

REVOLUTIONARY WAR VESSEL HULLS IN ARNOLD'S BAY:
HISTORICAL BACKGROUND, SALVAGE EFFORTS,
AND INVENTORY OF THE LEEGE COLLECTION

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Faced with overwhelming British naval superiority at the Revolutionary War Battle of Valcour on October 11, 1776, Brigadier General Benedict Arnold chose to attempt retreat southward up Lake Champlain. The escape from the confined waters between Valcour Island and the New York shore proved successful, as the 13 surviving American vessels rowed quietly past the negligent British craft in the early morning hours of the following day. Flight, however, was only to prolong Arnold's losing struggle.

The American crews, hoping to reach Crown Point, beat into a south wind and rowed to elude their pursuers, but were frustrated by shot damage to their hulls and the speed of the enemy's chase. October 12 saw the capture of the gondola Jersey and the scuttling of two other unidentified gondolas, the latter event taking place at Schuyler's Island (Morgan, 1972: 1245, 1276).

Arnold's squadron suffered its most crushing blows on the thirteenth, when the galley Washington was beaten into striking her colors, the cutter Lee was apparently abandoned on the western shore of the lake, and, after a two-and-a-half-hour running fight, the galley Congress and four unidentified gondolas were run ashore in "Buttonmould Bay" in Panton, Vermont. Only three of the vessels which had been with the fleet at Valcour survived the British pursuit. These were the schooner Revenge, sloop Enterprise, and galley Trumbull. They reached

temporary safety in the lake's southern narrows, only to be lost with the galley Gates and schooner Liberty, which had missed the Valcour engagement, when the British won complete control of Champlain the following year.

The five vessels run ashore in Buttonmould (now "Arnold's") Bay were set afire to prevent their falling into British hands. Local history has it that the hulls burned with their colors flying, and that Arnold was the last to leave the Congress, which had served as his flagship since his removal from the schooner Royal Savage prior to the Battle of Valcour. Dr. Robert Knox, a physician surveying the scene from aboard the British flagship Maria outside the bay, reported that Arnold burned his sick and wounded with the hulls, but this claim has not been verified (Maguire, 1978: 148). Arnold and the surviving crew members of the five craft subsequently beat a hasty retreat for the American fortifications to the south.

The British worked to salvage useable materials from the charred hulls at the bay in 1776 and 1777. Such items would probably have included cannon, shot, and possibly other iron objects such as tools and hull fittings.

Salvage of a different sort, inspired by historical interest rather than military necessity, was conducted on the hulls as early as the last quarter of the nineteenth century. The lower stern portion of a wooden hull which may have been that of the Congress was dragged out of the bay at some time between 1890 and 1910, and examination

of a photograph of the recovered structure does not immediately rule out the possibility that it was indeed from the galley. Colonel John Williams has information that the salvage occurred in 1891 or 1892, having been conducted by Millard Barnes of Chimney Point, Vermont and a Mr. Adams. He further states that the frames recovered from the hull are held by the family of the late Lorenzo Hagglund (1975). Russell Bellico, however, places the date of the salvage at 1908, and states that the hull was broken up by souvenir hunters. He goes on to note that three of the gondolas were raised near this time and were also dismembered for souvenirs before being burned (1980: 25).

The remains of another gondola, the fourth and last, if Bellico's sources are correct, were raised by a team led by marine salvage engineer Lorenzo Hagglund in 1952. This hull was resunk for preservation for two years, and then raised again permanently. Hagglund and his partners, Lake Champlain Associates, Inc., attempted to establish a museum in Essex County, New York for the exhibition of this gondola, her sister Philadelphia (salvaged by Hagglund off Valcour Island in 1935), the early nineteenth-century steamer Vermont I (recovered from the Richelieu River in 1953), the Continental schooner Royal Savage (raised at Valcour Island in 1934), and other materials, but the venture failed. The unidentified Arnold's Bay gondola subsequently suffered outdoor weathering and the attentions of souvenir hunters until it was removed to a barn in

Willsboro, New York, where it presently resides in extremely fragmentary condition. (Bellico, 1980: 26; Lake Champlain Associates, Inc., 1954).

Many other attempts have also been made to locate and recover artifacts and any remaining hull structure associated with the Revolutionary War wrecks in the bay. Paul Bilhuber, for example, found and raised an iron cannon from the bay's mouth around 1936, and Russell Bellico recovered a round shot near the mouth in 1970. The Bilhuber cannon is now located at the Basin Harbor Club, and Bellico has possession of the shot. Most attempts to locate material associated with the hulls have, however, been in vain, as Paul F. Dresser's magnetometer survey under a Vermont Division for Historic Preservation permit apparently was in 1978 (Bellico, 1980:26; Dresser, 1978).

The most ambitious effort to recover artifactual material from the warcraft has been that undertaken by William Leege, Robert Leahy, and Oscar Bredenberg during the summers of 1960 and 1961. These individuals, with the guidance of a local lake captain, located what was almost certainly the bow section of the Congress. They spent approximately one week each of the two summers dredging a portion of the hull's interior with a water pump, and recovered a large assemblage of artifacts. The Champlain Maritime Society fortuitously learned of the artifact collection, in the possession of Mr. Leege, while it was itself preparing to survey the bay for remains of the vessels, and the latter portion of this report will concern itself

with the Leege collection.

The Maritime Society, with the services of Jonathan Cowan, of F.W. Cowan & Sons Surveying and Forestry, carried out a two-day compass and tape survey of the Arnold's Bay shoreline in April of 1984. The data obtained were used to prepare a base map (fig. 1) on which subsequent underwater finds could be plotted. Temporary datum stations were set at six points along the bay's shore for employment in determining the locations of cultural features encountered during the Society's 1984 sidescan survey of the bay, which will be documented in a later report.

Mr. Leege, when contacted for information on his collection, graciously permitted Mary Margaret Zak, Kevin Crisman, and the author to inventory, draw, and photograph his Arnold's Bay material. His description of the location of the hull in which he had excavated enabled Maritime Society archaeologists to relocate the site, which is included on fig. 1. (See plate 1 for aerial view of bay.)

Positive identification of the hull as that of the Congress awaits a more detailed examination of the site, which will include measurement of surviving structural members and observation of the hull's design and methods of construction. The artifactual assemblage recovered from it marks it as a Revolutionary-era vessel of war, and it is possible to tentatively state that it is not a gondola based on Mr. Leege's recollection of structural features as well as on the caliber of cannon shot recovered. A higher percentage of the salvaged round and bar shot



