vegetables, dried fruits, dried mushrooms, shrimp paste or bean curd. Spouted jars may have contained soy sauce, black vinegar, molasses, Hoisin sauce, oyster sauce, rapeseed oil, or sesame seed oil (Lister and Lister 1989; Brott 1989; Ritchie 1986).

CER109  Lot of seven bricks; six intact and one w/chipped ends. One heavier/miscellaneous denser example may be firebrick (?). All found scattered in vicinity of wooden box. C.

CER109A  American(?), brick Type 8, orange, hand-molded, whole with angular edges, six original surfaces remaining (max. height, width, and thickness determined), porous, significant indentations (some fingerprints) and irregular shape indicating final shaping completed outside wooden mold, porous, non-compacted matrix. E36

CER109B  American(?), brick, Type 4, orange-red, hand-molded, whole with angular edges, all original surfaces remaining (max. length, width, and thickness
determined), small white inclusions, non-porous, compacted matrix, mortar adhering.

**CER109C** American(?), brick, Type 4, orange-red, hand-molded, whole with angular edges, all original surfaces remaining (max. length, width, and thickness determined), small white inclusions, non-porous, compacted matrix, mortar adhering. 7 ½ X 3-5/8 X 1-7/8 E36

**CER109D** American(?), brick, Type 12, red-orange, hand-molded, nearly whole with angular edges, all original surfaces remaining (max. length, width, and thickness determined), one end miscolored (black), small white inclusions, compacted matrix. 7 X 3-3/8 X 2 E36

**CER109E** American(?), brick, Type 4a, dark gray (varies from Type 4 in color only), hand-molded, whole with angular edges, six original surfaces remaining (max. length, width, and thickness determined), small white inclusions, compacted matrix. 7 X 3-5/8 X 1-7/8 E36

**CER109F** American(?), brick Type 8, orange, hand-molded, whole with angular edges, six original surfaces remaining (max. length, width, and thickness determined), porous, significant indentations (some fingerprints) and irregular shape indicating final shaping completed outside wooden mold, porous, non-compactd matrix. 7-7/8 X 3-7/8 X 1-7/8 E36

**CER109G** American(?), brick Type 8, orange, hand-molded, worn frag. with angular edges, four original surfaces remaining (max. width and thickness determined), porous, significant indentations (some fingerprints) and irregular shape indicating final shaping completed outside wooden mold, porous, non-compactd matrix. ? X 3 ½ X 1 ¾ E36

**ANALYSIS:** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977;
Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th-century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

CER110  English-American, saucer, pearlware, four body frags., white to off-white misc. past, clear glaze with slight blue tint/puddling, hand-painted monochrome blue geometric pattern (arrows on spiraling lines with two dots on each line). C.

ANALYSIS: SL, XII/03: Pearlwares were introduced as an alternative to creamwares in 1779. They were widely produced until 1840 and were available in the U.S. by 1790 (Baker 1978; Noël Hume 1970, 1973; South 1977). Many were decorated with “edged” motifs, with transfer-printed designs, or hand-painted patterns. This fragment exhibit a monochrome blue geometric pattern and likely dates from c. 1780 to 1820 (South 1977).

CER111  English-American, possible plate, white whiteware, body, white matrix, clear 1/2 X 7/16 X 3/32t glaze, undecorated, badly worn and very small. C.

ANALYSIS: SL, XII/03: This fragment is too badly worn and too small in size to definitively identify to ware type. It may be a transitional whiteware (c. 1820-1870) or a pure whitewhite, which lacks any evidence of blue tinting. These latter wares date from c. 1890 to the present, being most common between 1890 and 1930 (Moir 1987).

CER112  Four red bricks; one intact and 3 partial. C.

(a) 7-1/2 X 3-1/2 X 1-7/8
(b) 5 X 3-3/8 X 1-5/8t
(c) 4-1/2 X 4 X 2-3/8t
(d) 3-3/4 X 3-1/2 X 1-7/8t

CER112A  American(?), brick, Type 4, orange-red, hand-molded, whole with angular edges, 7-1/2 X 3-1/2 X 1-7/8 all original surfaces remaining (max. length, width, and thickness determined), several large inclusions, small white inclusions, slightly porous, compacted matrix.

CER112B  American(?), brick, Type 12, red-orange, hand-molded, fragment with 5 X 3-3/8 X 1-5/8t
angular edges, five original surfaces remaining (max. width and thickness determined), small inclusions, compacted matrix.

**CER112C** American(?), brick, Type 14, orange-red, hand-molded, fragment with slightly rounded edges, 4-5 original surfaces remaining (max. width and thickness determined), wider brick than standard, compacted matrix.

**CER112D** American(?), brick, Type 4, orange-red, hand-molded, fragment with angular edges, 4-5 original surfaces remaining (max. width and thickness determined), several large inclusions, small white inclusions, compacted matrix.

**ANALYSIS** SL, XII/03: The first mention of imported bricks dates to 1820. Bricks are mentioned in missionary accounts and have been found in early archaeological deposits at the Mission Houses Site and several other early historic sites in Honolulu. Initial production on Oahu dates about 1839 and was limited in extent and duration. Bricks were first imported from Japan in the 1860s (Greer 1977; Hurst and Allen 1992; Lebo 1997). Based on morphology (porosity, density, worn edges) and the limited contextual data available from sites in Hawaii, including extant 19th century brick buildings, this brick likely dates to the 1820-1870 period (e.g., Lebo and McGuirt 2000a, 2000b). Detailed compositional analysis is needed to identify inclusions and probable place of manufacture.

**CER113** Chinese, rice bowl, porcellaneous stoneware, intact base-footring and partial body fragment, gray matrix with clear glaze, hand-painted “Three Circles and Dragonfly” motif. C.

**ANALYSIS** SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans (Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawaii (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. These wares were produced in large quantities from the Ming dynasty well into the twentieth century. The “Three Circles and Dragonfly” motif is known by more than a half dozen names (Lebo 1997). These wares were available overseas prior to 1850, but whether prior to 1825 remains unknown.

**CER114** Chinese, dish (large plate form), porcellaneous stoneware, wheel-thrown, rim-body fragment, off-white to light gray matrix with clear glaze, hand-painted
cobalt blue “Allah” motif.C.

ANALYSIS: SL, XII/03: Traditional Asian porcellaneous stonewares and porcelains, known collectively as tz’u by Chinese artisans (Mueller 1987), have been recovered from archaeological sites in Vietnam, Australia, the Philippines, Malaysia, Indonesia, New Zealand, the American West (Jones 1992), and Hawai‘i (Garland 1996; Lebo 1997). They were produced in China for both local and export use, and their overseas nineteenth-century distribution is largely assumed to be related to demands associated with émigré communities. These wares were produced in large quantities from the Ming dynasty well into the twentieth century. Plate or dish forms exhibiting the “Crysanthemum” or “Allah” motif were among the earliest Chinese porcelains and porcellaneous stoneware vessels found in domestic contexts in Hawai‘i. These decorated wares probably available prior to 1825 (Lebo 1997).

**CER115**  Japanese, sake bottle, porcelain, wheel-thrown, body fragment, off-white 2-1/2 X 2-1/8 X 1-1/4t matrix with clear glaze, undecorated, badly worn. C.

ANALYSIS: SL, XII/03: The available literature on 19th century Japanese porcelain tablewares from sites in the U.S. mainland is sparse (see Costello and Mainery 1988; Sando and Felton 1993; Stenger 1986, 1993). Many of these mass-produced wares are still widely available and likely began being imported to the U.S., including Hawaii in the 1870s when Japanese immigrants arrived in great numbers to work on plantations.

**CONCRETIONS (CON)**

Unless otherwise noted, all concretions are desalinated in deionized water and then undergo slow dehydration.


TREATMENT: Sent to TAMU on 3/X/95; returned 23/X/96. Drawn and photographed. Mechanically cleaned w/ air scribe and dental pick; electrolytic reduction. See TAMU file CON1.

ANALYSIS: KS: may be andiron/sleeper finial (PFJ: or finial for some sort of fireplace accessory). See Don Plummer, *Colonial wrought iron: the Sorber Collection* (Ocean Pines, MD : SkipJack Press, 1999) chap. 1, Hearth & Kitchen. PFJ: However, it appears to be a bit large
for this application, judging from the sizes in the Plummer book.

**CON2** Square fastener con., broken on one end. Fastener is 1/4” on a side. 5 1/2 X 2 (D) RT
Part of CON7. XR[2]/BW.

**TREATMENT:** See CON7.

**CON3** Con. of wood w/iron fastener through it; shaped like a head-and-shoulder bust. A spike. XR[3]/BW. Post-treatment: 1/2-in square wrought iron spike through piece of iron-impregnated wood. Square head is 1 X 1/4 (t)

**TREATMENT:** Sent to TAMU on 15/IX/95; returned 23/IX/96. TAMU drawn, photographed and traced. Visible void flushed w/water pik and dental pick. Cast w/hysol epoxy (HD 3201) and chiseled free. Graphite finish sealed w/krylon 1301. Wood left untreated. Preserved w/krylon 1301 (Acryloid B72). See TAMU file CON3.

**CON4** Grating con., in 3 pieces. Chicken wire? XR/C/BW. 4 X 2 X 1 1/2 X 1 (C to C hole) RT

**SHPO**

**CON5** Con. of 1/2-in square fastener; 3 in. preserved. Attached to rock and wood (thin). BW.

**SHPO** 4 X 1 1/2 X 1/2 (D) RT
Rock L: 4 3/4

**CON6** Con. attached to 3”-long coral head. BW.

**SHPO** 2 X 1 1/4 (Section) RT

**CON7** L-shaped con., broken on one end, w/fastener in section (1/4-in.). 3 X 3 X 3 (T) RT
Part of CON2. XR[2]/BW. Post-treatment: square iron spike, tapering to chisel point.

7 1/4 X 5/8 (W max) Head: 3/4 X 1 1/4 (t)

**TREATMENT:** Sent to TAMU on 15/IX/95; returned 23/IX/96. Distal end’s sludge mechanically cleaned out. Cast of natural mold made w/hysol epoxy. Concretion mechanically removed and cast’s surface cosmetically enhanced w/graphite and concretion dust;
covered w/Krylon 1301. See TAMU file CON7.

<table>
<thead>
<tr>
<th>CON8</th>
<th>Includes numerous pebbles on outer surface. XR/C/BW.</th>
<th>$3\frac{3}{4} \times 3\frac{3}{4} \times 1\frac{3}{4}$ (T)</th>
<th>RT</th>
</tr>
</thead>
<tbody>
<tr>
<td>CON9</td>
<td>L-shaped con., broken on one end, showing square section of $\frac{1}{4}$-in original object. Barbed wire. XR/BW.</td>
<td>$6\frac{1}{2} \times 2\frac{1}{2} \times 1\frac{11}{8}$ (T)</td>
<td>RT</td>
</tr>
<tr>
<td>SHPO</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>CON10</td>
<td>Con. of iron blade/strap/hoop? W: 1; T: $\pm \frac{3}{16}$. XR/C/BW.</td>
<td>$3\frac{3}{4} \times 1\frac{1}{2} \times 1\frac{5}{8}$ (T)</td>
<td>RT</td>
</tr>
<tr>
<td>CON11</td>
<td>Con. of wire (?); thicker than barbed wire. Thicker in middle. XR/C/BW.</td>
<td>$5\frac{1}{4} \times 1$ (Diam)</td>
<td>RT</td>
</tr>
<tr>
<td>CON12</td>
<td>Con. of barbell-shaped barbed wire. XR/BW.</td>
<td>$4\frac{1}{2} \times 1$ (In section)</td>
<td>RT</td>
</tr>
<tr>
<td>SHPO</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CON13</td>
<td>Con. of barbed wire, attached to $1\frac{1}{2} \times 1\frac{1}{2}$-in. piece of coral. XR/BW.</td>
<td>$4 \times 3\frac{3}{4} \times 1\frac{1}{2}$ (T)</td>
<td>RT</td>
</tr>
<tr>
<td>SHPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON14</td>
<td>Con. w/fastener w/wood pattern on it. BW.</td>
<td>$1\frac{1}{2} \times 1\frac{1}{2} \times 1\frac{1}{8}$ (T)</td>
<td>RT</td>
</tr>
<tr>
<td>SHPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON15</td>
<td>Six frags. of barbed wire concretion. XR/BW.</td>
<td>Miscellaneous</td>
<td>RT</td>
</tr>
<tr>
<td>SHPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON16</td>
<td>Seven misc. frags of non-metallic metal corrosion products (copper alloy?) or very thin flint. Does not react w/nitric acid. BW.</td>
<td>Miscellaneous</td>
<td>RT</td>
</tr>
<tr>
<td>SHPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON17</td>
<td>Grate, poss. circular, concreted w/ten pieces of coral. Ten squares, ca. 1 X 1 (originally). Chicken wire? XR/BW.</td>
<td>$5\frac{1}{2} \times 4\frac{1}{4} \times 1$ (D)</td>
<td>BB</td>
</tr>
<tr>
<td>SHPO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CON18</td>
<td>Con. attached to 3 pieces of coral. Grate or chicken wire. XR/BW.</td>
<td>$4\frac{1}{4} \times 2\frac{1}{4} \times 1$ (T)</td>
<td>BB</td>
</tr>
</tbody>
</table>
CON19  Con. attached to flat rock. Prob. ca. 3/8-square fastener, w/some wood grain visible. BW.  2 3/4 X 1 (section)  BB

CON20  Con. attached to 2 pieces of coral and 1 pebble. Grate/chicken wire?  3 1/4 X 13/8 X 11/4 (T)  BB

CON21  Con. with thin lens/stratum of white material 1/16 in. thick.  3 1/4 X 23/4 X 11/2 (T)  BB

CAL analysis: zinc carbonate (90% hydrozincite, 5-10% smithsonite). Could be either corrosion product or for medicinal (calamine) purpose. Ref: C.S. Hurlibut and C. Klein, Manual of Mineralogy (NY: John Wiley & Sons, 197719) 302-03. XR/C/BW/SEM/XRD/FT-IR.

ANALYSIS:

SIEGEL: James Smithson was a mineralogist, and as such he was at least part of the world of physical sciences--chemistry, geology--which, for his time, were pretty cutting edge. This was the forefront of science.

Ms. BURLEIGH: It was the very forefront of science. At the time the sciences were just coming out of the age of alchemy. James Smithson was a natural philosopher, but he specialized in mineralogy. He certainly subscribed to the theory of geology as most people accept it now.

SIEGEL: So here's the mystery. This man is a mineralogist, a second-tier scientist of his day, never marries, leaves no children. And after naming the kind of wastrel, illegitimate son of his half-brother as his primary heir--'After that,' he says, 'you should leave the rest of my substantial fortune to the United States of America.'

CON22  Four (4) small miscellaneous cons. of thin metal. BW.  One: 15/8 X 1 X 5/8 (T)  BB

CON23  Six cons. of barbed wire. XR/BW.  Miscellaneous  BB
SHPO

CON24  T-shaped iron concretion (tool?) w/ numerous stones/coral pieces. XR indicates that spike (L: ±8; shaft Diam: 3/4) may be part of con. XR[3]/BW. Post-treatment: round iron spike/drift (diam=5/8 or 3/4) through two pieces of wood.

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Partially broken in shipment. Iron badly corroded; two sections cleaned w/water pik, then pieced together. No leather found when concretion removed. Sections were cast to complete artifact; cast sections were cosmetically enhanced w/graphite and clear-sprayed w/krylon 1301. Wood required no add’l conservation. See TAMU file CON24.

CON25  Tapered wrought-iron fastener/spike con. w/lots of coral/pebbles attached. XR indicates L: ±7 1/4; Diam (max below head): 1/2. Appears to still have some iron in it. XR[1]/BW. Post-treatment: cast of 1/2-in square iron fastener tapering to chisel point. Base of head preserved.

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Casts made of ends, and electrolytic reduction (ER) attempted for metal mid-section. This combination of methods was unsuccessful, so a cast was made of the spike once out of ER. Some details of ends were lost. Cast was cosmetically enhanced w/graphite and sprayed w/Krylon 1301 clear coat. See TAMU file CON25.

CON26  Wrought-iron fastener/spike con. w/lots of coral/pebbles attached. XR indicates L: ±6 5/8; Diam: 1/2; Head Diam: 15/16; Head H: 1/4, XR[2]/BW. Post-treatment: cast of 1/2-in square iron fastener tapering to chisel point.

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Concretion split into two pieces and mechanically cleaned of all sludge. Cast made of natural mold using hysol epoxy. Cast surface cosmetically enhanced w/graphite and concretion dust; sprayed w/Krylon 1301 sealant. See TAMU file CON26.
CON27  Wrought iron spike/ fastener con. XR indicates preserved L: 5;  
Diam: 1/2; Head diam: 3/4. Slightly bent; begins to taper towards point.  
XR/C/BW.

CON28  3/8-in. square, bent iron spike (XR: L: ±5; shank=1/4 in) con. w/>8 1/2 in.  
of twisted metal—copper?). XR[1]/BW. Post-treatment: cast of bent  
1/2-in square iron spike w/square head, tapering to chisel point.  
5 1/2 X 3/8; head: 1/2 X 1/8 (T)

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96 w/o bent metal strips (discarded). Drawn, photographed and traced. 
Mold cleaned and cast w/hysol epoxy. See TAMU file CON28.

CON29  Curved con. of hoop or strap (for 8–9 in. (diam) cask?). Original  
object very thin. XR/BW.

SHPO

CON30  Thin metal strap/hoop con., originally for a large-diam. barrel. XR/BW.

SHPO

CON31  Hollow pipe-like con. w/ 45° elbow. XR: Pipe Outside Diam: ±1.  
Original metal is intact and preserved; appears modern. XR[1]/C/BW.

XR[1]/BW. Sent to COZ @ TAMU on 15/IX/95. Post treatment:  
cast of straight, 3/8-in square-sided iron spike, tapering to chisel point.  
61/8 X 3/8 X Head: 7/8 X 3/16 (T)

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Voids mechanically cleaned out and 
cast w/hysol epoxy. Spike head put into electrolysis in an unsuccessful attempt to stabilize. It was then cast and attached to the 
remainder of the spike. Entire cast cosmetically enhanced w/graphite and sprayed w/Krylon 1301 for adhesio 
and sealant. See TAMU file CON32.
CON33  Two rocks concreted with $\frac{3}{8} \times \frac{1}{2}$-in iron fastener. XR/BW.  N/A  BB
SHPO

CON34  Fastener concretion, $\frac{1}{4}$-in section. XR/BW.  N/A  BB
SHPO

CON35  Five misc. barbed wire concretions. XR/BW.  Miscellaneous  BB
SHPO

CON36  Con. with leather holster/scabbard and wood; ±3 other iron objects included (metal band?). XR[3]/C/BW/JPG. Post treatment: contents include: (A) short sections of thin, flat wrought iron strap; some, still attached to the rock and wood fragments below them, are original. One was cast, $4\frac{1}{2} \times 1\frac{1}{4} \times 1\frac{1}{8}$ (T). The five pieces still attached to the rock and wood vary in width from $1\frac{1}{4}$ to $1\frac{1}{2}$; all the ends and some of their edges are degraded. (B) A flat, thick wrought iron strap, bent in the middle and terminating an open hook: $10 \times 1 \times 1\frac{1}{4}$. Inside width of hook: $\frac{3}{4}$. Could be a fragmentary doubletree, used for hanging pots over a hearth. See Jeannette Lasansky, *To Draw Upset, & Weld*. Lewisburg, PA: Union County Oral Traditions Project, 1980, p. 63, top. (C) A fragmentary leather holster containing a fragmentary wrought iron tool. The holster comprises a single piece of heavy leather, folded over w/stitch holes preserved along one edge. $6\frac{1}{8} \times 3 \times 1\frac{1}{2}$; leather T: $<\frac{3}{16}$. The tool handle comprises a round rod of $\frac{1}{2}$-in thick wrought iron, looped into the form of a “T” and broken/degraded off at the bottom end. L: $3\frac{1}{2} \times W: 4\frac{3}{4}$. Preliminary research indicates that this may be the handle of a sailmaker’s heaver or stitch mallet (see Clifford W. Ashley, *The Ashley Book of Knots*. New York: Doubleday, 1944, opp. p. ix; p. 19, fig. 85; p. 22, fig. 101J and Robert J. Schwendinger, *Maritime Arts & Artisans*. SF: San Francisco Craft and Folk Art Museum, 1989, p. 31, no. 7). PFJ: The strap could have been raw stock for hinges.

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. In this large concretion w/multiple artifacts manifest in the x-ray, the areas of obvious iron material were opened, cleaned of sludge and cast w/hysol epoxy, cosmetically enhanced w/graphite and concretion dust, then sealed w/Krylon 1301. The leather and wood were treated w/silicon oil. Layers of thin, flat iron strap also present; cast and original metal (?). Decomposed wood and unconsolidated sand not preserved. See TAMU file CON36. Wayne Smith consolidated the leather holster 21-22/VIII/03.

ANALYSIS: PFJ: The strap could have been raw stock for hinges, etc. From Susan Lebo research: iron adze blade. KS: “flat bar stock”=proper term today. KS has an ECU inquiry w/same question from the same period. CON36a (flat strap) not located during a
survey in VII/03 (by intern Nieves Ehrenberg).

**CON37**  Wrought-iron spike w/copper (?) nail concretion. XR[1]/BW. XR:
spike L: $7^1/8$; spike head W: $1^1/4$; spike head H: $1/2$. XR: nail L: $1^1/4$;

**CON38**  Thin metal con., in 3 pieces. Strap/hoop of cask? XR/BW.

**CON39**  Small con. w/teredo-ridden wood; in 2 pieces. BW.

**CON40**  Con. of $1/4$-in square fastener; in 2 pieces. XR/BW.

**CON41**  Fragmentary con. of iron strap/hoop. BW.

**CON42**  Iron $1/4$-in fastener con. w/part of shaft and head, set in flat surface
(i.e. wood). Fastener head W: $1/2$; H: $3/16$; length of concreted fastener
preserved: $1^1/4$. C/BW.

**CON43**  Square fastener con. with $1/2$-in shaft. Some wood pattern visible.

**CON44**  Large con. w/leather or felt, eye-shaped iron object, “turkey-baster”
(glasse?), wood grain and frags., $3/4$-in round fastener (eye?), etc.
XR[3]/C/BW. Post treatment: contents include: (A) two small fragments
of thin leather ($1^{3/4} X 1^{3/4} X 1^{1/16}$ [T] and $1^{1/2} X 1^{1/4} X 1^{1/16}$ [T]). (B) Amorphous
wood frag. (3xx X 1 X $7/16$ [T]). (C) treenail frag. ($4^{1/4} X 1^{3/16}$). (D) Glass bulb
broken at neck and filled w/sediment (sand glass half?) (2 1/4 X 1 5/8). (E) Epoxy
casts of two fragmentary iron fasteners: one rectilinear tapered specimen
(3 5/8 X 3 1/8 [Max]), the other round (5 7/8 X 7/8).

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Voids cast w/hysol epoxy (20%) on
6 III/96. Leather and wood: vacuum dehydration in acetone (ca. 15 min.); impregnated w/silicon oil–heat and vent. Treenail sample
did not survive in original form. Glass: deionized (DI) water desalination rinse (3X); acetone dehydration, PVA15; acetone
consolidation; chemical cleaning in hydrogen peroxide (10%) and DI water and patched w/cyanoacrylate C. See TAMU file CON44.
Other sandglass ball was found in 1997 in CON151. NMAH’s Continental gunboat Philadelphia of 1776 also has a 28-second sand glass,
used for determining speed (prob. w/chip log). Similar example found in late 18c. Boca Chica wreck; see NHC U/W Branch, The Boca

CON45 Curved hoop/strap con. XR/BW. 10 1/2 X 1 1/2 X 1 1/4 (T) BB
SHPO

CON46 1/8-in square con. (fastener?), w/wood grain on surface. BW. 1 1/4 X 1 BB
SHPO

CON47 Four small barbed wire cons. XR/BW. Miscellaneous BB
SHPO

CON48 Wrought-iron 1/2-in spike con.; appears to be square-sided. XR[1]/BW. 7 3/4 X 3 BB
Post-treatment: original contents comprised a wrought iron, square-sided (and -headed) spike tapering to a chisel point and embedded in wood.
Extant: part cast and part original metal spike embedded in original wood (5 X 1/2 [Shaft Max]; Head: 7/8 X 5 1/16; Wood: 3 1/4 X 2 X 1 1/4 [T]).

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Cavity opened and flushed
w/water. Top of cavity was cast w/hysol epoxy (HD3201) but epoxy flow was interrupted by wood and cavity not completely cleaned.
Vestigial metal mapped and photographed. See TAMU file CON48.
**CON49** 3/8-in spike (w/head) con. Spike L (inside con.): 57/8. XR[3]/BW.
Post-treatment: cast (w/some little original iron) of square-sided (and -headed) wrought iron spike, tapering to chisel point. 6\(\frac{1}{2}\) X 2\(\frac{3}{4}\) BB

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Void probed, flushed and cast w/hysol epoxy (HP 3201); half of head re-cast. Cosmetically enhanced w/graphite and sealed w/Krylon 13301 (Acryloid B72). Further oxidation of iron surface probable; further applications of graphite/B72 recommended as needed for cosmetic appearance. See TAMU file CON49.

**CON50** Wrought-iron spike con. XR: L: 5\(\frac{3}{4}\); head W: 3/4; head H: 3/8.
XR/BW. Post-treatment: Mostly cast, part iron of a eroded and degraded wrought iron spike, originally prob. square and tapering. 7\(\frac{1}{4}\) X 3\(\frac{3}{4}\) BB

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Void mechanically cleaned w/air scribe; some original iron crumbled, recovered and assembled. Cast w/hysol epoxy, coated w/graphite for cosmetic appearance and sealed w/Krylon 1301. See TAMU file CON50.

**CON51** Con. w/rounded surface on one face. XR/BW. 4 X 2\(\frac{1}{4}\) BB

**CON52** Folding (pen) knife con. XR: knife L (closed): 45/8; W: 15/16.
XR[3]/C/BW/JPG. Post-treatment: Closed single-blade folding knife w/wood or bone handle, brass end caps and case inlays, and partly decomposed steel/iron blade (reconstituted). 5 X 2\(\frac{3}{4}\) BB

TREATMENT/ANALYSIS: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Mechanically cleaned w/air scribe and dental pick. Metallic void cast w/hysol epoxy. Dehydration bath for handle w/isopropynol alcohol consolidation–PVA (V15) and acetone. Graphite dusting on cast blade; ends polished w/Na\((\text{CO}_3)\)\(_2\). Sealed w/Krylon 13301 (Acryloid B72). See TAMU file CON52. Domestic Life (Anne Serio) has lots of pen knives and books on the subject.

**CON53** Con. w/rounded surface: appears to be a thimble, 2 in. at round end. 5 X 2\(\frac{3}{4}\) BB
SHPO  BW.

CON54  Con. w/1-in diam. rope on curved surface. Poss. thimble. XR/C/BW.  3 X 3  BB

CON55  Con. of English two-tine fork; probably steel. Handle missing.  4³/₄ X 1¹/₂  BB
       Preserved L (from XR): 4¹/₂ in. Surface is gray/blue. XR/C/BW/JPG.
       Post-treatment: Epoxy cast of two-tine fork, originally iron; handle missing. Anne Golovin: form dates from 1770s to 1835; the Victoria & Albert could probably date. Sheffield, England was main production center. Transferred to Judy Chelnick of Med Sci for exhibit on 100th anniversary of the x-ray on 30/XI/95. Returned to PFJ V/96.


CON56  Worm tube. Slightly curved; no taper. Sectioned w/jeweler’s saw and internally inspected with boroscope/intrascope, revealing internal structure. XR/BW. Kristian Fauchald, NMNH, 2 XI/95: member of the Terebellidae Annelida Polychaeta family, aka “spaghetti worm.” This one is “very old—decades” due to the large amount of external coralline growth. “It is rare to find such big, hard tubes.” See his book The Polychaete Worms (LA: Natural History Museum of LA County, 1977) 122, fig. 36(D).

CON57  Eleven small barbed wire cons. and/or con. frags. XR/BW.  Miscellaneous  BB

CON58  Con. of organic material—hydrocarbons (=fuel/waterproofing). In bottle w/deionized water. BW/Infrared spectroscopy.  4 X 2³/₄ X ³/₈ (T)  BB

CON59 Con. of soft organic material with fibers. In bottle w/deionized water. CAL: hydrocarbons with triglycerides (fats) and diterpine (natural) resin (=waterproofing material). Fibers=degraded plant stalk fibers, with trace amount of coarse (animal/non-human) hair. Natural diterpine resin=conifer (pine)=pine resin/tar. XR/BW/FT-IR/Gas chromatography/Infrared spectroscopy. CAL Chemist Walter Hopwood: “an organic garden.”

ANALYSIS/TREATMENT: Sent to CAL on 23/X/95; returned 18/III/98. Mel Wachowiak, pers. comm., 8/X/96: Non-wood plant fiber, heavily degraded; no determination of identity or source possible. Fibers are unprocessed non-wood plant fiber (thin-walled, small diameter, no stomata seen, one spiral vessel element observed). Fiber is resilient but heavily degraded (no birefringence in polarized light). Stored in deionized water.

CON60 Square \(\frac{3}{8}\)-in spike con. w/corroded head and disarticulated wood frag. Wood frag. has \(\frac{3}{8}\)-in fastener and is cataloged separately for sourcing. XR/BW. Con. sent to TAMU on 15/IX/95; wood frag. will be sent to CAL for sourcing. Wood: C. WOOD: 23/X/95 (MEL).
Post-treatment: Cast of upper end of square-sided (and -headed) tapering wrought iron spike, set into original wood. Spike: 3 \(\times\) \(\frac{1}{2}\) X Head: \(\frac{3}{4}\) X \(\frac{5}{16}\) (T)

TREATMENT: Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Mechanical removal of encrusted layers w/pneumatic chisel (i.e. air scribe). Spike void cast w/hsol epoxy (HD3201); wood untreated. See TAMU file CON60. Wood sampled by CAL’s Mel Wachowiak IX/95; RESULT: spruce (\textit{Picea} sp.). See Harry Alden, \textit{Wood Analysis Report} of 13/V/98.

CON61 Amorphous metal “plate” con. in 2 pieces. XR/BW.

CON62 Amorphous con. XR/C/BW.

CON63 Concreted metal cask/keg hoop/strap in 8 pieces (complete). XR/C/BW.
**CON64**  Large con. poss. containing chain links (?). XR[2] C/BW.  
Post-treatment: Rivet-ended and washered wrought iron eyebolt w/ring through piece of wood.  

**TREATMENT:** Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Iron very corroded; encrustation opened at four points on ring and two points on bolt. Voids mechanically cleaned and cast w/hysol epoxy. Cast cosmetically enhanced w/graphite and concretion dust, then coated w/Krylon clear spray for adhesion and sealant. Wood required no additional conservation. See TAMU file **CON64**. PFJ: The strap could have been raw stock for hinges.

**ANALYSIS:** KS: Identical to **CON121**=eyebolt ring w/4-in. decking attached. BUT: Deck eyebolts should go through both deck AND beam. So this might be for a gun carriage or for bulwarks, as the wood isn’t thick enough for both decking and beam. The 1/2-in. eyebolts are better for gun carriages than deck ring.

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**CON65**  Con. w/section of leather-wrapped (?) rope; eye-bolt w/chain link? XR[3]/C/BW. Sent to TAMU on 3/X/95. Post treatment:  
fragmentary leather-wrapped rope on (iron?) thimble, itself running through a cast of a fragmentary wrought iron eyebolt (orig. iron).  
Leather and rope heavily degraded.  

**TREATMENT:** Sent to TAMU on 15/IX/95; returned 23/IX/96. Drawn, photographed and traced. Void of eyebolt mechanically cleaned and flushed with water, then cast w/hysol epoxy (HD3201) on 6/III/96. Rope: vacuum dehydration/EtOH 60 min. @ 20; vacuum dehydration/acetone; vacuum impregnation w/silicon oil. Heat storage vented. See TAMU file **CON65**.

**CON66**  Wrought iron fastener con. XR: 5 1/2 in preserved; diam: 1/2 in.  
Head diam.: 5/8 in and retains some original metal. XR/C/BW.

**CON67**  Two amorphous cons. (a) has flat surface. BW.  

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**SHPO**
CON68  Con. of flat metal object, w/coral and metal inclusions. Found in tank w/other cons.; believed to be part of another. BW.  

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CON69  Con. w/2 rocks of a $3/8$- or $7/16$-inch square fastener. BW.  

CON70  Two barbed-wire-shaped concretions. BW.  

CON71  Two thin, flat amorphous metal fragments; probably copper corrosion products. BW.  

CON72  Five long, narrow cons; prob. barbed wire. BW.  

CON73  Pistol-shaped con. attached to piece of coral. C(boat)/BW/XR. XR: three wrought iron spikes.  
(a) Intact; pointed at end opp. head. L: $71/4$; Diam: $1/2$; Head Diam: $3/4$  
(b) Head not preserved; tapers to point. L: $41/4$; Diam: $1/4$  
(c) Image too faint to measure @300 kv but smaller than (a) or (b).  

CON74  Seven small cons; prob. barbed wire (one definitely). BW.  

CON75  Section of concreted strapping; too straight for barrel/cask hoop. BW.  

ANALYSIS: PFJ: The strap could have been raw stock for hinges, etc.  

CON76  Circular con.; poss thimble (?). Holes on sides indicate absence of orig. metal. BW.  

CON68: $4^{1/2} X 4 X 1/4$ (T)  
CON69: $2^{3/4}$ extant  
CON70: (a) $4^{1/4} X 3/8$ (Diam)  
(b) $1^{3/4} X 5/8$ (Diam)  
CON71: (a) $2 X 2 X 1/16$ (T)  
(b) $2^{1/2} X 1^{1/4} X 1/16$ (T)  
CON72: Miscellaneous  
CON73: $10 X 4$  
CON74: Miscellaneous  
CON75: $9 X 1^{1/2} X 1/2$ (T)  
CON76: $4^{1/2} X 3^{1/4} X 2^{1/2}$ (th)
CON77  Con. of 1/2-in square iron fastener; some small wood remains attached.       L: 5          E3
         BW.

CON78  Con. of fastener w/ wooden frags. attached. BW.          31/8 X 11/2 X 11/2  E3

CON79  Four small iron frags. Two are flat; one retains angle; one w/ wood
         is amorphous. BW.          Miscellaneous  E3

CON80  Large L-shaped con. w/ 1-in circular fastener cavity; wood bits attached.
         BW/XR. XR: two fasteners.
         (a) wrought iron fastener (square/round?); one end flat, the other corroded off. Pres. L: 33/4 X W: 7/8.
         (b) curved, tapered nail (copper?) w/o head. L: 11/4; W: 1/8 (@ top).

CON81  T-shaped fastener con., globular at one end. Wood adhering. BW/XR.
         XR: three fasteners.
         (a) curved wrought iron fastener w/ round, flat head. L: 6; Diam: ±1/4; head diam: 1; head th: 3/16
         (b) fragmentary wrought iron fastener; ends not preserved. Pres. L: 3; diam: 1/2
         (c) headed nail; copper? L: 1; W: 1/8; diam of round head: 3/8.

CON82  Large con. of three 1-inch round iron fasteners—two are
         perpendicular to third. Embedded in concreted wood. Some sort
         of heavy framing timber. C/BW.          Wood: 14 X 2 (T)          E5
         Fastener: 12 X 1 (Diam)

ANALYSIS/TREATMENT: Sent to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 18/III/98. RESULT: spruce

CON83  1-inch (diam) fastener hole surrounded by concreted wood all around.
         BW/XR. XR: round 1-inch wrought iron fastener w/flattened head.
CON84  Concreted nail (for sheathing?). BW.  
1\(^{3}/_{8}\) X 3\(^{3}/_{8}\) (head diam)  E6

CON85  1-inch round iron fastener hole surrounded by iron-impregnated wood on all sides. BW.  
3 X 2\(^{1}/_{2}\) X 1\(^{1}/_{2}\)  E6

CON86  L-shaped iron strap con. BW.  
11\(^{1}/_{2}\) X 1\(^{3}/_{4}\) X ±1\(^{1}/_{2}\) (T)  E7

CON87  Amorphous con. w/two (and poss. three) fastener cavities. One cavity is of a 1-inch diam. fastener; another is a 1\(^{1}/_{2}\)-inch diam fastener. Poss. a thimble. BW/XR. XR: wrought iron eye on fragmentary shank, encircled by a bent, circular piece of 1/\(^{8}\)-in. wire (copper?) and an intact chain link of 5/\(^{8}\)-in. wrought (?) iron. Eye: intact 5/\(^{8}\)-in. thick; 3-in. diam (OD); pres. shank L: 3/\(^{4}\). Link L: 4\(^{1}/_{2}\); W: ±1\(^{1}/_{2}\).

TREATMENT: Sent to TAMU on 25/II/97; returned 12/V/98. Drawn, photographed and traced. Due to little metal content preserved, con. was cleaned out and artifact (grommet) was cast w/Hysol; rope frags. were dehydrated in acetone and placed in SFD-1 silicon oil mixed w/3% MTM crosslinker, then set in vacuum. Then it was bathed in DNTBA catalyst and dried overnight. Artifact appears to be an eyebolt through a (leather?) grommet w/rope around it. Eyebolt circle well-preserved; shank preserved only for short stub. Out. diam of eyebolt: 3 X in. diam: 1\(^{3}/_{4}\) X 5\(^{5}/_{8}\) (th). Grommet is poorly preserved; section #1 L: 5\(^{3}/_{4}\) X 3\(^{3}/_{4}\) (th); section #2 L: 2\(^{1}/_{2}\) X ca. 3/\(^{4}\) (th). Rope is served. See TAMU File CON87/87b. Photographed (C) post-conservation.

ANALYSIS: KS: wrap-welded eye. Could go into hook or eyebolt, but prob. eyebolt and not hook due to type of weld on it vs. the hooks. CON307 is an eyebolt, not a thimble, identical in dimensions to CON87a. CON87a’s eye size=CON290 eye size.

CON88  L-shaped con. of two fasteners w/concreted wood; fasteners are at right angles to each other. Wood is teredo-ridden and may have 2 or 3 worked sides. BW/XR. XR: One wrought iron fastener; pres. L: 4; diam: 3/\(^{4}\); head W: 7/\(^{8}\).  
Fast. L: 7\(^{1}/_{2}\) and 5 5” fast. diam: 3/\(^{4}\)  E7

CON89  T-shaped con., very heavily encrusted. Top of “T” is thicker than  
10 X 6 (L @ top)  E7
bottom. BW/XR/JPG(89b). XR: A wrought iron fastener w/a square nut at one end; the other end is corroded off. Pres. L: 9 1/2; Diam (max): 5/8. Nut W: 15/16; H: 1/2. There may be remnants of a bent 5/8-in. fastener at top of “T”, not connected to the larger one.

CON90 3/4-inch diam. circular fastener con. BW. 3 1/2  E7

CON91 1/2-inch square fastener con. BW/XR. XR: fork or scrap metal? 4 3/4  E7
The x-rays, from two different angles, are unclear. One looks like a fork (pres. L: 4 3/4); the other looks like two unconnected pieces of amorphous metal, one w/a loop at one end (L: 1 1/2 and 3).

TREATMENT: Sent to TAMU on 25/II/97; returned 12/V/98. Drawn, photographed and traced. Very small portions of original iron artifact preserved; cavity cleaned out and cast w/hysol epoxy. RESULT: cast is of lower section of tapered, square chisel-pointed iron spike; L: 4 1/8 X 1/2 (W max) X 3/8 (W @ chisel point). See TAMU file CON91. Photographed (C) post-conservation.

CON92 Con w/two 1/2-inch square fasteners on either side of rock. Wood frags. attached. BW. 7 X 5 X 4 1/2  E7

CON93 Square forged iron nail from a concretion. BW. 1 1/4 X 1 8 (head W)  E7

CON94 Five misc. frags. of flat, thin, metal w/ corroded surfaces; copper? BW. Miscellaneous  E8

CON95 Large iron fastener con. C/BW/XR. XR: fragmentary wrought iron fastener w/both ends missing, and a small intact nail w/head (copper sheathing fastener?). Pres. L: 14 3/8; max diam: 7/8. Nail L: 3 4; head diam: 1 4.

CON96 Amorphous con.—unknown contents. BW/XR. XR: wrought iron spike w/flattened head; other end eroded off. Pres. L: 3; diam: 1/2; 4 1/2 X 2 1/2  E8
head W: \(\frac{5}{8}\); head th: \(\frac{3}{16}\).