BOAT
LANDING

WATER TREATMENT
PLANT

LOCATION OF
HULL REMAINS



ARNOLD'S BAY, LAKE CHAMPLAIN PANTON, VERMONT

SURVEYED AND DRAFTED BY
JONATHAN G. COWAN AND WILLIAM A. BAYREUTHER III

- ▲ - SURVEY STATION (WOODEN STAKE SET)
- - 1-1/2" DIAMETER IRON PIPE

W. Bayreuther 1981

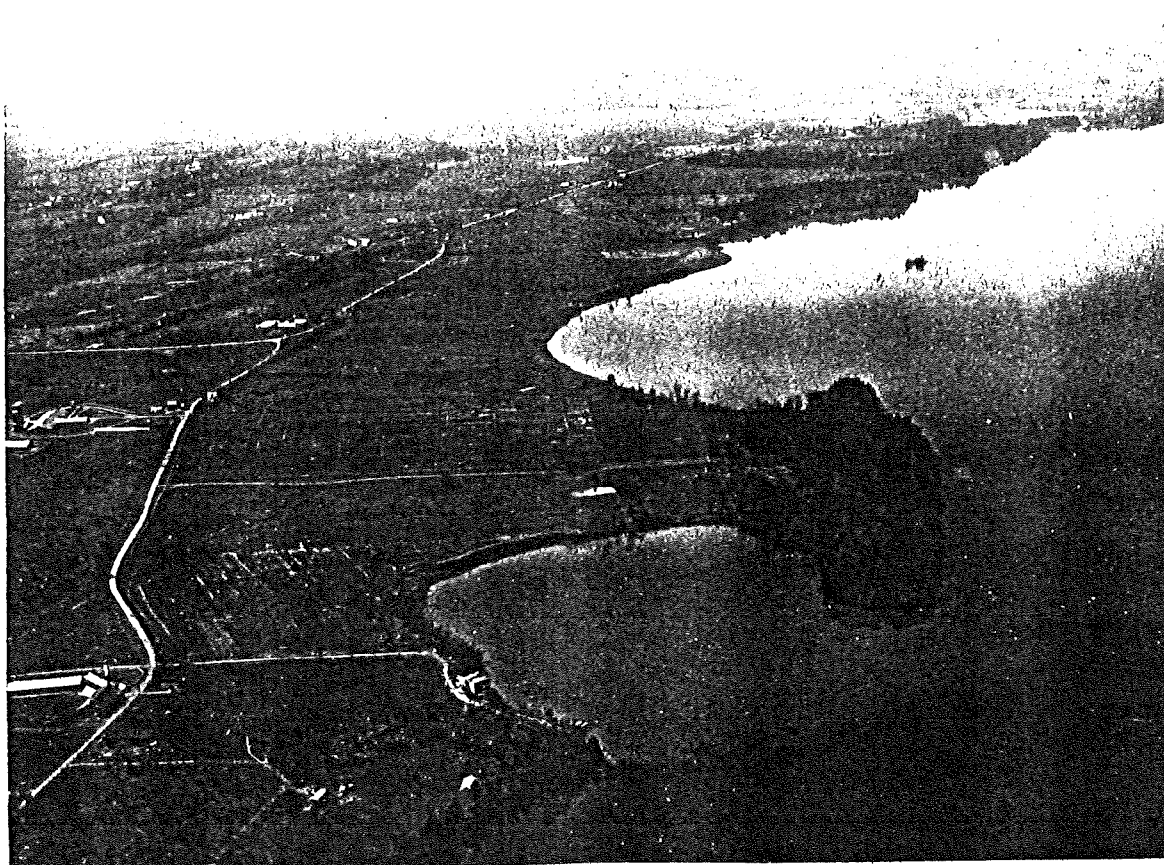


Plate 1. Aerial photograph of Arnold's Bay (in foreground), May, 1984. View to southwest. Note lighter water color in bay, due to the presence of suspended sediment...

fits the main battery of the Congress (two 18-pounders, two 12's, and six 6's) than that of a gondola (one 12 and two 9's).

No lines drawings or scale views of the Congress are known to exist, but she should have been similar in most respects, except possibly in size, to the galley Washington, whose lines were drafted after her capture by the British. Howard Chapelle's reconstruction of the Washington's lines, inboard profile, and deck plan are presented in figs. 2 and 3. Both of these vessels, like their sisters Gates and Trumbull, were originally lateen-rigged on both masts, although the Washington was converted to brig rig in the Royal Navy.

The following artifact inventory includes all those artifacts recovered from the Arnold's Bay hull which are presently in the Leege collection, with notations about any missing items of which Mr. Leege has knowledge. The artifact drawings were prepared by Mary Margaret Zak and Kevin J. Crisman.

Length on the Range of the Deck	72' 4"
" " Keel for Tonnage	60' 6"
Breadth moulded	19' 7"
Depth in Hold	6' 2"
Burthen in Tons	N ^o 123 $\frac{3}{4}$

Continental Building
"Washington"

Length on the Range of the Dock 72' 4"
Keel for Tonnage 60' 6"
Breadth moulded 19' 7"
Depth in Hold 6' 2"
Burthen in Tons 123 $\frac{3}{4}$
N^o 123 $\frac{3}{4}$
Built on Lake Champlain, 1776.

Labels in drawing:
Under-side, Quarterdeck at side.
Under-side of Gundeck at side.
Sheer.
Gundeck.
W.L.
Gundeck.
Sheer.
Gundeck.
W.L.
Butlocks - 2' 6"

Dimensions and notes:
71 70 65 60 55 50 45 40 35 30 25 20 15 10 5
A B C D
Q. fore, 11' 6" from
Q. aft, 15' 4" 9"
A & B space 6' 1" C
12.34 - 5' 4 1/2"
W.L.'s spaced 1' 0"
Butlocks - 2' 6"

2' store in 2' 6" from T.P.
 6' aft. is 4' 9" - - -
 A & B space 6' 1" C & D 5' 0"
 12.34 - 5' 4 1/2" 5' 0" 5' 8" from A
 W.L's spaced 1' 0"
 Buttocks - 1' 6"

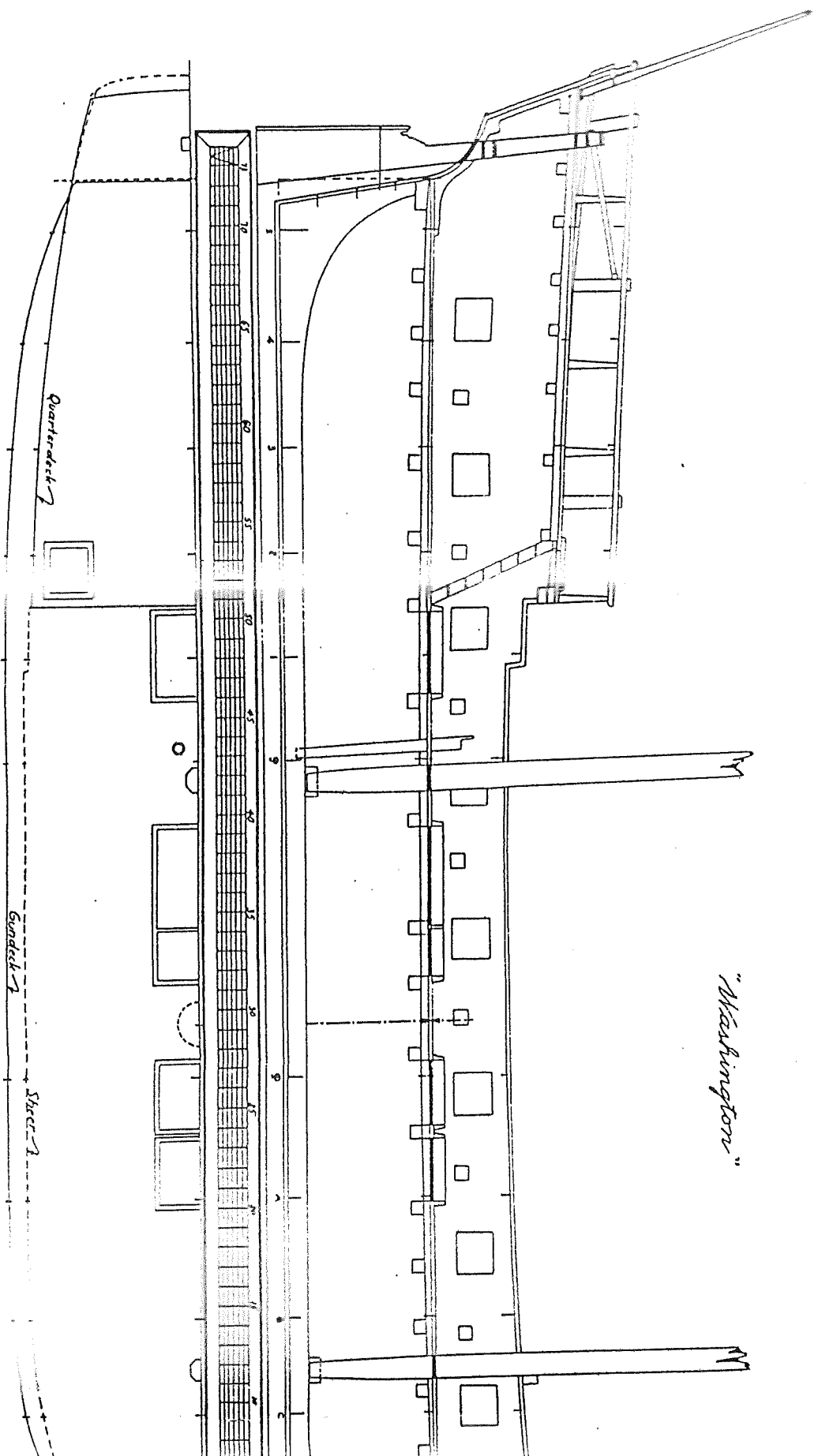


Figure 3. Inboard profile and deck plan of the Continental galley Washington. Traced from copy of original, based on a British Admiralty draught (Chapelle, 1949: fig. 15). Courtesy of Division of History, National Museum of American History, Smithsonian Institution.

INVENTORY OF ARTIFACTS IN LEEGE COLLECTION
RECOVERED FROM ARNOLD'S BAY

Woodworking Tools (iron/steel except as noted)

- 1 shell-bit auger (fig. 4), (i.d.--Horsley, 1978: fig. 43e)
-conserved
- 1 plane iron with wooden wedge (fig. 5)
-labeled "AB", iron conserved
- 1 octagonal-poll carpenter's adze head (fig. 6)
-labeled "AB 10", conserved
-not a true "shipwright's adze", as its poll is much thicker than the peg-poll used to drive ship's fasteners
-underside of blade is stamped twice with presumed maker's mark, which is indistinct but may read "BOWAN"
- 3 axe heads (fig. 7A-C)
-labeled "AB 4", "AB 5", and "AB 6", conserved
*-a fourth axe head recovered was given to Oscar Brødenberg
- 1 caulking iron (fig. 7E)
-labeled "AB 7", conserved

Metal- or Stoneworking Tool (iron)

- 1 cold chisel (fig. 7D)
-labeled "AB 9", conserved

Leatherworking Tool(?) (iron)

- 1 bone-handled awl (fig. 8A)
-labeled "AB", iron conserved

Fasteners (iron)

- 1 wedge (fig. 8C)
-labeled "AB 20", conserved
- 3 eye bolts (fig. 9)
-conserved
-possibly employed as cannon breeching bolts
- 36 spikes, hand-wrought (2 in fig. 10A)
-2 labeled "AB 90" and "AB 91" and conserved
-length 5-1/2 to 9 in. (most approx. 6 in.; planking spikes)
- 47 nails, hand-wrought (2 in fig. 10B)
-2 labeled "AB 150" and "AB 165" and conserved
-length 2 to 4-1/2 in.
- 41 spike and nail fragments
*-an undetermined number of spikes and nails recovered were given to Oscar Brødenberg

Fasteners, cont'd

- 4 drift bolts (2 in fig. 10C)
 - 1 labeled "AB 8", two conserved
- 1 staple (fig. 10D)
 - conserved
- 1 ring washer (fig. 11A)
 - internal dia. approx. 3/4 in.
- 1 slotted-head bolt(?) (fig. 11B)
 - shaft dia. approx. 1/8 in.
 - heavily rusted--i.d. tentative
- 1 latch hasp fragment (fig. 11C)
 - broken across hole which received eye for lock
- 5 pintles (1 in fig. 11D)
 - 2 labeled "AB 31" and "AB 32" and conserved
 - one pair closely matched; all of reasonable size for use in door hinges
- 1 ring fragment(?)
 - stock dia. approx. 1/8 in., fragment length 2-1/2 in.
- 2 fragments round bar stock
 - dia. 3/8 and 3/4 in., respective lengths 1-11/16 and 2-5/8 in.
- 1 flat strap
 - length 7-3/4 in., width 31/32 in., thickness approx 3/32 in.
 - 3/8 in. hole near either end

Rigging Elements (wood--lignum vitae?)

- 3 block sheaves (fig. 12)
 - 1 labeled "AB 3"
 - max. dia. 2-5/8 to 3-1/8 in., thickness 15/16 to 1-1/16 in.

Firearm Furniture and Accoutrements (brass except as noted)

- 1 trigger guard, incomplete (fig. 13A)
 - 2 articulating fragments recovered--each possesses a lug for pin-attachment to the stock; both ends of the guard are missing
 - the forward section of the guard is pierced for attachment of a sling swivel
- 2 trigger guard tail fragments (fig. 13B)
 - each is pierced by a screw hole for attachment to the stock
 - neither articulates with the guard illustrated in fig. 13A
- 2 escutcheon or key plate fragments (fig. 13C-D)
 - 1 cast with "pineapple" motif, the other flat with simple linear decoration
- 1 ramrod head (fig. 13E) (Grimm, 1970: plate 18)
 - plainly finished cap for wooden rod
- 1 rear ramrod thimble (fig. 13F) (Grimm, 1970: plate 18)
 - fashioned from sheet brass

Firearm Furniture and Accoutrements, cont'd

- 3 brass scabbard studs (1 in fig. 13G) (Grimm, 1970: plate 40)
 - 2 complete, other broken and missing back plate
- 1 gunsling swivel fragment(?)
 - length approx. 13/16 in., dia. approx. 3/16 in.
- 2 gunflints with dorsal platforms (1 in fig. 13H)
 - labeled "AB 26" and "AB 28"
- 5 gunspalls (no dorsal platforms) (1 in fig. 13I)
 - labeled "AB 25", "AB 26", "AB 27", "AB 28", and "AB 29"
- *-it appears that several artifact numbers, "AB 26" and "AB 28", have been assigned twice

Cannon and Small Arms Shot (iron except as noted)

- 4 6-pounder round shot (1 in fig. 14A)
- 1 6-pounder round shot fragment
 - *-5 additional 6-pound shot recovered from the hull are no longer in the Legee Collection; 4 were given away to Oscar Bredenberg, Richard Crook, an employee of Mr. Crook's, and Robert Leahy; the fifth, carrying a British Broad Arrow stamp, was removed from the collection without Mr. Legee's immediate knowledge several years ago
- 1 9-pounder round shot (heavily exfoliated)
- 1 12-pounder round shot
- 1 12-pounder round shot fragment
- 3 9-pounder bar shot fragments (1 in fig. 14B)
 - 1 of these fragments consists solely of one hemispherical end section, while the other two retain their wrought-iron bars
- 2 12-pounder bar shot fragments
 - each is missing one end section
- 4 1-pounder swivel shot or 12-pounder grapeshot (1 in fig. 14C)
 - 1 labeled "AB 171" and conserved
 - a round shot of this size could have been fired either singly from a swivel gun or packed on a shot stand for use in the larger-caliber cannon (Peterson, 1973: tables 9,11)
- 2 9-pounder grapeshot(?)
- 428 canister- or grapeshot for cannon of undetermined caliber (3 in fig. 14D)
 - *-an unknown number of canister- or grapeshot recovered from the hull were given to Oscar Bredenberg (and possibly Richard Crook)
- 3 fragments of iron concretion from base of shot canister
 - these items contain a partial mold of a metal canister of undetermined caliber; their eroded condition might render restoration difficult
- 1 .34-caliber lead shot ("buckshot") (fig. 14E)
- 15 .38- to .41-caliber lead shot
 - 1 crushed
- 13 .53- to .56-caliber lead shot
- 36 .59- to .62-caliber lead shot
 - 1 crushed

Cannon and Small Arms Shot, cont'd

- 30 .66- to .69-caliber lead shot (2 in fig. 14F-G)
 -1 impact-crushed, 1 with unclipped mold sprue, 3 with
 apparent tooth impressions, 1 split (half missing)

Personal Possessions

- 1 brass and glass traveling inkwell with quill case (fig. 15)
 -dark green glass well broken and incomplete; sheet brass
 case crushed and torn but nearly complete; sheet brass cap
 probably originally contained a blade for trimming ribs
 1 steel razor blade (fig. 17C)
 -conserved
 -handle and rivet or pin for blade attachment missing

Personal Apparel

- 16 buttons (3 in fig. 16A-C)
 -14 complete or nearly so, 2 backs, 3 front fragments
 -most of brass, including 1 with an "11" in relief on
 front (from a military uniform) and another with floral
 motif
 1 brass or copper cufflink (fig. 16D)
 -engraved unidentified motif
 1 cast brass buckle (plate) fragment (fig. 16E)
 -possesses two square rivet holes
 -may have secured either a shoulder or waist belt
 (Crisman, 1983: 24-25, fig. Mi. 3)
 1 pewter(?) shoe buckle fragment (fig. 16F)
 -frame only portion recovered
 1 brass shoe buckle fragment (fig. 16G)
 -represented only by portion of frame

Eating Utensils

- 1 iron or steel fork handle fragment (fig. 17A)
 -probably bone- or wood-handled
 1 pewter spoon bowl (fig. 17B)
 -broken at base of handle
 -from a serving spoon

Coins

- 1 silver 8-real ("piece of eight") (fig. 17E)
 -dated 1767
 -Mexico City mint mark (Arnold & Weddle, 1978: fig. 52d)
 1 copper British George II halfpenny (fig. 17F) (Noël Hume,
 1969: 156, 158, fig. 59-item 17)
 -dated 1746(?)

Miscellaneous Glass

- 1 bottle rim/neck sherd (fig. 17D)
 - green-colored, exfoliating
- 10 bottle glass sherds
 - green-colored
- 1 windowpane fragment(?)
 - green-tinted; possibly a case bottle sherd?

Miscellaneous Ceramic

- 4 brick fragments (1 in fig. 8E)
 - 2 articulate
 - 1 exhibits original thickness of 2 in.
 - *-one complete brick recovered from the hull was given to Oscar Bredenberg
- 4 fired clay fragments
 - these irregularly-shaped items may have been produced by lake-bottom sediment having been baked when the hull was fired during scuttling, or they may represent the lining or insulation of the vessel's cookstove

Miscellaneous Lead

- 1 fishing weight(?) (fig. 8D)
 - length 1 in., width 7/16 in., thickness 5/16 in.
 - both ends appear eroded or broken--they originally contained either notches or holes
 - possibly meant for use as a fishing line or net weight
- 9 splatter fragments (2 in fig. 8F-G)
 - possible casting waste, or products of the melting of lead objects during scuttling
- 3 folded sheets
 - 2 exhibit cut marks on their outer surfaces
 - possibly meant for use as gunflint pads
- 1 lozenge-shaped cast object
 - length approx. 1 in.; 3 lines cast into one face; appears to have been crushed; possible bottle seal?
- 1 unidentified fragment
 - length 1-1/4 in., curved

Miscellaneous Iron

- 1 unidentified handle fragment (fig. 8B)
 - length 2-3/4 in.
 - single eye offset from flat portion which appears to be pierced for a fastener; heavily rusted; possibly from a kettle?
- 1 flat band welded into a rectangular outline
 - fashioned from 1/4x1-1/4 to 1-1/2 in. stock; encloses area of 3-1/4x5 in.; originally fitted over a timber?