**CON97** Con. of circular ring on pivot spike; deck ring? C/BW/XR. XR: object too dense @300 kv for x-ray to penetrate.

Circle OD: 7 X \(\frac{5}{16}\) E8

Spike H: \(\frac{8}{16}\)

**CON98** J-shaped con. w/fasteners (2?). One fastener is circular (D: \(\pm \frac{3}{4}\)); the other appears to be \(\pm \frac{1}{2}\)-in-square iron. BW/XR. XR: only one fragmentary wrought iron fastener visible: pres. L: \(\frac{7}{8}\); diam: \(\frac{3}{4}\).

**ANALYSIS:** May be part of iron drift, hook or ring shaft.

**CON99** Con. of 1-in grating w/section of post in it. BW/XR. XR: mesh is \(\frac{1}{16}\)-in. thick and has mesh “X” across the 1-in. opening. Post L: \(6\frac{7}{16}\); W: \(\frac{3}{4}\).

**CON100** Con. of \(\frac{5}{8}\)-in square fastener hole w/in two pieces of lava. Fastener appears to taper to chisel point. BW.

**CON101** Long, thin con. in two pieces—poss. barbed wire. BW.

**CON102** Large flattish con. C/BW/XR. XR: hinged device fashioned of flat wrought iron strap; riveted construction. Central part of hinge pin missing. Swivelling arm in center is attached to central iron cross member and has the swivel on one end and empty hub (?) at 90-degree angle on other. L: \(12\frac{3}{4}\); W: \(\frac{5}{8}\); strap W: \(\frac{7}{8}\); L of arm: \(10\frac{3}{8}\). Strong box or hatch cover part?

**TREATMENT:** Sent to TAMU on 25/II/97; returned 12/V/98. Drawn, photographed and traced. Top layer of encrustation was removed; enough original metal remained to warrant electrolysis, boiling wash (X3), tannic acid and heated wax treatment. Missing portions were restored with hysol epoxy and/or wax tinted to match the color of the original metal. RESULT: a small, polygonal iron door, prob. to a stove (boiler, safe/strongbox?). Door itself appears to be cast; its fittings, riveted to the door, were wrought. Fittings
include two horizontal iron flat bars terminating in pins (for hinges). Other ends terminate in riveted bar that held vertical bar stop for handle. Horizontal handle ends on one end in riveted circular terminal; the other end terminates in round finial for raising. On the flat inside surface of the door, there is a $1\frac{1}{2}$-$5\frac{5}{8}$-in. flange around the perimeter to fit into the main body of the stove. $7\frac{1}{2}$ (H) X $10\frac{1}{2}$ (W, inc. hinges) X $1\frac{1}{4}$ (Th). Very fragile. See TAMU file CON102. Photographed (C) post-conservation; drawn (both sides) by Tom Ormsby III/99.

RESEARCH: prob. the door from a box stove or Shaker stove, used for keeping warm. A rectangular cast-iron stove usu. placed in the center of a room, sometimes truncated pyramidal in shape (both stove and door) All examples viewed have symmetrical doors and horizontal lifts, unlike CON102. In addition, even the Shaker variety could have some decoration, such as a floral pattern on the door. If this hypothesis is correct and the stove was from the original Barge, CON102 is from a very plain example that would not have been intended to be seen by the public. There is mention by John Dodge on 6/XII/1817 of a stove aboard the Barge, relating to George Crown’s death: “When I first went into his after cabin he had a small open stove of coals & was seated near it, his head resting on his hands directly over the coals...” (FBC, 1913: 230). The need for such a device in Hawaii is problematic—poss. a status item or a leftover from the Barge? For examples of box and Shaker stoves, see Tammis Kane Groft, Cast With Style: Nineteenth Century Cast-iron Stoves from the Albany Area (Albany: Albany Inst. of Hist. and Art, 1984) 45; Josephine H. Peirce, Fire on the Hearth. The Evolution and Romance of the Heating-Stove (Springfield, MA: Pond-Ekberg Co., 1951) 95-101; Will & Jane Curtis, Antique Woodstoves. Artistry in Iron (Ashville, ME: Cobblesmith, 1974) 11-15; 22-25; Henry C. Mercer & Horace M. Mann, The Bible in Iron, or Pictured Stoves and Stove Plates of the Pennsylvania Germans (Doylestown, PA: Bucks County Hist. Soc., 1941) 146, fig. 263. See PFJ notes on CON102 for further info. KS: the door has a rat’s-tail lift. Hinges have the pintles on one end, which means they butt against the staple, which has an offset tum allowing the lift to raise/lower. Holes for rivets not countersunk.

CON103 Con. of fastener attached to iron-impregnated, teredo-ridden wood. BW/XR. XR: two fragmentary fasteners.
5 (fastener) X ±$1\frac{1}{2}$ (Diam) E8
X 6 (wood L)
(a) Tapered wrought iron spike w/head. Pres. L: $3\frac{3}{4}$ X $5\frac{5}{8}$ tapering to $1\frac{1}{2}$. Head W: $3\frac{3}{4}$; th: $1\frac{1}{4}$
(b) wrought iron fastener or hook/ring shaft; flat on one end, eroded off on other. Pres. L: $3\frac{1}{2}$; W: 1

CON104 Con. of two rocks with $5\frac{5}{8}$-inch square spike hole. BW.
Pres. spike L: $4\frac{1}{4}$ E9

CON105 Con. of iron fastener. BW/XR. XR: fragmentary wrought iron spike w/head. Pres. L: $6\frac{1}{2}$; W: $1\frac{1}{2}$; head W: 1; th: $1\frac{1}{4}$. 8 X 2 (Diam) E10
CON106  Con. of iron fastener. BW/XR. XR: intact, tapered wrought iron spike w/head. L: 6; W: $1/2$; head W: $7/8$; head th: $1/4$.
A small twisted metal frag. (copper?) also included.

CON107  Con. w/1–2 iron fasteners w/lava rock; one fastener may have had square head. BW/XR. XR: upper portion of fragmentary wrought iron fastener w/head. Pres. L: $6^{3/4}$; flattened head W: 1; shaft W: $5/8$.

CON108  Con. of flat iron strapping. BW.

ANALYSIS: PFJ: The strap could have been raw stock for hinges, etc.

CON109  Con. of amorphous shape. BW/XR. XR: frag. lower end of wrought iron spike, tapering to eroded point. Pres. L: $6^{1/4}$; W: $5/8$. Another frag. iron fastener may be underneath.

CON110  Con. of circular ring (poss. thimble?) w/piece of rope attached. Rope has tarry, pitch smell. BW/XR. XR: intact circular wrought iron ring on wrought iron eye w/frag. shank. $3/4$-in. thick ring has OD of 5 in.; eye is $3/4$-in. thick. Its diameter is indeterminate from x-ray. Eye and shank LOA: 3.

ANALYSIS: KS: the iron ring is $3/4$; the eyebolt is $5/8$ in. thick. This is different from what has been seen otherwise, but no explanation. Almost identical to CON285.

CON111  Concreted rectangular container top w/horizontal handle on top. Modern cement puddler or hibachi cover? BW.

CON112  Con. of two sections of barrel/cask hoop. BW.
CON113  Con. of two fasteners w/concreted wood. C/BW/XR. XR: section of wrought iron rod/fastener; one end rounded (head?); the other broken off. L: 6½; diam: ¾.

CON114  Con. of long wire or tubing. BW.

CON115  Concreted cavity of 1/4-inch square fastener and another fastener. BW/XR. XR: globular object resembling fragmentary sand glass from CON44. L: 2⅛; W: 1⅛.

TREATMENT: Sent to TAMU on 25/II/97; returned 12/V/98. Drawn, photographed and traced. No original metal preserved; casting made. RESULT: upper section of square iron spike w/head (nothing preserved from globular object [will inquire]). L: 3 1/4 X 3 8 (W @ head) X ½ (W of head). See TAMU file CON115. Photographed (C) post-conservation.

CON116  Concreted section of barrel/cask hoop. BW.


CON118  Concreted cavity of 1/2-inch square fastener in flat wood; wood is hardened w/concretion product. BW.

CON119  Amorphous t-shaped con. BW/XR. XR: barbed wire frag.

CON120  8 cons. of miscellaneous sizes—apparently barbed wire. BW/XR. XR: misc. frags. barbed wire; one nail (modern 8d?).

CON121  Amorphous con. w/fastener. Teredo-ridden wood on one end; piece of corner molding (picture frame?) on other. C/BW/XR. XR: intact wrought
iron ring: OD: 4; th: \(\frac{3}{4}\). Head of metal fastener may also be included.

**TREATMENT:** Sent to TAMU on 25/II/97; returned 12/V/98. Drawn, photographed and traced. The wood was detached and conserved (by unknown method; will inquire). Due to absence of original iron, cavity was cleaned out and cast w/hysol epoxy. **RESULT:** cast of eyebolt w/eye and base of shaft preserved; through the eye is a cast of an iron ring, \(\frac{5}{8}\)-in. thick (OD: 4; ID: \(\frac{23}{4}\)). The eyebolt is \(\frac{5}{8}\) in. thick by 2 (OD) \(\times \frac{3}{4}\) (ID). Wood molding is \(4\frac{3}{16} \times 1\frac{3}{16} \times \frac{11}{16}\) (th). See TAMU file **CON121.** Photographed (C) post-conservation.

**ANALYSIS:** KS: ring eyebolt, prob. in David Steel book. Could be for on deck or in rigging. Would have terminated in bolt through deck or up top. Since only 1/2 in., may indicate topgallant rigging element—it’s a bit light for deck stuff. Identical to **CON64**=eyebolt ring w/4-in. decking attached.

**CON122** Con. w/length of wire/thin pipe w/square, flat attachment in middle. 6\(\frac{1}{2}\) \(\times \) 4\(\frac{1}{2}\) E12

BW/XR/JPG. XR: intact handle of eating utensil (knife/fork/spoon?). Contains two \(\frac{1}{8}\)-in. rivets, \(\frac{3}{4}\) in. apart (on center). Apparent end cap on one end. LOA: 2\(\frac{1}{2}\); W (max): \(\frac{7}{8}\); cap H: \(\frac{7}{16}\); cap W: \(\frac{5}{8}\). Concretion also contains a piece of metal wire (?) \(5\frac{1}{4}\) in. long and \(\frac{3}{16}\) in. in diam.

**TREATMENT:** Sent to TAMU on 25/II/97; returned 12/V/98. Drawn, photographed and traced. There was significant metal remaining in the metal band/pipe stem for which electrolytic reduction was proposed; nothing remains at present (will inquire). The other component contained little original metal, so the cavity was cleaned out and cast with hysol epoxy. **RESULT:** some sort of ovoid iron handle (tableware?) w/2 rivets was cast; \(2\frac{1}{4}\) \(\times \frac{7}{8}\) \(\times \frac{1}{4}\) (th). It is mounted on a flat, amorphous cast. See TAMU file **CON122.** Photographed (C) post-conservation.

**ANALYSIS:** KS: May be bottom of handle for something like a brass skimmer. See *Draw, Upset & Weld.* Henry Kauf

**CON123** Con of fastener w/flattened head. BW/XR. XR: upper end of wrought iron fastener. Pres. L: \(3\frac{1}{4}\); W: \(\frac{3}{4}\). 5\(\frac{3}{4}\) \(\times \) 4\(\frac{1}{2}\) E12

**CON124** Amorphous fastener con. BW/XR. XR: 5\(\frac{1}{2}\) \(\times \) 4\(\frac{3}{4}\) E12
CHECK

CON125  Con. possibly of barbed wire.  7³/₈ X 5/₈ (Diam)  E12

CON126  Con. of thimble on hook or chain. BW/C (post-conservation).  13 X 7¹/₂  Attached to reef in SW cor-

TREATMENT: Sent to TAMU on 25/II/97; returned 12/V/98. Drawn, photographed and traced. Hook underwent electrolytic
reduction, then boiled, coated w/tannic acid and immersed in microcrystalline wax. Rope in thimble was acidified to remove
concretion, rinsed, dehydrated, immersed in SFD-1 silicon oil mixed w/3% MTM crosslinker and placed in vacuum. DBTDA catalyst
then was applied to crosslink w/silicon oil. RESULT: large iron hook with eye on one end, through an iron thimble w/rope around it,
either for rigging or ordnance breeching tackle. Hook H: 8³/₄ X 1¹/₂ (max th) X 3¹/₂ (OD of eye); thimble H: 5¹/₈ X 4¹/₈ (W). Rope is
served. See TAMU file CON126. Photographed (C) post-conservation.

ANALYSIS: KS: a fish hook for anchoring the cathead? Or poss. cargo hook for block & tackle? It is considerably bigger and heavier
than the others.

CON127  Concreted iron object w/wedge-shaped wooden attachment. Wood not preserved (sample taken). C/BW/XR. XR: x-ray does not help identify
contents of this concretion; see RWR sketch of 24/VII/96 and slides for other views. Dick Steffy: chock for between frames? PFJ/LMV: deck block for chimney flue; gun
elevation wedge; piece of windlass stand/bracket???

CON128  Con. of 2 fasteners, one ostensibly curved. C/BW/XR. XR: two frag. wrought iron fasteners.
(a) pres. L: 5³/₄; W: ¹/₂; top end W: ³/₄.
(b) pres. L: 2⁵/₈; W: ¹/₂; top end W: ⁵/₈.

CON129  Amorphous con. originally attached to flat wooden surface. Round 5 X 4¹/₄  E12
fastener hole has $3/8$ in. diameter. BW/XR. XR: “L”-shaped metal (iron?) object; both ends eroded off. L of one arm: $3^{1/2}$; max W: $1^{1/8}$.

CON130 Con. of $1/2$-inch square fastener. BW. 5$1/2$ X 2$3/4$ E12

CON131 Con. of small fastener w/1 nail exposed; nail only is preserved. BW/XR. XR: frag. end piece of 1-in. wire grating; see CON99, etc. 2$3/4$ X 2$1/2$ E12

1997

CON132 Con. of poss. fasteners. BW/XR. XR: 3 iron fasteners; 2 are fragmentary and 1 is an intact, tapered, headed example. (a) 6$1/4$ X $1/2$ X $5/8$ (head W); (b) 4$3/4$ X $5/8$; (c) 4$1/4$ X $1/2$. 8$1/2$ X 5$1/2$ X 3$1/4$ E13

CON133 Concreted iron fastener broken at one end; attached to piece of coral. BW/XR. XR: headed iron fastener; lower end missing; 4$5/8$ X $5/8$ X $1/4$ (head diam.). 5$1/4$ X 2$1/4$ E12

CON134 L-shaped con. of iron fastener with small wood frags. attached to surface. BW/XR. XR: only corrosion product visible, w/2 layers (lenses) across it. 4$1/4$ X 3 (W@ft) E12

CON135 Con. of fastener attached to piece of coral. BW/XR. XR: heavy modern nail or spike, like a gutter spike (>16d). Head and shaft intact; lower end eroded off. 3$3/4$ X $3/16$ (diam). From Iniki? 4$3/4$ X 1 X 1 E13

CON136 Poss. fastener con. in 2 pieces. BW/XR. XR: headed iron spike tapering to point; bent in middle. Very wide, thin head. 4 X $1/4$ (W below head); preserved head W: $3/4$. 5 X $1^{3/4}$ E12
CON137 “L”-shaped iron con. BW. 27/8 X 13/4 X 3/8 (Th) E12

CON138 Amorphous con. w/ numerous stones and pebbles attached. BW/XR. XR: 1/2-in. thick wrought-iron hook w/ eye at other end. 45/8 X 25/8. 71/2 X 4 X 23/4 E13

ANALYSIS: KS: this hook is different from others conserved. It’s smaller and the hook tip is at same level as eye bottom. Much lighter eye part measures 1/4 in. Could be used high up in rigging, or below decks for berthing or hanging. This is the only other 1/2-in. hook (v. sim to CON240) and its eye and CON240’s are both 2 in. high. CON290 is same size as CON138 and CON244, but CON244 is better match. Def. not CON204. CON230 is same shape and size hook as CON138.

CON139 Con. w/ poss. large iron fastener. BW/XR. XR: frag. wrought-iron fastener; both ends missing. There appears to be a fracture near one end and a join (?) at other. 13 X 1 (diam. near “joint”). 14 X 3 X 31/2 E13

CON140 Con. w/ thimble cavity. BW. 41/2 X 5 X 21/2 E13

CON141 Con. of a frag. poss. of iron strapping, broken at both ends. Small bits of wood attached to surface. BW. 51/2 X 27/8 X 1 (th) E12

CON142 Con. of poss. fastener. BW/XR. XR: head and upper end of wrought-iron round fastener; lower end missing. Head flattened from impact. 5 X 3/4 (diam.). 51/2 X 2 X 11/2 E13

CON143 Con. of poss. fastener. BW/XR. XR: section of wrought-iron fastener w/ both ends missing. Visible L: 51/2 X 3/8 (W). 6 X 2 X 13/4 E13

CON144 Con. of poss. nail (or barbed wire). BW. 21/4 X 1 X 3/4 E13

CON145 Band-shaped con.; iron? BW. 63/4 X 23/4 X 2 E12
CON146 Con. of poss. fastener; coral attached. BW/XR. XR: 3 wrought-iron round fasteners in shape of “T”; one (7\(\frac{1}{8}\) X \(\frac{7}{8}\)) appears intact w/head; it contains some original iron. Another (5 X 1 (diam.) is broken off at both ends; the 3rd is 2 X \(\frac{3}{4}\) (diam.).

CON147 [NUMBER UNUSED]

CON148 Con. of iron fastener w/square \(\frac{3}{8}\)-in. cavity. BW/XR. XR: tapered spike w/head and portion of shaft preserved; bottom end missing, 2\(\frac{1}{2}\) X \(\frac{3}{8}\) (W below head); head H: \(\frac{1}{8}\) X \(\frac{9}{16}\) (head W).

CON149 Curved con. of corrosion product of rectangular iron strap cavity. BW.

CON150 Con. of barbed wire (?). BW/XR. XR: modern threaded bolt w/nut in center. One end corroded; remainder of orig. metal intact. 2 X \(\frac{3}{16}\) (diam); nut is \(\frac{1}{2}\) X \(\frac{1}{8}\).

CON151 Con. of wrought iron and concreted wood, w/large mammal bone embedded in it. C/BW/XR. XR: 3 frag. wrought-iron fasteners and other sandglass ball measuring 2 X \(\frac{5}{8}\) (see CON44). 2 fasteners are indistinct; the 3rd is \(\frac{3}{8}\) X 1.

TREATMENT/ANALYSIS: Reviewed by Dr. Melinda Zeder at NMNH on 12/II/98: prob. small, young pig humerus; show again after conservation. Sent to TAMU 23/III/98; returned 14/X/99. No treatment detailed in TAMU conservation file CON151; bone not removed (as requested). Sand glass bulb preserved, along with contents, which were analyzed with SEM (needs translation for PFJ); SEM graphs and photos included. TAMU file CON151: “The hourglass was considered to be more important than the leather. The leather was removed in order to free the hourglass.” Sandglass contents are stored (dry) in small brown bottle. Zeder, 19/IV/00: right
humerus shaft of pig less than 6 mos. old (i.e. probably too young to eat). No signs of butchery. Sandglass bulb not found at NMAH XI/03.

NMAH’s Continental gunboat *Philadelphia* of 1776 also has a 28-second sand glass, used for determining speed (prob. w/chip log).

**CON152** Con. of poss. iron fastener w/small wood frag. containing nail hole. 8 X 2 X 1 3/4 E12
BW/XR. XR: intact wrought-iron tapered spike w/head; bent. 5 1/2 X 3/8 (W below head) X 5/8 (head W) X 1/4 (head H).

**CON153** Small con. shaped like a two-rooted molar (fork?). BW/XR. XR: modern staple (heavy): pointed @ both ends and curved in middle. 1 3/16 X 7/8 (diam.).

**CON154** Con. containing a square iron fastener cavity in one end. BW. 4 1/2 X 3 X 1 3/4 E12

**CON155** Amorphous con. w/small bits of coral and wood attached. Long hole through one side. BW/XR. XR: section of tubing w/ends missing. 3 X 1/4 (out. diam.) X ±1/16 (in. diam.).

**CON156** Round iron fastener con. w/iron-impregnated wood at one end. BW. 4 X 2 3/8 X 5/8 (diam) E12

**CON157** Amorphous con. of unknown metal w/one side bent; surface corroded. BW. 3 1/8 X 1 3/4 X 5/8 E12

**CON158** Con containing 2 rings, w/rope and wood frags. visible on surface. thimbles? C/BW/XR. XR: big wrought-iron pointed hook w/other end bent over and w/a wrought-iron ring through it. The ring is prob. a thimble due to presence of rope fibers on external surface of con. Hook L: 6 7/8 (LOA); H of hook portion: 2 7/8. Ring is bent into ovoid shape; outside diam. varies bet. 2 1/4 to 2 3/16; ring th: ~1/2. C (pre/post conservation).
TREATMENT: Sent to TAMU 23/III/98; returned 14/X/99. Pneumatically chiseled of encrustation and to expose mold hole of hook; successive baths of used-to-fresh acetone to dehydrate rope frags; epoxy mold of hook cast; mold shaped w/dremel tool; matt krylon paint and graphite applied to mold for natural finish. Wood and rope frags mentioned in conservation report not returned (not preserved?). See TAMU file CON158.

ANALYSIS: Hook has wonderful “fluke” tip (to prevent hooked item from slipping off?). Intact round thimble attached thru eye w/rope frags. attached. Hook: 6 X 2-5/8 (eye OD) X 1-3/8 (eye ID) X 1 (fluke tip W) X 1-1/2 (thimble ID) X 1 (H/W). KS, 13/XI/01: poss. for futtock shroud. KS, 4/II/02: futtock shroud hook or strop hook. Spade tip or bill properly called “arrow head.” The arrow head tip goes to iron strap that has deadeye @ other end. Excepting fluke tip, identical to hook in CON278.

CON159 Con. prob. of iron fastener w/bits of wood and gourd attached. BW/ XR. XR: intact tapered wrought-iron spike w/head. 53/4 X 5/8 (W below head) X head H: 3/16 X 7/8 (W).

CON160 Con. containing two square fasteners: one is 1/2-in; the other is 1/2 X 1/4. BW.

CON161 Amorphous con. w/one side flattened; appears to be mainly corrosion product. BW/XR. XR: piece of flat metal w/straight sides and 1 flat end. May be folded over on itself. 2 X 1.

ANALYSIS: Not located during VII/03 survey by intern Nieves Ehrenberg.

CON162 “L”-shaped con.; upper portion of “L” is flattened; lower bar contains at least two round iron fasteners. BW/XR. XR: one S-curved iron fastener visible: 45/8 X 1/2. Both ends missing. Mostly corrosion prod. w/coral pieces.

CON163 Flat amorphous con. w/frag. of corroded hull sheathing on one surface. BW/XR. XR: bent and twisted hs frag. w/1 copper fastener (headed nail). Bent nail: 1 in. long.
CON164  “J”-shaped hollow con. of a round iron fastener. BW.  3\(\frac{1}{4}\) X 1\(\frac{1}{2}\) E14

CON165  Amorphous con. prob. containing an iron fastener and one other object. BW/XR. XR: 2 intact tapered wrought-iron spikes. Larger has shallow head; L: 5\(\frac{1}{4}\) X 3\(\frac{3}{8}\) (W below head). Smaller is bent along shaft and contains some original metal: 3\(\frac{5}{8}\) X 3\(\frac{3}{16}\).  6 X 3\(\frac{7}{8}\) E14

CON166  “T”-shaped con. BW/XR. XR: intact modern (?) nail 3 X >\(\frac{1}{8}\).  3\(\frac{1}{2}\) X 2\(\frac{1}{4}\) E14

CON167  Circular con. w/remnants of rope visible on surface w/a poss. thimble and a 3\(\frac{3}{8}\)-in square fastener hole. BW/XR. XR: 1\(\frac{2}{3}\)-in. thick intact wrought-iron ring; ±3\(\frac{3}{4}\) (out. diam.).  5 X 5\(\frac{5}{8}\) E14

CON168  Con. of 3\(\frac{3}{8}\)-in square iron fastener. BW/XR. XR: L: 5\(\frac{1}{4}\); neither end preserved.  5\(\frac{1}{2}\) X 2\(\frac{1}{4}\) E14

CON169  Amorphous con. prob. containing two iron fasteners. BW/XR. XR: 3 wrought-iron round spikes. The biggest is intact, w/pointed head and tapered (but not pointed), truncated end, measuring 8\(\frac{5}{8}\) X 3\(\frac{3}{4}\). Pointed head: 1\(\frac{1}{4}\) (W) X 1\(\frac{1}{2}\) (H). #2: head and part of shaft preserved: 2\(\frac{3}{4}\) X 5\(\frac{3}{8}\) (diam). #3: headed; visible pres. L: 5xx; lower end obscured. Diam: 3\(\frac{3}{8}\). Head is 5\(\frac{1}{8}\) (W) X 1\(\frac{1}{4}\) (H).  9\(\frac{7}{8}\) X 3\(\frac{1}{2}\) E14

CON170  “J”-shaped con. w/at least one 3\(\frac{3}{8}\)-in square iron fastener. BW/XR. XR: bottom end of tapered spike; L: 4\(\frac{1}{2}\).  6\(\frac{1}{4}\) X 3\(\frac{1}{2}\) E14

CON171  Amorphous con., prob. only corrosion product, attached to small piece of coral. BW/XR. XR: nothing revealed.  3\(\frac{1}{4}\) X 2 X 3\(\frac{3}{4}\) (th) E14

CON172  Con. of 1\(\frac{1}{2}\)-in (diam) iron fastener w/coral and rock inclusions.  7 X 4\(\frac{3}{4}\) E14
BW / XR. XR: 2\(\frac{1}{2}\)-in. length visible; remainder obscured. Mostly corrosion product.

CON173 Con. of \(\frac{3}{8}\)-in round iron fastener; both ends open. BW. 6 x 2\(\frac{7}{8}\) E14

CON174 Con. prob. of iron fastener. BW / XR. XR: tapered metal spike; surface degraded: 5\(\frac{1}{2}\) x \(\frac{5}{8}\) (W below head). Also contains what appears to be the shaft of a copper hs nail, L: 13\(\frac{1}{16}\).

CON175 Con. containing the head of a copper spike, half a wooden sheave and a rock at the head of another spike. C / BW. Spike: 9\(\frac{1}{2}\) x 1\(\frac{1}{2}\) (diam) Sheave: 1 (th) x 5\(\frac{1}{2}\) (diam)

ANALYSIS/TREATMENT: sheave sampled by CAL's Harry Alden 9 / II / 98. RESULT: lignum vitae (Guaiacum sp.). See Harry Alden, Wood Analysis Report of 13 / V / 98. Sent to TAMU 23 / III / 98; returned 14 / X / 99. Headed, slightly bent copper spike is intact, with other end flattened. It underwent electrolysis, then 10% citric acid w / thiourea (?), rinsed, cleaned, dehydrated in 100% acetone, and clear-coated with Krylon 3000. 9-1/2 x 1/2. Sheave frag. is just over half the original diameter, w / 2 1/2-in. holes through it, 2-3/8 in. apart on centers. Diam. = 5-1/2 x 1 (th). Hole for pin is recessed 1/2 in. (W) x 1/4 in (deep). W of outer pin hole = 1-1/4 x 5/16 (inner pin hole diam). Sheave dehydrated in 100% ethanol, vacuumed for 5 hrs, silicon oil treatment (no details). See TAMU file CON175.

CON176 Amorphous con. w / two iron fastener holes; one round and one square. BW / XR. XR: remnants visible of a tapered, wrought-iron spike (pres. L: 3); remainder is indistinct but appears to be mostly corrosion product.

CON177 “T”-shaped con.; may have contained a small iron fastener. BW / XR. XR: thin-walled metal tube; pres. L: 3\(\frac{1}{8}\) x 3\(\frac{1}{16}\) (out. diam).

CON178 Large, heavily concreted object w / intact hand-made brick attached; brick was detached for shipping. Brick has large quartzite inclusion

<table>
<thead>
<tr>
<th>Con.</th>
<th>Spike</th>
<th>Sheave</th>
</tr>
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<tbody>
<tr>
<td>CON173</td>
<td>6 x 2(\frac{7}{8}) E14</td>
<td>6(\frac{3}{4}) x 2(\frac{1}{2}) E14</td>
</tr>
<tr>
<td>CON174</td>
<td>9(\frac{1}{2}) x 1(\frac{1}{2}) (diam)</td>
<td>1 (th) x 5(\frac{1}{2}) (diam)</td>
</tr>
<tr>
<td>CON175</td>
<td>Con.: 5(\frac{5}{8}) x 5(\frac{1}{2}) E14</td>
<td>Round: 3(\frac{3}{4}) (diam)</td>
</tr>
<tr>
<td>CON176</td>
<td>3(\frac{1}{4}) x 1(\frac{1}{4}) E14</td>
<td>Square: 1(\frac{1}{2})</td>
</tr>
<tr>
<td>CON177</td>
<td>Con: 26(\frac{1}{2}) X 11 X 11 E14</td>
<td>Brick: 6(\frac{1}{2}) X 3(\frac{1}{8}) X 1(\frac{3}{4})</td>
</tr>
</tbody>
</table>
and cracks (from original firing). Inclusion may indicate that brick was imported (?). C (in situ); C/BW/XR. XR: appears to be some sort of iron tray w/ lip all around and 2 vertical lugs on one surface’s corners.  

**Inclusion W: 1 1/8**

**CON179** Long, amorphous con. w/poss. 1 1/4-in drift pin. BW/XR. XR: nearly intact, headed wrought-iron fastener; portion of rounded (not sharp) tip missing. 107/8 X 7/8 (diam. below head) tapering to 5/8 just above end. End is more sharply tapered than shaft. Head diam: 1 1/4 X 1 1/4 (th).

**CON180** Con. of a pin w/one eye-shaped end. BW/XR. XR: intact iron pin/bolt w/eye at 1 end; end flattened and appears intact. Shaft and ring diam.: 3/4; eye out. diam.: 2 1/2.

**ANALYSIS:** KS: 3/4-in. eyebolts like this one are better suited to deck rings than gun carriage rings. It has a 1-in. shank.

**CON181** Large “Y”-shaped con. in 2 pieces, w/leather, wood, coral, and rope frags. attached. C/BW/XR. XR: heavy, bent wrought-iron pin; both ends missing. 13 1/2 X 1 (diam.).

**CON182** Long, narrow piece of hull sheathing w/con. on one end; in 3 pieces. 
Con.: 2 stubs of fasteners on one tapered end; coral frags. on one end. BW/XR. XR: 2 wrought-iron fasteners.  
(a) bent, tapered, missing both ends. 9 5/8 X 1 1/2. (b) headed; may be square-sided. 6 3/8 X 1 1/2 (W below head) X 3/8 (W @ bottom). Head: 1/4 X 3/4.

**CON183** Con. w/small and large cobbles and wood attached; prob. two iron fasteners. BW/XR. XR: indistinct; mostly corrosion product. Poss. coin (?) at 1 end.

**TREATMENT:** Inadvertently allowed to air-dry after x-ray. Sent to TAMU 23/III/98; returned 14/X/99. Con broken in half, cleaned and 2 intact, square sectioned iron spikes w/square heads were cast with epoxy. Casts removed with pneumatic chisel, painted
w/graphite and sealed w/clear Krylon. (a) Tip missing. 5-3/16 X 5/8 X 3/4 (head W); (b) Chisel-pointed head, 5-1/2 X 1/2 X 3/4 (head W). See TAMU file CON183.

CON184 “I”-shaped con. of barbed wire (?), broken at 1 end. BW/XR. XR:
- modern nail, 21/8 X <1/8 (diam.) X 3/16 (head W).

CON185 Con. w/very degraded wood; red discoloration. BW/XR. XR: bone frag? Appears hollow at 1 end. 2 X 11/4.

TREATMENT: Inadvertently allowed to air-dry after x-ray. Sent to TAMU 23/III/98; returned 14/X/99. End of square iron spike (7/16 X 7/16) embedded in teredo-ridden wood; 1 flat original surface in wood. Wood soaked in tap>rain water; pneumatic chisel removed encrustation; mold cast in epoxy, dremel tooled to shape nail; entire piece soaked in PVA/acetone to consolidate the wood. See TAMU file CON185.

CON186 Con. of sheathing (?) w/strap attached to a timber frag. BW. 7 X 21/2 X 21/2

CON187 Con. of poss. wrought iron. BW/XR. XR: iron fastener w/flat end (head); other end missing. 57/8 X 1 (head W).

CON188 Con. w/two holes for two iron fasteners (3/4 and x 5/8-in).
- BW/XR. XR: 2 round iron fasteners: (a) 3/16 X 3/4 (diam.) head diam: 9/16 X head H: 1/4. (b) 3 (visible) X 1/2 (diam.).

CON189 Concretion surrounding wood; striations visible=poss. fastener.
- BW/XR. XR: round wrought-iron fastener w/flattened end (head) intact; other end missing. 83/4 X 5/8.

CON190 Concretion w/wrought iron striations; 5/8-in. diam. iron fastener cavity embedded around wood frag. BW. 33/4 X 2 X 21/4
CON191 Con. containing round iron rigging element, surrounded by ‘ring’  
of decayed rope. Coral (?) ‘fingers’ attached to one side. C/BW/XR. XR:  
ovoid iron ring; prob. thimble. Orig. th: ~1 1/4; Out. diam.: ~5 1/4 (indistinct).

TREATMENT: Sent to TAMU 23/III/98; returned 14/X/99. Thin layer of encrustation around rope removed with pneumatic chisel; rope dehydrated in 3 baths of used acetone and impregnated w/silicon oil. Thimble mold cast in epoxy, shaped with dremel tool and matt Krylon and graphite applied to surface. Wood could not be saved. RESULT: casting of iron thimble w/original rope preserved around it. Thimble with inverted lip: 4-1/2 (OD) X 2-3/4 (ID) X 2-1/8 (H) X 3/4 (Depth of inverted lip); rope is 1-1/2. See TAMU file CON191.

ANALYSIS: KS: thimble.

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CON192 Long con., bulbous on 1 end; prob. iron fastener. C/XR. XR: intact wr-ir  
bolt w/flattened head and end. 12-1/8 X 1.

CON193 Flattened con., poss. strap hinge or pintle (?). End appears broken. C.  
9 X 3-1/2 X 3/4 (t)

CON194 Long, skinny con. w/bulb in center; prob. iron fastener. C/XR.  
Tapered wr-ir spike w/flattened head; other end eroded off. 4-1/2 X 1/2 X 3/4 (head w).

CON195 Concreted iron fastener, round in section. End broken. C/XR.  
XR: unrevealing.

CON196 Concreted metal frag.—prob. barbed wire. Tag separated in shipping;  
object not located during photography.

CON197 Oblong con., poss. flat originally. Knife-shaped. Broken into 4 pieces  
during shipment; “hilt” section visible. C/XR. XR: table knife; intact  
(excepting recent breaks); hilt has solid section. LOA: 9-3/4  
X 5-3/4 (blade L) X 4 (handle L) X 1 (W).
TREATMENT/ANALYSIS: Anne Serio, Domestic Life, 8/VI/99: tang overhang and straight (upper) edge indicate early rather than modern date. Sent 27/IX/99 to TAMU for conservation. Returned from TAMU 7/IX/00. RESULT: blade and handle were partially mineralized, so blade was cleaned out and cast, revealing a table knife w/bevelled handle. Original knife remains and mold also returned to NMAH, along w/extensive conservation file w/sketches. See TAMU file CON197.

CON198 Long con. w/knob on 1 end; heavily encrusted w/coral. Prob. bent iron fastener. C/XR. XR: wr-ir bar w/2 flat ends; some orig. metal preserved, w/what appears to be a 3 X 1 frag. of hs @ 1 end. 10-3/4 X 7/8.

CON199 Amorphous con. heavily encrusted w/rock and coral. C/XR. XR: A wr-ir fitting or bracket (?); may be on a stem (?). Shape of preserved portion is like a large staple or drawer pull, with 2 upturned ends. 7/8 (h) X 2-3/4 (w) X 1/8 (t). See CON411.

CON200 Drumstick-shaped con. w/large rock in center. Knobbed on both ends. C/XR. XR: heavy, tapered wr-ir spike w/flattened head; other end missing. 6-1/2 X 1-1/8 (head w).

CON201 Amorphous con. w/rocks, coral and bits of wood attached. May be only corrosion product. C/XR. XR: corrosion product.

CON202 Amorphous con. w/several rounded surfaces. C.

CON203 Tapered oblong con. w/coral and rock attached. C.

CON204 J-shaped con. of iron object; poss. hook. C/XR. XR: intact, wr-ir hook w/eye @ 1 end; some orig. metal preserved. Frag. flattened ring partially across hook eye; it appears to have a rounded egg-like element coming out of one end (inside the hook eye). 7 (h) X 3 (w @ hook) X 2-1/2 (eye I.D.) X 1-3/8 (angled in xr) X 5/8 (eye t). C (pre/post conservation).

TREATMENT: Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Con pieces were removed and put into electrolytic reduction (ER). Voids were cast w/Hysol epoxy. Rope removed and placed in di water to remove electrolyte. Epoxy used to coat
remaining iron to depth of cast; polyurethane covered w/graphite to hide epoxy parts; sponged w/Krylon to seal graphite. RESULT: large hook w/eye at upper end; through eye=rope-wrapped thimble. See TAMU file CON204.

ANALYSIS: KS: Big hook w/rope wrapped thimble. Not a futtock shroud hook; prob. attached to blocks in rigging,=”rigging hook.” The bill (tip) has a bit of a turn for mousing. CON250 hook & eye is essentially identical and probably from the same place—may be pair. High quality of workmanship is manifest and consistent bet. the two. A bit longer than CON214, although the same stock was used. CON366=CON204, etc.

CON205 Small, drumstick-shaped con. C/XR. XR: headed nail (modern?); 1-1/4 X 1/4 (head w).

CON206 Small, triangular con. C/XR. XR: flattened head and shaft section of wr-ir fastener. 1-7/8 X 3/4 (head w).

CON207 Amorphous con. w/shell and coral attached. C/XR. XR: short section of wr-ir fastener (poss. tapered); no ends preserved.

CON208 Con. w/iron fastener and teredo-ridden wood at 1 end. C/XR. XR: only corrosion product visible.

CON209 Con. of iron fastener w/coral on surface. C/XR. XR: v. dark; may be copper pin w/bulbous head.

CON210 Drumstick-shaped con.—prob. iron fastener. C/XR. XR: intact, wr-ir tapered spike w/flattened head. 5-3/4 X 1/2 X 3/4 (head w).

CON211 Con. of curved strap—prob. barrel hoop. Broken into 2 pieces during shipment. C.

CON212 Con. of curved strap—prob. barrel hoop. Broken into 3 pieces during shipment. C/XR. XR: strap w: 1-1/2; length indeterminate.
CON213  L-shaped con. w/treenail hole in wood; prob. iron fasteners. Broken 7-1/2 X 5-1/2 X 7/8 (trnl dia) E17 at end. C/XR. XR: mostly corrosion product w/wr-ir fastener; too dark to derive dimensions.

CON214  Con. of large iron hook. C/XR. XR: intact, wr-ir hook w/eye at end; ring/link through eye. Hook and eye: 5-3/4 (h) X 2-7/8 (w). Ring/link irregular: 2 X 2 X 1/8 (t).

ANALYSIS: KS: a bit shorter than CON204 hook, although same stock was used.

CON215  Long, bent iron fastener con. w/coral, rock and teredo-ridden wood attached. C/XR. XR: tapered, wr-ir bolt w/eye @ 1 end; other end eroded away. Pres. L: 10-5/8 X 5/8 (w) x >3-1/2 (eye O.D. [due to x-ray angle]).


CON217  Con. w/bulb toward 1 end; prob. barbed wire. Broken at both ends. 3-1/2 X 7/8 E17 C/XR. XR: twisted 2-strand wire=prob. barbed wire. 2-3/8 X 1/16 (t).

CON218  Thin, curved con. w/lumps along length; prob. barbed wire. Broken into 3 pieces during shipment, of which 2 are present (?). C.