Miscellaneous Brass

- 1 unidentified cast fragment
- 3 thin sheet fragments

Miscellaneous Wood

- 21 unidentified fragments
 - 1 bearing spike hole
 - 1 with possible treenail hole
 - 3 exhibit charring
 - *-1 fragment, approx. 2 in. in dia. with an iron band fitted over one end, was recovered, but has been misplaced
- 1 bottle cork fragment

Miscellaneous Leather

- 4 unidentified fragments
 - 2 articulate, with a preserved width of 7/8 in.--strap fragments?
 - another exhibits stitch holes

Miscellaneous Bone

- 21 unidentified fragments

Miscellaneous Tooth

- 5 unidentified fragments

Miscellaneous Claw

- 3 unidentified fragments

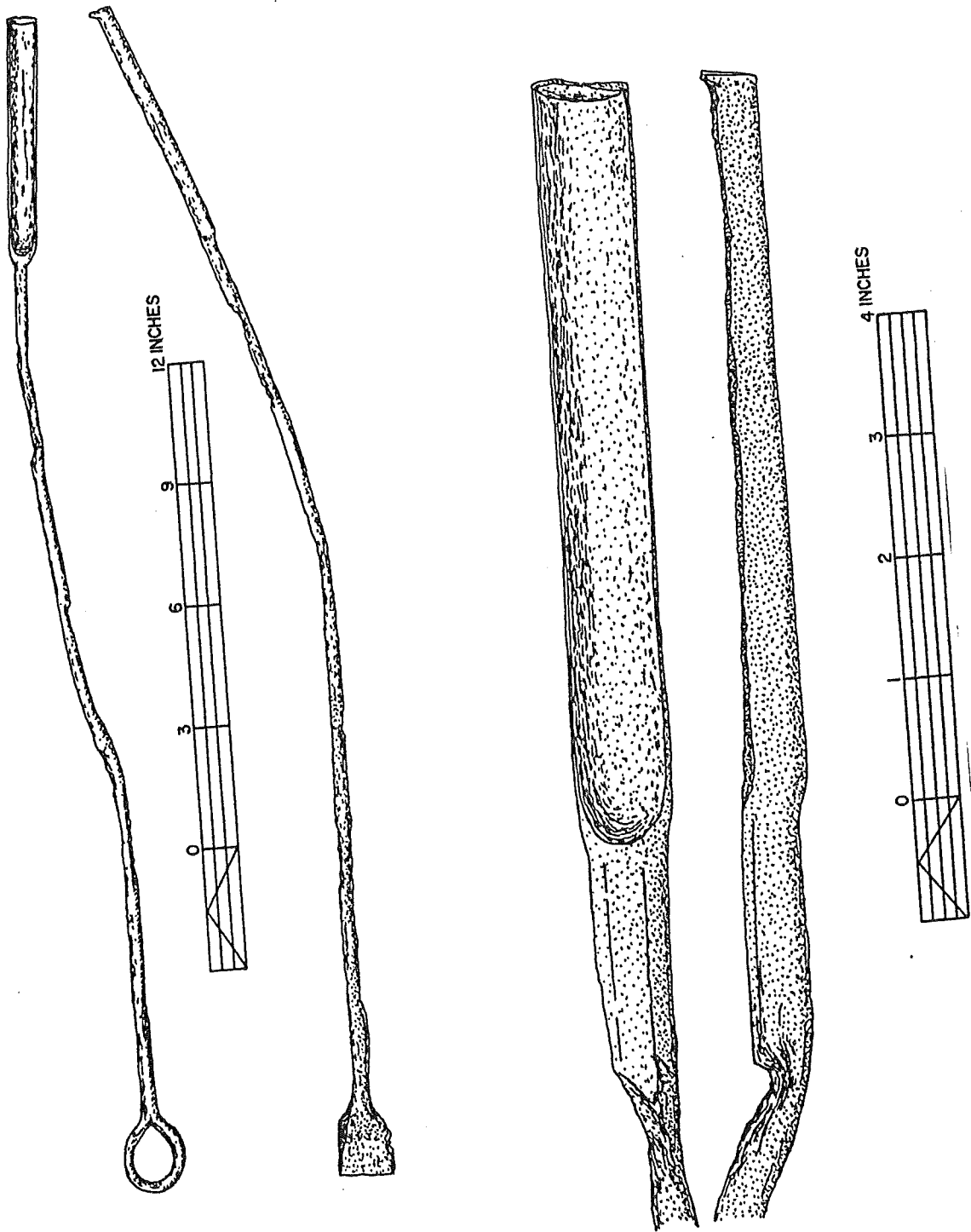


Figure 4. Shell-bit auger.

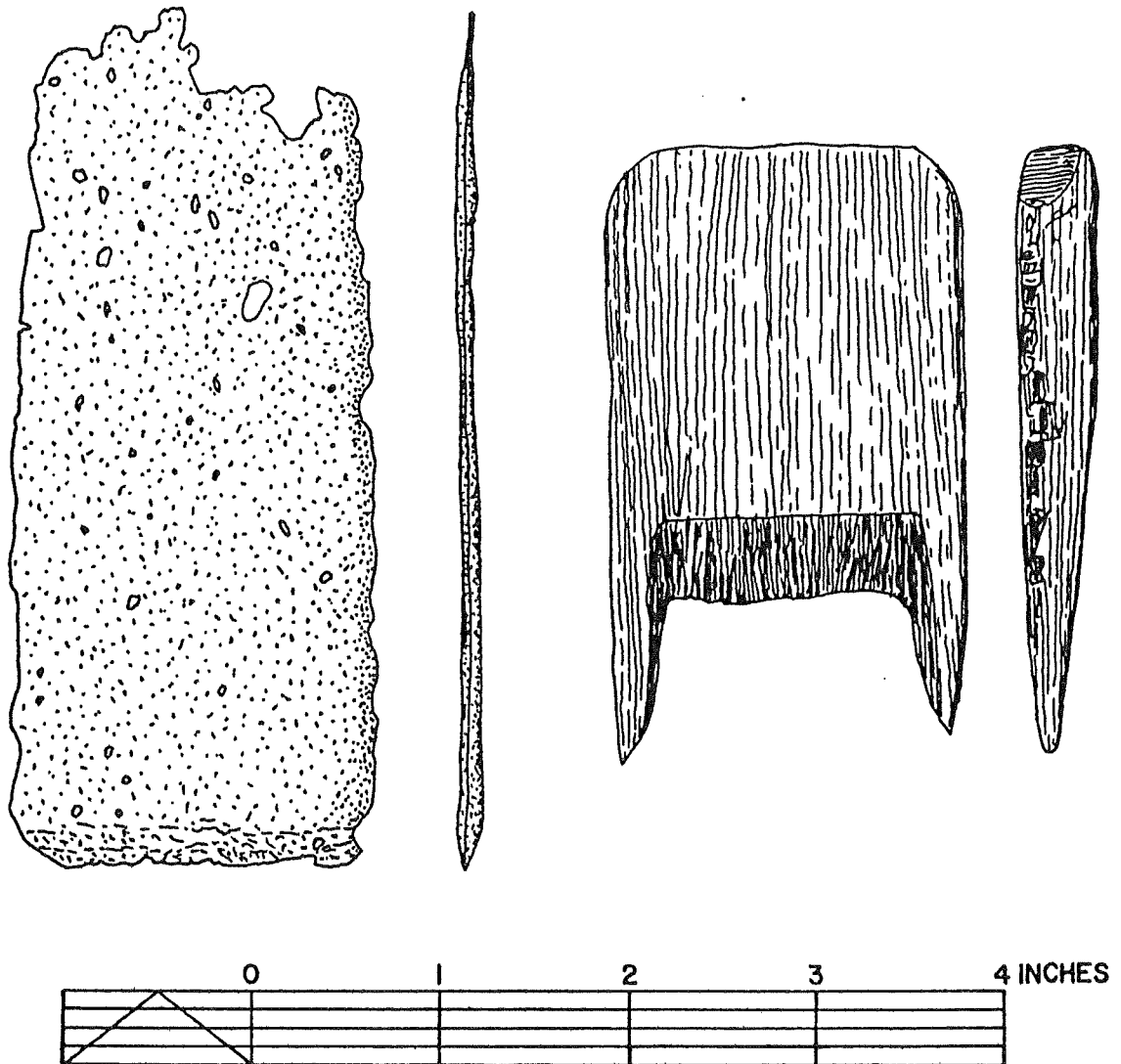


Figure 5. Plane iron with wooden wedge.

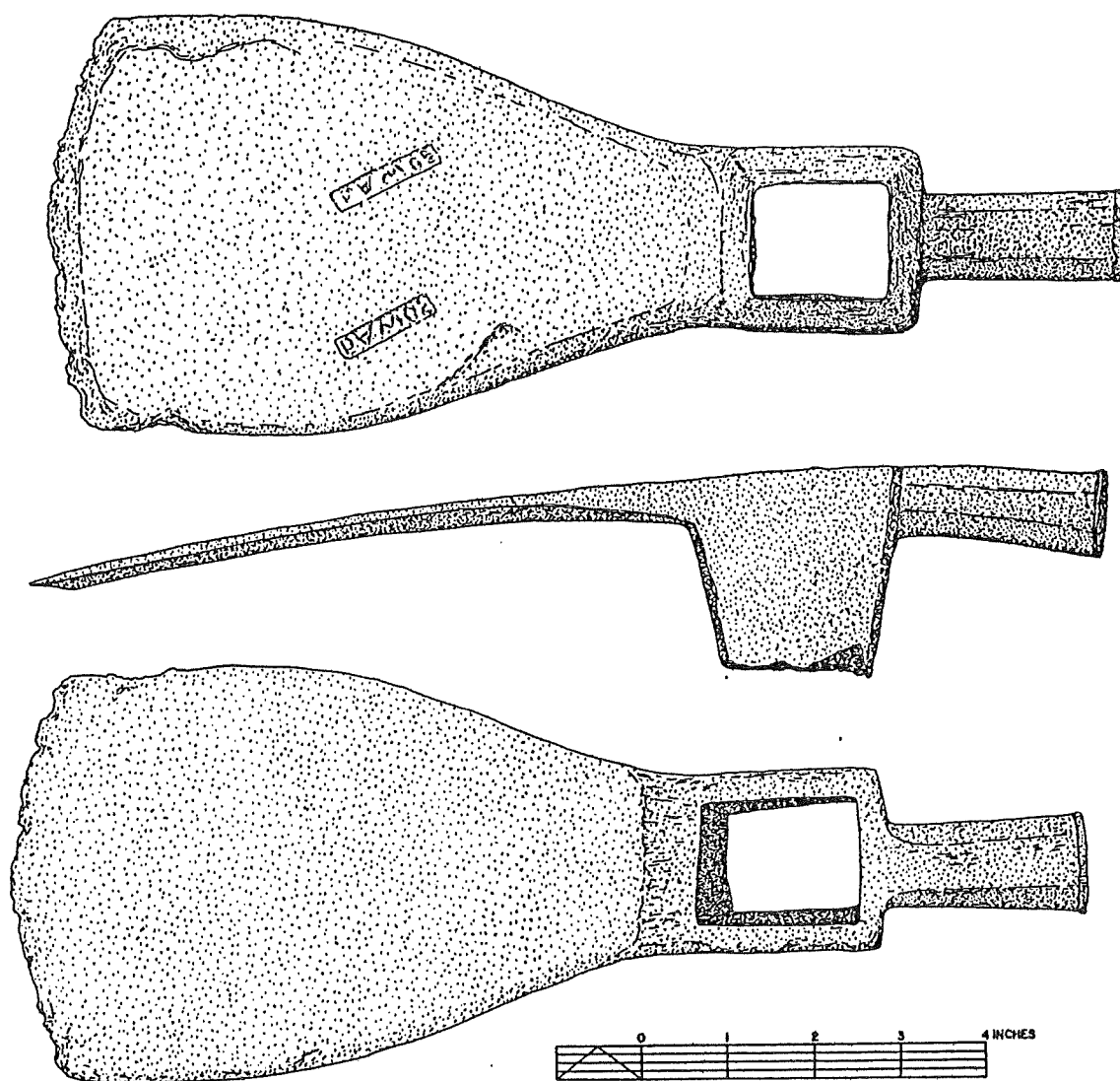


Figure 6. Octagonal-poll adze head.

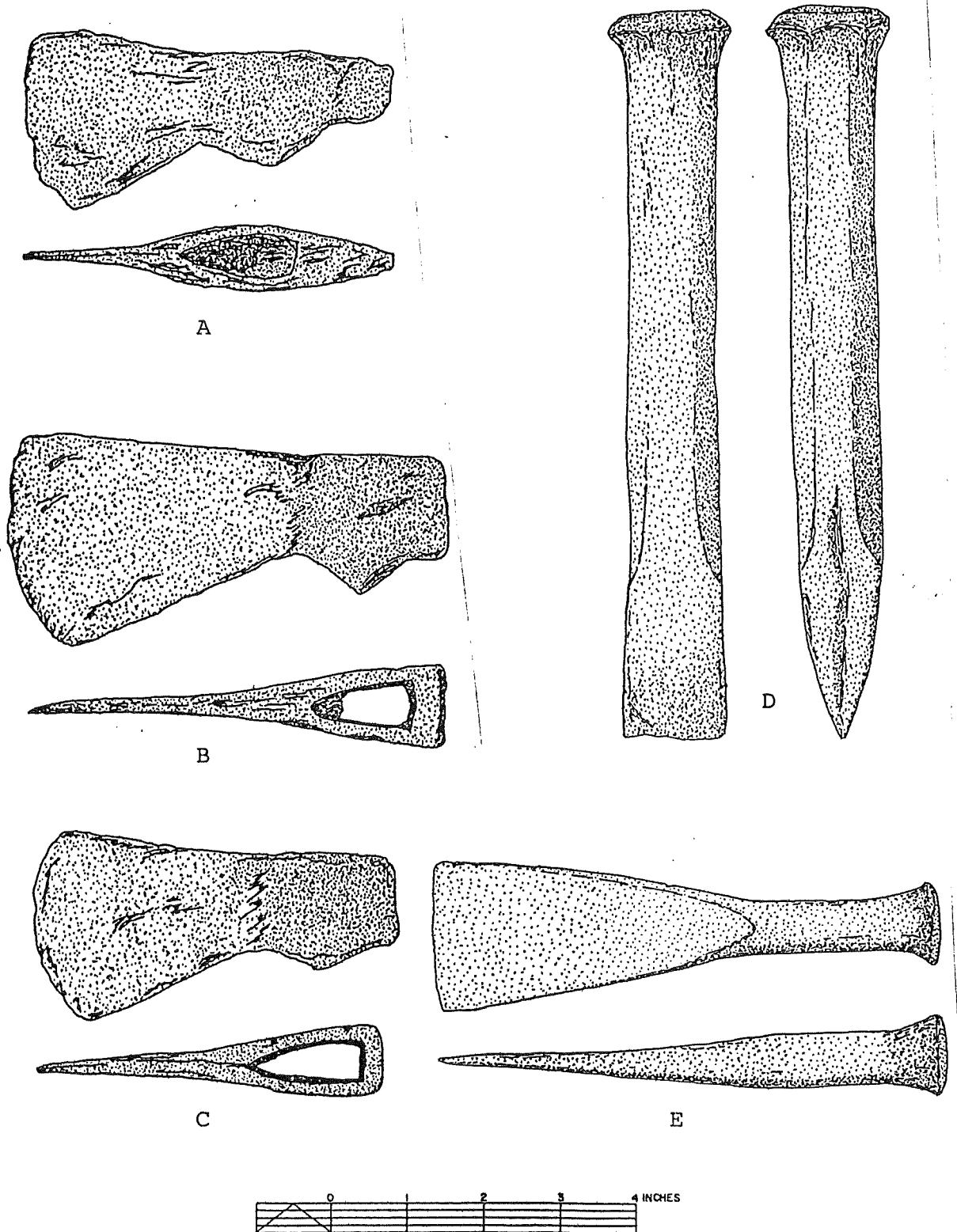


Figure 7. A-C. axe heads, D. cold chisel, E. caulking iron.