CON219  Con. of long iron fastener w/ “L”-shape at 1 end. Broken into 2 pieces during shipment. C/XR. XR: wr-ir fastener w/both ends missing. 13-1/2 X 1/2. 13-1/2 X ±1-3/4 (diam) E17


CON221  Long, heavy iron fastener con. w/2 perpendicular extensions. 12-1/2 X 1-1/4 (diam) X 4 (h) E16 C/XR. XR: intact heavy, thick wr-ir bolt w/head intact; some orig. metal preserved. 11 X 7/8 (w).
CON222 Small, amorphous con. w/ iron spike cavity (3/8 X 1/4). C/XR. XR: flattened head and shaft section of wr-ir fastener. 1-3/4 X 1/2 X 1 (head w). 2-1/2 X 1-1/2 E16

CON223 Flat, folded iron segment. C. 2-5/8 X 1-5/8 X 7/8 E16

CON224 Oblong con. w/square spike cavity (5/16) @ 1 end. C/XR. XR: bent, poss. tapered spike (ends missing). 3-7/8 X 1/4 (w). 4-1/2 X ±1-1/2 (diam) E16

CON225 Small amorphous con. w/pebbles on surface—may be only corrosion product. C/XR. XR: corrosion product. 2-1/2 X ±1-1/4 (diam) E16

CON226 Small globular con. attached to rock. C. 1-1/4 (diam) E16

CON227 Intact concreted nail w/2 stones attached. Broken into 2 pieces during shipment. C. 3 X 7/16 (head diam) E16

CON228 Concreted segment of flattened iron strap—prob. barrel hoop. Broken into 2 pieces during shipment. C. 9-1/4 X 2 X 3/4 (t) E16

CON229 Short segment of concreted iron—pipe? Iron is preserved and may have threading at 1 end. Broken into 2 pieces during shipment. C. 3-3/4 X 1-1/8 X 3/16 (t) E16

CON230 Heavy amorphous con.—may be a hook. C/XR. XR: small, intact hook w/eye; has 2 oval rings/links through eye. Some orig. metal preserved. 5 X 2-1/2 X 2-1/4 (eye h). Ring/link #1: 1-3/8 X 2 (o.d.); #2: 2-1/2 X 2-3/4. 6-1/2 X 5-1/4 (diam) E18

ANALYSIS: KS: v. small hook—smaller than most others. Hook tip is opened, poss. due to wrecking event? CON230 is same shape and size hook as CON138.

CON231 Long, thin con. of iron fastener. C/XR. XR: intact, tapered iron(?) spike w/flattened head. 6 X 1/2 X 7/8 (head w). 7-1/2 X 2-3/4 (diam) E18
CON232 Con. w/multiple contents: a prob. iron spike, a flat, folded metal piece. Coral attached. C/XR. XR: intact, tapered iron spike w/flattened head. 5-3/4 X 1/2 X 5/8 (head w). Metal appears to be straight-edged frag. of hs.

CON233 Con. of section of iron strap—prob. barrel hoop. In 2 pieces. C.

CON234 Con. of section of iron strap—prob. barrel hoop. Broken into 2 pieces during shipment. C.

CON235 Amorphous con. w/coral and pebble attached. C/XR. XR: intact, tapered wr-ir fastener; bent ca. 90 degrees. 1-1/2 X 3/4 (w @ top).

CON236 Con. of nail or small spike w/coral attached. Separated from tag during shipping; not located during photography.

CON237 Con. shaped like can of sardines. @$1, RWR=thimble; CL=oysters. C/XR. XR: small, modern oval food can (i.e. sardines, oysters, etc.)

CON238 Con. of curved section of flat iron strap; prob. barrel hoop. Broken at 1 end. C.

CON239 Con. of iron thimble. C/XR. XR: wr-ir ring; some orig. metal preserved. 2-1/4 (o.d.) X 1. Depth: ca. 1 X 3/4 (t).

CON240 Circular flat con. w/pebbles and coral attached. C/XR. XR: square, perforated object w/2 barbs on 1 end; modern? 5/8 X 7/8. C (pre/post conservation).

TREATMENT: Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. A hole was broken into the con, and the cavity was cleaned out. It was then cast w/hysol epoxy resin. The copper underwent ER. Copper was washed in di water, treated w/BTA and coated w/Krylon 1301. A small frag. of copper hull sheathing was attached, treated and returned. RESULT: an iron door lock/latch with a copper element. The small rod casting on the back of the device is broken off but easily repaired. See TAMU file CON240. Kelly Smyth, 13/XI/01: door latch; spring is missing.
KS, 2/IV/03: spring latch. Prob. for cabinet rather than closet/cupboard/outside door. It has knuckle hinge to raise the drop. Hinge is missing its axle (prob. iron?). PFJ: remarkable resemblance to lox in Don Plummer, *Colonial wrought iron : the Sorber Collection* (Ocean Pines, MD : SkipJack Press, 1999), pp. 200, upper right Latches, 4-112. The copper or brass thingie is identical to the same feature on ibid., Lock, 4-113, where it is called a “drop stirrup brass knob.” The Barge example is 3-1/4 in. square, while Plummer’s seem to cluster around 4 in. on a side. Plummer, p. 200: “These are frequently referred to as square, open-faced latches.” The Barge example is very close to English pieces in Plummer, p. 200, top right; p. 201, bottom, left and right; p. 202, bottom right.

**CON241** Small, thin con.—poss. nail (copper). LV: copper nail. C. 1-3/8 X 3/8 E18

**CON242** Con. of iron piping; 1 end broken. Broken into 4 pieces during shipment; 1 end decomposing. See sketch on back of handwritten catalog sheet (@CON321). C/XR. XR: unrevealing (too dark).

**CON243** Con. of long iron drift w/knob @ 1 end. Stone and coral attached. C/XR. XR: intact, wr-ir bolt w/head. 22 X 3/4.

**CON244** Con. of iron eye w/hook on both ends. Coral on 1 end. C/XR. XR: wr-ir hook w/eye at 1 end; some orig. metal preserved. 7-1/8 X ±3 (xr @ angle) X 2-1/2 (eye h).

**CON245** Curved con., prob iron fastener. C/XR. XR: nearly intact, tapered wr-ir spike; end may be missing. Some orig. metal preserved. 6 X 1/2 X 3/4 (head w).

**CON246** Curved con.; prob. bent iron fastener. C/XR. XR: intact (bent) tapered wr-ir spike w/flattened head and point. 5-1/4 X 3/8 X 5/8 (head w).

**CON247** Amorphous oblong con.; prob. iron fastener. C/XR. XR: wr-ir bolt w/flattened head; other end missing. Faint ghosting indicates it was once
a much larger, heavier bolt than is preserved in image. 4-1/8 X 3/8 (w) X 3/8 (head w).

**CON248** Long iron fastener con. w/bulbous ends. In 2 pieces. C/XR. XR: wr-ir fastener w/head intact; other end missing. 18 X 7/8 X 1 (head w).

**CON249** Long iron fastener con. w/bulbous ends. One broken end. C/XR. XR: long, intact, bent wr-ir bolt w/flattened head; lower end straight. 20 X 3/4.

**CON250** Con. of chain links w/rope attached (w/leather chafing). C/XR. XR: wr-ir hook w/eye @ 1 end; through eye=a round thimble (prob. w/rope and leather). Hook: 7-1/8 X 3-1/2. Thimble: 2-1/4 X 2 (o.d.) X 1/4 (t). C (pre/post conservation).

**TREATMENT:** Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Thimble was opened, cleaned and cast w/hysol epoxy resin. Ferrous portion put in ER; leather was treated w/silicon oil using APRL technique. Hook and thimble can be reassembled w/5-minute glue. Tannic solution put over polyurethane coating. **RESULT:** wrought-iron hook w/rope-and-leather covered thimble. See TAMU file **CON250**.

**ANALYSIS:** KS: **CON204** & **CON250** are essentially identical hooks & eyes. Thus from same place, poss a pair? Consistent workmanship and quality of work.

**CON251** Con. of iron fastener w/knob @ 1 end. C/XR. XR: frag. tapered wr-ir spike w/flattened head; other end missing. 5-1/4 X 3/8 (w) X 3/4 (head w).

**CON252** Con. of bent iron fastener. C/XR. Sectrion of wr-ir bolt w/rounded head; other end missing. 8-5/8 X 5/8 X 1-1/2 (head w) X 1/2 (head t).

**CON253** Large, T-shaped con. w/thin top bar. C/XR. XR: 2 crossed wr-ir fasteners. larger is 10-1/4 X 3/4 (diam); other is 6 X 1/2 (diam).

**CON254** Amorphous con. w/coral and pebbles. C/XR. XR: section of thick, heavy wr-ir fastener; prob. bolt (ends missing). Some orig. metal. 5-1/2 X 1.
CON255  Amorphous con. C. 3-1/2 X 2-1/2 E18

CON256  Con. of iron fastener. C/XR. XR: intact, wr-ir tapered spike w/flattened head. 6-1/4 X 1/2 X 3/4 (head w). 8 X 2-3/4 E19

CON257  Large con. of iron fastener. C/XR. XR: thick, heavy, intact wr-ir bolt w/flattened head; some orig. metal preserved. 10-1/2 X 1-1/8 (w). 12 X 4 E19

CON258  Large con. of iron fastener w/bulbous ends. Broken into 2 pieces during shipment. C/XR. XR: wr-ir spike w/flattened head; other end rounded and may be eroded off. 7-1/8 X 1/2 X 7/8 (head w). 8-3/4 X 2-3/8 E19

CON259  Amorphous con. w/square iron spike cavity (3/8). C/XR. XR: upper section of wr-ir spike w/flattened head; other end missing. 3-1/2 X 3/4 (head w). 5 X 3 E19

CON260  Con. of iron fastener. C/XR. XR: wr-ir spike w/flat (not flattened) head; may be chisel-pointed (tip eroded). 5-3/4 X 3/8 X 5/8 (head w). 7 X 2-1/4 E19

CON261  Con. of iron fastener w/bulbous end and middle. C/XR. XR: section of wr-ir bolt w/rounded head; other end missing. 8-1/8 X 1/2 X 1 (head w). 10-1/4 X 2-3/4 E19

CON262  Amorphous con. w/rock attached. C/XR. XR: frag. wr-ir fastener. 3-3/8 X 1/2 (w). 4-1/2 X 2-1/2 E19

CON263  Con. of 2 iron fasteners, side by side and parallel. C/XR. XR: (a) tapered wr-ir bolt w/rounded head; other end missing. 5-3/4 X 5/8 X 1-1/8 (head w). (b) section of wr-ir tapered spike w/flattened head; other end not visible. 5-7/8 X 1/4 X 7/16 (head w). 8-1/2 X 3-3/4 X 2 (t) E19

CON264  Con. of iron fastener w/square cavity (3/8); broken @ 1 end. C. 3-1/2 X 2 E19

CON265  Con. of iron spike or nail. C/XR. XR: handle top of modern table knife/fork/spoon, decoed with two arched into axial point. Marked: 4-1/4 X 1-3/8 X 1/2 (t) E19
“MADE/IN/_S.A.//900/ WB/W”

CON266 Con. of bent square iron spike w/cavity (1/4 X 3/8). Both ends broken. 4-1/4 X 1-3/4 E19
C/XR. XR: tapered wr-ir spike section. L: 3-1/2.

CON267 Bulbous con. w/square iron spike cavity (3/8). Broken into 2 pieces during shipment. C. 3-7/8 X 2-3/4 X 1-1/4 (t) E19

CON268 Con. of 2 nails/spikes concreted together. C. 3-3/4 X 1-1/8 E19

CON269 Con. w/1 bulbous end—barbed wire. C. 1-3/8 X 1/4 X 1/4 E19

CON270 Con. of broken chain link. C. 1-1/2 X 7/8 E19

CON271 Concreted eye bolt; may have bolt or rivet on end. C/XR. XR: intact wr-ir eye bolt w/rivet on end. 10-3/4 X 3/4 (w) X 3-3/8 (eye i.d.) X 3 X 7/8 (t) X 1-3/4 (rivet w). 11-1/2 X 7 X 2-1/2 (t) E19

ANALYSIS: KS: big, intact eyebolt. Could well go into deck & deckbeam, for total thickness of those mebers @ 6 in. Well made w/weld coming to center of shank. Should be illustrated in book.

CON272 Con. of iron fastener w/knob on 1 end. C/XR. XR: intact, tapered wr-ir spike w/flattened head. 5-1/4 X 1/2. Small, round, dense metal object is above spike head (3/16 dia). 7-3/4 X 3 E19

CON273 Con. of bent iron fastener (prob.) w/knob in center and big rock on end. Broken into 2 pieces during shipment. C/XR. XR: long, wr-ir bolt w/1 end preserved; 3/4 (w). Wr-ir spike has flattened head; other end missing. 4-1/2 X 1/2. 20 X 8-3/4 E19

CON274 Con. of iron fastener w/knobs on ends and in middle. C/XR. XR: tapered, wr-ir spike w.flattened head; other end eroded off. 7-1/4 X 1/2 X 7/8 (head w). 8-1/4 X 3 E19

CON275 Amorphous con. w/bulbous end and fresh break. C/XR. XR: flattened head and shaft section of wr-ir fastener, perpendicular to what appears 3-1/2 X 3-1/8 E19
to be iron-impregnated wood. 2-1/4 X 7/8 X 3/4 (head w).

**CON276**  Con. of bent iron spike w/square cavity (3/8). One broken end. C. 5-3/4 X 1-3/4 E19

**CON277**  Concreted wire w/big swelling in middle. In 3 pieces. C. 3-3/4 X 1/4 (diam) E19

**CON278**  Amorphous con. w/2 bulbous ends; may be a chain link or iron fastener. C/XR. XR: wr-ir hook w/eye at top end; iron rink/link through eye. Hook: 7 (h) X 2-3/8 (eye i.d.) X 2-1/4 (ring o.d.).

**ANALYSIS:** KS: x-ray displays hook virtually identical to **CON158** hook, excepting only the “arrow head” bill.

**CON279**  Large amorphous con. w/iron fastener and iron chain link/iron ring. C/XR. XR: intact iron spike w/flattened head. 5-3/4 X 7/8 X 1-1/2 (head w) X ring/link: ±6-1/4 X 3-1/2 X 5/8 (t).

**ANALYSIS:** KS: **CON87a**’s eye size=**CON279** eye size.

**CON280**  Con. of iron fastener. C/XR. XR: 2 iron dasteners and 1 hs nail (copper). (a) intact, tapered wr-ir spike: 6 X 1/2 X 3/4 (head w); (b) same: 5-1/2 X 3/8 X 5/8 (head w); (c) intact, headed nail: 1-1/4.

**CON281**  Flattened triangular con.—poss. 2 parallel iron fasteners. C/XR. XR: metal pin or section of piping. 2 X 1/4. Another poss. @ right angle below it (unclear).

**CON282**  Con. of iron fastener. C/XR. XR: wr-ir spike w/flattened head going into cone-like piece of coral/concreted wood. 3-1/2 X 1/2 X 3/4 (head w). What appears to define the outer edge of the “cone” may be thin piece of hs.

**CON283**  Small globular con. w/foot; barbed wire? Separated from tag during shipping; not located during photography.
CON284 Small oblong con. C/XR. XR: coral/corrosion product. 2-1/2 X 1-1/4 E19

CON285 Con. of several fasteners together w/an eye at one end. C/XR. XR: 2 tapered wr-ir spikes; heads intact and tips missing. (a) 5-7/8 X 3/4 (head w); (b) 5-3/4 X 5/8 (head w). Also contains wr-ir eyebolt w/ring @ end; other end flat. 12-3/8 X 1-1/4 X 5 (ring o.d.) X 3-1/2 (ring i.d.) X 3/4 (t).

ANALYSIS: KS: Almost indentical to CON110.

CON286 Thick con. of iron fastener. C/XR. XR: intact, bent wr-ir bolt w/flattened head; some orig, metal. 13-3/4 X 3/4 (w) 15-1/2 X 3 E19

CON287 Con. of iron fastener w/coral attached to surface. C/XR. XR: (a) intact tapered wr-ir spike w/flattened head: 6-1/4 X 5/8 (head w); (b) intact bent copper hs nail: 1-1/2 X 3/8 (head diam); (c) metal button (?) w/nipple-like protrusion on 1 side: 3/4 (diam).

TREATMENT: Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Cupreous artifacts were mechanically removed, put into ER, polished w/baking soda, rinsed in 3 baths of di water, polished again, soaked for 24 hrs in ethanol/1% BTA, then coated w/Krylon 1301. RESULT: copper hs nail, fragmentary square iron fastener (no head), and copper clothing button (plain, smooth: no deco or maker's mark). Looks like a blazer button. See TAMU file CON287.

CON288 Conical con.—prob. iron fastener. C/XR. XR: wr-ir fastener w/flattened head; other end missing. 7-7/8 X 3/8 X 5/8 (head w) 9-1/4 X 4 E19

CON289 Con. of iron fastener w/coral attached to surface. C/XR. XR: nearly intact wr-ir tapered spike w/flattened head and most of shaft. 5-7/8 X 5/8 (head w) 7-1/2 X 2-3/4 E19

CON290 Amorphous con. w/poss. iron hook or eye. C/XR. XR: nearly intact wr-ir hook w/eye, w.flat circular ring/link through eye; hook tip eroded. 6 X 3-1/8 X 2-1/4 (eye L). Ring/link: 2 (o.d.) X 3/8 (h); thickness not discernable due to angle of x-ray. 9 X 5-1/2 X 3-1/4 (t) E19

ANALYSIS: KS: CON290 is same size as CON138 and CON244, but CON244 is better match. Def. not CON204.
CON291 Con. of 2 offset iron fasteners. C/XR. XR: 2 tapered wr Ir spikes. One intact: 6-3/4 X 1 (head w). The other is slightly tapered and is missing both ends: 7 X 3/8.

CON292 Conical con. of iron fastener. C/XR. XR: frag. wr ir bolt w/head; other end missing. 6 X 3/4

CON293 Thin bent con. of iron fastener. C/XR. XR: wr-ir fastener frag. 5-7/8 X 1/4. Also, intact tapered copper spike w/flat head: 4-5/8 X 7/16.

CON294 Bent con. of iron fastener. C/XR. XR: bent iron (?) object: either section of thin metal piping or long, thin fastener frag. w/o ends. 6-5/8 X 5/16.

CON295 Con. of iron fastener. C/XR. XR: wr-ir spike or bolt w/ flattened head; other end eroded off. 6 X 1/2 X 1 (head w).

CON296 Large con. w/ 2-3 iron fasteners. C/XR. XR: 3 wr-ir headed fasteners; prob. all spikes. (a) tapered, 6 X 1/4; (b) 6-1/2 X 3/4; (c) 6-1/4 X 1.

CON297 Con. of iron fastener. C/XR. XR: intact, wr-ir tapered spike w/ flattened, rounded head. 7 X 1/2 X 1 (head w).

CON298 Con. of iron fastener, bulbous @ 1 end. C.


CON300 Circular con. of iron object; prob. thimble. C/XR. XR: triangular wr-ir object; 2 corners slightly rounded and 3rd angle even more rounded. Dense, circular object outside triangular piece has small dimple on 1 side—may be copper (?) nail head. Triangular object: 2-3/4 X 2-3/4. Circular object: 1/2 (diam). C (pre/post conservation)/JPG of con w/PFJ.
TREATMENT: This object was dehydrated for ca. 1 week prior to rehydration for conservation. Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Lead shot removed from con, put in ER, bathed in boiling di water and coated w/Krylon 1301. Iron was put into ER, rinsed in 3 baths, coated w/10% tannic acid solution (3 coats) then microcrystalline wax. RESULT: a small piece of lead shot (7/16 diam) and a triangular thimble w/rounded corners. Thimble was forged into a single loop, differing from CON250 and CON204, and there is no rope or leather. See TAMU file CON300.

ANALYSIS: KS: Triangular thimble, for place where it won’t move or slip around. High-tech solution to usually-round thimble? It is significantly harder to manufacture. Weld not visible=very good work.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Measurement</th>
<th>E19</th>
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</thead>
<tbody>
<tr>
<td>CON301</td>
<td>Oblong con. of iron fastener, thickened in middle. C/XR. XR: intact,</td>
<td>6-1/2 X 3-3/8 (t)</td>
<td></td>
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<tr>
<td></td>
<td>tapered wr-ir spike w/flattened head.</td>
<td>5-3/8 X 1/2 X 3/4 (head w).</td>
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</tr>
<tr>
<td>CON302</td>
<td>Heavy, thick amorphous con. of square 3/8-in. spike, in 2 pieces. C.</td>
<td>4 X 2 1/8</td>
<td>E19</td>
</tr>
<tr>
<td>CON303</td>
<td>L-shaped con. of iron spike w/attached rock. C/XR. XR: upper section of</td>
<td>6-1/2 X 3-3/4 X 1-1/2</td>
<td>E19</td>
</tr>
<tr>
<td></td>
<td>wr-ir fastener w/flattened head; other end missing.</td>
<td>4-1/4 X 3/8 X 3/4 (head w).</td>
<td></td>
</tr>
<tr>
<td>CON304</td>
<td>Con. of iron fastener; bulbous at both ends. C/XR. XR: intact, wr-ir</td>
<td>8 X 2-1/2</td>
<td>E19</td>
</tr>
<tr>
<td></td>
<td>tapered spike: 6-1/2 X 1/2 X 1 (head w). May be circular object @ pointed</td>
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<td></td>
<td>end: 1 (dia).</td>
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CONSTRUCTION: Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Con surface broken and partially cast. RESULT: intact wrought-iron spike, w/cast of same. See TAMU file CON304.

<table>
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<tr>
<th>Code</th>
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<tbody>
<tr>
<td>CON305</td>
<td>L-shaped con. of iron fastener. C/XR. XR: intact (?) metal t-shaped tool or</td>
<td>5-1/2 X 3-3/4 X 1-7/8</td>
<td>E19</td>
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<tr>
<td></td>
<td>unusual bolt (?) Shaft of “T” heavier than bars, which are slightly curved</td>
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<tr>
<td></td>
<td>downwards. 4-1/2 (loa) X 4-1/8 (shaft L) X 1 (bar w) X 1/4 (bar t).</td>
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</table>

TREATMENT: This object was dehydrated for ca. one week prior to rehydration for conservation. Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Con broken open and dehydrated in acetone; void cast w/Hysol RE2039 HO 3561. Mold made of silicon rubber and epoxy, then cast. RESULT: square-headed square-section iron fastener upper end; lower end missing. See TAMU file CON305.
CON306  Circular con. of iron object; prob. a thimble. C/XR. XR: round object w/ triangular plate (?) in center; corners of triangle are perforated w/ holes (for fastening?). Inside the triangular element is centered another circular object (?) and poss. another perforated triangle behind that. 3-1/2 (outer circle diam) X 2-1/8 (outer triangle side) X 1-1/4 (inner circle diam). The overall object somewhat resembles a bracket or fitting (modern?), set into a surface to carry a pole. C (pre/post conservation).

TREATMENT: Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. What turned out to be a lignum vitae sheave w/iron axle casting was separated: the wood was put in acetone/resin (and presumably then treated w/silicon oil?). The iron axle was poorly preserved, so it was molded in silicon rubber, cast w/hysol resin and set into the wooden sheave. The original axle unit was also returned. The conserved sheave is 3-3/4 diam X 1 thick; the pin axle is triangular, w/squared corners measuring 2-1/4 on a side (not inc. corners). It is held in place w/a 1/4-in. fastener @each corner. The inner diam of the axle is 3/4 in. for the pin. See TAMU file CON306.

ANALYSIS: KS: sheave w/metal axle. WHY big metal axle?

CON307  Circular con. of iron object; prob. a thimble. C/XR. XR: eye and shaft section of eyebolt. 3-1/2 (loa) X 3 (eye o.d.) X 1/2 (t) X 3/4 (shaft w).

ANALYSIS: KS: CON307 is an eyebolt, not a thimble, identical in dimensions to CON87a.

CON308  Con. of iron fastener w/rocks and coral attached. C/XR. XR: upper section of wr-ir fastener w/flattened head; lower section missing. 3-1/4 X 1/2 X 7/8 (head w).

CON309  Square, flat con. of iron object(s) w/coral attached. C.

CON310  Flattish con. w/1 flattened end; square spike cavity (3/8 X 5/16) on other end. Broken on 1 end. C.

CON311  Con. of iron ring; poss. an eyebolt? C/XR. XR: wr-iron ring; 3-3/4 (o.d.) X 1/8 (t).

CON312  Con. of iron fastener w/bulbous end. Broken into 3 pieces during

CON313 Potato-shaped, slightly flattened con. C/XR. XR: mostly corrosion product; circular wr-ir ring at 1 end: 1 (o.d.) X 5/16 (t).

CON314 Lumpy con. of iron fastener, heavily concreted w/coral. C/XR. XR: wr-ir bolt w/flattened head; not tapered. 6-3/4 X 1/2 X 1 (head w). May be small hs frag. @ 1 end.

CON315 Con. of iron fastener, bulbous @ 1 end. C/XR. XR: tapered, wr-ir spike w/head intact; other end corroded away. 6-1/2 X 1/2 X 7/8 (head w).

CON316 Flattish, lumpy con. of iron fastener. Broken into 2 pieces during shipment. C/XR. XR: heavy, wr-ir fastener (bolt?). Lower (eroded) end appears to be rounded; upper end not visible. 12-3/16 X 7/8. Another wr-ir fastener crosses it: 3 X 1.

CON317 Lumpy con. of iron fastener. C/XR. XR: intact, tapered wr-ir spike w/some orig. metal preserved. 7-1/2 X 3/8 X 3/4 (head w).

CON318 Drumstick-shaped con. of iron fastener, w/coral attached. C/XR. XR: intact wr-ir tapered spike; some orig. metal preserved. 6-1/2 X 1 (orig. head w).

CON319 Flattish, ovoid con. C/XR. XR: XR: portions of 2 wr-ir fasteners. (a) tapered spike w/flattened head; other end missing. 7-7/8 X 1/4 X 7/8 (head w). (b) no ends preserved. 5-1/4 X 5/8.

CON320 Con. of long iron fastener, widened at middle. C/XR. XR: wr-ir bolt; head preserved and other end eroded off. 15-3/4 X 5/8. Corroded lower end has dense, irregularly circular object near it: stone (?).

CON321 Flattish con. w/coral attached; prob. 2 iron fasteners. C/XR. XR: 2 tapered 8-1/2 X 3-1/2 X 2-1/4 (t)
wr-ir spikes; 1 intact (5-1/2 X 1/2 X 3/4 [head w]). Other: head and end eroded; pres. L: 5 X 1 X 7/8 (head w). Also: copper hs nail, 1-3/8 X 5/16 (head diam).

CON322 Con. of iron fastener w/bulbous end. C/XR. XR: wr-ir fastener w/ flattened head; prob. bolt. Other end eroded off. 8-3/4 X 1.

CON323 Y-shaped con. w/bulbous (lower) end and coral attached. C/XR. XR: 2 tapered wr-ir spikes; 1 intact w/rounded head (6-1/2 X 1/2 X 3/4 [head w]). Other: flattened head; other end eroded off. 4-3/4 X 1/2 X 3/4.


CON325 Con. of 2 iron fasteners w/bulbous ends. C/XR. XR: (a) intact, wr-ir tapered spike. 6 X 1/2 X 3/4 (head w). (b) wr-ir bolt w/flattened head; other end eroded off. 6 X 3/4.

CON326 J-shaped con. in 3 pieces—prob. 3 iron fasteners. C/XR. XR: 6 fragmentary wr-ir fasteners—all bolts except for 1 tapered iron spike. Various sizes.

CON327 Thick con. w/1 thin end and bulbous center. C/XR. XR: nearly intact wr-ir fastener w/flattened head. 7-7/8 X 1 (head w) X 1/2 (shaft w).

CON328 Drumstick-shaped con. w/bulbous ends. C/XR. XR: headed, wr-ir tapered spike; may be chisel-pointed. 6-1/2 X 5/8 X 3/4 (head w).

CON329 L-shaped con.—prob. 2 iron fasteners. In 2 pieces. C/XR. XR: (a) intact, thick, heavy wr-ir tapered spike. 10-1/2 X 5/8 X 1-1/2 (head w). Little iron pin behind it: 1-1/2 X 1/4. (b) wr-ir tapered spike w/head; visible pres. L: 6. Two finish-type nails behind it, L: 1-1/4.

CON330 Curved triangular con. C/XR. XR: on 1 side, what appears to be an hs 5 X 4
frag. w/1 straight edge: 3-3/8 X 1. On other side: a frag. fastener w/o ends: 1-7/8 X 1/4.

CON331 Con. of section of iron; angle iron? C. 6-3/4 X 1-3/8 E20
CON332 Con. of iron fastener w/coral attached. C/XR. XR: upper end of wr-ir spike w/flattened head and straight shaft; other end missing. 5 X 3/8 X 5/8 (head w). 6-5/8 X 1-1/2 E20
CON333 Small, curved con. w/swelling in middle; prob. barbed wire. C. 2-3/4 X 1-1/2 E20
CON334 Long, skinny curved con. w/swellings; prob. barbed wire. C. 5-1/2 X 1 E20
CON335 Flat, L-shaped con. Broken into 2 pieces during shipment. C. 2-1/2 X 1-3/4 E20
CON336 Con. of small lump. C. 1-3/8 X 1-1/8 E20
CON337 Con. of small lump w/coral attached. C/XR. XR: section of wire/thin piping. 1-3/4 X 1/8 (t). 2 X 1-1/2 E20
CON338 Long, thin con. w/single hole on 1 end. Broken into 3 pieces during shipment. C. 6-1/8 X 1 E21
CON339 Amorphous con. w/concreted wood in center and coral on 1 end. May be iron fastener or corrosion product. One broken end. C. 4-1/4 X 2-1/4 E21
CON340 Section of concreted iron strapping; both ends and side broken. In four pieces. C. 4-3/4 X 2 X 1/4 (t) E21
CON341 Con. of small lump. C/XR. XR: barbed wire: 1-1/2 X 1. 1-7/8 X 1-1/4 E21
CON342 Con. of iron fastener w/wood frags. attached (orig. a strake). Broken into 2 pieces during shipment. C/XR. XR: ±intact wr-ir spike w/head; shaft straight until taper @ point. 6-3/8 X 1/2 X 1 (head w). 8-1/2 X 4-1/4 X 1-1/4 (t) E21
| CON343 | Flattened, wide curved con. w/ vertical extensions. C/XR. XR: polygonal metal (?) object w/rounded sides and corners; may also contain section of fastener. 6-1/4 X 4. | 6-1/2 X 5-3/4 | E21 |
| CON344 | Con. of flat iron object w/ 2 perpendicular extensions. C/XR. XR: 3 wr-ir fasteners @ right angles. (a) tapersd; 5 X 1/2; (b) 1-1/4 X 3/8 (head w); (c) 2 X 3/16 X 5/16 (head w). | 5-3/8 X 2-5/8 | E21 |
| CON345 | Con. of long, thin cylindrical piping; broken @ both ends. C. | 4-1/2 X 1/2 | E21 |
| CON346 | Con. of thin iron object w/lump in middle and 1 knobbed end. Broken @ 1 end. C/XR. XR: wire/thin piping. 2-1/2 X 1/8 (t). | 3-3/8 X 1 | E21 |
| CON347 | L-shaped con. C. | 2-1/2 X 1-1/4 X 1-1/4 (t) | E21 |
| CON348 | Con. of long, thin curved iron object. Broken into 3 pieces during shipment, showing that it is barbed wire. C. | 4-3/8 X 1 | E21 |
| CON349 | Cylindrical, curved con. w/coral at 1 end. C. | 2-1/4 X 7/8 (t) | E21 |
| CON350 | Con. of section of flat iron strapping w/ 2 protuberances (nails?). In 2 pieces. C. | 4-1/2 X 1-3/4 | E21 |
| CON351 | Drumstick-shaped con. w/coral. C/XR, XR: section of heavy wr-ir fastener w/head; other end eroded. 3-3/8 X 3/4 X 1 (head w). | 4-3/4 X 2-1/4 | E21 |
| CON352 | Con. of iron fastener w/swelling in middle. C/XR. XR: tapered, bent wr-ir spike w/flattened head; other end eroded. 5-1/4 X 1/4 X 7/8 (head w). | 8 X 2-1/4 | E21 |
| CON353 | Con. of square iron fastener, in 2 pieces; cavity=1/2 in. C. | 8 X 1-1/2 | E21 |
CON354  Wide, dished, tapered con.; unusual shape. C/XR. XR: image clear but amorphous object is unidentified; the orig. thickness of the metal is 3/16. 9 X 6-1/2 X 1-1/4 (t)  E21

CON355  Con. of 1-2 fasteners; coral attached to surface. Broken into 2 pieces during shipment. C/XR. XR: small, wr-ir hook w/eye at top and ring/link through eye. 7-3/4 X 3-3/4  E22

CON356  Flattened, L-shaped con. w/sq. spike cavity (1/2-in.) at small end. C/XR. XR: curved, wr-ir bolt w/flattened head; other end missing. Vis. L: 16 X 3/4 (w). May be flat 1-1/4 in. wide iron strap (?) on top. 14 X 3  E22

CON357  T-shaped con. Broken into 2 pieces during shipment. C/XR. XR: heavy wr-ir section of bolt w/head; other end missing. 4-1/2 X 1. Another parallel to it: only shaft section. 5 X 1. Also, eye and shaft section of eyebolt w/ring/link through it. Ring (5/8 o.d.) and eye (3/4 diam) @ right angles (=measurement invalid). 12-1/4 X 10  E22

CON358  Con. of iron fastener w/bulbous ends. C/XR. XR: upper portion of heavy wr-ir bolt w/rounded (not hammered flat) head; lower end appears cut off at angle rather than eroded off. Finer striations than on other iron fasteners from wreck. Pres L: 4-3/4 X 7/8 (round diam) X 1-1/4 (head w). 6-1/2 X 2-7/8 X 2-1/4  E23

CON359  Con. of iron strapping in 3 pieces; barrel hoop? C/XR. XR: unrevealing. 12-3/4 X 2-1/2  E23


CON361  Thin, curved con. w/bulbous end; prob. barbed wire. C. 4 X 2-1/2  E23

CON362  Amorphous con. w/small (non-HI) rocks attached. C. 4-1/4 X 2-1/2 X 1-1/2 (t)  E23

CON363  Y-shaped con. of iron strapping w/rocks and coral. C. 6 X 1-5/8  E23

CON364  Small nodular con. attached to coral. C. 2-1/2 X 1-1/2  E23
CON365 Con. w/rocks attached all around. C/XR. XR: short upper end of heavy wr-ir fastener (bolt?). 2-1/2 X 1 (w).

CON366 Con. of poss. iron fastener w/loop on 1 side. Wood remnants. C/XR. XR: lower end of wr-ir hook; hook tip is turned out. 4-1/4 (w) X 1 (t).

ANALYSIS: KS: CON366=CON204, etc.

CON367 Con. of square iron spike w/cavity (3/8-in.). C. 2-5/8 X 1-3/4

CON368 Large con. of squared iron object; some sort of opening or flange? C/XR/ JPG. XR: rectilinear object w/eye/hole on outside of one of short ends. Weight indicates considerable original metal preserved. 11-1/4 X 8-1/8 X 3/4 (wall t) X 1-1/2 (hole i.d.).

TREATMENT: Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Con exterior was removed, and object placed into ER (2%NaOH). 3 baths to rinse, then 3 coats of 10% tannic acid solution, then microcrystalline wax. RESULT: rectangular, heavy iron fitting of some sort—rudder gudgeon or rigging element? Has eye wrought into center of one of short sides, and one hole on each of the 3 other sides for fastening to the wood inside. 10-3/4 X 7-3/4; inside (where wood would have been): 8 X 6-3/4. Eye id: ca. 1-1/2; three spike hole diam (one on each straight side): 1/4; outer iron thickness: 1/2; H: 2. See TAMU file CON368.

ANALYSIS: Kelly Smyth, 13/XI/01: mast partner, poss. bowsprit-jibboom-sized or the like. Iron fitting for mast cap or jibboom (or martingale?). Maybe called a mast band?

CON369 Con. of iron fastener, bulbous at both ends. In 2 pieces. C. 7-1/2 X 2-1/2

CON370 Triangular con. w/square iron spike cavity (3/8-in.). C/XR. XR: upper portion of wr-ir spike w/flattened head. 3-1/4 X 1 (head w).

CON371 Con. of iron fastener, bulbous at both ends and in middle. C/XR. XR: intact, headed wr-ir tapered spike, poorly preserved. 6 X 7/8 (head w).
| CON373  | Con. of iron fastener w/rocks on surface. C/XR. XR: intact, wr-ir tapered spike w/flattened head. 6-1/4 X 1/2 X 3/4 (head w). | 8-3/4 X 4 | E24 |
| CON374  | Drumstick-shaped con. of iron fastener. C/XR. XR: heavy, headed nail or spike (modern?); lacks iron striations. Looks like modern gutter spike. 2-3/8 X 3/8 (head w). | 7 X 2-1/4 | E24 |
| CON375  | Oval con. w/hole in center, held together by whitish metal/plastic. C. | 2-3/8 X 1-3/8 | E24 |
| CON376  | U-shaped con. w/irregular ends. C/XR. XR: unrevealing. | 3 X 3-1/4 X 1-1/8 (t) | E24 |
| CON377  | Con. of iron strapping in 3 pieces; barrel hoop? C. | 9-1/8 X 1-1/2 | E24 |
| CON378  | Con. of flat iron strapping in 2 pieces; barrel hoop? C. | 5 X 1-1/4 | E24 |
| CON379  | Con. of iron fastener. C/XR. XR: intact, tapered wr-ir spike. 6-1/4 X 1/2 X 7/8 (head w). | 7-1/2 X 3-3/4 | E24 |
| CON382  | Con. of long, thin wire w/bulb in center; prob. barbed wire. C. | 3 X 1-1/8 (t) | E24 |
| CON383  | Long, thin bent con.—poss. nail or barbed wire. C/XR. XR: only coral visible. | 3-3/4 X 1-5/8 | E24 |
| CON384  | Long, thin bent con. w/bulbous end—prob. barbed wire. Broken into 2 pieces during shipment. C. | 2-1/2 X 3/4 | E24 |
| CON385  | Con. of square iron spike cavity (3/8-in.). C/XR. XR: barbed wire. | 4-1/2 X 1-1/2 | E24 |
| CON386  | Con. of square iron spike cavity (7/16-in.) w/2 perpendicular arms. Broken into 2 pieces during shipment. C. | 5 X 4-1/4 | E24 |
| CON387  | Bulbous-ended con. w/elongated broken end; some orig. metal. Wire? C/XR. XR: piece of very thin wire along 1 side; L: 1-1/2. | 4 X 2-1/4 | E24 |
| CON388  | Small con. of iron fastener concreted to large lava stone. C/XR. XR: section of wr-ir fastener; appears to have a rounded head (=rivet/bolt?). 4 X 1/4. | 5-7/8 X 1-5/8 (con.) | E25 |
| CON389  | Long con. of iron fastener. Broken into 2 pieces during shipment. C/XR. XR: long, thick heavy wr-ir fastener; 1 end appears to end in a rounded point. 13-3/8 X 1 (w). | 16-1/2 X 3 | E25 |
| CON390  | Long, thin con.; one end bulbous, the other broken. Thick wire? C/XR. XR: wire/tubing. 3-7/8 X 1/4 (o.d.). | 5 X 2-3/8 | E25 |
| CON391  | Con. of square iron spike cavity (3/8-in.) w/wood remnants. C/XR. XR: head and upper short section of wr-ir fastener; bolt? 2-5/8 X 1 (head w). | 3-1/4 X 2 | E25 |
| CON392  | Con. of several frags. of iron strapping (2 visible). Broken into 2 pieces during shipment. C/XR. XR: strap frag.; no ends preserved. W: 1. | 3-5/8 X 1-1/2 | E25 |

**ANALYSIS:** PFJ: The strap could have been raw stock for hinges, etc.

| CON393  | Small bulbous con. w/coral and rocks. C. | 3 X 2 | E25 |
| CON394  | Con. of iron fastener w/big coral piece on 1 end. C/XR. XR: intact, tapered wr-ir spike w/flattened head. 6-1/4 X 1/2 X 5/8 (head w). | 10-1/2 X 3 | E26 |
CON395  Long, thin con., bulbous at both ends; uniform diameter elsewhere. C/XR. XR: modern nail/gutter spike w/ flat head; other end missing. 3-3/4 X 1/8.

CON396  Con. of bent, square iron spike cavity (3/8). C. 4-3/8 X 2-1/2

CON397  Con. of iron fastener, bulbous at 1 end. Big pieces of coral attached. C/XR. XR: wr-ir spike w/ flattened head; other end missing. Broken in 2 pieces? 5-1/8 X 1/2.

CON398  Con. of iron strapping w/ several rocks; mostly corrosion product. C/XR. XR: only corrosion prod. visible. 5-1/4 X 3-3/4 X 3 (t)

CON399  Con. of section of slightly curved iron strapping; barrel hoop? Broken into 2 pieces during shipment. C. 4-1/2 X 1-1/4 X 5/8 (t)

CON400  Con. of section of slightly curved iron strapping. C. 4-1/4 X 1-3/4 X 5/8 (t)

CON401  Con. of flat, ovoid iron object w/ 2 perpendicular extensions. C. 4-1/8 X 1-1/2 X 3/4 (t)

CON402  Con. of section of long, thin metal; barbed wire? C/XR. XR: heavy wire/thin piping. 5-1/4 X 1/8.

CON403  Con. of thin, curved iron object; piping/barbed wire? Broken into 3 pieces during shipment. C. 6 X 1

CON404  Amorphous, lumpy con. Separated from tag during shipping; not located during photography. C. 2-3/4 X 1-1/4

CON405  Flattened, ovoid con. in 2 pieces=barbed wire. C. 3-5/8 X 1-1/2 X 3/4 (t)

CON406  L-shaped con. w/ round iron spike cavity (5/8 diam). C. 3-1/2 X 2-1/4
CON407 Con. of (round/square?) iron spike cavity (5/8 diam) w/flat surface orig. attached to iron-saturated wood. C. 3-3/8 X 2-3/8 E27

CON408 Con. of thin, long object; prob. barbed wire. Broken into 2 pieces during shipment. C. 4-1/2 X 1-1/4 E27

CON409 Large amorphous heavy con. w/coral and pebbles. C/XR. XR: mostly corrosion product, w/head of copper hs nail and upper section of tapered, wr-ir spike. Hs nail diam: 5/16; spike L: 1-7/8 X 1/2 (w). 5-1/4 X 3-3/4 X 3-3/8 (t) E27

CON410 Con. of bent square spike cavity (3/8) orig. attached to wood surface. Broken into 4 pieces during shipment. C. 6 X 2-1/2 E27

CON411 Curved oblong con.—orig, iron fastener or strap? C/XR. See CON199. XR: some sort of wr-ir fitting, shaped like a large staple or drawer pull; orig. metal preserved. 3-1/2 X 1 (h) X 3/16 (t). 6-3/4 X 3 E27

CON412 Con. of several pieces of iron strapping concreted to flat wood surface. C. 4-1/2 X 4-1/4 E27

CON413 Con. of long, thin metal object w/bulbs; barbed wire? Broken into 2 pieces during shipment. C. 3-1/2 X 1-1/8 E27

CON414 Con. of iron strapping w/coral attached. C. 4-7/8 X 2 E27

CON415 Shallow, square spike cavity (7/16) con.—corrosion product only. C. 2-1/8 X 2-1/8 E27

CON416 Small nodular con.; further examination=sandstone rock. C. 1-5/8 X 1 X 1/2 (t) E27

CON417 Curved, concreted section of iron strapping; 1 broken end. Broken into 2 pieces during shipment. C. 10-1/2 X 1-1/2 X 1/2 (t) E27
CON418  Slightly curved con. of iron strapping; barrel hoop? C. 6-1/4 X 1-3/4 X 1/2 (t) E27

CON419  Long, thin needle-like con. w/swellings at middle and 1 end. Poss. silver (?) bodkin or hat pin (?). C. 3-1/2 X 1/2 (t) E27

TREATMENT: Sent 27 IX 99 to TAMU for conservation; returned 7 IX 00. put into ER; con mechanically removed and returned to ER. Rinsed in 3 baths, 3 coats of 10% tannic acid solution, myrcocrystalline wax. RESULT: long, curved, pointed needle w/o eye @ end (sewing/sailmaker's?). L: 3-3/16 X W: 1/16. See TAMU file CON419.

CON420  Large, long con. of iron fastener w/swelling in middle. C/XR. XR: intact wr-ir bolt w/flattened head. 13-3/8 X 3/4. E28

CON421  Flat, oval con. w/smooth surface; later inspection=rock. C/XR. XR: no penetration. 4-3/4 X 3-1/2 X 2 (t) E28

CON422  Con. of square iron spike cavity (3/8) w/broken end. C. 3 X 2 E28

CON423  Thin, curved con. w/swellings; prob. barbed wire. Broken into 3 pieces during shipment. C. 4-1/4 X 1 E28

CON424  Con. of curved square spike cavity (5/8-in.). C. 2-3/4 X 2 E28


ANALYSIS: PFJ: The strap could have been raw stock for hinges.

CON426  Flat, squared con. w/flat iron fastener extending from 1 end. C/XR. XR: portions of 3 wr-ir fasteners. (a) flattened head. 4-7/8 X 1/2 X 3/4 (head w). Others are only frags., w/no heads or ends preserved (not measured). 7-1/4 X 4-1/4 X 1-1/2 (t) E28

CON427  Con. of iron object w/circular cavity (1/2-in. diam). Broken @ both ends. 5 X 1-1/2 E28
C.

**CON428** Long, thin con. w/bulbous end—wire or nail. C. 2-7/8 X 7/8 E28

**CON429** Flat, tapered con.—prob. barbed wire or nail. C/XR. XR: barbed wire 2-1/2 X 1. 3-1/8 X 1-1/2 X 7/8 (t) E28

**CON430** Long, thin con. w/1 bulbous end; prob. barbed wire. Broken into 2 pieces during shipment; wire? C. 2-5/8 X 7/8 E28

**CON431** H-shaped con.—poss. fence grate. C. 1-3/8 X 1-1/4 X 3/4 E28

**CON432** Small, nodular con w/o distinguishing characteristics. C. 1-1/8 X 7/8 X 1/2 (t) E28

N.B.: leftover concretion fragments w/o number tags or provenance were photographed as “98 CONS.”

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**CON433** Concreted partial iron fastener. C. 5-1/4 X 1-1/2 E29

**CON434** Iron fastener con w/bulbous ends; rock attached. C. 7 X 2-3/8 E29

**CON435** Concreted partial iron fastener con w/square cavity. C/XR. XR: partial headed fastener and poss. small frag. of hs. 3 X 1-1/2 E29

**CON436** Lumpy concreted iron fastener. C. 8 X 2-1/2 E29

**CON437** Triangular con of 3 or more spherical objects. C/XR. XR: piece of bone (?) 2-3/4 X 1-3/8t and small, round thimble- or grommet-like object visible. E29

**TREATMENT:** Sent to TAMU on 4/XII/00; returned 27/VII/02. Results: iron had oxidized, so TAMU cast the void w/Hysol epoxy and produced a flat washer, 12-1/2 (OD) X 1/8 (t) X 3/4 (diam of inner hole). Cast coated w/powdered graphite to simulate orig. iron
surface, then sealed w/clear coat of matte Krylon 1301. See TAMU file CON437.

CON438 Oblong con—prob. fastener. C/XR. XR: partial wr-ir fastener; end w/head is preserved. 6-3/8 X 1/2 X 1 (head w). 6-3/4 X 2-1/2 E29

CON439 Oblong con w/bulb @ 1 end. C/XR. XR: headed wr-ir spike; @ other end an apparent curved seashell. Spike: 3-3/4 (visible l) X 3/8 X 5/8 (head w). 5-3/4 X 2-1/2 E29

CON440 Concreted iron spike w/wood attached. C. 6 X 3/4 E29


TREATMENT: Sent to TAMU on 4/XII/00; returned 27/VII/02. Iron had oxidized, leaving perfect void mold, which was cast in Hysol epoxy. Scissors resemble exactly modern nail scissors, inc. the curved blades. However, the finger holes are very light and delicate. Further research into early 19th century personal nail scissors is needed. LOA: 3-1/2 X 1-5/8 (W @ finger holes).

CON442 Oblong con—prob. iron fastener. C/XR. XR: intact tapered wr-ir spike w/head. 7 X 1/2 X 1 (head w). 8-1/4 X 3 E30

CON443 Oblong flat con w/partial crab claw. Prob. fastener. C. 6-1/4 X 1-3/4 E30

CON444 C-shaped con w/extended perpendicular ends. C/XR. XR: a large wr-ir handle (?) w/rounded turns. 8 X 2-1/2 X 1/2t 9 X 4-1/2 E31

TREATMENT: Sent to TAMU on 4/XII/00; returned 27/VII/02. Result: heavy wr-ir handle had oxidized, so TAMU cleaned out the cavity and cast the hole. 8-1/8 X 2-1/2 X 1/4 (t). It has pear shaped, pierced round terminals for fastening to object.

ANALYSIS: This is a simple Suffolk-type latch handle w/pear-shaped cusp, but w/o the latch mechanism. See Don Plummer, Colonial wrought iron : the Sorber Collection (Ocean Pines, MD : SkipJack Press, 1999), pp. 184-94 and Albert H. Sonn, Early American Wrought Iron (NY: Bonanza Books, 1978) pl. 33, pl. 64 fig 1, pl. 67 fig 3, pl. 69 fig 3.

CON445 Flat con; 1 end pointed. Lighter color than usual. C/XR/JPG. XR:
unrevealing; appears to be only corrosion product. Tool/blade? 9 X 3

ANALYSIS/TREATMENT: Sent to TAMU 5/III/01; returned 27/VII/02. TAMU x-rayed it a few more times. Original iron had oxidized and turned into magnetite, so the cavity was cleaned out and cast. RESULT: some sort of tanged tool or blade, but it is not sharp on the edge that should be. TAMU lab worker thought it was “an unidentified construction element related to the structure of the ship.” See TAMU file CON445. Some sort of knife, saw or pounder with the sharp side of the blade eroded away?? 8-1/2 X 1-3/4.

CON446 Con of iron fastener w/square cavity @ 1 end. C. 5-3/8 X 1-1/2 X 1/4 (cavity) E31

CON447 T-shaped con; prob. fastener. C/XR. XR: headed, tapered iron spike, 6-1/2 X 1/2 X 1 (head w).

CON448 Flat con of iron strapping. C. 8-3/4 X 1-3/4 E31

CON449 Black L-shaped con; prob. 1-2 iron fasteners. C/XR. XR: headed wr-ir spike; 4-1/2 in of its length are visible. Head W: 7/8. The bottom of the “L” appears to be a piece of thick wire.

CON450 Drumstick-shaped con=iron fastener. C. 7-7/8 X 3 E31

CON451 Small oblong drumstick-shaped con=iron fastener. C/XR. XR: partial wr-ir fastener, w/o head or point (i.e. shaft frag.). 3-1/2 X 1-1/2 E31


TREATMENT: Sent to TAMU on 4/XII/00; returned 27/VII/02. Tongued belt buckle made of iron and completely oxidized, so epoxy cast was made and colored like iron. Buckle measures 1-1/2 (LOA) X 1-1/4 X 1/8 (t). Probably for light leather belt, or poss. accessory buckle for shoe, breeches or bag. See TAMU file CON452.

CON453 Con of slightly curved iron strapping. C. 9 X 1-1/2 E31

CON454 Con of slightly curved iron strapping. C. 7-3/4 X 2 E31
CON455 Con of two conjoined bulbs—big staple? C/XR. XR: appears to be the lower end of a bent spike. 4-1/4 X 3 X 1-3/4t E31

CON456 Con of iron fastener w/lava rock attached. C. 7-3/4 X 1-1/4 E31

CON457 Two rocks concreted together w/iron fastener. C. 8 X 3 E31

CON458 Pyramidal flattish con. C/XR. XR: corrosion product. 5-5/8 X 4-1/8 X 3-1/2t E31

CON459 Con of iron fastener w/perpendicular section of wood exposed. C. 4 X 2-1/8 E31

CON460 Con of iron strapping frag. in 2 pieces. C. 6 X 2-1/8 E31

CON461 Con of iron fastener. C. 7-1/8 X 2 E31


CON463 Con of iron fastener w/bulbous ends. C. 5-1/2 X 1-3/8 E31

CON464 Con of iron strapping attached to rock. Nodule @ 1 end. C/XR. XR: 2 nails/short spikes also attached; nail appears modern in shape and proportions. Poss. also a small, pentagonal piece of hs. 5-7/8 X 2 E31

CON465 Amorphous oblong con. C/XR. XR: end of heavy, wr-ir headed fastener. 2-1/8 (pres. l) X 1/2d X 7/8 head (w or d). 3-1/4 X 1-3/8 E31

CON466 Wedge-shaped con w/wire or piping @ 1 end. C/XR. XR: 2 parallel frags. of heavy wire/piping. 3 X 1-5/8 E31

CON467 Flask-shaped iron concretion—fastener? C. 6 X 3 E32
CON468  Con of curved iron strap with perpendicular appendages in 2 pieces.  
C/XR. XR: unrevealing as to the appendages.  
\[9 \times 3-1/2\]  
E32

CON469  Con of round iron fastener (5/8 diam). C.  
\[5 \times 1-1/2\]  
E32

CON470  Amorphous con with lighter colored surface than usual. Fastener frag.  
C/XR. XR: not located.  
\[3 \times 1-3/4 \times 1-3/4\]  
E32

CON471  Amorphous con—prob. partial iron fastener. C.  
\[3-1/2 \times 2-3/4 \times 1-3/4\]  
E32

CON472  Round, doughnut-like con w/coral encrustation. Rope strands visible=  
\[3-3/4 \text{(diam)} \times 2\]  
E32

TREATMENT:  Sent to TAMU on 4/XII/00.

CON473  Small, amorphous con—poss. partial fastener? C/XR. XR: appears to be  
a triangular splinter of metal inside.  
\[1-3/4 \times 1-1/4\]  
E32

CON474  Shoe-shaped con of round iron fastener. C.  
\[5 \times 4 \times 3\]  
E33

CON475  Skinny, long con w/bulbous ends—prob. barbed wire. In 2 pieces. C.  
\[4 \times 1-1/2\]  
E33

CON476  Con of fastener w/flat protuberance @ 1 end (fastener?). C/XR. XR:  
two fragmentary fasteners: 1 is headed wr-ir spike; the other appears  
square-sided and may be a headed copper spike.  
\[4-1/2 \times 4-1/2 \times 3-1/4\]  
E33

CON477  Con w/2 bulbous ends (one flattened). Fastener? C/XR. XR: fragmentary  
wr-ir headed fastener.  
\[3-1/2 \times 2-1/2 \times 1-7/8\]  
E33

CON478  Con of bent fastener. C/XR. XR: bent iron or copper fastener; 1 end  
peened.  
\[5-1/4 \times 2-1/2 \times 2\]  
E33
CON479 Flattish con of fastener or strapping? Large coral chunk @ end. C. 4 X 2 X 1 E33

CON480 Con of small, bent fastener (iron?). C/XR. XR: may be modern nail. 2-1/2 X 2 X 3/4 E33

CON481 Blackened con w/leather-covered thimble & poss. other objects. 6 X 4-1/2 X 4-1/2 E33
C/XR/JPG. XR: an apparent iron hook w/eye @ 1 end also revealed, measuring 4-1/2 X 2-1/2.

TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/03. Mechanically cleaned and chemically dehydrated in graduated baths of DI Water and ethanol, to ethanol/acetone, to pure acetone. Leather-wrapped rope and iron hook were separated for treatment. Iron hook voids were filled w/Dexter resin Epoxy and 25% hardener w/3 gm Caba(o?)sil. Iron hook got electrolysis, and leather loop was conserved with silicon oil. For (much) more detail, see TAMU file CON481.

ANALYSIS: KS email of 9/IV/03: “some sort of lifting hook with broad flat section to fit under something not so very big or heavy.” But she did not see the eye end, which is attached to the eye of some sort of leather-wrapped bolt or pin.

CON482 Long forked con w/blackened surface, in 4 pieces. C/XR. 21 X 2-1/2 X 2 X 2-1/2 (fork L) E33

TREATMENT: Sent to TAMU on 4/XII/00; returned 27/VII/02. Original iron had degraded, so TAMU cleaned out the cavity and cast the mold of the hole. RESULT: a two-tined “barbecue” fork, pres L:20-1/2. At base of fork teeth, the shaft of the handle is rectilinear (5/8 X 1/4) for 2-1/2 in.; it then merges/tapers into a rounded section for the remainder of its length.


CON483 Long con of iron fastener with bulbous middle and end. C/XR. XR: 26-1/2 X 9 E33
long, heavy wr-ir hook w/eye handle @ 1 end.
25 X 1d X 2-1/4 (hook w) E33
X 3 (eye od).
**TREATMENT/ANALYSIS:** Sent to TAMU on 4/XII/00; returned 2/IV/03. The entire canvas & leather covered iron hook & eye measures 24-1/4’’ long. Artifact mechanically cleaned out of concretion. Hook end filled w/epoxy before chiselling. Entire bar is wrapped in one layer of canvas and one layer of leather; eye end has canvas exposed around the eye. Hook-end iron removed and soaked in sodium carbonate bath before electrolysis, then gradually dehydrated. 80% Silicon oil/20% MTM, vacuum, drained and catalyzed w/TPT titanate. See TAMU file **CON483** for more detail.

Kelly Smyth, via fax 7/IV/03 (filed in Corr [not TAMU artifact file]: 1st thought=strop hook for the futtock shrouds or a futtock shroud itself. 2nd thought=hook for block & tackle for pulling boats or gigs. Check *Lore of Ships* or other ship book in library.

| CON484 | Large con of iron object(s?) w/ hole in 1 end. C/XR. XR: iron-strapped block with wr-ir hook at 1 end. 3 hs nails as well. Block appears very well-preserved, poss. w/rope. LOA: 10-7/8. Block: 7-1/4 X 2-3/4. | 13 X 9 | E33 |
| CON485 | Small, flattened con of iron strap, broken @ 1 end. C. | 3 X 1 X 1/4 | E33 |
| CON486 | Small con w/bulbous ends. C/XR. XR: barbed wire. | 2-1/8 X 1 | E33 |
| CON487 | Con of iron fastener w/bulbous ends and middle. C. | 8 X 4-1/2 | E34 |
| CON488 | Con of iron fastener w/coral encrustations. C. | 8 X 3 | E34 |
| CON489 | Con of iron fastener w/coral encrustations. C/XR. XR: partial headed wr-ir fastener, bent. 3-3/4 X 3/8 X 1/2 (head w). | 4-1/2 X 1-3/4 | E34 |
| CON490 | Con of flat iron strapping. C. | 4-1/2 X 2-3/4 X 1t | E34 |

**ANALYSIS:** PFJ: The strap could have been raw stock for a Hawaiian adze.

| CON491 | Con of small, curved iron fastener w/coral attached. C/XR. XR: | 2-3/4 X 1-3/4 | E34 |
headed partial iron fastener. Head w: 1/4.

CON492 Concreted loop of metal, thicker on one side. Poss. barbed wire. C/XR. XR: loop of wire (barbed?).

CON493 Flattish con of conglomerate w/ at least 3 musket balls. One flat surface w/ wood impression. C/XR. XR: 4 lead musket balls (2 X 3/4; 2 X 5/8), 3 fasteners (2 headed) and 2 circular, doughnut-like objects (1 broken across circumference). One of circular objects may be terminal of tapered metal object (like half a pair of scissors?).

TREATMENT: Sent to TAMU on 4/XII/00; returned 27/VII/02. Results: Four lead musket balls (2 are <5/8 and two are >5/8) are preserved; three typical iron fasteners were cast and two small half-round objects also are preserved. These latter were thought by the TAMU lab tech poss. to be poorly-preserved scissors.

CON494 Amorphous con w/ rounded object @ 1 end—thimble? C/XR. XR: thimble: 1-7/8 id X ~4 od.

TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/03. Result: pretty big thimble, ~half of which is preserved. Mechanically cleaned, and silicon rubber mold made of void. Rope impression recorded w/color digital imagery. Original metal treated w/electrolytic reduction, then immersed in microcrystaline wax. Silicon rubber mold was made and casting of full original thimble was produced. Cast and mold returned w/original artifact. See TAMU file CON494 for more detail.

CON495 Two iron fasteners concreted together (1 large/1 smaller). C/XR. XR: 13-1/4 X 4-1/2

CON496 Large con of 3-4 iron fasteners concreted together. C/XR. XR: 4 wr-ir, tapered spikes w/heads.

CON497 Con of iron fastener w/ coral & rock encrusted. C/XR. XR: 2 fragmentary wr-ir fasteners w/o heads; 1 thick/1 thin.

CON498 1-2 concreted iron fasteners @ right angle. C/XR. XR: 2 fragmentary wr-ir fasteners @ right angles.
CON499  Con of strapping and leather and poss. fastener. C.  
7-1/2 X 5  
E35

CON500  Con of iron fastener w/coral & rock encrusted. C/XR. XR: fragmentary wr-ir spike w/head. Head W: 1. Small, round object on 1 side (shell?).  
4-1/2 X 2-1/2 X 1-3/4  
E35

CON501  Con of flat iron strap, broken @ both ends. C.  
5-1/4 X 2-1/2 X 1  
E35

ANALYSIS: PFJ: The strap could have been raw stock for Hawaiian adze, etc.

CON502  Section of curved, concreted iron strap w/protuberance on side; barrel hoop? C.  
4-1/4 X 2-3/4 X 1/2t  
E35

CON503  Con of large iron fastener w/surface encrusted. C/XR/JPG. XR: two long metal bars/rods connected at ends with large, squared ends and in middle with same diam bar. 19 X 2-1/4 X (3 X 2 ends) X 3-1/8 (center bar l) X 7/8 (bar d).  
20 X 5-1/2  
E35

TREATMENT: Sent to TAMU on 4/XII/00; returned 27/VII/02. RESULTS: as described above, except that one side is flat and the other rounded. Some sort of grate, broken on either side? Thus poss. a piece of scrap carried aboard for gift/trade? 18-1/2 X 2-7/8 X 1. Mechanically cleaned, then ER w/mld steel anode in 2% NaOH electrolyte, then boiled, then treated in 5% tannic acid and coated w/microcrystalline wax. See TAMU file CON503. Also: a 1-in. copper nail (w/3/8-in. head diam, as for copper hs).

CON504  Con of 1-2 bent square iron fastener(s) w/coral chunk midway. C.  
11 X 4-1/2  
E36

CON505  Concreted iron fastener w/bulbous end. C.  
8 X 2-3/4  
E36

CON506  Concreted iron fastener w/oval wood impression in middle. C/XR. XR: headed wr-ir fastener, slightly bent.  
6-3/4 X 1-7/8  
E36

CON507  Con of ca. 1/3-1/2 of an iron (?) flange. C.  
1-1/2 X 1 X 4-1/2  
E37

CON508  Con of 4 iron spikes; 3 attached perpendicularly to the 4th. In 2 pieces.  
6-3/4 X 5 X 2-3/4  
E37

TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/02. Inner ring is solid magnatite, wrapped in a thin layer of lightly-woven rope. Dehydrated in graduated baths of DI water and ethanol, then ethanol, ethanol and acetone, then pure acetone. Then, w/no electrolysis mentioned, CON 509 was placed in 80% silicon oil and 20% MTM crosslinker, then placed in vacuum and catalyzed w/TPT titanate.

N.B.: leftover con w/o tag shot as “2000 CON.”

COPPER (C)

C1 Fragmentary copper drift pin, bent into “U” shape. One end hammerd; other end broken off. At 10”, there is a corrosion interface. Surface is in good condition. XRF: 98-99% copper w/minor trace elements. Prob. different batch/source from C2. XR/C/BW/XRF/SEM. 12¹/₄ X ³/₄ (Diam) RT1B

C2 Tapered copper spike w/chisel end; intact and in good condition. Head is round and flattened; shaft is squared. Two of the edges have two barbs (each) for holding wood. XRF: 97-98% copper; 1-3% lead; traces of others. Prob. different batch/source from C1. XR/C/BW/XRF/SEM. 6¹/₂ X ⁵/₈ (Center Diam) RT1A

C3 Twisted piece of copper wire. BW. 1¹/₂ X ³/₄ X ¹/₁₆ (T) E3

C4 Two forged copper square nails. BW. 2¹/₂ X ¹/₂ (head diam) E8 (b) 1 X ¹/₄
C5    Copper pin. BW.  8 X 5/8 E8
C6    Intact copper drift w/clinch ring at top. Slightly bent. BW.  24 X 3/4 (diam) X 13/8 (head diam) E12
C7    Intact copper drift w/flattened head; slightly bent. BW.  22 X 3/4—15/16 (varying diam) 11/2 (head diam) E12
C8    Bent copper drift, broken at one end. BW.  11 X 1 (Diam) E12
C9    Bottom end of copper drift; bent and broken. BW.  111/2 X 7/8 (Diam) E12
C10   Square-headed copper fastener w/rounded bottom end; appears intact. BW.  31/4 X 3/4 X 7/8 (sq.head) E12
C11   Small copper fastener, sharpened to a point (for reuse as an awl/pick?). BW. See also B11.  41/8 X 5/8 (head diam) E12

**ANALYSIS:** Adrienne Kaepple, 23/VI/01: sharpener; groove has rust inside. Matches C11 (reworked copper spike) in size of groove.

C12   Square-sided copper wedge, tapering to a chisel point. Intact. BW.  21/8 E12
C13   Top end of 3/8-inch square copper fastener; bottom end broken off. BW.  1 X 3/4 (head) E12
C14   Intact straight copper spike w/mostly clean surface. BW/JPEG.  63/4 X 1/2 (Diam) 3/4 (head diam) E12
C15   Intact copper hull spike, slightly bent. Surface encrusted. BW.  61/4 X 1/2 (Diam) X 3/4 (head diam) E12
C16   Intact copper hull spike; straight. Surface heavily corroded. BW.  103/8 X 5/8 (Diam) E12
C17  Intact square copper spike w/chisel point. Slightly curved. BW.  
X 1 (head diam)  
1997

C18  Copper edge of poss. strap, triangular in cross section, w/concave interior surface. NMAH conservators Suzanne Thomassen-Kraus and Richard Barden have looked at this piece and think it may be either lead, tin or zinc, but prob. not copper. BW.  
4 1/4 X 1/4 X 1/8  
E13

C19  Intact copper hs nail; surface slightly corroded. Ring Deposit (see B21). BW.  
1 1/8 X 7/16 (head diam)  
E12

C20  Square-cut copper nail; surface near head appears rounded. BW.  
2 1/4 X 3/8 X 3/8  
E13

C21  Two square-cut copper nails w/wide heads (like roofing nails). Two found; only one is tagged in tank. BW.  
Both: 1 1/4 X 3/8 X 3/8  
E13

C22  Headless square copper spike; one edge curved or bent. Reworked; pointed on both ends. Surface cleaned after deionized water bath. C/BW.  
4 X 1/2 X 3/8  
Cleaned: 4 X 3/8 X 5/16  
E12

C23  Square-headed copper fastener; excellent condition. BW.  
6 X 3/4 X 3/4  
E12

C24  Two square-cut copper nails w/rounded heads; one is corroded w/a cobalt blue matrix. BW.  
Both: 1 X 3/8  
E12

C25  Four-sided tapered copper spike w/head. Bent, w/ chisel point. BW.  
6 1/2 X 3/4 X 3/4  
Post cleaning: 6 1/8 X 3/8 X 3/4 (head w)  
E14
C26  Copper sheathing nail. BW.  
1³/₈ X 1/₄ X 1/₂ (diam)  
E14

C27  Intact square copper fastener w/both ends flat; surface corroded. 
Surface cleaned after deionized water bath. BW.  
7¹/₂ X 3/₈ X 1 (head diam)  
Cleaned: 7¹/₈ X 5/₈ X 3/₄ (hd)  
E12

C28  Corroded copper hs nail w/bent head. BW.  
1¹/₂ X 3/₈ (head diam)  
E12

C29  Three copper hs nails, two w/corroded surfaces. BW.  
1¹/₄ X 3/₈ (head diam)  
E12

C30  Intact tapered copper fastener w/ o head; surface concreted. BW.  
3 X 7/₁₆  
E12

C31  Small frag. tapered copper fastener; surface corroded. BW.  
2¹/₈ X 5/₁₆  
E12

C32  Intact (bent) “L”-shaped round copper fastener w/head; other end blunt. Surface corroded /concreted. BW.  
9¹/₄ X 1 (diam); head diam: 1  
Post cleaning: 8¹/₂ X 5/₈ X 5/₈ (head diam)  
E14

C33  Copper spike; prob. intact. Head flattened; heavy surface corrosion and concretion. BW.  
4 X 1 (diam) X 1 (head diam)  
E14

C34  Tapered square-sided copper spike; head broken off; other end chisel-pointed. BW.  
3³/₄ X 5/₁₆ (square upper end)  
E14

C35  Tapered square-sided copper spike; head broken off; other end chisel-pointed. Bent; surface corrosion. BW.  
4¹/₈ X 5/₁₆ (square upper end)  
E14

C36  Head and partial length of sq. copper spike; bottom end flat/mashed (?). Slightly flared surface. C/BW.  
2¹/₄ X 3/₈ (lower end)  
E14

C37  Upper section of tapered copper spike w/beveled head. Minor surface  
2³/₄ X 3/₈ X 1 (head diam)  
E14
corrosion/concretion. BW.

C38  Two sections of copper edging for rail (?); surface corroded. (a) fastener holes on long edges; both ends appear finished. Copper is channeled and may be molded. (b) contains fragmentary wormy wood; the small piece may also be molded. BW.

TREATMENT: wood badly degraded; it and copper stored in ethanol.

C39  Four intact tapered copper spikes w/sq heads. Surface corroded; all are bent. 1/2-in spike tapers to chisel point. C/BW.

C40  Square copper spike tapering to chisel point w/o head. Heavy surface corrosion. BW.

C41  Frag. square copper spike, bent. Both ends missing; surface corroded. BW.

C42  Four copper hs nails; surface corroded. BW.

C43  Copper square-sided headed nail; slight shaft taper. Tip missing; shaft concreted. BW.

C44  Bent copper drift pin; intact but w/flattened/smashed head. Moderate corrosion. C/BW.

C45  Con. of two copper fasteners concreted together. BW.

1998
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Dimensions</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>C46</td>
<td>Two bent copper hs nails, found in association with a small section of highly corroded hs (not preserved).</td>
<td>1-1/8 X &gt;1/4 Head diam)</td>
<td>E16</td>
</tr>
<tr>
<td>C47</td>
<td>Bent, corroded copper (?) nail, prob. for hs.</td>
<td>1-3/8 X 1/2 (head diam)</td>
<td>E16</td>
</tr>
<tr>
<td>C48</td>
<td>Intact, square copper hs nail w/round head.</td>
<td>1 X 5/16 (head diam)</td>
<td>E17</td>
</tr>
<tr>
<td>C49</td>
<td>Upper end of concreted copper hs nail w/head.</td>
<td>5/8 X 1/2 (head diam)</td>
<td>E17</td>
</tr>
<tr>
<td>C50</td>
<td>Bent, twisted and broken-off lower end of a squared, chisel pointed copper spike.</td>
<td>3-7/8 X 3/8</td>
<td>E19</td>
</tr>
<tr>
<td>C51</td>
<td>Intact, square-headed, chisel-pointed copper spike.</td>
<td>6-3/4 X 3/4 (head) X 7/16 (side)</td>
<td>E19</td>
</tr>
<tr>
<td>C52</td>
<td>Intact square-headed, chisel-pointed copper spike w/some concreted wood on upper end.</td>
<td>6-1/2 X 11/16 (head) X 1-1/8 (w)</td>
<td>E19</td>
</tr>
<tr>
<td>C53</td>
<td>Bent, square chisel-pointed copper spike shaft w/o head.</td>
<td>4-1/4 X 1/2</td>
<td>E19</td>
</tr>
<tr>
<td>C54</td>
<td>Copper pin w/eye @ 1 end; shaft tapered to eye. Shaft bottom is of a smaller diameter. Surface partially cracked (during mfg.?).</td>
<td>9 X 1-3/4 (eye OD) X 1 (eye ID) X 3/8 (ring t) X 3-1/2 (shaft base L) X 1-1/8 (maxDiam) X 3/4 (shaft base diam)</td>
<td>E19</td>
</tr>
<tr>
<td>C55</td>
<td>Upper end of bent copper drift w/flattened terminal.</td>
<td>6-1/4 X 3/4 (diam) X 1-1/8 (hddiam)E22</td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Dimensions</td>
<td>Code</td>
</tr>
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<tr>
<td>C56</td>
<td>Bottom of square, chisel-pointed copper spike.</td>
<td>4 X 3/8</td>
<td>E22</td>
</tr>
<tr>
<td>C57</td>
<td>Bent copper hs nail.</td>
<td>1-1/8 X 5/16 (headDiam)</td>
<td>E22</td>
</tr>
<tr>
<td>C58</td>
<td>Upper end of square-headed square copper spike; orig. found in assoc. w/ frags. of wood (not preserved).</td>
<td>3/4 (head) X 3/4 X 1/2 (shaft)</td>
<td>E26</td>
</tr>
<tr>
<td>C59</td>
<td>Intact copper drift w/mushroomed head and flat end.</td>
<td>23-7/8 X 3/4 (diam)</td>
<td>E27</td>
</tr>
<tr>
<td>C60</td>
<td>Intact chisel-pointed square copper spike w/square head. C.</td>
<td>6-1/2 X 7/8 (shaft w) X 5/8 (head)</td>
<td>E30</td>
</tr>
<tr>
<td>C61</td>
<td>Partial round copper spike w/rounded ends. Reused? C.</td>
<td>8-1/2 X 5/8d</td>
<td>E32</td>
</tr>
<tr>
<td>C62</td>
<td>Two concreted copper hs nails w/round heads. C.</td>
<td>1-1/4 X 1/4 (head d)</td>
<td>E33</td>
</tr>
<tr>
<td>C63</td>
<td>Headed square copper spike; sharp end missing. C.</td>
<td>2 X 3/8 X 3/4 (head)</td>
<td>E34</td>
</tr>
<tr>
<td>C64</td>
<td>Chisel-pointed square copper spike; head missing. C.</td>
<td>3-3/4 X 3/8</td>
<td>E34</td>
</tr>
<tr>
<td></td>
<td><strong>ANALYSIS:</strong> KS: same length as C67.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C65</td>
<td>Twelve hs nails in 2 sizes: 1 and 1-1/4. C.</td>
<td>1 and 1-1/4</td>
<td>E34</td>
</tr>
<tr>
<td>C66</td>
<td>Copper hs nail. C.</td>
<td>1-1/4 X 5/16 (head d)</td>
<td>E35</td>
</tr>
<tr>
<td>C67</td>
<td>Partial chisel-pointed square tapered copper spike. Head and upper shaft missing; surface concreted. C.</td>
<td>3-7/8 X 3/8</td>
<td>E36</td>
</tr>
<tr>
<td></td>
<td><strong>ANALYSIS:</strong> KS: same length as C64.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
C68  Intact, square chisel-pointed copper spike w/head. Surface concreted. C.    5-5/8 X 3/8    E36
C69  Intact, square chisel-pointed copper spike w/head. Surface concreted. C.    6-3/4 X 1/2    E36
C70  Intact, bent, chisel-pointed barbed hs spike. Lower portion is square; upper is round (as is head). C.    6-7/8 X 11/16 (shaft d) X 1/2 (head d)    E36
C71  24 copper hs nails (17 long, 7 short). C.    1 and 1-1/4    E36
C72  Top for some sort of small container, pierced in center. Stone or shell concreted in upper surface. C.    3/8h X 1d    E36

TREATMENT:  Sent to TAMU on 4/XII/00; returned 27/VII/02. ER w/mild steel anode and 5% NaOH electrolyte. Not copper (tin?). Disintegrated in ER 5/IV/01. Returned in small pieces in small plastic bag of liquid.

C73  Circular copper (?) boss/finial for lamp or furniture (?). Embossed and decorated. Prob. goes w/ C89, C90 and C91. C/JPEG.    2d X 3/8h    E36

TREATMENT/ANALYSIS:  Sent to TAMU on 4/XII/00; returned 27/VII/02. ER w/mild steel anode and 2% NaOH electrolyte. Polished w/sodium bicarbonate; sealed w/BTA in 2%ethanol & acryloid B-66 (5%). Donald Fennimore of Winterthur, email of 12/VIII/02, “...The circular object could also be a furniture mount. It looks like a back plate for a cabinet handle, though I am puzzled by the apparent absence of holes for mounting. Plates like this normally have conforming pendant rings the posts of which pass through a hole in the edge of the plate. There appears to be no such provision in this plate. Are there small threaded holes in the back? If so, they would have held small iron nails which held the munt in place on the piece of furniture. I presume this object, like the cupid (C95), was strictly ornamental in the absence of provision for a pendant ring.”

C74  Three barbed copper hs spikes. All round at upper end and taper to square-sided chisel points. C.    (a) 7 X 5/8 X 3/4 (head d)    E36
      (b) 6-3/4 X 5/8 X 7/8 (head d)    E36
      (c) bent one: 4-1/4 X 1 X 3/4 (head d)
C75  Five square headed, square shaft, tapered chisel-pointed copper spikes. C.    (a) 5-1/2 X 3/8 X 5/8 (head)    E36
      (b) 6-1/4 X 3/8 X 5/8 (head)
ANALYSIS: KS: square-headed copper spikes might be ceiling stuff, as the deck should be flush.

C76  Small, square copper spike, tapered to chisel point. Concreted surface. C. 3-1/4 X 3/8 X 1/2 (head) E36
C77  Round copper spike; becomes square midway and tapers to chisel point. C. 6-3/4 X 1/2 X 3/4 (head d) E36
C78  Round copper spike; becomes square midway and tapers to wide chisel point. C. 8-7/8 X 5/8 X 7/8 (head d) E36
C79  Round copper spike w/1 peened end (=head). C. 12-3/8 X 5/8 X 3/4 (head d) E36
C80  Round copper spike w/flattened head; peened @ bottom w/washer. C. 11-1/8 X 5/8 X 7/8 (head) X 1-1/8 (washer) E36
C81  Six square chisel-pointed copper spikes w/square heads. One is missing head. C. (a) 6-5/8 X 5/8 X 3/4 (head) E37
     (b) 5-3/4 X 5/8 X 3/4 (head)
     (c) 5-1/2 X 3/8 X 5/8 (head)
     (d) 5-1/2 X 3/8 X 5/8 (head)
     (e) 5-1/2 X 3/8 X 5/8 (head)
     (f) 4-5/8 X 3/8 X 3/8 (head)

ANALYSIS: KS: headless copper spike poss. hit a knot and had head & shaft top snipped/cut off. But this example looks like the end was broken off. However, it also has an S-curve which could indicate distortion through a thwarted blow. Broken spikes w/o heads are mentioned in that 1806 ad for copper fasteners.

C82  Four round copper spikes that taper down into barbed square sections and flattened, flared chisel points. C. (a) 6-3/4 X 5/8 X 1 (head d) E37
     (b) 6-1/2 X 5/8 X 7/8 (head d)
     (c) 6-1/2 X 5/8 X 7/8 (head d)
ANALYSIS: KS: long, round copper spikes w/round heads prob. for stringers or clamps. They would have been worked cold.

C83  Copper spike w/heavy concretion @ upper end (square/round unclear). Lower end pointed. Concretion on lower end removed. C. 5-7/8 X 1-1/8 (@ head) E37

ANALYSIS: KS: poss. a fid, marlinspike or awl?

C84  Round-top barbed copper spike tapering to square, w/flared chisel point. Bent into S-curve. Concreted surface removed to observe detail. C. 5 X 1/2 X 1/2 E37

C85  Square tapered copper nail; concreted head exposed. Sharp end. C. 2-3/4 X 3/4 E37

C86  Five copper hs nails: 4 short (1 in) and 1 long (1-1/4 in). C. 1 and 1-1/4 E37

C87  Heavy, round copper bolt (?) w/1 peened end and peened w/washer at other. C. 10-5/8 X 7/8 X 1 (peened end) X 1-1/4 (washer d) E37

C88  Square flat copper object, pierced along opposite sides w/3 holes each. One side’s outer 4 holes are countersunk; other 2 are not. One 1 side, stamped “5” and “6” in different sizes. C. 1-1/8 X 1-1/8 X 1/16t Countersunk hole: 3/16d Inner holes: 1/4 d E37

C89  Round solid copper knob on flared base w/square shank: some minor plating remnants visible on upper surface. May fit w/C90 and C91, but prob. not as they are flat and hollow and C89 is cast solid and much heavier. Square shank also is smaller than hole in C91. C. 1 X 7/8d E37

TREATMENT: Sent to TAMU on 4/XII/00 ER w/mild steel anode and 2% NaOH electrolyte. Copper plating removed w/silver nitrate. Polished w/sodium bicarbonate; sealed w/BTA & 5% B-72 (acetone).

C90  Dished copper disk w/concreted upper surface; maeander pattern visible 2d X 3/8 (inner hole d) X 1/8t E37
around rim of under surface. Two small (tack?) holes on either side of central circular hole. Surface very rough to the touch. May fit w/C89 and C91 (is same diam as C91). This is probably the door plate or escutcheon for the doorknob ass’y for C91. C.

**TREATMENT:** Sent to TAMU on 4/XII/00; returned 27/VII/02. ER w/mild steel anode and 2% NaOH electrolyte. Copper plating removed w/silver nitrate. Polished w/sodium bicarbonate; sealed w/BTA & 5% B-72 (acetone).

**C91** Top of doorknob w/flared top, square hole, high shoulder and meander pattern around lower rim. Flared top has screw hole on shaft to affix lock shaft (like modern doorknob). Concreted, rough surface like C90. May be part of C89 and C90 (is same diam as C90). C.

**TREATMENT:** Sent to TAMU on 4/XII/00; returned 27/VII/02. ER w/mild steel anode and 2% NaOH electrolyte. Preserved w/BTA (2%); sealed w/B-72 (5%).

**C92** Copper corner brace (90 degrees) w/3 small countersunk holes on each side, sunk from outside. Prob. modern? C.

**C93** Two round & convex headed copper tacks; upholstery-like tacks. C.

**C94** Intact copper powder flask missing only cap/terminal. Heavy and smelling of sulphur=prob. filled w/powder. Halves bevelled @ junction of sides around perimeter (no joint visible). Teardrop-shaped. Spout has knurled ring at start of taper; is stamped: “PATENT” and has a four-stepped engraved laddering along side (poss. For measuring different amounts of powder?). C/JPEG.