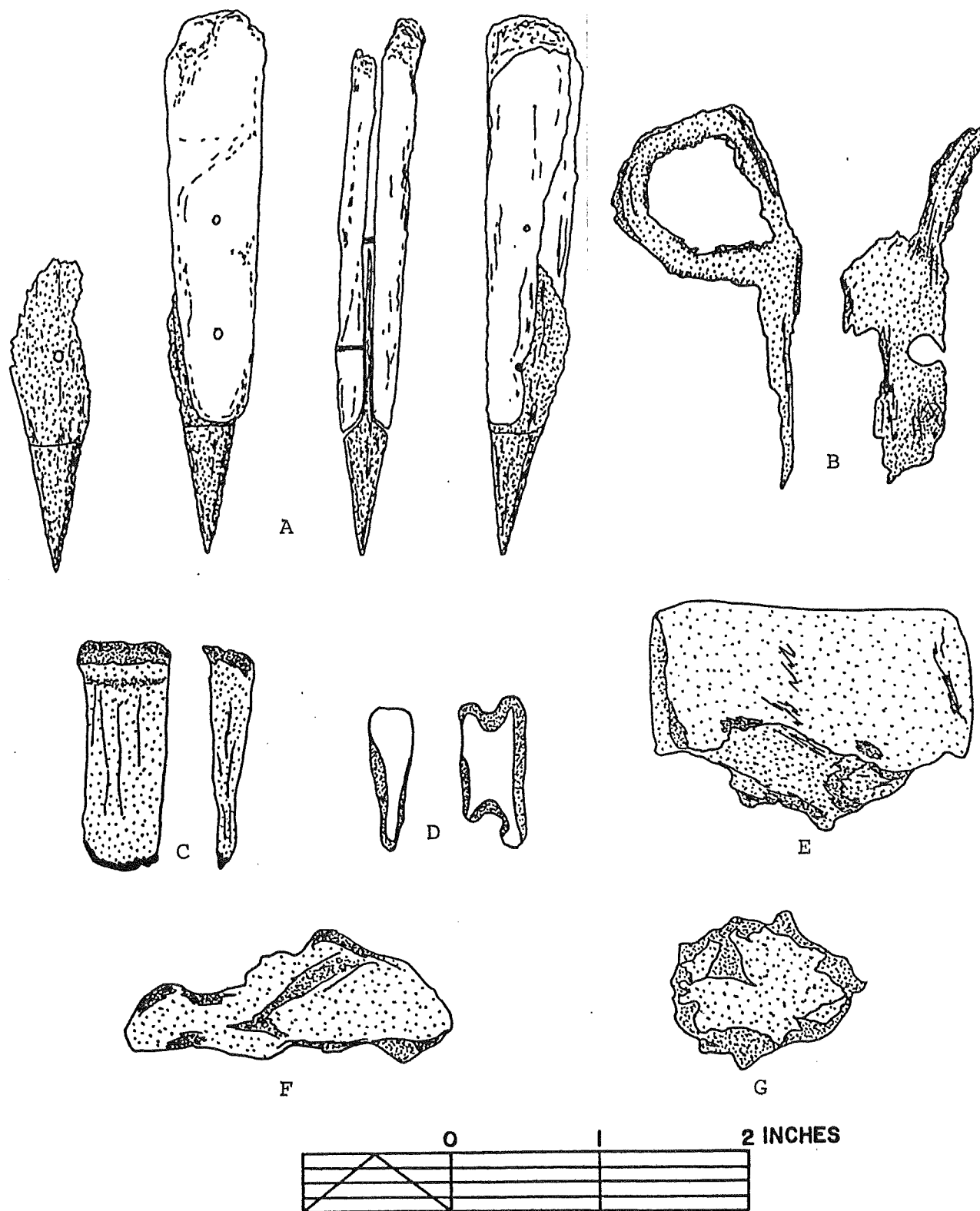


Figure 8. A. bone-handled awl, B. iron eyed handle fragment, C. iron wedge, D. cast lead weight(?), E. brick fragment, F-G. lead splatter.

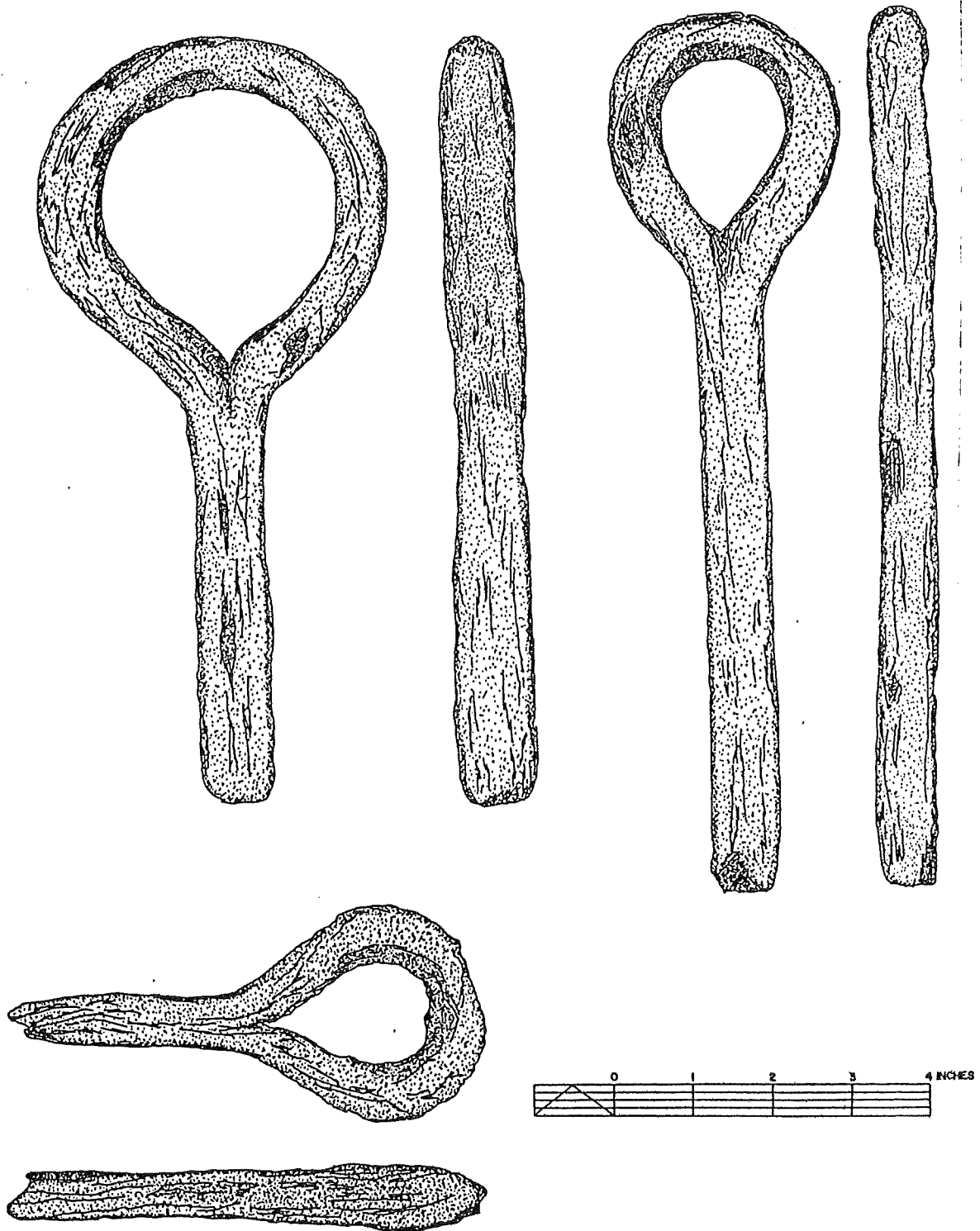
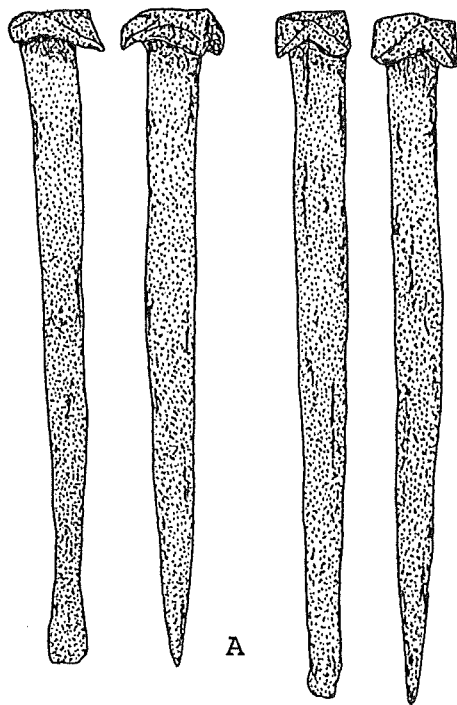
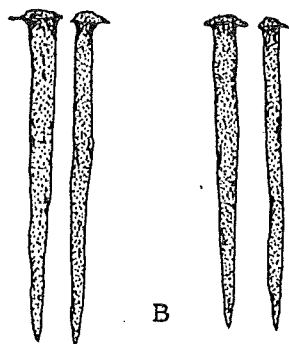


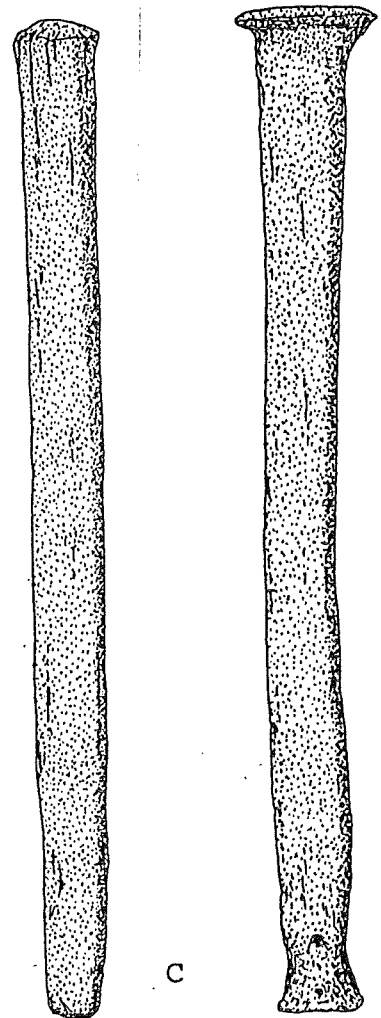
Figure 9. Eye bolts.