**TREATMENT/ANALYSIS:** Sent to TAMU on 4/XII/00; returned 27/VII/02. There is something rattling around inside after conservation. ER w/mild steel anode and 2% NaOH electrolyte. Polished w/sodium bicarbonate & silver nitrate. Clear-coated w/Krylon 1301 matte (acryloid B66). See TAMU File C94.

Sarah Rittgers, email of 25/IX/02: “I am forwarding to you the response from Frank Kobulis, an officer of the Kentucky Rifle Association. I e-mailed him back informing him that it was indeed a musket powder flask and that the only marking on it was the word
"Patent." If he sends any more info, I'll forward it to you." Frank Kobilis, email of xx/IX/02: “I can't determine from the photo's if it is a pistol or musket flask. Typically, the pistol flask is about three inches long as compared to six or more inches for a musket flask. The flask itself appears to be made from brass and more than likely was made in England. It looks like...the steel spring that opened and closed it probably has rusted off. I would be interested in knowing if there are any other markings other that the word patent on the spout. England and France were fairly prolific makers of powder flasks during that period and shipped a great deal of their wares to America. Sometimes they are marked on the top flat by the spout...”

Having looked at Ray Riling, *The Powder Flask Book* (New Hope, PA: Robert Halter/The River House, 1953): this is a pocket flask (no rings for hanging). It is the Sykes type, first patented in 1814 by Thomas Sykes of England. Probably a Frith copy (Frith was sued for copying Sykes). Adjustable charger has outer slide and threaded inner sleeve that screws into the fixed collar. Loading rim has knurled ring; and no measurement numbers (for drams / grains). Plain top, common or “fast” type. MISSING: adjustment stop screw, cutter w/thumbpiece and spring. Riling, 113-14: Peter Frith & Son, listed in Sheffield in 1817 as powder flask mfg. Frith Brothers listed as potiticna and flask makers in Robson's London directory. Peter Frith was defendant in action brot by Thos Sykes to defend his patent rights in 1818. P. 151-52: Sykes’ patent top. P. 191: Frith catalog-25 pp, 9 X 11, w/pp. I-III=flask tops and associated hardware. P. 193, top right shows Frith P. V=almost identical to C94, right down to beveled edge.

**C95**

Fenestrated low copper relief depicting Cupid sharpening an arrow on a 2-1/2 X 3-1/4 X 3/16t foot-operated grinding wheel w/water pump lubricator. Back and base are flat; five small holes for fastening to other, larger object are visible. Traces of gilding throughout upper surface. C/jpg.

**TREATMENT/ANALYSIS:** Sent to TAMU on 4/XII/00; returned 27/VII/02. TAMU: bronze w/silver plating (not copper). ER w/mild steel anode and 2% NaOH electrolyte. Polished w/sodium bicarbonate & silver nitrate. Clear-coated w/Krylon 1301 matte (acryloid B66). See TAMU File C95. Donald Fennimore of Winterthur, email of 12/VIII/02, “The cupid figure appears to be an ornamental furniture mount of the type that was quite popular during the first few decades of the nineteenth century. Such mounts were used widely on French, English, German and American furniture at that time. I do not recall having seen one exactly like this, but feel sure a search would be rewarded with an identical mount still in situ on a piece of urban American furniture of that date. The quality of this mount looks to be French, which would be fine for a context such as Cleopatra’s Barge. Are there small threaded holes in the back of the mount? If so, that confirms a French origin in my mind.”

The matching piece shows a putto hammering an anvil; Met Mu of Art 68.8.76 and 68.8.77. Used in the corners or centers of pier tables, desks, center tables, etc. The cast pieces were fire girt; the stamped seem to have a lacquer. See Jonathan L. Fairbanks and Elizabeth Bidwell Bates, *American Furniture 1620 to the Present* (NY: Richard Marek Publishers, 1981) 255ff for examples of how these mounts were applied to furniture in the 1815-1835 Greco-Roman Revival period.

C96 Copper band w/horizontal groove let into outer surface; inner surface smooth. Two perpendicular grooves cut into both inner and outer surfaces; one separated. C.

C97 Square-headed upper end of tapered copper spike; sharp end missing. C.

**GLASS (G)**

N.B. Steve Gould of the Hawaii Maritime Museum at Honolulu inspected the 1995 glass and ceramics on 29 July 1995; his preliminary comments are recorded as “SG.” BU=Dr. Mary Beaudry and Brendan McDermott, Department of Archaeology, Boston University. 1995 glass was forwarded to BU for analysis on 17/X/95 and returned on 6/III/96. Susan Lebo (SL) of the Anthropology Dept. at the Bishop Museum examined the 95/96 glass on 31/XII/96.

G001 Green bottle lip fragment w/seam. C/BW.

**ANALYSIS/TREATMENT:** SG: modern beer bottle. BU: Green frag. of finish and neck from commercial container. A continuous mold seam is visible from the side to the top of the finish, indicative of types produced by machines after 1889 at the earliest. The finish is similar to a stacked-ring or Perry Davis type, but not identical. The relatively sharp angle of the neck relative to the finish suggests a modern short-necked bottle (cf. Heineken/Mountain Dew, etc.). SL: “Seven Up green.”

G002 Dark green bottle neck frag. C/BW.

**ANALYSIS/TREATMENT:** SG: Traces of lead on surface= “old” color. Wine or mineral water bottle frag. of the late 1800s (ca.
(1890/1900). Too generic to source; could be American or European. BU: Dark green neck frag. from a commercial container. Nearly half the neck is preserved and of an even thickness, but there is no evidence of a mold scar. Inner surface smooth; exterior exhibits some light diagonal striations, probably indicative of paste molding. This molding type is common to champagne, wine and other liquor bottles—date range: 1870s to 1920s. SL: neck piece, but too small to be diagnostic.

G003 Olive-green flat glass frag. (triangular shape) w/bubble inclusions. 1\(\frac{5}{8}\) X 1\(\frac{3}{4}\) X 3\(\frac{1}{32}\) (T)

ANALYSIS/TREATMENT: SG: gin bottle frag., dating from anytime from the wreck (1824) through 1880s. Generally Dutch. BU: Dark green body frag. w/numerous air bubbles. Obviously not machine-made, and possible dip molded. This may date anywhere from the 18th to the 1st half of the 19th century, possibly from a case type bottle, but it is difficult to determine without a more diagnostic section of the vessel. Similar bottle found on Boca Chica wreck (late 18\textsuperscript{th} European); see NHC U/W Branch, The Boca Chica Channel Wreck (WDC: NHC, 2003) pp. 86-87, 140.

G004 Rounded amber glass frag. w/bubbles and scratches. 2\(\frac{1}{2}\) X 2 X 1\(\frac{1}{8}\) (T)

ANALYSIS/TREATMENT: SG: Liquor bottle (poss. whiskey or beer); no seams to date or source. BU: Amber body and shoulder frag. from commercial container. Interior surface smooth w/no mold seams or scars. Exterior slightly pitted form seawater immersion. Possibly from a liquor or other beverage bottle from the later 19th or 20 centuries. SL: same as G5 and G23; 2nd half of 19th century.

G005 Small brown glass frag. 1\(\frac{1}{8}\) X 5\(\frac{1}{8}\) X 3\(\frac{1}{16}\) (T)


G006 Clear glass frag. of bottle base. Molded encircled “1” in center 3 (Diam) X 2 (H) X 3\(\frac{1}{16}\) (T)

food bottle, orig. w/wide mouth, cork stopper. Base too thin for milk bottle. BU: Clear frag. of circular base of jar or bottle. Uneven interior thickness suggests machine-made (late 19th or early 20th century). Center of base is dully impressed with numeral “1” surrounded by what is prob. an Owens Scar (post-1904). Original function uncertain. SL: prob. not food bottle; could be beverage (soda, liquor).

1995 Glass Summary (BU): Only one (G3) glass piece may date to the wreck period; the remainder are either late 19th or early 20th century in origin, with 1–2 poss. being quite recent (G1 and G5).

1996

N.B. Steve Gould (SG) reviewed the 1996 glass on site on 19/VII/96.

G007 Light olive/green shoulder frag. BW. 2 1/2 X 1 1/2 X 1 1/8 (T) E1

ANALYSIS/TREATMENT: SG: prob. wine bottle; turn mold. Post Civil War, prob. ca. 1890s. Hard to tell. SL: too small for diagnosis; if from wreck, prob. liquor, as most green glass of the period was.

G008 Light amber bottle base frag. Mold-blown, v. thick; heavily abraded. 2 X 2 1/2 E1

Orig, bottle diam. ca. 3 inches. BW.

ANALYSIS/TREATMENT: SG: some sort of liquor bottle, early 1880s. Prob. quart capacity.

G009 Clear glass molded frag., sand abraded. Poss. partial “W”. BW. 2 1/2 X 1 1/4 X 1 1/8 (T) E2


G010 Clear bottle glass frag. BW. 2 1/2 X 2 X 3/8 (T) E2

ANALYSIS/TREATMENT: SG: prob. milk bottle, ca. 1920-1930; pinkish tinge made milk look richer.

G011 Clear, very thin-walled glass frag. w/fluting. BW. 2 1/2 X 3/4 X 1/16 (max T; tapers) E2
ANALYSIS/TREATMENT: SG: Poss. a goblet? No air bubbles; if early, very high quality. SL: prob. tableware, due to thinness (tumbler/goblet). Sheila Alexander (27/II/97): appears to be blown, w/light-cut fluting; under a black light, this frag. fluoresces blue, indicating English manufacture. Not enough curve for a tumbler or goblet; contemp. tumblers/goblets usu. straight-sided. Most likely a light globe; poss. part of a chandelier glass. Anne Serio (13/III/97): poss. a solar lamp shade, hall lamp or hanging lantern globe.

G012 Clear bottle body frag. w/ vertical mold seam. BW. 2 x 3\(\frac{3}{4}\) X 1\(\frac{1}{16}\) (T)  E2

ANALYSIS/TREATMENT: SG: seam indicates not a glass; definitely from same container as G11. SL: slight manganese tint.

G013 Olive green glass frag. BW. 1 X 3\(\frac{1}{8}\) X 3\(\frac{1}{32}\) (T)  E2

ANALYSIS/TREATMENT: SG: thin and flat=gin bottle. SL: too small for diagnosis; if from wreck, prob. liquor, as most green glass of the period was.

G014 Olive green square case bottle base frag. Rough pontil break. C/BW. 2\(\frac{1}{2}\) X 2\(\frac{1}{2}\) X 2  E3
T: variable

ANALYSIS/TREATMENT: SG: 1830 or before; 1840 latest. Prob. from wreck. SL: this gin bottle is the oldest piece of glass from the site.

G015 Olive green glass frag. BW. 1 X 1\(\frac{1}{2}\) X 1\(\frac{1}{8}\) (T)  E5

ANALYSIS/TREATMENT: SG: another piece of 19th century gin bottle. SL: too small for diagnosis; if from wreck, prob. liquor, as most green glass of the period was.

G016 Corner (95°) of sheet of plate glass; very thin. BW. 2\(\frac{3}{4}\) X 2\(\frac{1}{2}\) X 4  E5

ANALYSIS/TREATMENT: SG: easily contemporary w/wreck.

G017 Clear glass bottle base frag.; thick. Concentric casting rings on base. Surfaces heavily sand-abraded. BW. 3 (Diam) X 2\(\frac{3}{4}\)  E7

ANALYSIS/TREATMENT: SG: machine-made bottle (prob. early), ca. WWI. Thickness indicates carbonated beverage (beer or soda).
SL: has Owen scar.

G018 Olive green thick-walled bottle rim, neck and shoulder frag. Surface sand-abraded. BW. 8 X 3 E7


G019 Aqua-green glass frag. Variable thickness, like champagne (?) bottle. BW. 2\(\frac{1}{2}\) X 1 (W) X 1 (H) X 1\(\frac{1}{4}\) (T) E7

ANALYSIS/TREATMENT: SG: beer or mineral water bottle, late 1880s or 1890s. SL: could be part of G18.

G020 Olive green frag. (corner/side) of square case bottle. Bubble inclusions. C/BW. 3 X 1\(\frac{1}{16}\) (T) E7

ANALYSIS/TREATMENT: SG: gin bottle, 1820s through 1900. SL: case gin bottle.

G021 Aqua bottle frag. w/bubble inclusions. BW. 3 X 2\(\frac{3}{4}\) X 1\(\frac{3}{16}\) (T) E10

ANALYSIS/TREATMENT: SG: hand-blown, prob. carbonated beverage due to thickness. Poss. soda. Poss. as early as 1870s, depending on orig. diameter. If utility bottle (i.e. ammonia or chemical bottle), then diam. would be wider. SL: Air bubbles=mold blown. Non-diagnostic frag.; poss. 2nd half of 19th century.

G022 Aqua body and base frag. of medicine panel bottle. BW. 1\(\frac{1}{2}\) X 1\(\frac{3}{8}\) E11

ANALYSIS/TREATMENT: SL: poss. made in two-piece bottle hinge mold.

G023 Brown glass bottle shoulder, neck and lip frag; lip has vertical chip. BW. 4\(\frac{7}{8}\) X 2\(\frac{1}{4}\) X 3\(\frac{3}{4}\) (lip H) E12
ANALYSIS/TREATMENT: SL: same as G4 and G5; 2nd half of 19th century. Mold-blown bottle, prob. beer. Late; seam to the top and the lip is applied. See Wilson, *Bottles of the Western Frontier*.

**G024**  Green bottle body frag. w/bubble inclusions. C/BW.  $4^{5/8} \times 2^{1/4} \times 1^{1/4} \ (T)$  E12


**1997**

Steve Gould (SG) of the HI Maritime Center reviewed the 1997 glass on-site on Susan Lebo (SL) inspected the 1997 glass on 5 January 1998.

**G025**  Light green glass body frag. w/ concave base and bubble inclusions. C/BW.  $5^{1/2} \times 3 \times 3^{3/4}$  E13

ANALYSIS: SG: crude base and bubbles=1880s liquor bottle. Prob. mold-blown would have had side seams; no lateral turn lines visible. SL: liquor, prob. European (English/French). 19th c.—prob. latter half (1880-early 1900s).

**G026**  Two glass frags; one is half an amber neck w/rim and shoulder, the other is an amber body sherd. In 6 pieces. BW.  a) $1^{1/4} \times 1 \times 1$  b) $2^{1/2} \times 1^{1/2} \times 1^{1/8}$  E13

ANALYSIS: SG: (a) w/lip is a 1960-70 12-oz. beer bottle; (b) is modern beer bottle.

**G027**  Opaque, curved clear glass body sherd. BW.  $7/8 \times 7/8 \times 1^{1/4}$  E13

ANALYSIS: SG: could be anything; too small to identify.

**G028**  Green bottle frag. of neck and shoulder. BW.  $4^{1/8} \times 1^{1/2} \times 1^{1/4}$  E13

ANALYSIS: SG: 1890s beer bottle.
G029  Amber bottle glass frag. of cylindrical shape w/raised bead across circumference. C/BW.  

1\(\frac{3}{4}\) X 1\(\frac{5}{8}\) X 1  

E13

G030  Intact amber Clorox bottle w/maker’s logo on bottom. C/BW.  

9\(\frac{3}{4}\) X 3\(\frac{1}{4}\) (diam)  

E12

**ANALYSIS:** SG: 1956 or 1958.

G031  Cylindrical amber glass body frag. BW.  

2\(\frac{1}{8}\) X 2 X 1\(\frac{1}{16}\)  

E12

G032  Nearly complete base, slightly concave, of clear glass w/molded maker’s marks on bottom: ®/81/76/1G. BW.  

2\(\frac{1}{2}\) (diam) X 3\(\frac{1}{8}\)  

E12

**ANALYSIS:** SG: No-deposit soda bottle, ca. 1976.

G033  Triangular green glass frag. BW.  

1\(\frac{1}{4}\) X 1\(\frac{1}{2}\) X 1\(\frac{1}{8}\)  

E12

G034  Two pieces of amber bottle body frags. BW.  

a) 1\(\frac{3}{4}\) X 2 X 1\(\frac{1}{16}\) (th)  

b) 1\(\frac{1}{2}\) X 1 X 1\(\frac{1}{16}\) (th)  

E12

G035  Dark green bottle neck, intact to shoulder. C/BW.  

4\(\frac{1}{4}\) X 1\(\frac{3}{4}\) X 1\(\frac{1}{4}\)  

E12

**ANALYSIS:** SG: applied top is almost exclusively used for beer, 1880s-1890s.

G036  Light green bottle glass frag. w/bubbles in matrix. BW.  

3\(\frac{1}{4}\) X 1\(\frac{1}{2}\) X 3\(\frac{1}{8}\)  

E12

**ANALYSIS:** SG: late 1800s pint liquor bottle.

G037  Clear glass bottle body sherd w/bubble. BW.  

1\(\frac{1}{2}\) X 1\(\frac{7}{8}\) X 1\(\frac{1}{8}\)  

E12

**ANALYSIS:** SG: despite bubble, post WWI.
G038 Dark green bottle neck w/ 3/4-in high lip. C/BW. 3 1/4 X 1 1/2 X 1/8  E12

ANALYSIS: SG: beer bottle, 1880s-1890s; gloppy applied lip had many uses, inc. water.

G039 Clear glass bottle sherd w/ partial logo: “...LAND/A”. Part of G43. 4 X 2 X 1/4  E12

1930s-early 1960s. BW.

ANALYSIS: Jan TenBruggencate, emails 13/II/98 & 8/IV/98: clear bottles w/Garden Island logo (inc. palm trees in white) were used from the 1930s-early 1960s. They contained strawberry soda, root beer and poss. cream soda. This one poss. 1940s, acc. to the soda company owner (now in his 90s).

G040 Clear glass bottle shoulder frag. w/ mold seam across the center. BW. 2 X 1 7/8 X 1/8 (th) E12

G041 a) Modern bottle base frag. w/dimpled rim marked : “517 DK 75” 2 3/8 (diam) X 3/8 (H) E12

b) Brown body frag. marked : “NO RETU”. BW. 2 3/8 X 3/16

G042 Thick green glass bottle frag. w/ bubble inclusions on inner surface. C/BW. 2 1/8 X 1 X 3/16 (th) E12

G043 Body and shoulder frag. of clear glass soda bottle marked: “...RDEN IS/SOD...” w/ partial palm tree below lettering. Prob. Garden Island Soda. Part of G39 (see above). BW. 5 1/4 X 2 1/4 X 3/16 (th) E12

G044 Clear glass bottle frag.; all surfaces abraded. BW. 2 3/16 X 11/16 X 3/16 (th) E12

G045 Lip and partial neck of green bottle w/ bubble inclusions; lip is chipped. C/BW. 3 X 1 (lip OD) X 3/16 (th) E14

ANALYSIS: SG: prob. late 19th century beer bottle.
G046  Two modern brown glass bottle frags, curved. Prob from same bottle. One marked: “NO RET”. BW.  

G047  Triangular frag. of delaminated glass, originally green. Slightly curved. One side has raised rough surface. Part of G49? C/BW.

G048  Triangular clear glass frag. marked: “RT”. Modern. Ring Deposit (see B21). BW.

G049  Green glass frag.; color around edges is lighter. Bubble deterioration on one surface; swirl pattern on opposite side. Part of G47? C/BW.

G050  Small flat glass frag. w/edges turned up. BW.

1998

N.B.: Steve Gould (SG) and Celeste Long (CL) reviewed the 1998 glass on 30-31/VII/98

G051  Clear glass cylindrical jar w/screw top; rim broken for 1/2 of diam. Marked: “10A/20 1 1/44-26-C” on base.  

ANALYSIS: SG: Modern, Owens Illinois, could be 1971, plant #20. CL: made at #20 Oakland, CA plant.

G052  Clear, cut glass sherd w/scalloped cuts; surface abraded.  

ANALYSIS: SG: hand cut lead crystal; fluting diff. from others on wreck. Definitely wreck period; could be lamp globe. CL: if not lead, then lamp. If lead, then poss. a larger bowl or candy dish. May not be lead; odd shape.

G053  Brown glass bottle base sherd w/dimpled base, marked: “…1G(C?)B”.  

ANALYSIS: SG: hand cut lead crystal; fluting diff. from others on wreck. Definitely wreck period; could be lamp globe. CL: if not lead, then lamp. If lead, then poss. a larger bowl or candy dish. May not be lead; odd shape.
ANALYSIS: CL: another series (of letters?) above it; modern beer.

G054  Curved green glass sherd, triangular-shaped; prob. bottle sherd. 3 X 2-1/4 X 1/8 (t) E16

ANALYSIS: CL: very large-circumference modern container.

G055  Clear glass bottle base w/mfg. mark on base: “C (O?) 5; [on left:] 20”. 2-1/4 (diam) X 1/8 (t) E16


G056  Curved, clear glass sherd; poss. bowl frag. Appears handblown w/mold seam along 1 edge. 2-7/8 X 2 X 1/8 (t) E16

ANALYSIS: SG: handblown; air bubbles; embossed ring around it. Mold blown bowl or goblet w/aqua tint. CL: top to chemical bottle; consistent w/gallon size. Style consistent w/other example.

G057  Green glass bottle neck; prob. beer. 3 X 2 X 1/8 (t) E16

ANALYSIS: SG: Heinecken.

G058  Clear glass bottle neck sherd; surface abraded. 1-5/8 X 1 X 1/4 (t) E16

ANALYSIS: SG: crudware.

G059  Clear, curved cut glass sherd w/scalloped design; poss. lantern globe. 2-3/8 X 2-1/8 X 1/8 (t) E17

ANALYSIS: SG: matches piece from prior year; dates to wreck period. CL: test for lead, in which case=lead crystal.

G060  Clear glass flask missing its neck; 3 Chinese characters and a 9 (6?) embossed on base. 5 X 2-1/4 X 1-1/8 (t) E16
ANALYSIS: SG: Japanese cosmetics bottle, ca. WWI; handblown. CL: food bottle (culinary sauce); has a “9”; poss. Nagasaki plant.

G061 Curved brown glass bottle shoulder sherd w/ lettering: “NOT TO BE REF...”. 2-3/8 X 1-3/4 X 1/8 (t) E16

ANALYSIS: SG: modern beer.

G062 Thick aquamarine bottle sherd w/bubble inclusions. RWR: Japanese sake. 1-7/8 X 2-1/16 X 3/16 (t) E17

ANALYSIS: SG: large American beer bottle (ca. 26 oz), ca. 1900 (±10 yrs). CL: European, not necessarily beer.

G063 Brown bottle shoulder sherd. 1-7/8 X 1-1/2 X 1/8 (t) E17

ANALYSIS: SG: modern beer.

G064 Cobalt blue bottle sherd; prob. shoulder. 1-3/8 X 7/8 X 1/8 (t) E18

ANALYSIS: SG: poss. cosmetic or castor oil bottle. CL: prob. not hand blown; late mold or early machine. Also could be medicine. Early 20th century.

G065 Clear bottle base frag., marked on base: “4386_ G”. Dimpling on body at base. 2-1/8 (diam) X 1-3/8 (h) X 1/4 (t) E18

ANALYSIS: SG: 1947 soda bottle; Owens Illinois factory #20. Numbers=style #s; prob. Kauai soda. CL: has Owens mark in center; other marks worn.

G066 Clear glass bottle body sherd, marked: “…ING & MAL.../...ULU, T.H.” =Honolulu Brewing & Malt, Honolulu, Territory of Hawaii=a Primo beer bottle. 3-3/4 X 2-1/2 X 1/4 (t) E18

ANALYSIS: SG: 1911-1917; the rest is correct.
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Shape</th>
<th>SG Analysis</th>
<th>CL Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>G067</td>
<td>Brown glass bottle body sherd w/stippling on 1 end.</td>
<td>3-3/8 X 1-5/8 X 1/8 (t)</td>
<td>SG: modern beer.</td>
<td></td>
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<tr>
<td>G069</td>
<td>Brown glass bottle body sherd. SG: modern beer.</td>
<td>2 X 1 X 1/8 (t)</td>
<td>SG: modern beer.</td>
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<tr>
<td>G070</td>
<td>Curved olive green glass sherd w/bubbles.</td>
<td>1-5/8 X 1-1/4 X 1/8 (t)</td>
<td>SG: case gin bottle from wreck period.</td>
<td></td>
</tr>
<tr>
<td>G071</td>
<td>Coca Cola bottle body sherd.</td>
<td>3-5/8 (h) X 2-1/8 X 1/4 (t)</td>
<td>SG: post 1960.</td>
<td></td>
</tr>
<tr>
<td>G072</td>
<td>Clear curved jug/bottle shoulder sherd, marked: “...NE GALLON”.</td>
<td>3-3/8 X 2-1/8 X 1/8 (t)</td>
<td>SG: prob. part of same clear glass modern bottle (may match). CL: may match large base seen earlier; ultra-violet check would tell.</td>
<td></td>
</tr>
<tr>
<td>G073</td>
<td>Clear curved sherd.</td>
<td>2-3/4 X 1 X 1/8 (t)</td>
<td>SG: modern. CL: modern, may match other sherds from clear bottle.</td>
<td></td>
</tr>
<tr>
<td>G074</td>
<td>Curved brown glass sherd.</td>
<td>1-5/8 X 1-1/4 X 1/16 (t)</td>
<td>E19</td>
<td></td>
</tr>
</tbody>
</table>
ANALYSIS: SG: modern beer.

**G075** Brown, curved sherd w/ abraded surface and poss. lettering. 1 X 5/8 X 1/16 (t) E19

ANALYSIS: SG: modern beer.

**G076** Brown, curved sherd w/ abraded surface. 1-1/4 X 1-1/4 X 1/16 (t) E19

ANALYSIS: SG: modern beer.

**G077** Curved, clear glass sherd. 3-1/2 X 1-3/4 X 1/16 (t) E19

ANALYSIS: SG: modern, no bubbles. CL: crude for modern glass and very thick.

**G078** Clear flat windowpane glass sherd. 2-5/8 X 1-1/4 X 1/16 (t) E19

ANALYSIS: SG: Aqua tint, surface scratched. CL: some bubbles; window glass thickness will date it.

**G079** Curved, green glass sherd w/ striations on interior. Bubbles, no surface abrasions. 2 X 1-3/8 X 1/16 E19

ANALYSIS: SG: part of case gin bottle from wreck period; flow lines may match other pieces.

**G080** Curved brown glass sherd w/ abraded exterior. 2-1/8 X 1-1/2 X 1/16 (t) E19

ANALYSIS: SG: machine made, 1930s beer. CL: color closer to brandy sherries.

**G081** Blue base sherd. 2-1/2 X 2-1/8 X 3/16 (t) E19

ANALYSIS: SG: Japanese blue color. CL: machine made Japanese shoyu/sake; 1930s or later.

**G082** Green bottle neck and mouth. Heineken/Moosehead? 3 X 2-1/4 X 1/8 (t) E19
ANALYSIS: SG: modern beer.

G083 Clear, curved bottle body sherd w/stippling on exterior. 2 X 1-7/8 X 1/8 (t) E19

ANALYSIS: SG: modern beer.

G084 Opaque white curved sherd w/screw-top ridges on 1 end. Ponds-type cream jar. 2-1/8 X 5/8 X 3/16 (t) E19

ANALYSIS: SG: machine made cosmetic, 1930s/40s or poss. more recent. CL: screw-thread lip=jar, prob. cold cream.

G085 Frag. of square, olive green bottle base w/bubble inclusions. Both surfaces abraded. 3 X 1-7/8 X 1/4 (t) E19

ANALYSIS: SG: prob. a bit later than wreck, up to 1870s; may be mark on bottom. CL: gin bottle, wreck period.

G086 Clear glass sliver; surfaces abraded. 2-1/2 X 3/8 E19


G087 Brown bottle mouth; pop-top variety. 1-1/2 X 1 X 1/8 (t) E19

ANALYSIS: SG: modern beer.

G088 Corner sherd of olive green square bottle; bubble inclusions. 1-3/4 X 1/2 X 1/8 (t) E19

ANALYSIS: SG: gin bottle from wreck.

G089 Body sherd of round olive green bottle; bubble inclusions. 3 X 2-1/2 X 3/16 (t) E19

ANALYSIS: SG: old liquor, prob. 1860s. CL: slight chance of wreck period. Very assymetrical, thick; crudeness could go earlier (than SG
estimate): ca. 1850s?

G090 Base of clear glass tumbler w/vertical serial ridges on interior. In base center: SGK [in diamond]; above="78"; below="65".

2-1/4 (h) X 2-1/4 (baseDia) X 1/8 E19

ANALYSIS: SG/CL: 1920s/30s tumbler; CL has company listed.

G091 Circular clear bottle base w/bubble inclusions; underside indented.

3-1/8 (diam) X 1-1/4 (h) X 1/4 (t) E19

ANALYSIS: SG: modern, machine-made; could be food/beverage. CL/SG: 1930s.

G092 Dark green bottle base w/bubbles. Kick is shallow and shows concentric rings when separated during mfg.

2-3/8 (dia) X 2-7/8 (h) X 1/4 (t) E19


G093 Curved brown body sherd.

2 X 7/8 X 1/16 (t) E19

ANALYSIS: SG: modern beer.

G094 Clear curved bottle body sherd.

2-3/4 X 2-3/8 X 3/16 (t) E20

ANALYSIS: SG: amethyst tint=ca. 1910 food/liquor.

G095 Brown bottle base sherd w/high kick.

2-7/8 X 1-1/2 X 1/4 E20


3-1/2 X 2-3/8 X 1/8 (t) E20


2-1/2 (dia) X 1-3/4 (h) X 5/16 (t) E20
G098    Brown curved bottle body sherd. Broken into 2 pieces during shipment. 1-7/8 X 5/8 X 1/16 (t) E20


G099    Curved brown body sherd. 1-1/8 X 5/8 X 1/16 (t) E20


G100    Rim of clear lamp/lantern globe w/serial beaded lip. 2-7/8 (od) X 3/4 (h) X 1/16 (t) E21

ANALYSIS: SG/CL: lamp chimney.

G101    Base of thick-walled blue bottle w/high kick. Embossed on bottom: “BOTTLE/MADE IN JAPAN”; on side: “...IONE/...CO”. 4 (od) X 2-1/8 (h) X 1/4 (t) E21

ANALYSIS: CL: machine-made; could be sake—likelier=shoyu. Earliest=1925; prob. 1930s-1940s.

G102    Clear curved body sherd w/flat horiz. ridge. 2-3/4 X 1-7/8 X 1/8 (t) E21


G103    Small, curved brown sherd w/abraded surfaces. 3/4 X 3/4 X 1/8 (t) E21

ANALYSIS: SG: modern beer.

G104    Clear neck and shoulder from square bottle w/embossed seal w/Dutch writing and palm tree in center. Seal reads: “PALMBOOM/CMEYER &C/SCHIEDAM”. Small frag. broken off during shipment. 4-1/4 (side) X 3-1/4 (h) X 3/16 E22

ANALYSIS: SG: Dutch gin bottle, ca. 1910. V. common in HI.
G105  Flat olive green sherd w/bubbles. 3/4 X 3/4 X 1/8 (t)  E22

**ANALYSIS:** SG: from same gin bottle as other; may be enough to check joins. Wreck period.

G106  Olive green triangular sherd; mostly flat w/curve at 1 end. 2-3/16 X 1 X 1/8 (t)  E22

**ANALYSIS:** SG: Piece of early gin bottle; from wreck period.

G107  Flat olive green sherd w/bubbles. 3 X 1-1/4 X 1/8 (t)  E22

**ANALYSIS:** SG: definitely wreck. CL: def. French.

G108  Brown curved bottle sherd. 2-1/4 X 1-1/2 X 1/8 (t)  E22

**ANALYSIS:** SG: modern beer.

G109  Half of green bottle base—abraded and concreted. 2-5/8 (od) X 1 (h) X 3/16 (t)  E22

**ANALYSIS:** SG/CL: modern, 1930s-1950s. CL: color may indicate food (condiment, sauce, culinary).

G110  Intact olive green long-necked bottle w/blobby applied mouth. Horiz. indentations; no writing. 12 X 2-7/8 (baseDia)  E23

**ANALYSIS:** SG: beer, ca. 1890s, turned in mold to near neck top. CL: turn molded; could be hard liquor/wine (prob. wine).

G111  Olive green square bottle neck, rim and shoulder=case gin bottle. Bubbles; lip flattened horizontally; flat shoulder. 3-3/8 (w) X 1-1/8 X 1-3/8 (odLip)  E23

**ANALYSIS:** SG: from wreck period. CL: definitely wreck period; looks French, not Dutch due to smoothness. Fits w/G131; see also G132.

G112  Clear glass bottle neck and shoulder (partial). 5-1/8 (h) X 2-5/8 (w) X 1/8 (t)  E23
**ANALYSIS:** SG: prob. 20th c. (1920s/30s) beer; machine made. CL: could be food.

G113 Brown curved bottle body sherd.  
2-1/4 X 2 X 3/16 (t)  
E23

**ANALYSIS:** SG: early 20th c. beer (post 1930s/Prohibition, due to thickness; no bubbles. CL: thick for a beer bottle; usually they’re thinner.

G114 Green bottle base edge sherd.  
2 X 5/8 X 1/8 (t)  
E23

**ANALYSIS:** SG: modern beer. CL: could be other beverage; not thick enough for carbonation.

G115 Olive green curved bottle body sherd w/bubbles.  
2 X 2 X 1/8 (t)  
E23

**ANALYSIS:** SG: pre-1900 wine/beer/spirits (1860s). CL: poss. dip mold; thickness suggests poss. Mineral water (=carbonated). Ca. 1840-1860, but could be earlier than 1840.

G116 Clear bottle neck sherd; very abraded.  
1-3/4 (h) X 1-1/2 (w) X 1/8 (t)  
E23

**ANALYSIS:** SG: bubbles=older; ca. 1890s. CL: poss. food; large neck, hand blown, 1860-1890.

G117 Clear, curved sherd.  
2-1/8 X 1-3/4 X 1/8 (t)  
E24

**ANALYSIS:** SG: could be anything; 20th century. CL: poss. chemical jar? 20th c. OK. SG/CL: can’t really tell whether turn molded; could be free blown.

G118 Brown bottle shoulder sherd w/embossed lettering: “...T * NO RET...”  
1-1/2 (h) X 2-1/4 (w) X 1/8 (t)  
E24

Broken into 2 pieces during shipment.

**ANALYSIS:** SG/CL: modern beer.

G119 Clear foot sherd of very large diam. glass jug (or lamp?); surfaces heavily  
3-1/2 X 1 (w) X 1/4 (t)  
E24
abraded.

ANALYSIS: SG: too big for milk; 20th c. (=no bubbles). CL: could be gallon wine or utilitarian; separate base part, cup bottom mold. That process dates to 1850 w/o more of bottom.

G120 Brown bottle base sherd, embossed w concentric ridge and lettering: "...G [&?]Co".

ANALYSIS: SG: definitely a “G”. Prob. a pint bottle, not a quart. 1880s pint beer (poss. 1890s). CL: has it listed; recognizes symbol. Post bottom mold.

G121 Heavy olive green round bottle base w/high kick, bubbles and concentric ridge.

ANALYSIS: SG: spirits, iron pontil, 1850-1860; no later than Civil War. CL: definitely English glass, needs to check. Could be quite early (1st half, 19th century).

G122 Brown bottle neck and shoulder sherd w/vertical seam.


G123 Brown bottle base frag. w/ abraded surfaces.

ANALYSIS: SG/CL: prob. beer (or at least carbonated). Amber prob. old; ca. 1900. No clues beyond thickness.

G124 Olive green curved bottle body sherd, thickened at 1 end (indicating base).

ANALYSIS: SG: turn molded beer, ca. 1890s. CL: prob. older than 1890s; may not be turned.

G125 Clear bottle base frag.; embossed on side: “...ONTENTS 7 FL...”; on base: “20 . 47?/G”.

ANALYSIS: SG: too big for milk; 20th c. (=no bubbles). CL: could be gallon wine or utilitarian; separate base part, cup bottom mold. That process dates to 1850 w/o more of bottom.

G126 Brown curved bottle body sherd w/bend suggesting base. 4-1/4 X 1-3/4 X 1/8 (t) E25

ANALYSIS: SG: pint due to diam; prob. pre-1910 beer, due to bubbles. CL: part of base heel preserved; cup bottom mold.

G127 Brown bottle shoulder sherd w/stippling on exterior. 1-1/2 X 1-3/4 X 1/16 (t) E25


G128 Olive green bottle mouth; blobby, applied. 1-1/4 (h) X 1-1/8 (od) E25

ANALYSIS: SG: 1850s or earlier. CL: could be Capt. Cook; prob. wreck period.

G129 Clear curved bubbled glass sherd w/cut scalloping; poss. lamp/lantern. 1-7/8 (h) X 5/8 X 1/8 (t) E25

ANALYSIS: SG: modern glass. CL: food or liquor bottle; prob. hard liquor; if older, it could be food. Hand laid; check refs. SG/CL: definitely not lamp/lantern globe.

G130 Clear bottle shoulder sherd w.abraded exterior surface. 2 (h) X 2 X 3/16 (t) E27

ANALYSIS: SG: beer, ca. 1910 due to vent marks.

G131 Olive green curved sherd w/bubbles. 1-3/4 X 5/8 X 1/8 (t) E27

ANALYSIS: SG: prob. part of gin bottle from wreck; see G132. Fits w/ G111.

G132 Olive green flat sherd w/bubbles. 2-5/8 X 1-3/8 X 3/16 (t) E27

ANALYSIS: SG/CL: definitely gin bottle; could fit w/G111. Prob. wreck.
G133 Clear bottle base sherd w/abraded exterior. Embossed on base: “20”. 1-1/2 (h) X 2 (w) X 1/4 (t)  E27

**ANALYSIS:** SG: bottom of soda bottle, 1930s. Made by Owens Illinois @ factory #20. CL: definitely **NOT** Owens Illinois due to position of “20.”

G134 Clear glass sherd w/up- and in-turned edge. 1-1/8 X 1 X 1/8 (t)  E27

**ANALYSIS:** SG/CL: rim frag.; prob. wreck; edge is decorative, as on punchbowl/open dish. CL: prob. tableware; not in fire.

G135 Intact blue glass insulator w/dimpled base and lettering on side: 3-1/2 (h) X 2-1/4 (diam)  E27

**ANALYSIS:** SG: 1890s-1905. CL: Hemingray began mfg. insulators in 1861.

G136 Green glass bottle neck and portion of shoulder. 5-7/8 (h) X 1 (mouthOD) X 3/16(t)  E27

**ANALYSIS:** SG: hand blown rice beer, ca. 1910. CL: turn molded, could be mineral water. Not Oriental; prob. American.

G137 Clear bottle base, v. abraded exterior. Serial wide ridges=Coke bottle. 1-1/2 (h) X 2-1/4 (od) X 1/4 (t)  E27

**ANALYSIS:** SG: Coke bottle, ca. WWII

G138 Nearly intact clear hexagonal bottle; lip chipped in 2 places. 4-3/4 (h) X 1-5/8 (od)  E27

**ANALYSIS:** SG: lead glass perfume bottle, ca. 1870s. CL: 1840-1870; top fairly crude and odd bottom. Could be French.

G139 Brown bottle neck and shoulder frag. w/bubbles and horiz. mold turnings. 3 (h) X 2-3/4 (w) X 1/8 (t)  E27

**ANALYSIS:** SG: turn mold, beer, 1890s-1900. CL: big neck=liquor (hard/beer).

G140 Blue-green curved bottle body and base frag / w/horiz. mold turnings 2-5/8 (l) X 2-3/8 X 1/8 (t)  E27
and bubbles.

**ANALYSIS:** SG: could be sake, Japanese, vinegar poss, pre-1920. CL: could be sake or shoyu, Japanese, turn molded, 20th century.

**G141** Brown bottle body sherd, abraded surfaces.  
**ANALYSIS:** SG: no bubbles; prob. 1930s beer. CL: post-wreck.

**G142** Brown bottle body sherd, abraded surfaces.  
**ANALYSIS:** SG: medicine or liquor. CL: machine made=after 1902.

**G143** Olive green bottle neck and applied mouth.  
**ANALYSIS:** SG: liquor, ca. 1890 beer. CL: OK but 1850-1890.

**G144** Clear glass bottle body and base sherd; exterior abraded.  
**ANALYSIS:** SG: ring=machine process; post-1920 qt or pint. CL: Owens-type suction scar; OK on post-1920.

**G145** Brown curved glass sliver.  
**ANALYSIS:** SG/CL: modern beer.

**G146** Brown bottle curved body sherd w/vertical striations and mold seam.  
**ANALYSIS:** SG: modern beer. CL: odd notch/crack.

**G147** Brown bottle curved body sherd w/vertical striations and mold seam.  
**ANALYSIS:** SG/CL: modern beer.
G148  Clear glass mouth and shoulder sherd of jar or navigating light. 2
      horiz. ridges below mouth and vertical mold seam. 2 (h) X 2-3/4 X 1/4 (t)   E27


G149  Olive green bottle body sherd w/horiz. turn moldings and bubbles. 1
      end has kick. 4-1/8 (h) X 2-3/8 X 1 1/4 (t)   E28

ANALYSIS: SG: high kick, very thick=champagne. TAQ=1910.

G150  Brown bottle base sherd w/kick, horiz. striations around base. 1-3/8 (h) X 2-1/2 (diam) X 3/16 (t)   E28

ANALYSIS: SG: could be hock wine, 1880s. CL: too small for hock wine; German Rhine wine, 1865+. Poss. pontil.

G151  Amber curved bottle body sherd w/horiz. striations and bubbles. 1-1/2 (h) X 2-7/8 X 1 1/8 (t)   E28


G152  Green bottle neck sherd w/vertical striations and bubbles. 1-1/8 (h) X 1-1/8 X 1/8 (t)   E28

ANALYSIS: SG: 1890-1900 due to thickness. CL: bubbles, has seam, 2-3 piece vertical=1850-1890.

G153  Olive green bottle base frag. (base rim and part of kick). Surfaces abraded. 2-1/4 X 1-3/8 X 1 1/8 (t)   E28

ANALYSIS: SG: a maker’s fold=old. Spirits bottle (pint or qt [prob. pint]), 1880s/90s. CL: English.

G154  Clear, curved bottle shoulder sherd, v. abraded. Remnants of embossed lettering. 2-1/4 X 2-1/4 X 1 1/4 (t)   E28


G155  Concreted olive green bottle mouth. 5/8 (h) X 1-1/8 (od)   BB
ANALYSIS: SG: 19th century (pre-1880). CL: earlier than most glass on site.

**G156** Brown bottle shoulder sherd. 1-1/8 (h) X 2 X 1/8 (t) BB

ANALYSIS: SG: modern beer.

**G157** Olive green crude bottle body sherd; badly abraded. 1-3/4 X 1-1/4 X 1/8 (t) E27

ANALYSIS: SG: 1880-1900.

**2000**

N.B.: Steve Gould and Celeste Long reviewed 2000 glass recovered to date on 27/VII/00; their notes are on file.

**G158** Green glass bottle neck: partial lip and shoulder. Turn marks from mold. 6-3/8 X 3/16t E29 C.

ANALYSIS: SG: ?.


ANALYSIS: SG: Base of large (ca. 32-oz) soda bottle, made @ LA glass factory of Owens-Illinois Glass Co. Machine made; date code missing but 1930s-1940s. CL: Will check plant location & year & Co. product (refs @ home).

**G160** Clear glass bottle body sherd, curved inward @ bottom. Embossed: “...AS”, “SHOULDER”, “...ASON”. 3-3/4 X 2-1/2 X 3/16t E29 C.


**G161** Sliver of slightly curved brown bottle glass in 2 pieces. 3-5/8 X 15/16 X 1/8t E29 C.
ANALYSIS: SG: Prob. frag of post-WW2 beer bottle but slight chance of something older due to irregularities (glass leakage) along seam line. CL: machine-made amber beverage, prob. alcohol or beer.


ANALYSIS: SG: shoulder of clear glass cylindrical bottle. Heaviness=soda bottle; absence of bubbles=post 1920 period. CL: too waterworn to date.

G163 Brown flask body sherd; narrow side and partial base. C. 3-1/2 X 1-3/4 X 3/16 E29

ANALYSIS: SG: side frag. of whiskey flask-shaped amber bottle. No markings, not crude, prob. post-Prohibition (after 193?). CL: 2 piece mold, diagonal seam (will send date).


ANALYSIS: SG: Olive green frag. of early case gin bottle. Many bubbles. Somewhat thicker glass than the usual Barge gin bottles, so may be later but flow lines in glass along fractured edges seem to match those of confirmed wreck case gins already found. May be lower part of bottle and so a bit thicker. CL: Frag. is body corner; function product by dimensions available (?)?

G165 Brown bottle shoulder frag. Embossed partial symbol on 1 end (bird wing=Annheuser-Busch=Budware?). 3-5/8 X 1-1/4 X 1/8 E29

ANALYSIS: SG/CL: Budware. C.

G166 Brown bottle sholder frag, much as G165. C. 1-7/8 X 1-3/8 X 1/8 t E29

ANALYSIS: SG: amber frag. of modern no deposit/no return type “Budweiser,” beer. CL: machine made, can be dated exactly w/Anheuser embossment chronology—Toulouse 67 (?)?

ANALYSIS: Wreck period.

G168  Rectilinear piece of flat glass; 1 side smooth and 1 side textured. Smooth side has sandy blackish deposit. Two edges are straight and appear to be original. Mirror glass? C.

ANALYSIS: SG: Clear glass windowpane w/what appears to be deliberate texturizing effect on 1 side. Tiny seed bubbles. Prob. contemp w/wreck. Fancy, seemingly expensive type of windowpane. CL: texture needs to be looked at w/micro. Decorative w/diffusion of clarity function. Unsure of chron; need to check and test.

G169  Flat green glass sherd w/bubbles in matrix. Large inclusion cast into surface during molding. C.


G170  Brown bottle body sherd, abraded on exterior. C.

ANALYSIS: SG: frag. of amber thick-walled cylindrical bottle terminating at heel. Likely an old quart beer bottle. Poss. one small bubble; could be ca. 1900 but may be part of a 1930s Japanese machine made beer bottle. CL: no evidence for the latter conclusion. very waterworn—dimension comparison.

G171  Flat green glass sherd w/bubbles in matrix. C.


G172  Clear flat base sherd, abraded on exterior. Slightly curving edges suggests small perfume/medecine bottle. C.

ANALYSIS: SG: Thick-walled flat side of an apparent small rectangular bottle. No bubbles=post-1902. Prob. medecine or cosmetic
bottle. CL: Cologne or lotion, etc. Can compare contours in “The Medecine (or Patent) Bottle Book.”

G173  Translucent green bottle shoulder sherd, abraded on exterior. C  1-7/16 X 1-3/8 X 1/8t  E31


G174  Clear bottle body sherd, abraded on interior and exterior. C.  2-1/4 X 1-5/8 X 3/16t  E31

ANALYSIS: SG: clear glass thick walled side portion of bottle. Diam. of 1920s soda bottle; no bubbles or markings. CL: Diameters can be checked.

G175  Translucent diamond-shaped blue-green bottle body sherd. All surfaces abraded except 2 edges. C.  1-7/8 X 1-1/8 X 1/4t  E31


G176  Clear bottle body frag.—all surfaces abraded. C.  2-1/8 X 1-1/8 X 3/16t  E31

ANALYSIS: SG: side frag. of relatively thick-walled glass bottle. Very very pale aqua tint. Prob. side of soda bottle (1920s diameter). No marks. CL: too waterworn; dimensions could be compared.

G177  Green bottle neck: very smooth and symmetrical but bubble inclusions. Had cap, not cork. Thickened glass band encircles base of neck. C.  3 X 1-1/2 d X 3/16t  E31


G178  Green glass partial bottle base and body, w/bubble inclusions. No pontil, though bottle was square. In 3 pieces. C.  4 X 1-1/8 X 3/16 t  E32
**ANALYSIS:** SG: Olive green v. bubbly and thin-walled portion of shoulder and side of large case gin. Almost certainly contemp w/ wreck. CL: All case gins so far are dip-molded (mold=ENG?). Chron from features/dimensions.

**G179**
Green glass frag. w/bubble inclusions. Much thicker at one end than other=bottle base? C.

**ANALYSIS:** SG: Olive green side frag. of large gin bottle. Curvature of frag. suggests it came from just below shoulder. Quite heavy and thick compared to most of other wreck gin bottle frags. Prob. contemp w/ wreck. CL: Body frag; dimensions can be compared.

**G180**
Triangular green glass frag. w/numerous bubbles. C.

**ANALYSIS:** SG: olive green case gin bottle side frag. Consistent w/others found on site poss. dating to ca. 1824. CL: Dip molded, has bubbles; date will be forwarded to PFJ.

**G181**
Green glass bottle body sherd; curved. 2 Bubble inclusions. Side of thick-walled turnmold greenish-aqua bottle. C.

**ANALYSIS:** SG: Japanese soda/beer bottle ca. 1910. CL: color is greenish. Mfg. chron. prob. later; will check her data.

**G182**
Intact mouth, neck and partial shoulder of clear glass bottle w/mold seam. Part of one embossed letter is preserved (illegible). C.

**ANALYSIS:** SG: top and neck of machine made crown top beer bottle. Prob. recent. CL: Thickness+crude body+internal waving suggest fairly early machine made (1903-1930).

**G183**
Flat clear glass frag. w/portion of one original straight edge. One side flat, the other textured. Partial blackened surface on textured side. Mirror glass? C. See **G185, G188, G190, G191**.

**ANALYSIS:** scraping of black substance (mirroring?) transferred to Ron Cunningham of CAL for analysis, 21/XII/00.
G184  Rectangular green glass frag. w/2 finished edges (long sides). Ends broken.  3 X 7/8 X 1/16 t  E36
C.

ANALYSIS: SG: aqua windowpane frag., crude. Same technological level as G185. Believe contemp. w/wreck, but may be later. CL: Flat glass, light green, 2 mm thick (very patinated). Date available.

G185  Corner frag. of clear glass sheet; 1 side flat, the other textured. In 2 pieces.  4 X 2 X 1/32 t  E36
Mirror glass? C.

ANALYSIS: SG: thin windowpane glass. Very crude flint glass. Prob. a pane from a shipboard cabinet, contemp. w/wreck. CL: flat, v. thin, disintegrating v. rapidly, should be tested. Don’t believe a shipboard pane; maybe a decoed box scene pane cover. Thinness questionable for period-with this surface-type of glass will clear up or narrow (?). See G183, G184, G188, G190, G191.

G186  Light green glass disk, flat on 1 surface and convex on other. Beveled edge (ground?) bet. 2 surfaces. Convex surface is textured (from casting process?) w/circular dots in it. Two chips on convex side; two large chips on flat side. C/JPEG.

ANALYSIS: Deck light. See the biblio furnished by Crisman, filed under “Ceramics & Glass.” This might have been one of the innovations on the Barge, as the idea had only been patented a few years before her 1816 construction date. Wayne Smith treated it 21-22/VIII/03 with MTMS to consolidate the largest voids, then SFD5 silicon oil to create an optical bridge in voids, then set and cleaned these areas with MTMS.

G187  Aqua bottle mouth, neck and partial shoulder frag. w/opposed holes at mouth for wire bail on rim. Small bubble inclusions. C.

ANALYSIS: Modern?

G188  Eight flat green glass frags., textured on 1 side and smooth on the other.  Miscellaneous E37
Remnants of black residue on surface of two pieces. Some have original edges.
C.

ANALYSIS: Mirror glass? See G183, G185, G190, G191.
G189  17 sherds of green glass, v. thin, a few w/original edges. C.   Miscellaneous   E37

TREATMENT/ANALYSIS: Wayne Smith (WS) and Helen de Jong came in 21-22/VIII/03: Wayne treated G189-91 w/MTMS consolidation. WS thinks that white coating is oxidized (i.e. dead) glass, as the white also appears on edges and in crevices. WS: the black is probably mirroring.

G190  Nine pieces of clear glass, textured 1 side and smooth the other. 3 have black deposits on textured sides. C.   Miscellaneous   E37

ANALYSIS: Mirror glass? See G183, G185, G188, G191.

G191  Three pieces of clear, flat glass w/powdery coating both sides. V. thin. Two have black surface deposits. C.   Miscellaneous   E37

ANALYSIS: Mirror glass? See G183, G185, G188, G190.

G192  One piece clear, thin glass, smooth both sides and irridised. C.   1-7/8 X 3/4   E37

G193  Intact, green glass bottle w/mold folds and bubble inclusions. Thick base. Surface sand-abraded. Tapers to base (=shoulder widest point). C.   9-1/2 X 2-1/2   E38

HULL SHEATHING (HS)

HS001  Section of copper hull sheathing w/9 (visible) nails in situ; nail holes also preserved along perimeter. Crumpled and twisted (accordioned on one edge). Extremely fragile and delicate. Some copper corrosion evident within lightly concreted sand on surface. XRF: ±97-98% copper; ±1.8-2% calcium (carbonate—from surface deposit); ±0.05 lead (i.e. trace amount prob. from orig. ore). C. Campbell: from same batch as HS2. C/BW/XRF.   30 X 12 X 5 (H)   RT1A

HS002  Section of flat copper hull sheathing w/27 nail holes on 3 sides. Two   18 X 4 X 3   RT1A
corners bent under (on opposite sides). XRF: ±97-98% copper; ±1.8-2%
calium (carbonate—from surface deposit); ±0.05 lead (i.e. trace amount
prob. from orig. ore). C. Campbell: from same batch as HS1. C/BW/XRF.

HS003 Section of copper hull sheathing with nail holes on 3 sides; one nail
remains attached. Slightly crumpled. XRF: ±98-99% copper; ±1-2% lead;
±0.5-1% iron; no calcium detected. C. Campbell: different from HS1-2;
same as HS4. XRD/SEM of corrosion yielded copper chloride hydroxide.
XR/C/BW/XRF/XRD/SEM.

HS004 Section of copper hull sheathing with nail holes on 3 sides. Fourth
side torn along edge. Stamped on lower right corner: “W&G/G 24”.
Flattened, the sheathing piece measures 14 in. long. XRF: 98-99% copper;
0.5-1% lead and iron (each); arsenic trace. C. Campbell: same batch/source
as HS3. XR/C/BW/JPG /XRF/SEM.

The stamp is traced to the Liverpool (England) copper merchants Williams & Grenfell. G 24=24 gauge (24 oz./ft²). This particular
weight indicates use amidships for the type, size and date of ship; usually, heavier gauge (28 or 26) would have been used at bow and stern. Cf. Erik A.R. Ronnberg, Jr., “The Coppering of 19th Century American Merchant Ships,” Nautical Research Journal 26.3: 125-148;

HS005 Section of copper hull sheathing with several holes (no nail holes
evident). Very crumpled, fragile and in poor condition; appears
thinner than other samples recovered. In two pieces, one of which
was photographed as HS6A (incorrectly). One fragment from same batch
as HS1-2; the other from same batch as HS3-4. HS6A: BW. XRF.

HS006 19 small fragments of copper hull sheathing, fallen off bigger sections.

HS007 Section of copper hull sheathing; none of the numerous holes
are attributable to fasteners. All edges are irregular—none are straight, indicating it is from the interior of a larger piece. XRF: 98-99% copper; Campbell: same source as HS1-2. BW/XRF.

**HS008** 5 small fragments of copper hull sheathing. BW.

**HS009** Section of copper hull sheathing with one original straight edge; 36\(\frac{3}{4}\) X 3\(\frac{5}{8}\) X 3\(\frac{3}{16}\). BB

**HS010** Long, triangular piece of copper hull sheathing, with nail holes on all 4 sides (i.e. intact). XRF & Campbell: same batch/source as HS1-2. RT1C

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1996

**HS011** Three long, narrow strips of copper hs; two are folded over (bifold); all have at least one original edge. They appear folded over for reuse, but the reuse nature is unknown. Scrap for melting down? BW.

**HS012** Nine small strips of folded-over hs, like fragments of the longer pieces in HS11. Miscellaneous sizes. BW.

**HS013** Large piece of copper hs w/one original corner preserved. Mostly flat; only slightly crumpled. BW.

**HS014** Three small frags of highly corroded copper hs, much like HS9 (from 1995). BW.
| HS015 | Piece of relatively thick, accordioned copper hs. BW. | 18 X 4 | E8 |
| HS016 | Piece of folded copper hs, thinner gauge than HS15. BW. | 17 X 4\(\frac{1}{2}\) | E8 |
| HS017 | Three small frags. of copper hs; one accordioned piece has bifold w/black contents. BW. | Miscellaneous | E8 |
| HS018 | Folded section of copper hs. No original edges visible; one folded end is rounded (i.e. reworked). C/BW. | 9\(\frac{3}{4}\) X 3\(\frac{3}{4}\) | E9 |
| HS019 | Crumpled, twisted and bent piece of copper hs; no original edges. BW. | 9 X 3\(\frac{1}{2}\) | E10 |
| HS020 | Six small frags. of corroded copper hs. BW. | Miscellaneous | E10 |
| HS021 | Five small frags. of copper hs, two w/fastener holes. BW. | Miscellaneous | E11 |
| HS022 | Folded piece of corroded copper hs w/one nail. | 9\(\frac{1}{4}\) X 4\(\frac{1}{2}\) | E12 |
| HS023 | Section of copper hs w/one edge folded over. Miscellaneous fastener holes preserved. BW. | 13\(\frac{1}{4}\) X 7\(\frac{1}{4}\) | E12 |
| HS024 | Folded piece of copper hs w/one original end (14 in) and parts of two long edges preserved. Surface heavily corroded. BW. | 13\(\frac{1}{2}\) X 6\(\frac{1}{4}\) X 2\(\frac{1}{2}\) (H) | E12 |
| HS025 | Small section of copper hs; surface encrusted and heavily corroded. In two pieces. | X X | E12 |
| HS026 | Small piece of hs, bent and twisted into tube; surface highly corroded. BW. | 2\(\frac{1}{4}\) X 1\(\frac{1}{2}\) X 1\(\frac{1}{4}\) | E13 |
HS027  Six folded over and heavily corroded pieces of hs; largest measures:  
       BW.  
       $2\frac{3}{4} \times 3 \times \frac{1}{2}$  
       E13

HS028  Heavily crinkled piece of hs; green brassy color. W/additional piece.  
       BW.  
       $6\frac{3}{4} \times 1\frac{3}{4} \times 1\frac{1}{4}$  
       E12

HS029  Bent and folded piece of hs, black color, w/iron nail in situ. BW.  
       $2\frac{3}{4} \times 1\frac{3}{4} \times \frac{1}{4}$  
       E12

HS030  Large piece of hs w/at least two original edges preserved; 11 nail holes  
       and one nail visible. Corrosion product adhering in places. C/BW.  
       $19\frac{1}{2} \times 12\frac{1}{2}$  
       E12

HS031  Sizeable piece of hs w/corrosion product adhering to surface. BW.  
       $10 \times 3\frac{3}{4}$  
       E12

HS032  Small amorphous frag. of bent hs. BW.  
       $1\frac{5}{8} \times \frac{1}{2}$  
       E12

HS033  Folded piece of hs w/at least 8 nail holes visible; corrosion product  
       adhering. C/BW.  
       $14 \times 8$  
       E12

HS034  Heavily corroded frag. of hs. BW.  
       $7\frac{1}{2} \times 2\frac{1}{4}$  
       E12

HS035  Large section of hs in two pieces; very little original metal preserved.  
       Coral adhering to surface. Con. w/$3/8$-in square fastener hole and  
       $1/2$-in round fastener hole attached. BW.  
       (a) $16\frac{1}{2} \times 6\frac{3}{4}$  
       (b) $14\frac{1}{2} \times 6\frac{1}{2}$  
       E14

HS36   Highly corroded piece of folded over and bent hs. BW.  
       $5\frac{7}{8} \times 3$  
       E14

HS037  Folded and crumpled piece of hs w/little original metal; 3 fastener  
       holes visible. BW.  
       $9\frac{7}{8} \times 6\frac{1}{4}$  
       E14
HS038  Heavily corroded and concreted frag. of hs. BW.  
      5 X 2³/₈  
      E14

HS039  Section of folded and crumpled hs in 2 pieces; 2 fastener holes visible.  
      Surface heavily corroded w/wood frags., coral, sand and gourd attached.  
      BW.  
      (a) 9 X 7³/₄  
      (b) 4⁵/₈ X 2¹/₂  
      E14

HS040  Heavily corroded and crumpled frag. of hs in 2 pieces: (a) has ³/₈-in.  
      square fastener con. w/ nail holes present; (b) nail holes and orig.  
      metal visible on 1 corner. BW.  
      (a) 11¹/₂ X 5 X 1¹/₂ (h)  
      (b) 11¹/₂ X 7¹/₂ X 2⁵/₈ (h)  
      E14

HS041  Twisted and bent hs; corroded and concreted, w/bits of coral and wood  
      attached. Ring Deposit (see B21). BW.  
      3 X 2  
      E14

HS042  Miscellaneous scraps of hs, found at bottom of shipping containers. BW.  
      Miscellaneous  
      E12–14

HS043  Piece of corroded copper sheathing; no orig. metal visible. BW.  
      3 X 1¹/₂ X ¹/₄  
      E13

HS044  Corrosion product prob. from hull sheathing. Unusual cobalt blue  
      color like that on C24 (copper nail). BW.  
      3¹/₂ X 1¹/₂ X <¹/₄  
      E12

1998

HS045  Flat section of corroded hs w/2 raised lumps/bumps protruding from  
      surface. Lettered: “...L..SA.../4  C”. Disintegrated almost entirely in  
      desalination. C.  
      4-1/2 X 2 X 1-5/8  
      E15

HS046  Corroded piece of hs w/1 end twisted up and over itself. C.  
      4-1/2 X 2-3/8 X 1-1/2  
      E15

HS047  Flat piece of hs w/both edges turned up. Orig. copper color; in good  
      condition. C.  
      5-3/4 X 1-7/8 X 1  
      E15
<p>| HS048  | Flattened piece of hs, bent into layers. C. | 5-1/4 X 1 X 1-1/4 | E15 |
| HS049  | Folded piece of hs w/corroded surface. C. | 3-1/2 X 1-7/8 X 3/8 (t) | E15 |
| HS050  | Bent, crumpled piece of hs; surface partly corroded. C. | 14-1/4 X 5-1/2 | E16 |
| HS051  | Folded piece of hs w/2 visible nail holes; 1 surface concreted, the other corroded. C. | 3-1/2 X 3-1/4 | E16 |
| HS052  | Small hs frag. w/o nail holes. C. | 1-3/4 X 1-1/4 | E16 |
| HS053  | Rectangular piece of hs; surface partially corroded and concreted. C. | 5-1/2 X 3 | E17 |
| HS054  | Bent and folded-thin, narrow piece of hs; surface concreted. C. | 15 (ca.) X 3-1/4 | E17 |
| HS055  | Torn and compacted piece of hs w/nail holes and concreted surface. C. | 16-1/2 X 5-1/2 | E17 |
| HS056  | Crumpled corner of hs w/nail holes visible. Surface partly corroded. C. | 5-1/4 X 2-3/4 | E16 |
| HS057  | Small folded hs frag. w/1 nail hole. C. | 3 X 1-3/8 | E16 |
| HS058  | Long, flattened section of hs w/some surface pleating. Covered w/sand concretion and corrosion product. C. | 21-3/4 X 10-3/4 | E16 |
| HS059  | Corner frag. of hs w/3 nail holes. C. | 4 X 2-1/2 | E18 |
| HS060  | Decayed, crumpled and folded piece of hs w/surface corrosion. C. | 10-1/4 X 9 | E18 |
| HS061  | Two small hs frags., bent and twisted. One seems of heavier gauge. C. | Misc. | E19 |
| HS062  | Triangular hs patch w/nail holes on all 3 edges and in center. C. | 4 X 4-1/4 X 5-1/2 | E19 |</p>
<table>
<thead>
<tr>
<th>HS063</th>
<th>Small, folded frag. of hs w/concreted surface. C.</th>
<th>1-7/8 X 7/8 X 3/8 (t)</th>
<th>E19</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS064</td>
<td>Crumpled, torn frag. of hs w/no visible edges. C.</td>
<td>4-1/4 X 2-3/8</td>
<td>E19</td>
</tr>
<tr>
<td>HS065</td>
<td>Small, crumpled and concreted hs frag. C.</td>
<td>2-7/8 X 1-1/2</td>
<td>E19</td>
</tr>
<tr>
<td>HS066</td>
<td>Bent-over strip of hs w/part of 1 edge. C.</td>
<td>8-3/4 X 2-1/2</td>
<td>E17</td>
</tr>
<tr>
<td>HS067</td>
<td>Small, crumpled piece of hs w/1 nail hole visible. C.</td>
<td>2-1/2 X 2 X 3/4</td>
<td>E17</td>
</tr>
<tr>
<td>HS068</td>
<td>Small, crumpled frag. of hs. C.</td>
<td>2-3/4 X 7/8</td>
<td>E17</td>
</tr>
<tr>
<td>HS069</td>
<td>Crumpled, folded and flattened frag. of hs; some sharp and jagged edges. C.</td>
<td>3-3/4 X 7/8</td>
<td>E19</td>
</tr>
<tr>
<td>HS070</td>
<td>Hs frag. w/1 orig. edge; no definite nail holes. C.</td>
<td></td>
<td>E20</td>
</tr>
<tr>
<td>HS071</td>
<td>End piece of hs w/sides and 1 nail preserved; crumpled and bent. C.</td>
<td>5 (L) X 14 (w)</td>
<td>E21</td>
</tr>
<tr>
<td>HS072</td>
<td>Crumpled and twisted piece of hs w/corroded surface and 1 concreted end. C.</td>
<td>10-3/4 X 3-1/4</td>
<td>E23</td>
</tr>
<tr>
<td>HS073</td>
<td>Torn and battered piece of hs; 1 orig. edge (no nail holes). One edge slightly concreted. C.</td>
<td>7 X 3-3/4</td>
<td>E24</td>
</tr>
<tr>
<td>HS074</td>
<td>Bent, folded and torn hs frag.; no orig. edges/nail holes. C.</td>
<td>6 X 2-3/4</td>
<td>E24</td>
</tr>
<tr>
<td>HS075</td>
<td>Intact piece of hs, folded over once and w/bent corners and edges. Orig. measured 14 X 48. C.</td>
<td>2’ 4-1/4” X 1’7-1/4”</td>
<td>E23</td>
</tr>
<tr>
<td>HS076</td>
<td>Nearly intact piece of hs, folded over lengthwise into a long. narrow strip. C.</td>
<td>3’6” X 8”</td>
<td>E24</td>
</tr>
<tr>
<td>HS077</td>
<td>Bent, twisted and torn hs frag.; no holes/orig. edges preserved. C.</td>
<td>7-1/2 X 5-1/2</td>
<td>E25</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------</td>
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</tr>
<tr>
<td>HS078</td>
<td>Folded and crumpled hs frag.; 2 orig. sides and 1 nail preserved. C.</td>
<td>14-1/4 X 10-1/2</td>
<td>E26</td>
</tr>
<tr>
<td>HS079</td>
<td>Folded, heavily corroded and concreted piece of hs; no holes/edges visible. C.</td>
<td>7-1/8 X 3-1/4 X 3/8 (t)</td>
<td>E27</td>
</tr>
<tr>
<td>HS080</td>
<td>Folded, heavily corroded and concreted piece of hs; 1 orig. corner visible. C.</td>
<td>11-1/2 X 4 X 3/4</td>
<td>E27</td>
</tr>
<tr>
<td>HS081</td>
<td>Small piece of corroded and worn hs. C.</td>
<td>6-1/8 X 1-3/4</td>
<td>E27</td>
</tr>
<tr>
<td>HS082</td>
<td>Small hs frag.; no holes/edges/corners. C.</td>
<td>2-1/2 X 1-3/8</td>
<td>E27</td>
</tr>
<tr>
<td>HS083</td>
<td>Worn, torn and crumpled hs frag.; no holes/edges/corners. C.</td>
<td>9-3/4 X 8</td>
<td>E27</td>
</tr>
<tr>
<td>HS084</td>
<td>Folded and corroded piece of hs; 1 orig. edge w/nail holes. C.</td>
<td>15-1/2 X 7-1/4</td>
<td>E27</td>
</tr>
<tr>
<td>HS085</td>
<td>Hs frag. w/1 orig. edge and numerous nail holes. C.</td>
<td>7 X 5-5/8</td>
<td>E27</td>
</tr>
<tr>
<td>HS086</td>
<td>Torn strip of hs; no holes/edges/corners. C.</td>
<td>6 X 1</td>
<td>E27</td>
</tr>
<tr>
<td>HS087</td>
<td>Crumpled, torn and corroded strip of hs w/1 orig. edge and nail holes. C.</td>
<td>7-1/2 X 1-3/4 X 3/8</td>
<td>E28</td>
</tr>
</tbody>
</table>

**2000**

| HS088  | Folded piece of hs w/1 visible nail hole. C. | 7 X 2-3/4 X 7/8 t | E29 |
| HS089  | Corner frag. of hs w/2 nail holes. C. | 3-5/16 X 1-1/8 | E29 |
| HS090  | Frag. of thin hs; part of 1 orig. edge preserved. Many holes. C. | 8 X 6 | E31 |
| HS091 | Wrinkled, fragile hs frag. w/2 holes. C. | 5 X 5 | E31 |
| HS092 | Intact hs gore piece (1 small corner missing); triangular to a point. C. | 27 X 5-1/2 | E32 |
| HS093 | Small frag. of hs w/1 orig. edge and 2 fastener holes. C. | 7 X 4-1/4 | E33 |
| HS094 | Small frag. of concreted hs. C. | 2-3/8 X 1-3/16 | E33 |
| HS095 | Bent, twisted and folded section of hs w/orig. edges; one edge appears to be rounded. All edges may be original. C. | 17-3/4 X 8 | E33 |
| HS096 | Large pleated section of hs w/1 orig. corner; surface concreted. C. | 23-1/2 X 9 | E33 |
| HS097 | Large crumpled and folded piece of hs, w/1 orig. edge. C. | 19-3/4 X 9-3/4 | E37 |
| HS098 | Long, crumpled (pleated) piece of hs w/most of all edges intact. Stamped “W&G/G24”. Five copper nails visible. Shipped separately in cardboard (arrived). C/JPG. | 48-1/2 X 7-1/2 | E38 |
| HS099 | Crumpled and folded corner of hs stamped “W&G/[...]24”; the “G” prob. preceding the “24” is eradicated by a nail hole. C. | 8-1/2 X 4-3/4 | E38 |
| HS100 | Folded frag. of hs w/2 orig. edges. C/JPG. | 8-3/4 X 3-1/4 | E40 |

**LEAD (L)**

The two bigger pieces of lead patching (L1 and L2) were left with Emil Joel of CAL for lead isotopic analysis II/96.

<table>
<thead>
<tr>
<th>L1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheet of lead, probably patching material or lead apron or touch hole cover (for cannon). One edge rolled over; one straight edge is visible.</td>
</tr>
<tr>
<td>CAL 25/IX/95 Three crease/wear holes visible; surface in good condition and largely uncorroded. Appears unused. XRF: &gt;99% lead; calcium carbonate (aragonite)</td>
</tr>
</tbody>
</table>
on surface prob. shellfish deposit. Does not match L2. XR/C/BW/XRF/SEM.


L2 Sheet of lead, probably patching material or lead apron or touch hole 9¹/₂ X 7 X 1³/₄ (H) X ³/₃₂ (T) BB
CAL cover (for cannon). Folded almost in half; two holes visible. Surface orig. 16-3/₄ X 7
25/IX/95 in good condition and largely uncorroded. Appears unused. XRF: ±95% lead;
±1-3% copper; ±1-2% calcium carbonate (aragonite) prob. =surface shellfish deposit.
Different batch/source from L1. XR/C/BW/XRF/SEM. Drawing by TGO VIII/96.

ANALYSIS: See Waterline: The Newsletter of the North Carolina Maritime Museum 22.4 (December 1997) 1. See also L19.

L3 Fragment of lead sheet, probably patching material. Folded over 2¹/₂ X 1 X ³/₄ (H) BB
diagonally. Surface in good condition and largely uncorroded.
Appears unused.

L4 Two small fragments of lead sheet; one is folded over with surface Folded: 1¹/₂ X 1¹/₆ X >1/₁₆ (T) BB
in good condition; flat fragment has sand concreted on surface. Folded Flat: 1¹/₂ X 1¹/₄ X ¹/₄ (T)
piece is in several fragments (disintegrated during photography). BW.

L5 Folded scrap of thin lead sheet; no original edges or fastener holes. BW. 5 X 1³/₄ X <₁/₁₆ (T) E10

1996

L6 Three lead musket balls concreted together. BW. 2¹/₈ X 7/₈ X ⁵/₈ (ball diam) E12
>CAL N.B.: two more musket balls were found in the coolers; they had not
18/IX/97 been seen or cataloged earlier, so they were added to L6. Their findspot
is unknown. BW. The group of three >CAL 18/IX/97.

ANALYSIS: see similar examples, nicely analyzed, from the late 18c. European Boca Chica wreck; see NHC U/W Branch, The Boca
L7  Short section of lead pipe surrounded by wood pipe. Wood pipe is heavily impregnated w/corrosion product, rendering it hard. BW.

LOA: 1 3/4; lead pipe OD: 5/8 E12
lead pipe ID: 3/8; wall T: 1/8
wood tube OD: 1 1/4 E12

ANALYSIS: For an account of the Barge plumbing, see B.W. Crowninshield, *EIHC* XXV (1888) 112 and F.B. Crowninshield, 1913: 214-15, citing the *Diario di Roma*, published at Rome in August 1817 and reprinted in the *Essex Register*, Oct. 11, 1817: “...Near was another apartment, which admitted all the offices of a kitchen, and in it was a pump with three tubes, which passed through the vessel, to supply water from the sea, or discharge what they pleased, with the greatest ease.” See also MISC56 for a pump valve.

L8  Section of lead pipe crimped closed at both ends and bent in the middle. Surface corroded. Probably carried as scrap, since both ends were crimped. C/BW. Sent to CAL 18/IX/97.

18 1/8 X ±1 1/4 (orig. diam) E12
X ±1/16 (wall T)

ANALYSIS: This may have been a section of lead pipe deliberately crimped at both ends to serve as a rough lead line. The U/W Archaeology collections in the u/w lab at the NMAH has an uncataloged example of such a piece, virtually identical to the crimped pieces of lead pipe from the Barge.

L9  Lead musket ball. BW.

1/2 (diam) E12

L10 Lead musket ball w/concreted surface. BW.

3/4 (w/con) E12

L11 15 lead musket balls in two sizes; one ball has molded seam.
Two similarly-sized pebbles were retained from the same deposit.
Ring Deposit (see B21). C/BW.

Large: 3/4 (diam) E12
Small: 9/16 (diam)

L12 Lead musket ball found w/several small rounded pebbles of

9/16 (diam) E12
similar size (6 included w/this find). C/BW.

L13  Lead musket ball; one side slightly concreted. BW.  

L14  Seven lead musket balls. Ring Deposit (see B21). BW.  

L15  Lead “X”, crumpled and bent. Two headed nails (copper?) still attached on one cross bar. Five nail holes in top and bottom cross bars; 1 through center intersection of “X”. C/BW.

ANALYSIS: So-called Queen Anne’s Revenge of 1718 (Blackbeard’s flagship) also has a draft mark, as does 1761 wreck of Auguste (an “IX” or “XI”). For the latter, see National Historic Sites/Park Service, The Wreck of the Auguste (Minister of the Environment, 1992) p. 56.

L16  Small, crumpled frag. of lead. Ring Deposit (see B21). BW.

L17  Long section of lead pipe w/longitudinal seam, joint and another horiz. seam. Both ends broken off. C.

1998

L18  Intact lead draft mark, bent and twisted; 1 nail still attached in a fold. “XI” or “IX”. Prob. “IX” (see below). C/drawing by TGO, III/99.

ANALYSIS: Tom Ormsby / PFJ, 18/III/99: When oriented in the “IX” position, the nail hole impressions in the soft lead point slightly downwards, as one would expect to see generally. The ship drew 11-1/2 ft.; if an “XI”, it would be almost impossible to nail upwards with only 6 in. of clearance for the hammer swing. So-called Queen Anne’s Revenge of 1718 (Blackbeard’s flagship) also has a draft mark, as does 1761 wreck of Auguste (an “IX” or “XI”). For the latter, see National Historic Sites/Park Service, The Wreck of the Auguste (Minister of the Environment, 1992) p. 56.

L19  Squared piece of lead w/1 scalloped edge, 2 holes on each side and square molded impression on side opp. scalloping. Cannon apron/touch hole
cover. C.

**ANALYSIS:** So-called *Queen Anne’s Revenge* of 1718 (Blackbeard’s flagship) also has a cannon apron, less ornate/detailed. See also L2. KS: the scalloped teeth are chisel-cut, and the welded joint joining the two pieces is very visible.

**L20** Section of lead pipe; 1 end flattened, the other discolored and pinched closed. C. 11 X 1-1/2 E18

**L21** Bent and twisted section of lead pipe w/longitudinal and transverse seams (welded/braised?). C. 10-3/4 X 2 E19

**ANALYSIS:** The ends of this sample were carefully pried open with a wooden dowel by William Worthington and PFJ on 13/II/03 to inspect the interior seams and welds. This inspection revealed that the transverse overlap join was secured with a round rivet.

**L22** Triangular scrap of lead—scrap? C. 12 X 1-3/4 X 1/16 E19

**L23** Bent, twisted, crumpled and torn lead sheet w/2 holes visible (for nails?). Patch? C. 7-3/4 X 5-1/2 E19

**L24** Section of lead pipe w/1 crimped end and longitudinal seam; other end bent under. C. 2-1/2 X 1-3/8 E19

**L25** Round lead “biscuit” ingot; sand cast. Basal surface smooth; upper surface rough. C. 3-1/2 X 3/8 (t) E19

**L26** Lead musket ball. C. 7/16 (diam) E19

**L27** Tapered triangular strip of lead, crumpled and bent, tapering to point. No holes. C. 15-1/2 X 2-3/8 X 1/8 E19

**L28** Lead musket ball w/seam. C. 7/16 (diam) E22
L29 Large, thick lead patch w/fastener holes along 3 edges; 4th edge is straight but has no fastener holes. Bent and folded; larger fastener hole is in approx. center. C. 15-3/4 X 6-3/4 X 1/4 (t)  E22

ANALYSIS: KS: possibly the bottom of a sink? PFJ: not likely, as the dimensions are rectangular and there does not appear to be any dishing.

L30 Intact lead draft mark “VI”, crumpled and twisted. Both numbers are broken from cross bar. Broken into 2 pieces in lab. C. 5-7/8 X 4-1/4  E23

ANALYSIS: So-called Queen Anne’s Revenge of 1718 (Blackbeard’s flagship) also has a draft mark, as does 1761 wreck of Auguste (“IX” or “XI”). For the latter, see National Historic Sites/Park Service, The Wreck of the Auguste (Minister of the Environment, 1992) p. 56.

2000

L31 Folded section of lead strip—scrap/strap? C. 3-1/4 X 2-1/2 X 1/8 t  E32

L32 Six musket balls in four sizes. C. 11/16(2), 5/8(3), 9/16(1),1/2(1)  E34

L33 Lead flange, partially crushed but apparently square on inner and outer edge. 5 fastener holes visible. C. 5-1/4 X 4 X 1-3/4h  E36

L34 Amorphous bent and twisted piece of lead sheet—patch or raw material for musket balls? C. 6-1/4 X 4 X 3  E37

L35 Long, twisted section of lead pipe, flattened, Braise lines visible along and across section. Orig, length ca. 44 in. X ca. 1 in diam (now flattened). C. ca. 44 in. X ca. 1 in diam  E38

L36 Short section of lead pipe w/longitudinal braise line. C. 7-1/2 X 1/8t  E38

L37 tapered wedge-shaped strip of lead; no nail holes visible. Scrap for recycling? C. 4-1/2 X 3 X 1/16t  E38
L38    Folded lead sheet w/4 orig. edges; 1 corner folded over. C. 4-1/2 X 3-3/4 E38
L39    Thick lead tube w/flared ends. Wooden/leather plug @ end, which also 8-1/4 X 3-1/4 od X 1-7/8 id X 5/8 t E38
        has impression of small square fastener. Poss. scupper/overboard discharge tube. Prob cast? Not hawsehole or hawsepippe as no internal wear. Weight: 6.88 lbs. C.