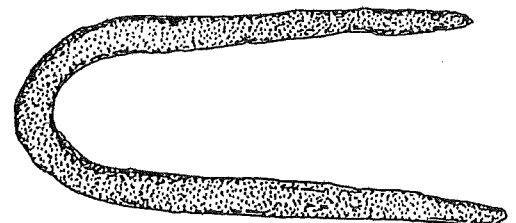
A



B



C



D

Figure 10. A. planking spikes, B. nails, C. drift bolts, D. staple.

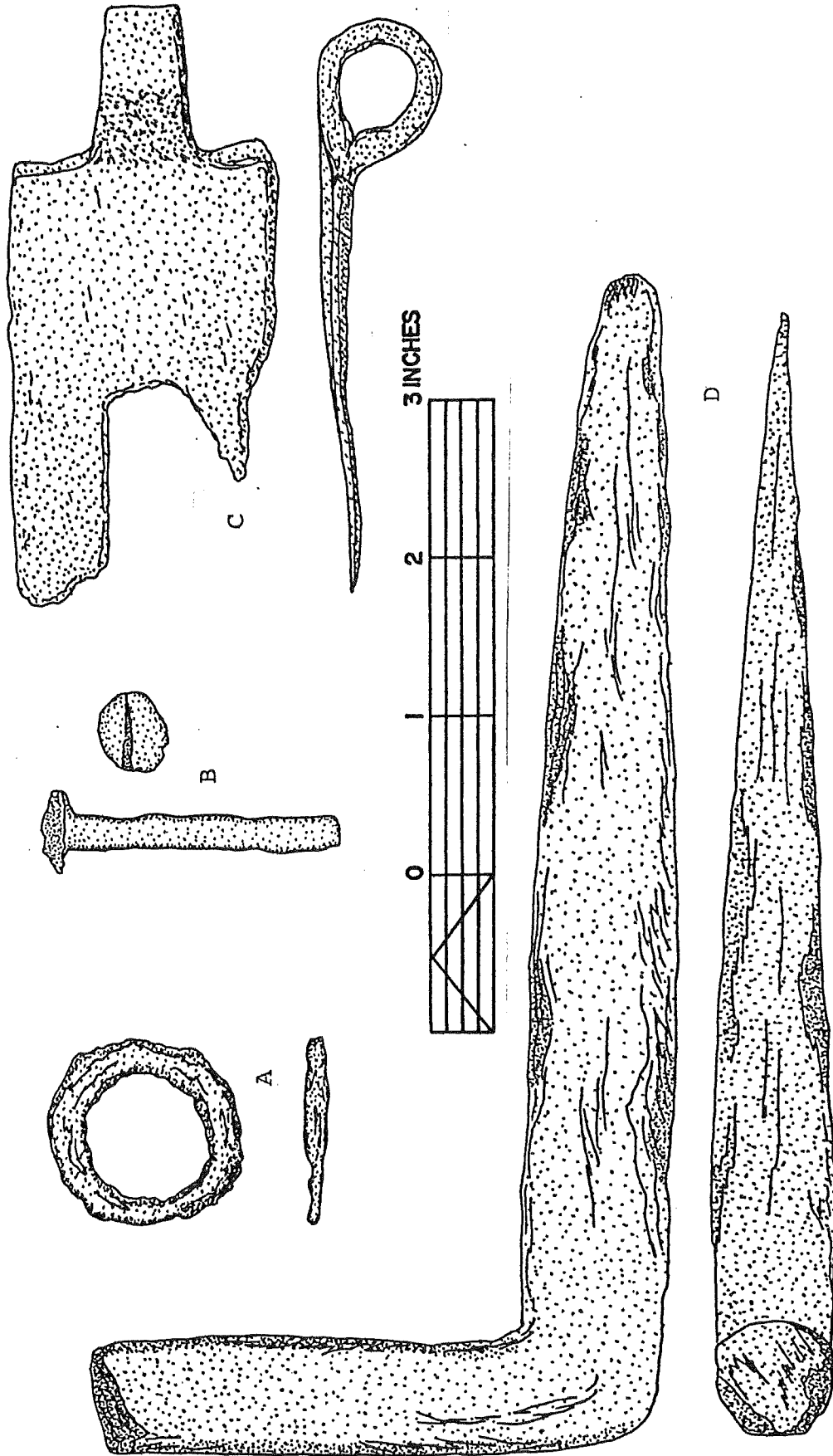


Figure 11. A. iron washer, B. slotted-head bolt(?), C. hasp, D. pintle.

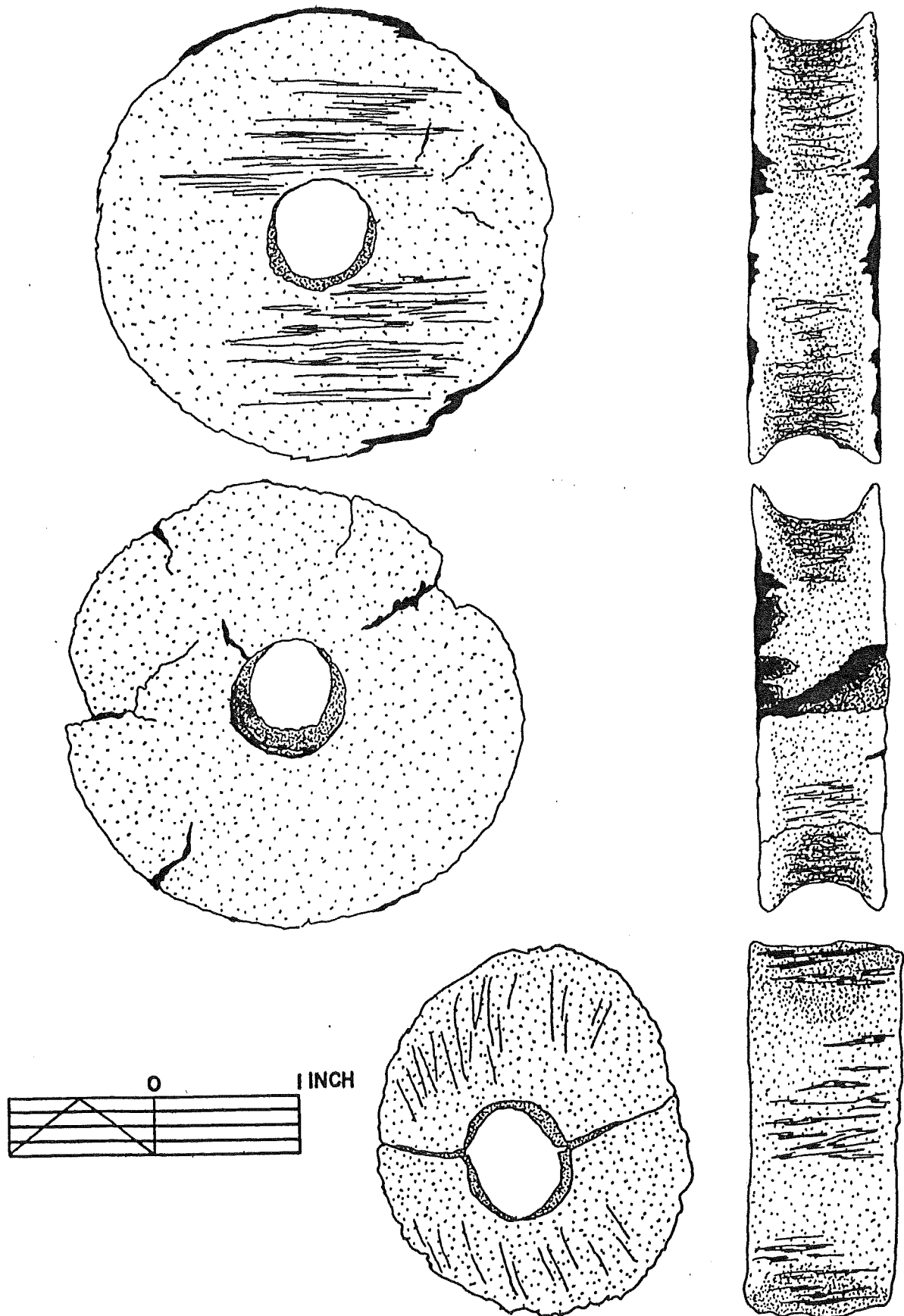


Figure 12. Wooden rigging block sheaves.