MISCELLANEOUS (MISC)

N.B. This material is all modern, intrusive or does not fit any of the above artifact categories, unless otherwise specified

MISC1 Modern/intrusive material:

SHPO  a) Asphalt roof shingle frag. (from Iniki?). BW. BB
     b) Brown beer bottle neck. BB
     c) Brown beer bottle base w/writing. BB
     d) Green bottle body sherd. BB
     e) Bottle shoulder frag. of clear/aqua blue glass w/inclusions. BB
     f) Casio dive watch (broken). BW. BB
     g) Coke bottle, 6 oz., w/minor coral concretion on exterior. BW. REEF
     h) Stainless steel (?) dive mask band (?). BW. BB
     i) Concreted bottle cap. BB
     j) Overlapping asphalt roof shingle frag. (from Iniki?). BW. RT1C
     k) Thick green-glass bottle base frag. w/writing on base. RT1C
     l) Surf board skeg. BW. REEF
     m) Bottle base of aqua glass; oriental glyphs and pix on bottom. C/BW. RT1C

MISC2 Short section of multiple-strand fiber rope; v. fragile. C/BW. 3 X 1/2 BB

TREATMENT/ANALYSIS: Mel Wachowiak, pers. comm., 8/X/96: Non-wood plant fiber; rope strands unidentifiable. They exhibit no birefrigence in polarized light, indicating that the cell walls are nearly decomposed; lack of cellular detail makes ID impossible. Sent half to TAMU 23/III/98; remainder too degraded to conserve (stored in ethanol). Returned from TAMU 14/X/99. Dehydrated in 2 acetone baths; placed in silicon oil (2 pieces fell off). Removed from oil after 2 weeks, cleaned in MTM and bagged with catalyst. See
TAMU file **MISC2**.

**MISC3**  Short section of multiple-strand fiber rope; v. fragile. C/BW.  
Strands unravelled.

**ANALYSIS:** Mel Wachowiak, pers. comm., 8/X/96: Non-wood plant fiber; rope strands unidentifiable. They exhibit no birefrigence in polarized light, indicating that the cell walls are nearly decomposed; lack of cellular detail makes ID impossible. Stored in ethanol.

**1996**

**MISC4**  
(a) Amber glass sherd embossed: “...ILLE...” (MILLER?). BW.  
(b) Triangular lava stone w/worked hole (from both sides). Reef anchor or fishing net weight. C/BW.

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: too large for net weight=canoe anchor. See Bennett, *ArchKauai: 74ff*: Sinkers (inc. large ones).

(c) Modern beer bottle glass frag., molded, with “ON” embossed and a pebbled, non-slip surface band on shoulder. BW.  
(d) Semi-crescent lead fishing sinker; double-eye, molded. BW.

(e) Amber beer bottle shoulder frag., embossed: “...DEPOSIT *N...” BW.  
(f) Amber beer bottle shoulder frag., embossed “...URN...” BW.  
(g) Amber glass bottle base frag., embossed: “QUART 43”. BW.  
(h) Silver automobile hub cap, crushed and bent. BW.

(i) Amber glass bottle frag. w/mold seam. BW.  
(j) Amber bottle glass frag. BW.  
(k) Amber glass beer bottle base. Stippled non-slip ring around bottom, embossed :”656 NW 69 F1”. BW.  
(l) Amber beer bottle base frag., embossed: “4”. BW.
MISC5  Wooden block w/leather-covered rope strap. Rope wrapped around intact sheave. Partially teredo-ridden but in generally good condition. C/BW. 8 X 6 X 5 E10

TREATMENT: Sent to TAMU on 25/II/97; returned 14/X/99. Freshwater soak and rinse; x-rays taken; rinsed in water )3 wks =156 ppm); acetone dehydrated. in crosslinker/acetone exchange (a) w/vacuum; (b) passive. Scribe off concretion; drain excess oils and wipe surfaces w/MTM; DBTDA caty[lyst]. Heavily coated in conservation, and considerable shrinkage/collapsing of wood structure (due to acetone dewatering?). Sheave has triangular metal inlay on 1 side, pin axle on other. Sheave: 4 X 7/8 (th). One half of block shell preserved w/leather-covered rope; other half extant but broken in 2 pieces that do not fit together. Rope from broken side is broken off main assembly. Has shiny/weeping external surface (adhesive/catalyst?). This block was pretty much destroyed in the conservation process. See TAMU file MISC5.

MISC6  Fragmentary gourd (?) bowl, w/five inches of original lip preserved. In three pieces; originally very large and shallow. C/BW. 11 X 7 X 5 E12

TREATMENT: Sent to TAMU on 25/II/97; returned 27/VII/02. Chemical dehydration with 50% DiH2O & 50% ethanol, then 100% ethanol, then 50/50 ethanol/acetone, then 100% acetone, then submerged in 60% silicon oilSFF.1/40% MTMS solution. Drained and catalyzed w/TPT Titanate 3 X 15. TAMU: Results=good; PFJ: results =terrible. It came back in many pieces, all curled up, and unreconstructed. It does not look like there are enough pieces to put it back together into anything resembling its original form. See TAMU File MISC6.

ANALYSIS: Adrienne Kaeppler: prob. a poi bowl.

MISC7  Fragmentary piece of leather, finished on three edges. Fourth edge is torn. Two opposing edges have stitch holes; spacing on one is 1 inch between holes; on other is 3/4 inch bet. stitch holes. Finished (outer) surface is cracking. Chafing gear? C/BW. 5 1/2 X 5 1/8 X 3 3/16 (T) E12

TREATMENT: Sent to TAMU on 25/II/97; returned 12/V/98. Photographed. Treated with ethanol, acetone, vacuum and then a mix of SFD-1 silicon oil and 4% methyltrimethoxysilane cross-linking agent. Then vacuum again, and a topical tin catalyst applied (DBTDA). White film that developed was eliminated with combination of acetone and MTM to affected areas. See TAMU file MISC7.
Photographed (C) post-conservation.

**MISC8** Intact long leather piece, twisted in the middle. Ends are cut; one has beveled edge w/tool marks visible. Long edges have stitch holes. Inner hide surface has rough surface; outer surface is finished smooth. Poss. traces of red pigment (paint?) on both surfaces. Cow hide? Chafing gear? C/BW/SEM/XRD.

**ANALYSIS/TREATMENT:** CAL paint scientist Ron Cunningham took samples of the red pigment on 17/1/97 for analysis; compound is identified as red mercuric oxide pigment, or vermilion: one of the oldest synthesized pigments. See Roland H. Cunningham report CAL #5556 of 31/VI/97 detailing analysis. Sent to TAMU on 25/II/97; returned 14/X/99. Rinsed in tap>deionozed water; very low salts. dehydrated in alcohol after testing orange pigment for colorfastness. Placed in silicon oil vat w/crosslinker; vacuum of 10 Lg (?) applied. Surface wiped w/cloth; catalyst applied (DBTDA); surface wiped and polished. “No shrinkage/loss of paint.” Post-conservation length: 34 X 5-3/4–6. See TAMU file MISC8.

**MISC9** Piece of thick, three-strand or hawser-laid rope. C/BW.

**TREATMENT:** Sent to TAMU on 25/II/97; returned 14/X/99. Mislabelled MISC33 by TAMU. See TAMU file MISC33?

**MISC10** Decomposed, unravelled rope frag.; now disintegrated into fiber strands. BW.

**TREATMENT:** stored in ethanol.

**MISC11** Decomposed, unravelled rope frag.; now disintegrated into fiber strands.

**TREATMENT:** stored in ethanol.

**MISC12** Decomposed, unravelled rope frag.; now disintegrated into fiber strands. Has small piece of coral w/it. BW.

**1997**
MISC13  Modern bottle cap; top heavily concreted. C/BW.  
        1\(1/2\) (diam) X 1\(1/2\) (th) E13

MISC14  Red brick frag. C/BW.  
        4 X 3\(1/2\) X 2\(1/4\) E13

MISC15  Two small gourd frags w/o finished edges; variable size and thickness.  
        Ring Deposit (see B21). BW.  
        Miscellaneous E12

TREATMENT: Sent to TAMU on 14/XI/97. On 14/X/99, TAMU conservation folders were returned for MISC15, MISC22a and MISC39, stating that the NMAH had misidentified a piece of iron as these three pieces of gourd. Will contact TAMU for clarification.

MISC16  Metal (copper?) hinge w/7 fastener holes visible; 8th concreted over.  
        Surface completely concreted; pin and 1 corner missing. The original pin may have been iron, due to orange surface inside. May be made of brass or bronze, due to yellow color of original metal. C/BW.  
        4 X 1\(1/2\) X 5\(5/8\) E13

ANALYSIS: KS: this is a butt hinge, which is later than the period of the wreck.

MISC17  Section of wire mesh, in 2 pieces. BW.  
        4 X 3 X 1\(1/2\) E13

MISC18  Basalt rock, oblong, with an ostensibly worked channel around one edge. A small concretion of iron corrosion product on one side. C/BW.  
        4\(3/2\) X 2\(1/2\) X 2\(1/4\) E13
        Con: 1 X 1 X 1\(1/2\)

MISC19  Folded piece of leather approx. square in shape. Stitch holes along 1 edge and on corner of opposite edge. One surface smooth; the other rough. One edge has impressed line along outer surface, 3\(1/8\) in. from edge. C/BW.  
        11\(1/2\) X 10\(1/2\) X 1\(1/8\) (th) E12/E14

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week baths of acetone, then placed in fresh acetone and 15-minute vacuum drawn. Soaked in silicon oil w/3% (MTM) crosslinker, cleaned of MTM; catalyst applied and residue cleaned off. See TAMU file MISC19.
MISC20  Lower portion of large crab fighting claw (extinct?). C/BW.  
1³/₄ X 5⁵/₈ X 1  
E13

MISC21  Length of 3-strand twisted rope. C/BW.  
12 X 1¹/₂  
E13

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99, shrunken to 9 inches from the original 12. Dehydrated in two 2-wek acetone baths, then set in fresh acetone, 15-min. vacuum, then soaked further to ensure dehydration. Placed in silicon oil until vacuum does not release bubbles. Drained of oil, cleaned w/MTM, placed in bag w/catalyst and cleaned; catalyst added until no more oil seeped from rope. See TAMU file MISC21.

MISC22  Two pieces of gourd w/o any worked edges. C/BW.  
(a) 4⁹/₁₆ X 2¹/₂ X 5⁵/₁₆ (th)  
(b) 2³/₄ X 2⁷/₁₆ X 1¹/₄ (th)  
E12

TREATMENT: Sent to TAMU on 14/XI/97. On 14/X/99, TAMU conservation folders were returned for MISC15, MISC22a and MISC39, stating that the NMAH had misidentified a piece of iron as these three pieces of gourd. Will contact TAMU for clarification.

MISC23  Short frag. of end of rope; whipped. Other end missing. C/BW.  
1³/₄ X 1 (diam)  
E12

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Silicon oil treatment. Orig. length preserved but whipping missing after conservation. See TAMU file MISC23.

MISC24  Length of leather-wrapped rope w/stitch holes (but no stitches) preserved along both sides. Rope has worming wrapped around contlines. C/BW.  
7 X 3⁴/₄ X 1¹/₈ (th)  
E12

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Soaked in silicon oil, cleaned w/MTM, catalyst applied. CONDITION: worming around contlines no longer visible due to thickness of preservative; length has shrunk from 7 in. to 6-1/₄ in. See TAMU file MISC24.

MISC25  Trapezoidal rock w/three smooth surfaces and rough ends; may be worked. BW.  
5¹/₂ X 2 X 1¹/₂ (th)  
E12
ANALYSIS: Adrienne Kaeppler, 23/VII/01: appears to be an unfinished/broken adze.

MISC26 Rope frag., 3-strand twisted. In 3 pieces; falling apart. C/BW.  
5\(\frac{1}{2}\) X 1\(\frac{3}{4}\) X 3\(\frac{3}{4}\)  E12

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Silicon oil treatment. Now in two pieces. See TAMU file MISC26.

MISC27 Triangular, flattish worked stone (lava?). Several worked surfaces.  
Prob. a burnisher? C/BW.  
6\(\frac{1}{2}\) X 5\(\frac{1}{4}\) X 2  E14

ANALYSIS: Adrienne Kaeppler, 23/VII/01: a canoe breaker.

MISC28 Nine. gourd frags. of variable sizes and thicknesses; no finished edges visible. BW.  
Miscellaneous  E14

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; soaked in silicon oil w/3% MTM by weight. Removed from oil, washed in MTM, cleaned of excess and catalyst applied. Catalyst wiped off and gourd frags. bagged w/catalyst-soaked cloth. Now in 14 pieces rather than the 9 sent. See TAMU file MISC28.

MISC29 Thin, frail and degraded piece of leather finished on 1 side and 3 edges; rough on 1 side. One side may be beveled; no stitch holes visible. C/BW.  
6\(\frac{1}{4}\) X 4\(\frac{1}{2}\)  E14

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Soaked in silicon oil w/at least 3% crosslinker; cleaned w/MTM. Applied catalyst; cleaned of residue. Still fragile. See TAMU file MISC29.

MISC30 Hollow rock (basalt ?)—possible a kukui nut oil lamp. Bottom flat.  
C/BW.  
3\(\frac{3}{4}\) X 3 X 2\(\frac{1}{4}\)  E12

ANALYSIS: Dr. Floyd McCoy of University of Hawaii says he saw evidence of working inside and that lava bombs have little bubbles inside, which this piece lacks. See RWR>PFJ e-mails of 10 & 24/IX/97, quoting McCoy: “if the outer rim of a naturally-formed bubble,
it would have been a gaseous rock at hardening w/lots of holes and bubbles and more porosity. This piece is too dense to have formed in that manner and must have been carved out of a more solid stone.”

Might it also be a Hawaiian stone bait mortar? Images of small, partially unfinished examples and their descriptions are found in Te Rangi Hiroa (Peter H. Buck), “Fishing,” *Arts And Crafts of Hawaii* VII (Hono: Bishop Museum Special Publication 45) p. 354-55, fig. 240a. Barratt, 1988, Narrative 72, p. 205, quoting the Russian visitor Chamisso on 30 Nov. 1816: “Torches made from kukui nuts [Aleurites triloba] stand on poles and throw a bright light during the night (n.3) N. 3: These were flambeaux, *ma-ko’u.*” See MISC73 for kukui nut lamp.

**MISC31** Plastic toy car chassis. C/BW. 3 X 1\(\frac{1}{4}\) X 1\(\frac{1}{2}\) E12

**MISC32** Leather frag., two stitch holes on an original edge. BW. 1 X 1\(\frac{1}{4}\) X 1\(\frac{1}{8}\) E12

**TREATMENT:** Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in acetone; soaked in at least 3% MTM. Cleaned w/MTM; catalyst applied and cleaned of residue. See TAMU file MISC32.

**MISC33** Two pieces of whipped rope ends; other ends missing. C/BW. Both: 2\(\frac{1}{2}\) X 3\(\frac{1}{4}\) (diam) E12

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in 2 2-week baths of acetone, then placed in fresh acetone and drawn under vacuum for 15 min. No further treatment described, although silicon oil prob. used. See TAMU file MISC33.

**MISC34** Piece of rope; twisted 3-strand. Falling apart. BW. 4 X 1\(\frac{1}{2}\) (diam) E12

**TREATMENT:** Sent to TAMU on 14/XI/97; report returned on 12/V/98 (w/o artifact). Artifact returned 14/X/99. Dehydrated w/acetone and vacuum, then SFD-1 silicon oil mixed w/3% MTM crosslinker and vacuum. Excess silicon removed; rope bathed in DNTBA catalyst and dried. See TAMU file MISC34.

**MISC35** Section of leather-sheathing for rope; both ends frayed and eroded. Stitch holes preserved along leather edges. C/BW. 4\(\frac{3}{8}\) X 1\(\frac{3}{4}\) X 1\(\frac{1}{16}\) (th) E14

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 12/V/98. Dehydrated in acetone and vacuum; then placed in SFD-1 silicon oil
and 3% MTM crosslinker and vacuum. Excess removed and leather bathed in DNTBA catalyst and dried. See TAMU file MISC35. Photographed (C) post-conservation. See TAMU file MISC35.

**MISC36** Trapezoidal rock w/hole; 1 end broken off and other surfaces are flat (worked?). C/BW.

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: poss. a burnisher.

**MISC37** Leather-sheathed section of rope; rope, which has small worm around contlines, fills ca. half the length of the leather and rope’s ends are frayed. Leather edges have stitch holes preserved. C/BW.

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Soaked in silicon oil, cleaned w/MTM, applied catalyst and cleaned again. Much of rope and all worming is missing. See TAMU file MISC37.

**MISC38** Aluminum beer can top (Coors). C/BW.

**MISC39** Three small pieces of gourd, light brown. BW. Largest is: 21/2 X 2 3/4 X 1/4

**TREATMENT:** Sent to TAMU on 14/XI/97. On 14/X/99, TAMU conservation folders were returned for MISC15, MISC22a and MISC39, stating that the NMAH had misidentified a piece of iron as these three pieces of gourd. Will contact TAMU for clarification. See TAMU file MISC39.

**MISC40** Section of leather-covered 3-strand twisted rope; in 2 pieces. Rope has thinner worm wrapped around contlines. Leather has stitch holes. C/BW.

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Silicon oil treatment. Breaking up after treatment and appears to be actively deteriorating; worming no longer preserved. See TAMU file MISC40.
MISC41  Deteriorated piece of leather w/stitch holes visible on one edge. C/BW.  5 X 5  E12

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Soaked in silicon oil, cleaned w/MTM (crosslinker), applied catalyst and cleaned of residue. See TAMU file MISC41.

MISC42  Piece of flattened, 3-strand twisted rope. BW.  3 X 3/4 X 3/8 (th)  E12

TREATMENT: Sent to TAMU on 14/XI/97; returned 12/V/98. Dehydrated in acetone and vacuum; then placed in SFD-1 silicon oil and 3% MTM crosslinker and vacuum. Excess removed and rope bathed in DNTBA catalyst and dried. See TAMU file MISC42. Photographed (C) post-conservation.

MISC43  Decomposed section of 3-strand twisted rope in 3 pieces. C/BW.  6 X 3/4 (diam)  E12

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Soaked in silicon oil w/ at least 3% MTM, excess cleaned w/MTM, applied catalyst. See TAMU file MISC43.

MISC44  Fragmentary section of curled leather for rope cover; rope not found.  8 X 21/4 X 3/16 (th)  E14

Stitch holes preserved on two edges; other ends missing. Outer surface finished smooth; inner surface rough. Red pigment observed underwater. C/BW.

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Soaked in silicon oil for 2 days, removed & cleaned of excess oil, cleaned of oil using paper towels, placed in bag w/catalyst. Treatment shrunk piece 1/2 in length (width remained the same). See TAMU file MISC44.

MISC45  Thick leather-covered rope; rope is whipped on end. Leather is thin and crumbling; too fragile to remove from bag to measure. C/BW.  Approx. L: 71/2  E14

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone
and 15-min. vacuum for further dehydration. Placed in silicon oil; slight vacuum overnight and allowed to sit for several days. Removed and cleaned of excess oil. Much of it fell apart once removed from mesh enclosure; pieces cleaned w/MTM and paper towels. Catalyst applied to rope and placed in bag. Removed and cleaned of excess oil daily (?); placed in heater (?) w/catalyst to increase penetration; cleaned again of excess. Results of conservation: dessicated and degrading in bag. See TAMU file MISC45.

MISC46  Steel key ring (modern) on plastic lanyard; metal heavily corroded. Lanyard is green, pink and black. C/BW.

MISC47  Leather frag. w/1 finished edge containing 3 stitch holes 1\(\frac{1}{2}\) in. apart on centers. Leather is very thin; edges frayed and crumbling. C/BW.

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Soaked in oil w/3% crosslinker, cleaned w/MTM, catalyst applied and cleaned. See TAMU file MISC47.

MISC48  Section of 3-strand twisted rope. C/BW.

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Placed in oil w/3% crosslinker, 2-hr vacuum, excess oil removed with paper towels, then bath. Q-9 (?) removed w/paper towels. Rope then coated w/DBTDA catalyst, excess removed and sample dried overnight. RESULTS: sample shrank from 14 in. to 9-1/4 in length; rope strands separated. See TAMU file MISC48.

MISC49  Half of a big, thin block, inc. one half of the shell, sheave and pin. Covered in red/orange paint that is easily rubbed off. Metal fasteners and pin missing. Shell half worm-ridden on outer surface. Square hole in center for pin. Sheave has 2 holes piercing it on 1 side; holes have round washer inserts; on other side is keyhole-shaped insert for pin (axle) hole; 2 chocks are separated. C (in situ); C/BW/JPG.

TREATMENT: Sampled at NMAH by H. Alden/CAL, 30/I/98. Four samples taken: (a) outer shell; (b) sheave; (c) chock/filler piece BP (Better Preserved); (d) chock/filler piece WP (Worse Preserved). RESULT: shell=ash (Fraxinus sp.); chock WP=ash (Fraxinus sp.); chock BP=ash (Fraxinus sp.); sheave=lignum vitae (Guaiacum sp.). See Harry Alden, Wood Analysis Report of 13/V/98. Sent to TAMU on
23/III/98; returned 14/X/99. Dehydration started in 40% ethanol / 60% deionized water. Cleaned of encrustation w/pneumatic chisel and 10% HCL (?) in deionized water. Placed in water and rinsed, then 100% ethanol, saturated solution acetone/rosin (67%) for ca. 6 wks, wipe object(s) w/acetone, then air dry. Photographed by TAMU but no photos enclosed in file. See TAMU file MISC49.

**MISC50** Six small gourd frags. of miscellaneous size and thickness; 3 may have worked edges. Could this have been garbage from the bilge or poss. used for dunnage? BW.

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; soaked in silicon oil w/3% MTM; removed from oil, washed off w/MTM and cleaned of excess. Thin layer of catalyst applied; catalyst wiped off and frags. placed in bag w/catalyst-soaked cloth. Recorded by TAMU as 15 pieces rather than the original six, but 12 were returned. See TAMU file MISC50.

**MISC51** Leather strip w/stitch holes along two edges; other edges (ends) eroded off. Outer surface is finished smooth; inner surface rough. Red coloration on outer surface; overall poor condition. C/BW. Distance between stitches: \(1/2 - 3/4\)

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Placed in oil w/3% crosslinker, cleaned w/MTM, catalyst applied and cleaned of residue. Length is now 9-1/8 instead of orig. 10-3/8; stitching holes no longer visible, and leather is folded over now. White deposit on 1 side. See TAMU file MISC51.

**MISC52** Two sections of rope w/smaller worm between contlines. C/BW.

(a) \(5^{1/2} \times 1^{1/4}\)  
(b) \(5 \times 1^{1/4} \times 1\) (orig. diam)

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 12/V/98. Dehydrated in acetone and vacuum; then placed in SFD-1 silicon oil and 3% MTM crosslinker and vacuum. Excess removed and rope bathed in DNTBA catalyst and dried. Worming preserved in this sample. See TAMU file MISC52. Photographed (C) post-conservation.

**MISC53** Short, curved section of leather-sheathed rope; 1 end eroded off, the other is cut off straight. Rope has small worm between contlines. C/BW.
TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; then placed in fresh acetone and 15-min. vacuum for further dehydration. Placed in oil, removed, cleaned of excess w/MTM, catalyst applied and cleaned again. Worming preserved. See TAMU file MISC53.

1998

MISC54  Amorphous clump of organic material found is association w/ballast stone. Poss. dunnage (or Waioli River effluent?). C.  N/A  E16

MISC55  Piece of well-preserved iron; flat on 1 side, convex on other. C.  1-3/4 X 1-1/4 X 1/4 (t)  E16

MISC56  Bilge pump upper valve, shaped like an inverted truck-sized piston and con rod. Surface lightly concreted; flapper (diaphragm/valve) on both sides may be leather (?). C (pre/post conservation) /JPEG.  12 X 1-5/8 (shafIdiam) X 4-1/2 (headDiam) X 3 (headH)  E17

ANALYSIS: Sent Tom Oertling slides and description 19/I/99; in his analysis of 21/I/99 he reports: “A pump valve, apparently all iron with a two-part claque or flapper. Look for traces of leather around the cylindrical part and around the valve claques. Iron pump tube/sleeve is missing; its minimum length would be ca. 18 inches long.Usu. tube is same material as valve, except w/lead. There also should be a lower valve resembling the upper one. Given the ship date, there is good poss. that there were a pair of pumps. For the brake or handle, these may/may not have been iron; if iron, the 2 pumps may have been connected and operated together. There appeared to be a connecting point where the spear (pump rod) joins the valve.” See Tom Oertling, “Re: Pump Package,” emails (2) of 21/1/99. See also L7 for discussion of the Barge plumbing. MISC56 is probably the bilge pump rather than an interior plumbing pump, acc. to Tom Oertling email “Re: Ship Pump Redux” of 16/XI/99 (on file). See also George Crowninshield to Commodore Hull, from Fayal, 24 April 1817, in FB Crowninshield (1913): 63: “We use Baker’s patent Pump boxes—once in twenty-four hours. They fully answer what has been said of them, and I exceedingly regret that Br. Baker did not forward me the hand pump he promised, as I am in great need of it.” Barge log (@ PEM) for 23 Feb 1817: Mr. Baker aboard fitting a set of his patent pump boxes to our pumps (Salem Hbr). See PEM log abstract. A thorough search among the contemporary patents has not yielded any patent by Baker.

TREATMENT: Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Cupreous portions cleaned; ferric corrosion (handle) was too corroded to save, so it was cast in Hysol epoxy. Pump placed in silicon oil to try and preserve the leather (unsuccessfully). Pump placed in 25% ethanol/75% water, then soaked X3 of di water, 36 hrs in 2% BTA in ethanol, sponged w/Krylon 1301, assembled
w/modern leather (afterwards deemed too thin) and aluminum foil to represent the thin copper sheeting atop the claque. **RESULT:**
Cast handle is square in section, w/clevis end using a square-headed bolt and nut as clevis pin: handle 7-5/8 X 5/8. Pump is mostly brass, measuring: 5-3/8 h X 4-3/16 d. Studs on bottom: .242 in. diam (=20 threads/in). This is a current standard size. Square nuts not square. Square head bolt/screw into flapper valve: .221 in. diam (=ca. 25 threads/in). This is not a current standard size. On the center post (the one with the ring at the top), just above the ring hole, is stamped: J.BAKER’S. Below the hole, it is stamped PATENT. Below that is the Roman numeral I in a larger (type) size: J.BAKER’S/PATENT/I (the “I” is in a larger type size). On the underside of that side’s claque/flapper is stamped: J.BAKER’S/PATENT/J.DAVIS/MAKER/BOSTON. See TAMU file **MISC56.**

**MISC57**  
Corner frag. of thin tile; may be linoleum (modern floor tile) from Iniki (?). One side has polychrome speckled surface (black and gray). C.

**MISC58**  
Incomplete keg of gunpowder; 1 end (only) preserved. Wooden end (head?) is broken into 2 pieces. Powder lumpy and crumbling. C.

**ANALYSIS/TREATMENT:** Sent 27/IX/99 to TAMU for conservation. Charles H. Hammatt Hawaii journal entry for 17/III/24: “...among other things he has four or five hundred casks of powder, which he bought of Blanchard at 6 dolls p. keg...”. This not only indicates the contemporary value of powder, but also indicates that the terms “cask” and “keg” were interchangeable to Bryant & Sturgis’s Hawaii business agent. Returned 7/IX/00. The wood came back much reduced from what was sent (the entire keg top/bottom in 2 pieces). Wood was dehydrated in ethanol, placed in saturated acetone/resin for 3 wks, removed and excess resin removed. Powder was put in di water, dehydrated in acetone and consolidated w/PVA. Sample was left untreated. See TAMU file **MISC58.**

**MISC59**  
Flint/chert cobble frag., flaked on 1 edge w/cortex visible. Gun flint raw stock? C.

**MISC60**  
Section of leather rope chafing gear. Holes on both sides; traces of red pigment visible. C.

**TREATMENT:** Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Sample was dehydrated and treated w/silicon oil using the APRL method. See TAMU file **MISC60.**

**MISC61**  
Small frag. of curved leather; traces of red pigment. In 3 pieces. C.
**TREATMENT:** Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Dehydrated, treated w/silicon oil using the APRL technique.

**MISC62** Disk-shaped organic matted material. C. 3-3/4 X 3 X 3 (t) E18

**MISC63** Grooved lava stone—net weight or canoe anchor. C. 5-3/4 X 4-1/2 X 3 (t) E18


**MISC64** Flattened wedge-shaped stone w/grooves on both sides. C. 1-3/8 X 1-1/4 X 3/8 (t) E18

**MISC65** Flattened lava disk=ulu maika game stone (bowling). C. 2-3/4 X 1-1/2 (t) E19

**ANALYSIS:** see John Papa Ii, *Fragments of Hawaiian history...* Honolulu, Bishop Museum Press, 1983. See also Bennett, *ArchKauai: 77ff: Game Stones* (inc. large ones).

**MISC66** Lava pounder in form of truncated cone w/incurved sides and convex bottom. C. 6 X 5 (w) E19

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: pounder or scraper. AK, 22/VI/04: pounder (not poi).

**MISC67** Lava pounder, slightly lopsided. C. 6 (h) X 4 E19

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: pounder or scraper. AK, 22/VI/04: pounder (not poi).

**MISC68** Iron thimble (con) surrounded by leather-wrapped rope w/probable splice @ end. Rope is disintegrating; otherwise extremely well-preserved, w/small piece of leather separated. C. 6-7/8 X 4-3/4 (w+od) X 1-3/4 (t) E19
**TREATMENT:** Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. Thimble was cast in hysol epoxy resin. Rope and leather were dehydrated in 50/50% ethanol/di water, then immersed in silicon oil under slightly negative pressure. Then catalyzed w/dibutyltindiccetcote ([sic]?). See TAMU file **MISC68**.

**MISC69** Lava stone w/groove around center=net weight/canoe anchor.C. 8-5/8 X 7-5/8 X 4 (t) E19

**ANALYSIS:** Adrienne Kaepppler, 23/VII/01: canoe breaker.

**MISC70** White conch shell w/tip broken off and hole in side=Hawaiian pu, or conch trumpet w/tonal hole. C/JPG. 6 (h) X 3-1/4 (w) E22

**ANALYSIS:** Bill Spurlock and professional pu blower @ Princeville Hotel: tip broken off is not a natural formation, as it is the thickest and strongest part of the shell. Tonal hole could be natural, and in fact the note played is cleaner w/hole covered.

**MISC71** Sample of black, tarry substance w/fibers. Asphalt/tar? C. N/A E21

**MISC72** Two large pearl oyster shells, not indigenous to Hawaii (?). (a) larger, more than half preserved, w/surface exfoliation. (b) partial, exfoliated. In 2 pieces. C/JPG. (a) 5 X 3-1/2 (b) 4-3/8 X 2-3/8 E21

**ANALYSIS:** Chuck Blay, email of 15/III/99: “the presence (or in this case, the absence) of oysters in Hawaii is significance in terms of the types of coastal environments present here. Oysters for the most part are brackish water inhabitants. They are rather euryhaline but are forced to occupy the less saline areas owing to predators, such as the "oyster drill" gastropod, that can not survive in less than normal ocean salinity. The situation in Hawaii is that there are not extensive coastal brackish water environments, such as large estuaries/bays or lagoons in which fresh and marine waters mix. That of course is due to the geologic/geographic setting. So, that is why I could make such a quick comment on the significance of a common oyster shell.” Chuck Blay, email of 6/IX/01, “…about the oyster shells. It got me to looking at Alison Kay’s monograph on Hawaiian Marine Shells. She does allude to a few indigenous oysters (Ostrea and Crassostrea) but then concentrates her descriptions on several introduced species. An interesting section in her book deals with Pleistocene fossil oysters. In that section she mentions a specimen of Pycnodonta kamehameha collected on Oahu, and an Ostrea margaritae specimen collected from fossil beds near Pearl Harbor. I’m thinking that, with typical name changing, that O. margaritae may be the same as your Pinctada margaritifera specimens(?)...” Pauline Fiene-Severns, email of 23/VIII/01: “The large piece appears to be a black-lipped pearl oyster (Pinctada margaritifera), and presumably the other pieces are as well, but it is hard to tell from the
Jpeg. These are found throughout the Hawaiian chain from Hawaii to at least Pearl and Hermes Reef. If they were onboard, they might have been used as a dish or as the raw material from which to make objects from the pearly interior.”

**MISC73** Two kukui nuts; 1 intact, 1 half shell. C. 1-1/8 (intact Diam) E24

**TREATMENT:** Sent 27/IX/99 to TAMU for conservation. Placed in 50/50% ethanol/di water, dehydrated and placed in acetone/resin. See TAMU file **MISC73**.

**ANALYSIS:** For kukui nut lamp; see **MISC30**.

**MISC74** Amorphous clump of brown organic material w/fibers and mud. C. 3-1/4 X 2-3/4 X 7/8 (t) E24

**MISC75** Hemispherical lava stone; poss. game piece or burnisher. C. 2 (diam) X 1-1/4 (h) E27

**ANALYSIS:** identical to a canoe rubber illustrated in Te Rangi Hiroa (Peter S. Buck), “Canoes,” *Arts and Crafts of Hawaii* VI (Hono: Bishop Museum Special Publication 45, 1957), p. 257-58, fig. 182d. Hiroa says smaller ones “were evidently used on wooden bowls.”

**MISC76** Dive watch bezel w/0–60 (minute) gradations. C. 1-1/2 (diam) E27

**MISC77** Large, ovoid lava stone w/cut groove around center—canoe anchor or canoe breaker? C (onsite). 15-3/4 X 10-1/4 X 6 E21

**ANALYSIS:** Tommy Holmes, *The Hawaiian Canoe* (Honolulu: Editions Limited, 1993) 119: Canoe breakers (*pohaku ku‘i wa‘a*) before cannon were the most powerful weapons in naval warfare. Bishop Mu. and private ones weigh 11-23 lbs, and “all were of relatively uniform rectangular and more often elliptical shape with a well-made and deep groove, completely encircling the middle of the long width.” Unlike anchors, breakers all well formed from heavy and dense grained basalt, Binding rope around middle and hurling it at every canoe. Bingham comments they were “swung in the powerful grasp of the Hawaiian chief much like the “morning stars” of medieval warfare.” (his footnote citing this reference is Brigham, Index:9; however, this ref. does not check out properly when I looked it up. Maybe he meant Bingham, *Residence of 21 Years*? See canoe breakers discussed and illustrated in Te Rangi Hiroa (Peter S. Buck), “Canoes,” *Arts and Crafts of Hawaii* VI (Hono: Bishop Museum Special Publication 45, 1957), p. 281, fig. 199c.

N.B.: this find was too large to ship back to WDC; Rick Rogers took it back to his home on Oahu and is desalinating it there (28/IX/98).
MISC78  Long concrete marker w/”X” at top. C (onsite). Weight: 44.6 lbs.  4-1/4 X 4-1/4 X 30  E27

N.B.: this find was too large to ship back to WDC; Rick Rogers took it back to his home on Oahu and is desalinating it there (28/IX/98).

ANALYSIS: PFJ called Wagner Engineering in Hanalei on 30/IX/98 and described this find to them; they checked old surveys and plat maps and found that they were property markers placed along the beach and Waioli Stream in 1920. They also said that some of them were still preserved along the shore in Hanalei Bay.

2000

MISC79  Cowrie shell pierced w/2 holes on ventral surface=octopus lure or squid jig. C. See MISC80.  2-1/2 X 1-5/8  E29


MISC80  Cowrie shell pierced w/2 holes on ventral surface=octopus lure or squid jig. C. See MISC79.  3-7/8 X 2-5/8 X 1-7/8  E30


MISC81  Smooth symmetrical circular stone disk (basalt?). Rounded edge. Poss. *ulu maika?* C.  3-5/8 d X 2  E29

MISC82  Fine-grained basalt adze blade. Very fine. C.  4-7/8 X 1-1/8 X 7/8t  E32


MISC83  Small lava stone w/3 longitudinal surface grooves and 2 long. holes (drilled?). 3rd hole does not penetrate. All holes and grooves are parallel. Mace head/line holder/hook sharpener? C.  2-5/8 X 2-1/4  E32
ANALYSIS: Adrienne Kaeppler, 23/VII/01: sharpener; groove has rust inside. Matches C11 (reworked copper spike) in size of groove.

MISC84 Flat piece of slate w/rounded edges—modern roofing slate? But if so, why are all edges rounded? C.

MISC85 Section of black rod-1 end finished flat and the other broken off. Black core inside. Bill Spurlock: search light electrode? C.

MISC86 Loop of leather-sheathed wormed rope; no stitching preserved. C.

TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/03. Chemically dehydrated through diminishing proportions of DI water and ethanol, then ethanol and acetone. Put in 60%/40% silicon oil/MTM, drained and dried, then catalyzed w/TPT-titanate. Worming preserved. See TAMU file MISC86.

MISC87 Part of bead, broken longitudinally, poss. glass? Orange. C/JPG.


MISC88 Large, fine-graine basalt sharpening stone (for tool sharpening). 1 side has single wide worked surface trough; other has 2 narrower worked troughs adjacent to each other. Weight: 60.2 lbs. C. Left with Rick Rogers.

MISC89 Large, flat sharpening stone w/3 worked surfaces and 3 deeper grooves on 1 side; other side has 1 large worked surface trough. At 1 end=large rounded concretion that turned out to be a large cannon ball. the stone and con were separated after recovery. Stone weight: 33 lbs. Part of ball’s surface is visible under con surface. C/JPG. Stone left w/Rick Rogers.

TREATMENT: Ball sent to TAMU on 4/XII/00; returned 27/VII/02. Results: a spherical shell since pierced with a 5/16-in. hole for powder insertion 4-1/4 in. diameter; 8.72 lbs. Mechanically cleaned and ER with mild steel anode and 5% NaOH electrolyte. Then
5% tennic acid and microcrystalline wax applied.

**ANALYSIS:** See Dean S. Thompson, *Cannons* (Arendtsville, PA: Thomas Publications, 1985) 16-17. Shell = hollow iron projectile filled with a black powder bursting charge. Exploded by time fuses set in wooden or metallic fuse plugs, ignited by flame of cannon’s propelling charge.

**MISC**<sup>90</sup> Small, flattened wedge-shaped stone w/7 grooves on 1 surface. May be natural? C.

**WOOD (W)**

All 1995 wood samples are tropical hardwoods; Mel Wachowiak will contact expert at FPL in Madison, WI for more info.

**W1** Oval piece of wood, all edges rounded. BW. 4<sup>1/4</sup> X 1<sup>1/2</sup> X 7/8 (T) RT

CAL 23/X/95 (MEL)

**ANALYSIS/TREATMENT:** Mel Wachowiak, pers. comm., 8/X/96: Forest Products Laboratory in Madison, WI inspected and analyzed as tropical hardwood, degraded and outside reference material. Stored in ethanol.

**W2** Four small wood frags., 1 w/iron stains. BW. Miscellaneous BB

CAL 23/X/95 (MEL)

**ANALYSIS/TREATMENT:** Mel Wachowiak, pers. comm., 8/X/96: Forest Products Laboratory in Madison, WI inspected and analyzed as birch (*Betula* sp.). Probably *Betula nigra*; since birches are only found in north temperate and arctic zones, the wood was deposited at the site. When deposited or wood age indeterminable. See Miller, Regis B. and E. Cahow, “Wood Identification of Commercially Important North American Species of Birch (*Betula),” *IAWA Bulletin* n.s., Vol. 10 (4), 1989: 364-373.

**W3** Teredo-ridden wood frag w/2 finished sides (end grain). C/BW. 3<sup>5/8</sup> X 1<sup>3/8</sup> X 1 (T) RT1C

CAL 23/X/95 (MEL)
ANALYSIS/TREATMENT: Mel Wachowiak, pers. comm., 8/X/96: Hardwood; best match of characters and anatomy is yellow buckeye (*Aesculus octandra*) from the American Midwest; however, the sample is not a perfect match. Harry Alden of CAL: hardwood (report on file at NMAH). Returned 18/III/98. Totally degraded; indefinitely stored in ethanol.

W4 Small, teredo-ridden wood frag; one edge finished flat. BW. 1 X 5/8 X 1/4 (T) RT1C

ANALYSIS/TREATMENT: Sent to CAL on 23/X/95; returned 18/III/98. Mel Wachowiak, pers. comm., 8/X/96: Tropical hardwood, degraded and outside reference material. FPL did not recognize the sample and therefore determined it was not a species of commercial importance. FPL could not determine whether it was native, naturalized or deposited at site. Harry Alden of CAL: cf. Flacourtiaeae?? (report on file at NMAH). Totally degraded; indefinitely stored in ethanol.

W5 Hardwood piece w/cavities in center; shaped like weaving or net-mending shuttle. C/BW. 10 3/4 X 21/2 X 11/4 (T): RT1C

ANALYSIS/TREATMENT: Sent to CAL on 23/X/95; returned 18/III/98. Mel Wachowiak, pers. comm., 8/X/96: Tropical hardwood, degraded and outside reference material. Harry Alden of CAL: like W1, but great pre... (report on file at NMAH).

W6 Long, narrow, flattish piece of wood. BW. 12 X 1 1/4 X 1/2 (T) RT1C

ANALYSIS/TREATMENT: Sent to CAL on 23/X/95; returned 18/III/98. Mel Wachowiak, pers. comm., 8/X/96: Tropical hardwood, degraded and outside reference material; features same as W5.

W7 Piece of wood, triangular in section. BW. 1 3/4 X 1/2 X 1/4 (T) RT1C


1996
**W8** Probable wood frag. (splinter); could be bone. BW.  
2\(\frac{1}{4}\) X 3\(\frac{3}{8}\) X 3\(\frac{3}{8}\)  

**ANALYSIS/TREATMENT:** Sent to CAL on 23/X/95; returned 18/III/98. Mel Wachowiak, pers. comm., 27/VI/97: a tropical hardwood. Stored in ethanol.

**W9** Teredo-ridden piece of wood; two original surfaces partially preserved.  
7\(\frac{3}{4}\) X 2\(\frac{1}{2}\) X 2\(\frac{1}{4}\)  
One 3\(\frac{3}{4}\)-in fastener cavity preserved, along w/ another poss. partial fastener impression. BW.  


**W10** Three small pieces of wood of varying sizes. BW.  

**ANALYSIS/TREATMENT:** Sent to CAL on 23/X/95; returned 9/II/98. Harry Alden of CAL: red oak group (report on file at NMAH). Stored in ethanol.

**W11/12** Two octagonal treenails; one has beveled end. The other’s ends are both corroded. C/BW.  
4\(\frac{1}{2}\) X 1 (diam)  
6\(\frac{1}{2}\) X 1 (diam)  

**ANALYSIS/TREATMENT:** Sent to CAL on 23/X/95; returned to NMAH 9/II/98. Mel Wachowiak, pers. comm., 27/VI/97: **W11** (smaller treenail): white oak group; **W12** (larger treenail): Pinacea/Picea/Lerix (?)=spruce. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone in 15-min. vacuum. Then put in vacuum for 2nd time for 5 hrs. No further treatment described. Both are almost totally collapsed and distorted in their diameters; lengths are 6-1/8 and 4-1/4. See TAMU file **W11/12**.

**W13** Small wooden wheel, poss. from gun carriage (?). Thoroughly teredo-ridden and very fragile; portion of one side missing and remainder fragmentary. Wheel is cut cross-grain; one side has an incised line 1/2-inch inside the outer rim. The edge opposite the incised line is beveled. C/BW.  
7\(\frac{1}{4}\) (OD) X 3\(\frac{1}{2}\) (ID) X 2 (TMax)  

**ANALYSIS/TREATMENT:** Sent to CAL on 23/X/95; returned to NMAH 9/II/98. Mel Wachowiak, pers. comm., 27/VI/97: **W11** (smaller treenail): white oak group; **W12** (larger treenail): Pinacea/Picea/Lerix (?)=spruce. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone in 15-min. vacuum. Then put in vacuum for 2nd time for 5 hrs. No further treatment described. Both are almost totally collapsed and distorted in their diameters; lengths are 6-1/8 and 4-1/4. See TAMU file **W11/12**.
TREATMENT: Sent to TAMU on 25/II/97; returned 12/V/98. Dehydrated in acetone and vacuum; then placed in SFD-1 silicon oil and 3% MTM crosslinker and vacuum. Excess removed and wood bathed in DNTBA catalyst and dried. See TAMU file W13. Photographed (C) post-conservation. Excess silicon oil removed 21-22/VIII/03 by Helen de Jong by softening surface w/MTMS and mechanical cleaning.

ANALYSIS: Probably a truck, or gun carriage wheel. See Boudriot, 74, vol 2, p. 160, fig. 193 for similarly decorated truck.

1997

W14 Small frag. of wood in 3 pieces; all 4 edges are finished. Both ends eroded off; teredo-ridden. BW. 2 X 1\(^{1/8}\) X 1\(^{5/8}\) E13


W15 Two cork or wood bungs (or treenail ends?); 1 is in pieces and very fragile. BW. (a) 1 (diam) X \(5/8\) (th) E14 (b) 1 (diam) X \(3/8\) (th)


W16 Squared piece of painted wood furniture w/red residue. One honey-colored surface is unpainted; another is black. Totally teredo-ridden and crumbling. BW. 4\(^{1/4}\) X 3\(^{3/4}\) X 1 E12

later pieces of furniture that follow are almost certainly NOT part of the Barge’s original furnishings, as it is so much simpler, heavier and less ornate that the original surviving pieces at the PEM in Salem, MA.

**W17** Wooden “donut” in excellent condition; donut-shaped w/concave edge and convex sides. No signs of wear or use. Thimble or cringle? C/BW. C (pre/post conservation) /JPG.


ANALYSIS: KS: fairlead. PFJ: wooden thimbles are called bull’s-eyes and are used as fairleads. See the various sail and rigging books.

**W18** Flat section of wood (furniture?) in 3 pieces; teredo-ridden, delicate and crumbling. Channel on both sides of one edge. See **W19, W26**. BW.


**W19** Flat section of wood (furniture?), poss. part of **W18**. Teredo-ridden and crumbling; in 5 pieces. See **W26**. BW.

TREATMENT: too degraded for conservation; stored in ethanol.

**W20** Wooden treenail or peg. All edges and ends rounded through sand abrasion. BW.

ANALYSIS/TREATMENT: Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: tropical hardwood branch (not recognized); superficially resembles balsa (*Ochroma* sp.) but microscopic anatomy does not match. Small
diameter, from branch mateial, which could include shrubs. Not a commercial lumber species. See report on file at NMAH and Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone and 15-min. vacuum; put in silicon oil for 2 wks.; removed and drained of excess; put in bag w/catalyst. Removed and cleaned, repeated as per W49. See TAMU file W20.

W21 Piece of treenail w/7 distinct edges w/adze markings; lower end of 6 X 1/8 X 1 1/8 (diam) wedge visible on 1 rounded end; other end eroded off. Teredo-ridden. C/BW.


W22 Wooden “tube” w/small 1/8-in. hole through entire length. Surface 3 5/8 X 3 3/4 (diam) chipped and abraded. Diagonal lines along one side @ ca. 5/8-in. intervals (not the wood grain). Net/fishing line float? Long wooden bead? C/BW.


W23 Tapered wooden wedge w/1 squared and one beveled end (the upper, thick end), yielding a trapezoidal shape overall. The squared end is cut off flat. C/BW.

ANALYSIS/TREATMENT: Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white pine group (*Pinus* sp.). See report on file at NMAH and Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in acetone and 15-min. vacuum; put in 2-week silicon oil bath until no bubbles appeared; removed and drained of excess; put in MTM. Catalyst applied; excess wiped off; placed in bag w/catalyst; periodically wiped off excess. Wiping
w/ rag or Q-tip compresses surface and gives a waxy appearance. Best to pat & gently brush w/toothbrush to clean crevices. See TAMU file W23.

**W24**  
Squared piece of wood w/5 original surfaces and *in situ* fastener con.  
Wedge-shaped, w/1 beveled end; other end missing. Teredo-ridden.  
1/4-in. square iron fastener does not go through wood. Inner end of futtock or cant frame? C/BW.

**ANALYSIS/TREATMENT:** Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white oak group (*Quercus* sp. [Leucobalanus]). See report on file at NMAH and Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; artifact reported lost by TAMU 14/X/99, although treatment report file W24 has sketch of it. Returned w/o number (i.e. unidentified) on 7/IX/00. Silicon oil treatment. See TAMU file W24.

**W25**  
Tapered treenail wedge w/small end squared off and big end slightly beveled. The type of square wedge totally surrounded by the treenail; not the thin type extending completely across the treenail diameter. C/BW. See W36, W49.

**ANALYSIS/TREATMENT:** Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned to NMAH 9/II/98. Result: spruce (*Picea* sp.). See report on file at NMAH and Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in acetone and 15-min. vacuum; put in 2-week silicon oil bath until no bubbles appeared; removed and drained of excess; put in MTM. Patted and brushed w/toothbrush of excess; catalyst applied; placed in bag w/catalyst-soaked rag; periodically cleaned. See TAMU file W25. Returned from TAMU slightly bent.

**W26**  
Thin section of flat wood w/1 finished edge and 2 finished surfaces; in 6 pieces. Some teredo damage. Part of (or similar to) W18, W19.  
C/BW.

W27 Wooden treenail w/8 facets; in 8 pieces. One end finished w/slight bevel; other end missing. Teredo-ridden and in several pieces. BW.

ANALYSIS/TREATMENT: Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white oak group (*Quercus* sp. [Leucobalanus]). See report on file at NMAH and Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in acetone and 15-min. vacuum; put in 2-week silicon oil bath until no bubbles appeared; removed and drained of excess; put in MTM for 2-5 min (MTM was contaminated w/catalyst). Catalyst allowed exterior to harden before interior; when excess oil was brushed off w/toothbrush, certain areas exfoliated. Cleaned gently of excess oil and placed in bag w/catalyst until seepage stopped. See TAMU file W27.

W28 Section of wooden molding w/concave and convex finished edges. 71/2 X 51/2 X 31/2 E12

See sectional tracing by PFJ on 31/VII/97. Sampled for wood type; remainder redeposited. C (field slide); C/BW.


W29 Piece of wood w/fastener con. on 1 side; smaller piece of wood is concreted to tip of con. BW.

Sampled at NMAH by H. Alden/CAL, 30/1/98. Two samples: (a) molded piece; (b) big teredo-ridden piece. Results: spruce (*Picea* sp.). See Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; dehydration in acetone completed on 15/IX/98. STILL IN PROGRESS AT TAMU AS OF 14/X/99. Returned 7/IX/00. Con was cleaned, dehydrated w/acetone and cast w/hysol epoxy resin. Con was removed. After dehydration, wood was placed into acetone/resin. String left attached due to object’s fragility. RESULT: small piece of wood is a section of molding w/complex surface. Larger piece of wood has wooden treenail in it. See TAMU file W29.

W30 Worked, wedge-/fan-shaped tree limb attached to heartwood; rounded on one end. Rounded end terminates in bevel; tapered wedge end is teredo-ridden. C/BW.

W31 Section of round wooden furniture leg w/orange and black paint; 4\(\frac{3}{4}\) X 2\(\frac{1}{2}\) (diam) E12 raised round molding around circumference of piece. Teredo-ridden; both ends eroded and missing; in 3 pieces. C/BW/JPG.

ANALYSIS/TREATMENT: Samples of red and black paint transferred to CAL’s Ron Cunningham on 17/XII/97 for analysis. Sent to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white pine group (Pinus sp.). See Harry Alden, Wood Analysis Report of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone and 15-min. vacuum; no further treatment described. Has sticky seepage on exterior; diam. has shrunk 1/4 in. See TAMU file W31.

W32 Strip of wood w/3 finished surfaces and 1 finished end (edges and end beveled); possible saw marks. Three finishing nails visible on back flat surface; one end partially missing but small frag. of it shows the bevel. Resembles a writing desk straight edge or half a set of large parallel rules. C/BW.


W33 Partial wooden furniture leg w/orange paint in places; one end is round (turned?); the other is square. In 2 pieces; both ends missing; teredo-ridden. C/BW/JPG.


Treatment: Reported by TAMU as in process on 14/X/99 although I have no record of sending it down there. Returned 7/IX/00 and
confirmed as W33. Dehydrated in 50/50% ethanol/di water, to 100% ethanol, to 67% ethanol-resin @ 52 degrees C in sealed container. Loosely covered for 8 hrs to slow evaporation of ethanol. Teredo-ridden portions were further consolidated w/krylon 1301. Slight warpage due to ethanol/resin method and poor wood structure. PFJ: wood is in very poor condition, w/pieces flaking off in bag. See TAMU file W33.

**W34** Section of wooden molding; mitered on one end, w/the other eroded off. One concreted nail remains; 2 holes poss. for 2 other nails are visible. 251/2 X 11/8 X 7/8 E12 C/BW.

**ANALYSIS/TREATMENT:** sampled by CAL’s Harry Alden XII/97. Result: true mahogany (*Swietenia* sp.). See Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone and 15-min. vacuum; 100% ethanol; 67% acetone/rosin solution at 52 degrees C; surface wipe w/acetone. Sticky seepage on exterior. See TAMU file W34. See W15 for similar item.

**W35** Wooden bung (or tip of treenail?) w/eroded edges; top and bottom are flat. BW.


**W36** Section of wedged treenail w/bottom end missing. Worked facets visible; wedged end split. Surface corroded. Wedge head, square in section, is completely surrounded by wood. See W25, W49. C/BW.


**W37** Half of the shell of a small wooden block; 1 end compressed (damaged). Very fragile; in 9 pieces. C/BW.

37/8 X 31/8 X 7/8 (th) E12

Pin hole diam: 11/16

**W38** Sample of piece of wood molding; it was sectioned and traced by PFJ on 31/VII & 2/VIII/97 and redeposited. C/BW.

ANALYSIS/TREATMENT: Sent to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white oak group (Quercus sp. [Leucobalanus]). See Harry Alden, Wood Analysis Report of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99 but mislabelled as W28. Thus, there are two TAMU folders for W38. #1: acetone and 15-min. vacuum; after completion, placed in 5-hr. vacuum. No other treatment described. #2: 100% acetone and 15-min. vacuum; no other treatment described. Condition indicates silicon oil treatment. See TAMU files W38.

**W39** Fragmentary tapered wooden furniture leg; surface on all four sides is painted red. Sides are degraded from heavy ship worm damage. Originally round, the leg is now ovoid from compression. C/BW/JPG.

ANALYSIS/TREATMENT: Sent to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white pine group (Pinus sp.). See Harry Alden, Wood Analysis Report of 13/V/98. Sent to TAMU on 23/III/98. Dehydrated in 50/50% ethanol/water, then 100% ethanol, then ethanol/resin (67%) @ 52 degrees C in sealed container. Still in progress at TAMU, 14/X/99. Returned 7/IX/00. Dehydrated in 50/50% ethanol/water, then 100% ethanol, then ethanol/resin (67%) @52 degrees C in sealed container. Wood slow-dried and coated w/krylon 1301 to further consolidate. Slight warping to to teredo-ridden structure of wood. RESULT: the conservation re-rounded the piece, which also now shows a wooden peg set into one side. See TAMU file W39.

**W40** Wooden dowel or bung, intact. One end slightly flattened. Furniture peg? BW.

ANALYSIS/TREATMENT: Sent to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 18/III/98. Result: lignum vitae (Guaiacum sp.). See Harry Alden, Wood Analysis Report of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone and 15-min. vacuum; put in oil for 2 wks; drained of excess, put in MTM for 2-5 min.; repeated process until clean. Put in
Two wooden beads with short posts on one side. One has a small chip on one side; the other is intact. Traces of gold leaf and gesso, esp. near posts. C/BW.

**W41**

**ANALYSIS/TREATMENT:** Taken to CAL’s Harry Alden on 9/II/98 for wood identification; returned 9/II/98. Result: birch (*Betula* sp.). CAL’s MW took gold sample for analysis on 9/II/98. MW (pers. comm. 9/II/98): these beads are from a looking glass/picture frame of the v. late 18th or early 19th centuries (Empire/Federal/Neo-Classical style); turning marks visible. Lathe-turned on a spindle (post=spindle); gold leaf floated in bucket of water and bead brought up under it, coating it w/ the gold leaf. See MW drawing (in CAL file). See Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. “Dehydration in acetone completed on 8/14/98;” no other treatment described. Gilded wooden beads are now flattened and collapsed. See TAMU file **W41**. Gold samples returned by Mel Wachowiak, 21/XII/00.

**W42**

Fragment of tapered wooden roof shingle; probably modern cedar (from Iniki?). BW.

**ANALYSIS/TREATMENT:** Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white pine group (*Pinus* sp.). See Harry Alden, *Wood Analysis Report* of 13/V/98. N.B. My records do not indicate that I sent this to TAMU; however, they returned two pieces of wood with this number on 14/XI/99, and documented that it was dehydrated in 100% acetone and a 15-min, vacuum; no other treatment described. This TAMU file is actually for **W14**, not **W41**.

**W43**

Thin, narrow strip of wood w/worked edges. One end intact and finished; the other end is broken. BW.

Sampled at NMAH by H. Alden/CAL, 30/I/98. Result: Douglas fir (*Pseudotsuga menzeisii*). See Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone and 15-min. vacuum; then 100% ethanol; 67% acetone/rosin solution @ 52 degrees C; wiped w/ acetone. No further treatment described. See TAMU file **W43**.

**W44**

Section of square furniture leg w/both ends rounded (turned?). Teredo-damaged; ends eroded off. Red and black paint on 2 sides; Spindle diam: 3\(\frac{1}{2}\)
other 2 sides are bare wood. Fastener cons on 2 sides. Length of square section (bet. rounded ends): 15\(\frac{1}{2}\). One side eroded from teredo. C/BW/JPG.

Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 18/III/98. Result: white pine group (\textit{Pinus} sp.). See Harry Alden, \textit{Wood Analysis Report} of 13/V/98. Sent to TAMU on 23/III/98. Dehydrated in 50\% ethanol/water, then 100\% ethanol, then ethanol rosin (67\%) @ 52 degrees C in sealed container. Still in progress at TAMU, 14/X/99. Dehydrated in 50/50 ethanol/water, then 100\% ethanol, then ethanol/resin (67\%) @52 degrees C in sealed container. Wood slow-dried and coated w/krylon 1301 to further consolidate. See TAMU file W44.

**W45** Section of furniture leg; crushed and teredo-ridden. One end to have been 4-sided, the other rounded (turned?). Red and black paint visible on 1 end; bare wood on the other. C/BW/EDS/SEM.

ANALYSIS/TREATMENT: Sample of red paint transferred to CAL’s Ron Cunningham on 17/XII/97 for analysis. Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 18/III/98. Result: spruce (\textit{Picea} sp.). See Harry Alden, \textit{Wood Analysis Report} of 13/V/98. Sent to TAMU on 23/III/98 (leftovers in ethanol). PIGMENT: red mercuric oxide, or vermilion. See Ron Cunningham report CAL #5644. ARTIFACT REPORTED LOST BY TAMU ON 14/X/99 ALTHOUGH TAMU TREATMENT REPORT FILE W45 HAS SKETCH OF IT. Four small pieces returned by TAMU 27/VII/02. Chemical dehydration =submersed in 50\% DiH2O/50\% ethanol, the 100\% ethanol, then 50:50 ethanol:acetone, then 100\% acetone. Then set in 60\% silicon oil/40\% MTMS solution, then drip-dried. Then catalyzed w/TPT Titanate 3X.

**W46** Section of furniture leg; teredo-ridden. One end orig. 4-sided; the other round (turned?). Red paint visible on squared end (1 side and bottom inch of another side). Some unpainted area indicates attachment to another portion of the structure. C/BW/JPG.

**W47** Three attached wooden pieces: part of 1996 furniture find (drawn by Tom Ormsby). One piece appears to have been squared, with 2 flat pieces attached perpendicularly to it. Squared piece has red paint on all surfaces. Flat piece has black paint on outer surface. Flat surface has concreted area (iron fastener corrosion product?). C (1996 in situ); C/BW.

ARTIFACT REPORTED LOST BY TAMU ON 14/X/99 ALTHOUGH TREATMENT REPORT FILE **W47** HAS TREATMENT FOR IT.

**W48** Section of faceted, wedged treenail. Outer end preserved; inner end eroded off. Treenail split on sides and end by wedge. C/BW.

**ANALYSIS/TREATMENT:** Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white oak group (*Quercus* sp. [Leucobalanus]). See Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 50% water/alcohol, then 100% acetone and vacuum for 4 hrs. Silicon oil and 3% MTM for 48 hrs, then vacuum for 10 days. Excess silicon cleaned off and catalyst applied. See TAMU file **W48**.

**W49** Four-sided tapered wooden wedge, terminating in point. Intact. Ring Deposit (see **B21**). C/BW. See **W25, W36**.

**ANALYSIS/TREATMENT:** Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: spruce (*Picea* sp.). See Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone and 15-min. vacuum; then again w/fresh acetone and 30-min vacuum. Then oil soak for 7 days; from day 4, a slight vacuum was pulled to see if bubbles were released. Once bubbling stopped, a MTM wash for 2-5 min. and removed from MTM and cleaned. Catalyst applied to surface and bagged w/catalyst-soaked rag. every 2 hrs, cleaned of excess. See TAMU file **W49**.

**W50** Small piece of wood w/2 worked sides. One end beveled, the other is eroded off. One side has a small channel. BW. Ring Deposit (see **B21**).

**ANALYSIS/TREATMENT:** Transferred to CAL’s Harry Alden on 19/XII/97 for wood identification; returned 9/II/98. Result: white
oak group \((Quercus\ sp. [Leucobalanus])\). See Harry Alden, *Wood Analysis Report* of 13/V/98. Sent to TAMU on 23/III/98; returned 14/X/99. Dehydrated in 100% acetone and 15-min. vacuum. Then oil soak for 1 wk.; removed, then MTM wash for 2-5 min. and excess cleaned. Bagged w/catalyst-soaked rag, periodically cleaned of excess. RESULT: length shrank to 1-1/4 in. and now in 12 pieces from the 6 sent to TAMU. See TAMU file W50.

**W51** Rigging block shell; excellent condition. Missing sheave and center pin. 5-1/8 X 3 X 2\(\frac{1}{4}\) E12 C/BW.


**1998**

**W52** Cylindrical wooden pin w/perforated head; head diam. larger than shaft. 11-1/2 (h) X 2-1/2 (shaftDiam) X 3-1/2 (headDiam) X 1/2 (holeDiam) E16 C. Cannon tompion?

**TREATMENT/ANALYSIS:** sampled by CAL’s Harry Alden 29/III/99; result: lignum vitae \((Guaiacum sp).\) See HA email, 14 June 1999. Cannon tompion? Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. 75% di water/25%ethanol; 50/50% di and ethanol; 25/75% di and ethanol; used alcohol; placed in acetone/resin. RESULT: excellent. See TAMU file W52.

**W53** Piece of wood tapering to rounded points at both ends; 2 metal attachment points visible on 1 side, flush w/outside surface; on same side are two apparent weights let into and flush with the surface. When sampled for wood type, a longitudinal internal copper wire was revealed. Modern
fishing lure? C.

ANALYSIS: sampled by CAL’s Harry Alden 29/III/99; result: most likely red cedar (HA: “This would make sense for a fishing lure.”). See HA emails (2), 14 June 1999. “That was just a guess - I really have no idea what woods are used for lures. My guess is based on the following: 1) light weight 2) easy to turn 3) decent decay resistance 4) fine grain. Just a guess.”

TREATMENT: Desalinated in deionized water and placed in ethanol, 20/IX/99.

2000

N.B.: 2000 Wood marked “HA” was taken to Harry Alden @ CAL on 30/X/2000 for typing and analysis.

W54 Charcoal (?) sample from rectangular wooden box for analysis. In 2 pieces. N/A

W55 Sample of wood from box top (actually, the bottom) for analysis. N/A

W56 Wooden game piece, painted red. Concentric circles on both sides (turned?). V. fragile and teredo-ridden. Like a (modern) checker piece. C. 1-1/16 d X 1/2 t
E36

TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/03. Mechanically cleaned, then dehydrated in increasing concentrations of ethanol in water, then acetone in ethanol. Then immersed in 80% SDF-1 silicon oil & 20% MTMS mix. Preserved w/addition of TPT titanite catalyst. See TAMU file W56.

W57 Two pieces of turned wooden “screw,” w/wide spiralling threads (augur-like). C. HA: White pine group. See H. Alden, Wood Analysis Report, 1/8/01. (a) 4-7/8, (b) 1-7/8, (c) 1-1/4 E37

TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/03 in three (3) pieces. Dehydrated with increasing concentrations of deionized water and ethanol, then ethanol and acetone. Put into 60% silicon oil & 40% MTMS (crosslinker). Then drained, cleaned and...
catalyzed %X w/ 4 gm of TPT. See TAMU file W57.

ANALYSIS: Mel Wachowiak, 9/IV/03, pers. comm: ca 15 yrs ago, he created an almost exactly similar object as a replacement at Wintherthur for a picture frame. The Barge piece would be the substrate for a gilded frame decoration, coated with gesso, then gilded and laid into the cove of a gilded frame. See TAMU file W57.

W58 Button-like wooden disk pierced in center w/ 1 hole; bevelled edge on 1 side. C.

TREATMENT: Sent to TAMU on 4/XII/00; returned 27/VII/02. Chemically dehydrated w/ 50% DiH2O & 50% ethanol, then 100% ethanol, then 50:50 ethanol:acetone, then 100% acetone. Immersed in 60% silicon oil SDF-1 & 40% MTMS, then drip-dried and catalyzed 4X w/ 2 grams of TPT in sealed bag. See TAMU file W58.


The tags for W59 and W61 may have been reversed when they were separated from their objects in the desalination process. Luckily, both were white oak.


W61 Sample of “old/original” wood from dark frame in stern, for analysis. HA: White oak group. See H. Alden, Wood Analysis Report, 1/8/01. The tags for W59 and W61 may have been reversed when they were separated from their objects in the desalination process. Luckily, both were white oak. N/A E37

W62 Wooden wedge w/ flat top and bevelled edges, tapering to point. Part of sharp end missing. Toolmarks visible on all surfaces. Fragile hardwood. Originally intact but damaged in transit to NMAH. C.

10-3/4 X 2-3/4 X 1-1/2 t E38
TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/03. Mechanically dehydrated through gradually changing baths of DI water and ethanol, to pure ethanol, and 50/50 ethanol/acetone to 100% acetone. Placed in 60% silicon oil/40% MTM, then put in vacuum, drained and set in 60% SFDI silicon oil/crosslinker MTM/catalyst TPT titanate. See TAMU file W62.

W63 Curved length of wood; all surfaces and edges are relatively intact, and toolmarks are visible on all surfaces. Ends are grooved/filleted for band or insertion into another object. In 2 pieces. Gun forestock? C. HA: White oak group. See H. Alden, Wood Analysis Report, 1/8/01.

ANALYSIS: Harry Hunter and Sarah Rittgers examined the piece on 15/XI/00; they felt that the wide (projected) diameter of the piece would indicate that it came from a boat gun or blunderbuss, possibly mounted on a swivel (=espingole). Blunderbuss=flared muzzle. Another term for this type of gun is musketoon. The filleted parts are for barrel bands, which would have held the forestock to the barrel. However, parallels from the NMAH collections and illustrations in W. Gilkerson, Boarders Away II: Firearms of the Age of Fighting Sail (Lincoln, RI: Andrew Mowbray, Inc., 1993), indicate that most such weapons did not have barrel bands, and did have ramrods. Gilkerson, 97ff (Espingoles and Musketoons section): these guns were used as scatter guns, firing pistol balls or big lead pellets. Gilk, 105: musketoons were smaller, shorter than blunderbusses and seldom used over 50 yards and thus =deck arms.

TREATMENT: Sent to TAMU on 4/XII/00; returned 2/IV/03. Chemically dehydrated through diminishing proportions of DI water and ethanol, then ethanol and acetone. Put in 75%/25% silicon oil/MTM. No mention of catalyst. End not put back on. See TAMU file W63. On 21-22/VIII/03, Wayne Smith reassembled the pieces, with a bit of stainless steel wire to reinforce the joins.

***END***

=1,257 artifact lots

HAWAIIANA (segregated out from other [above] categories)

B11 Long, slender worked bone frag.; prob a long bone, poss. a tibia. Size prob. indicates cattle (Bos taurus). Surface polished. Bone awl/pick? See also C11. C/BW.

ANALYSIS: Patrick V. Kirch, Feathered Gods and Fishhooks (Honolulu: UH Press, 1975) 189-93, fig. 170: “awls/picks...may have been
used to split leaves into strips for mat-making; others are interpreted as picks for extracting shellfish meat.” Adrienne Kaeppler, 23/VII/01: poss. thatching needle, in which case it might be whalebone.

**B19**  Squared section cut from upper tip of sperm whale’s tooth (i.e. ivory). 2 X 1\(^{1/2}\) X 1  E13
Ring Deposit (see **B21**). C/BW.

**ANALYSIS:** Jim Mead, Cetologist @ NMNH: from a whale >40-50 yrs old; poss. a female. Adrienne Kaeppler, 24/VII/01: poss. (ivory hook) debitage; poss. walrus rather than whale.

**B20**  Long section of sperm whale’s tooth (i.e. ivory); two long sides and one end are cut. The fourth surface appears to be part of the tooth’s root. 3\(^{7/8}\) X 3\(^{7/8}\) X 1\(^{1/2}\)  E12
C/BW. Ring Deposit (see **B21**).

**ANALYSIS:** Jim Mead, Cetologist @ NMNH: thick end has characteristic line bet. dentine and the cement. Adrienne Kaeppler, 24/VII/01: poss. (ivory hook) debitage; poss. walrus rather than whale.

**C11**  Small copper fastener, sharpened to a point (for reuse as an awl/pick?). 4\(^{1/8}\) X 5\(^{5/8}\) (head diam)  E12
BW. See also **B11**.

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: sharpener; groove has rust inside. Matches **C11** (reworked copper spike) in size of groove.

**C22**  Headless square copper spike; one edge curved or bent. Reworked; pointed on both ends. Surface cleaned after deionized water bath. 4 X 1\(^{1/2}\) X 3\(^{3/8}\)  E12
C/BW.

**Cleaned:** 4 X 3\(^{3/8}\) X 5\(^{5/16}\)

**HS018**  Folded section of copper hs. No original edges visible; one folded end is rounded (i.e. reworked). 9\(^{3/4}\) X 3\(^{3/4}\)  E9
C/BW.

**MISC4**  (b) Triangular lava stone w/ worked hole (from both sides). Reef anchor or fishing net weight. 5 X 5\(^{1/2}\) X 2 (T). Hole: 1\(^{1/2}\)  E1
ANALYSIS: Adrienne Kaeppler, 23/VI/01: too large for net weight=canoe anchor.

MISC6  Fragmentary gourd (?) bowl, w/five inches of original lip preserved. 11 X 7 X 5 E12
In three pieces; originally very large and shallow. Adrienne Kaeppler: prob. a poi bowl. C/BW.

TREATMENT: Sent to TAMU on 25/II/97.

MISC18 Basalt rock, oblong, with an ostensibly worked channel around one edge. A small concretion of iron corrosion product on one side. C/BW. 4\(\frac{3}{2}\) X 2\(\frac{1}{2}\) X 2\(\frac{1}{4}\) E13
Con: 1 X 1 X \(\frac{1}{2}\)

MISC25 Trapezoidal rock w/three smooth surfaces and rough ends; may be worked. BW. 5\(\frac{1}{2}\) X 2 X 1\(\frac{1}{2}\) (th) E12

ANALYSIS: Adrienne Kaeppler, 23/VI/01: appears to be an unfinished/broken adze.

MISC27 Triangular, flattish worked stone (lava?). Several worked surfaces. 6\(\frac{1}{2}\) X 5\(\frac{1}{4}\) X 2 E14
Prob. a burnisher? C/BW.

ANALYSIS: Adrienne Kaeppler, 23/VI/01: a canoe breaker.

MISC28 Nine, gourd frags. of variable sizes and thicknesses; no finished edges visible. BW. Miscellaneous E14

TREATMENT: Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; soaked in silicon oil w/3% MTM by weight. Removed from oil, washed in MTM, cleaned of excess and catalyst applied. Catalyst wiped off and gourd frags. bagged w/catalyst-soaked cloth. Now in 14 pieces rather than the 9 sent. See TAMU file MISC28.

MISC30 Hollow rock (basalt ?)—possible a kukui nut oil lamp. Bottom flat. 3\(\frac{3}{4}\) X 3 X 2\(\frac{1}{4}\) E12
C/BW.
Dr. Floyd McCoy of University of Hawaii says he saw evidence of working inside and that lava bombs have little bubbles inside, which this piece lacks. See RWR>PFJ e-mails of 10 & 24/IX/97, quoting McCoy: “if the outer rim of a naturally-formed bubble, it would have been a gaseous rock at hardening w/lots of holes and bubbles and more porosity. This piece is too dense to have formed in that manner and must have been carved out of a more solid stone.”

Might it also be a Hawaiian stone bait mortar? Images of small, partially unfinished examples and their descriptions are found in Te Rangi Hiroa (Peter H. Buck), “Fishing,” Arts And Crafts of Hawaii VII (Hono: Bishop Museum Special Publication 45) p. 354-55, fig. 240a.

**MISC36**  Trapezoidal rock w/hole; 1 end broken off and other surfaces are flat (worked?). C/BW.

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: poss. a burnisher.

**MISC39**  Three small pieces of gourd, light brown. BW. Largest is:

2 1/2 X 2 3/4 X 1/4  E12

**TREATMENT:** Sent to TAMU on 14/XI/97. On 14/X/99, TAMU conservation folders were returned for MISC15, MISC22a and MISC39, stating that the NMAH had misidentified a piece of iron as these three pieces of gourd. Will contact TAMU for clarification. See TAMU file MISC39.

**MISC50**  Six small gourd frags. of miscellaneous size and thickness; 3 may have worked edges. Could this have been garbage from the bilge or poss. used for dunnage? BW.

**TREATMENT:** Sent to TAMU on 14/XI/97; returned 14/X/99. Dehydrated in two 2-week acetone baths; soaked in silicon oil w/3% MTM; removed from oil, washed off w/MTM and cleaned of excess. Thin layer of catalyst applied; catalyst wiped off and frags. placed in bag w/catalyst-soaked cloth. Recorded by TAMU as 15 pieces rather than the original six, but 12 were returned. See TAMU file MISC50.

**MISC63**  Grooved lava stone—net weight or canoe anchor. C.

5-3/4 X 4-1/2 X 3 (t)  E18

**ANALYSIS:** Hans van Tilburg, pers. comm. 9/I/99 (at Salt Lake CUA): could be an octopus lure. See Michael Pfeffer, Archaeology

**MISC65** Flattened lava disk= *ulu maika* game stone (bowling). C. 2-3/4 X 1-1/2 (t) E19

**ANALYSIS:** see John Papa Ii, *Fragments of Hawaiian history*... Honolulu, Bishop Museum Press, 1983.

**MISC66** Lava pounder in form of truncated cone w/incurved sides and convex bottom. C. 6 X 5 (w) E19

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: pounder or scraper. AK, 22/VI/04: pounder (not poi).

**MISC67** Lava pounder, slightly lopsided. C. 6 (h) X 4 E19

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: pounder or scraper. AK, 22/VI/04: pounder (not poi).

**MISC69** Lava stone w/groove around center=net weight/canoe anchor.C. 8-5/8 X 7-5/8 X 4 (t) E19

**ANALYSIS:** Adrienne Kaeppler, 23/VII/01: canoe breaker.

**MISC70** White conch shell w/tip broken off and hole in side=Hawaiian *pu*, or conch trumpet w/tonal hole. C. 6 (h) X 3-1/4 (w) E22

**ANALYSIS:** Bill Spurlock and professional pu blower @ Princeville Hotel: tip broken off is not a natural formation, as it is the thickest and strongest part of the shell. Tonal hole could be natural, and in fact the note played is cleaner w/hole covered.

**MISC73** Two kukui nuts; 1 intact, 1 half shell. C. 1-1/8 (intact Diam) E24

**TREATMENT:** Sent 27/IX/99 to TAMU for conservation. Placed in 50/50% ethanol/di water, dehydrated and placed in acetone/resin. See TAMU file **MISC73**.

**ANALYSIS:** Would be used with kukui nut lamp
MISC75  Hemispherical lava stone; poss. game piece or burnisher. C.  2 (diam) X 1-1/4 (h)  E27

ANALYSIS: identical to a canoe rubber illustrated in Te Rangi Hiroa (Peter S. Buck), “Canoes,” Arts and Crafts of Hawaii VI (Hono: Bishop Museum Special Publication 45, 1957), p. 257-58, fig. 182d. Hiroa says smaller ones “were evidently used on wooden bowls.” Adrienne Kaeppler, 23/VII/01: canoe rubber OK.

MISC77  Large, ovoid lava stone w/ cut groove around center—canoe anchor or canoe breaker? C (onsite).  15-3/4 X 10-1/4 X 6  E21

ANALYSIS: Tommy Holmes, The Hawaiian Canoe (Honolulu: Editions Limited, 1993) 119: Canoe breakers (pohaku ku‘i wa‘a) before cannon were the most powerful weapons in naval warfare. Bishop Mu. and private ones weigh 11-23 lbs, and “all were of relatively uniform rectangular and more often elliptical shape with a well-made and deep groove, completely encircling the middle of the long width.” Unlike anchors, breakers all well formed from heavy and dense grained basalt, Bingham comments they were “swung in the powerful grasp of the Hawaiian chief much like the “morning stars” of medieval warfare.” (his footnote citing this reference is Brigham, Index:9; however, this ref. does not check out properly when I looked it up. Maybe he meant Bingham, Residence of 21 Years? See canoe breakers discussed and illustrated in Te Rangi Hiroa (Peter S. Buck), “Canoes,” Arts and Crafts of Hawaii VI (Hono: Bishop Museum Special Publication 45, 1957), p. 281, fig. 199c.

N.B.: this find was too large to ship back to WDC; Rick Rogers took it back to his home on Oahu and is desalinating it there (28/IX/98).

MISC79  Cowrie shell pierced w/2 holes on ventral surface=octopus lure or squid jig. C. See MISC80.  2-1/2 X 1-5/8  E29

ANALYSIS: Adrienne Kaeppler, 23/VII/01: octopus lure. Bishop Museum online catalog: Cypraea spp. shells, modified to serve as the shell portion of a leho he’e (squid or octopus lure).

MISC80  Cowrie shell pierced w/2 holes on ventral surface=octopus lure or squid jig. C. See MISC79.  3-7/8 X 2-5/8 X 1-7/8  E30

ANALYSIS: Adrienne Kaeppler, 23/VII/01: octopus lure.
MISC81  Smooth symmetrical circular stone disk (basalt?). Rounded edge. Poss. *ulu maika*?  C.  3-5/8 d X 2  E29

MISC82  Fine-grained basalt adze blade. Very fine. C.  4-7/8 X 1-1/8 X 7/8t  E32

ANALYSIS: Adrienne Kaeppler, 23/VII/01: adze.

MISC83  Small lava stone w/3 longitudinal surface grooves and 2 long. holes (drilled?). 3rd hole does not penetrate. All holes and grooves are parallel. Mace head/line holder/hook sharpener? C.  2-5/8 X 2-1/4  E32

ANALYSIS: Adrienne Kaeppler, 23/VII/01: sharpener; groove has rust inside. Matches C11 (reworked copper spike) in size of groove.

MISC88  Large, fine-grained basalt sharpening stone (for tool sharpening). 1 side has single wide worked surface trough; other has 2 narrower worked troughs adjacent to each other. C. Left with Rick Rogers.  19-1/2 X 9-3/8 X 4  E36

MISC89  Large, flat sharpening stone w/3 worked surfaces and 3 deeper grooves on 1 side; other side has 1 large worked surface trough. At 1 end=large rounded concretion that turned out to be a large cannon ball. the stone and con were separated after recovery. Part of ball’s surface is visible under con surface. Weight: 33 lbs. C. Stone left w/Rick Rogers.

ANALYSIS/TREATMENT: Ball sent to TAMU on 4/XII/00.

W30  Worked, wedge-/fan-shaped tree limb attached to heartwood; rounded on one end. Rounded end terminates in bevel; tapered wedge end is teredo-ridden. C/BW.  5 X 2\(\frac{5}{8}\) X 1\(\frac{1}{4}\)  E14

14/X/99. Dehydrated in acetone and 15-min. vacuum; 2nd vacuum done; no further treatment described. See TAMU file W30.

**TOOLS (non-Hawaiian)**
(segregated out from other [above] categories)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Dimensions</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>C11</td>
<td>Small copper fastener, sharpened to a point (for reuse as an awl/pick?).</td>
<td>4(\frac{1}{8}) X 5(\frac{1}{8}) (head diam)</td>
<td>E12</td>
</tr>
<tr>
<td></td>
<td>BW. See also B11.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C54</td>
<td>Copper pin w/eye @ 1 end; shaft tapered to eye. Shaft bottom is of a smaller diameter. Surface partially cracked (during mfg.,?).</td>
<td>9 X 1-3/4 (eye OD) X 1 (eye ID) X 3/8 (ring t) X 3-1/2 (shaft base L) X 1-1/8 (maxDiam) X 3/4 (shaft base diam)</td>
<td>E19</td>
</tr>
<tr>
<td>CON419</td>
<td>Long, thin needle-like con. w/swellings at middle and 1 end. Poss. silver (?) bodkin or hat pin (?). C.</td>
<td>3-1/2 X 1/2 (t)</td>
<td>E27</td>
</tr>
</tbody>
</table>

**TREATMENT:** Sent 27/IX/99 to TAMU for conservation; returned 7/IX/00. put into ER; con mechanically removed and returned to ER. Rinsed in 3 baths, 3 coats of 10% tannic acid solution, mycrocrystalline wax. RESULT: long, curved, pointed needle w/o eye @ end (sewing/sailmaker’s?). L: 3-3/16 X W: 1/16. See TAMU file CON419.

**ARMS, GUNS AND ORDNANCE**

1) Ordnance / Arms
   - musket balls
   - gun carriage wheel
   - gunpowder keg
   - cannon apron
   - cannon tompion (W52)
   - gun stock
   - lead scrap and little lead ingot (for musket/pistol balls?)
   - Cannon ball
   - Powder flask