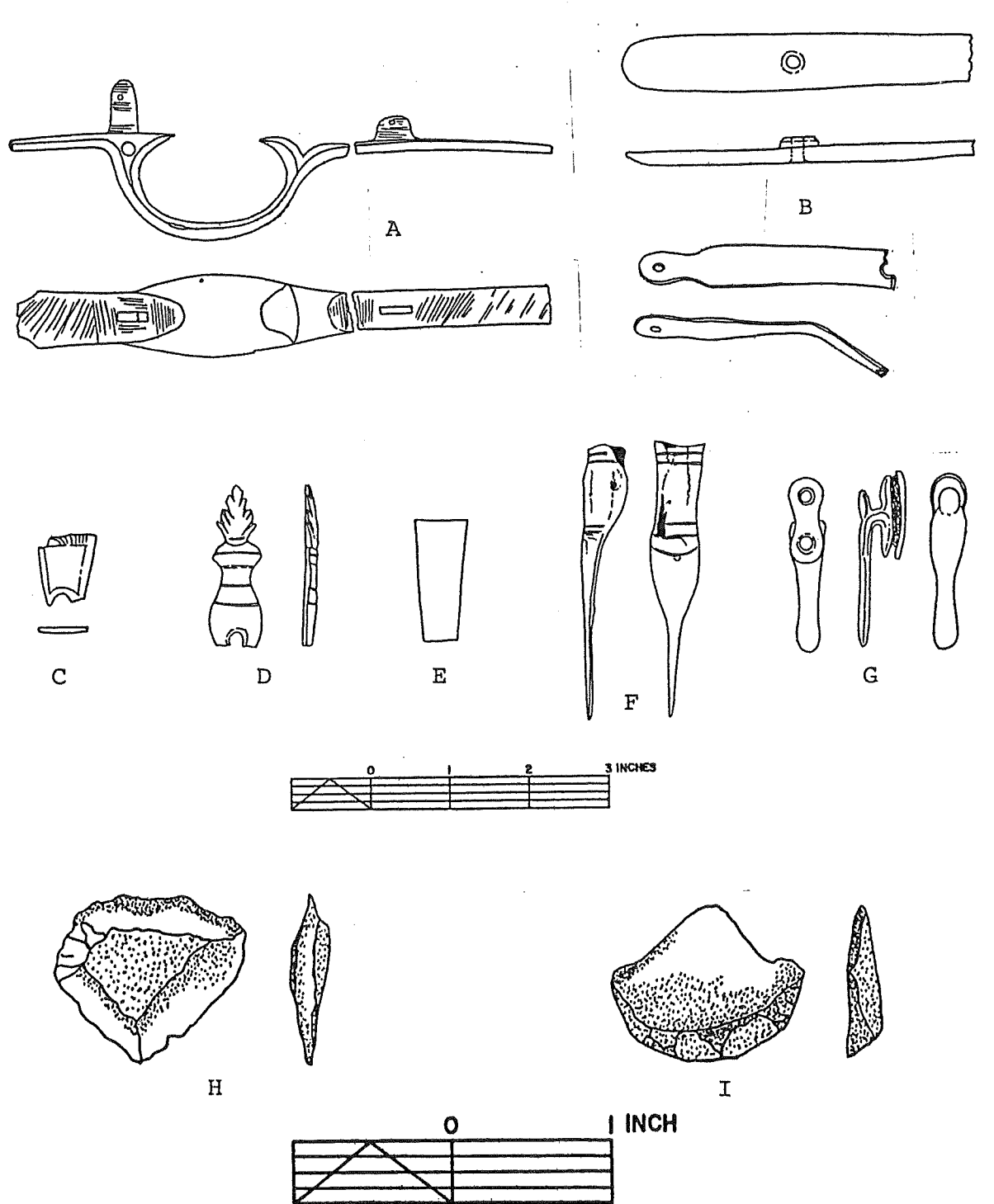
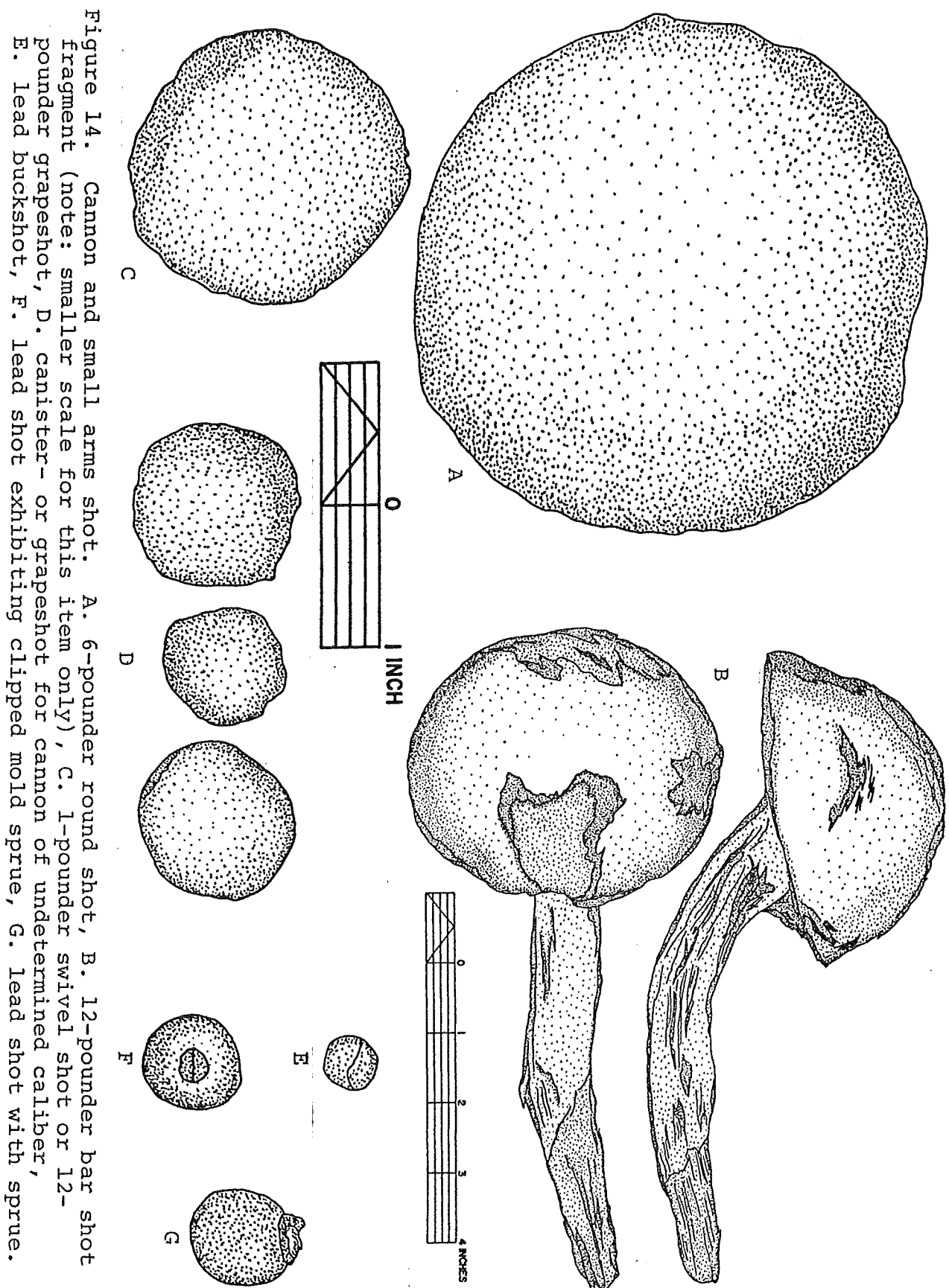


Figure 13. Brass firearm furniture and accoutrements.
 A. trigger guard, B. trigger guard fragments, C-D. key or escutcheon plate fragments, E. ramrod head, F. rear ramrod thimble, G. bayonet scabbard stud, H. gunflint, I. gunspall.



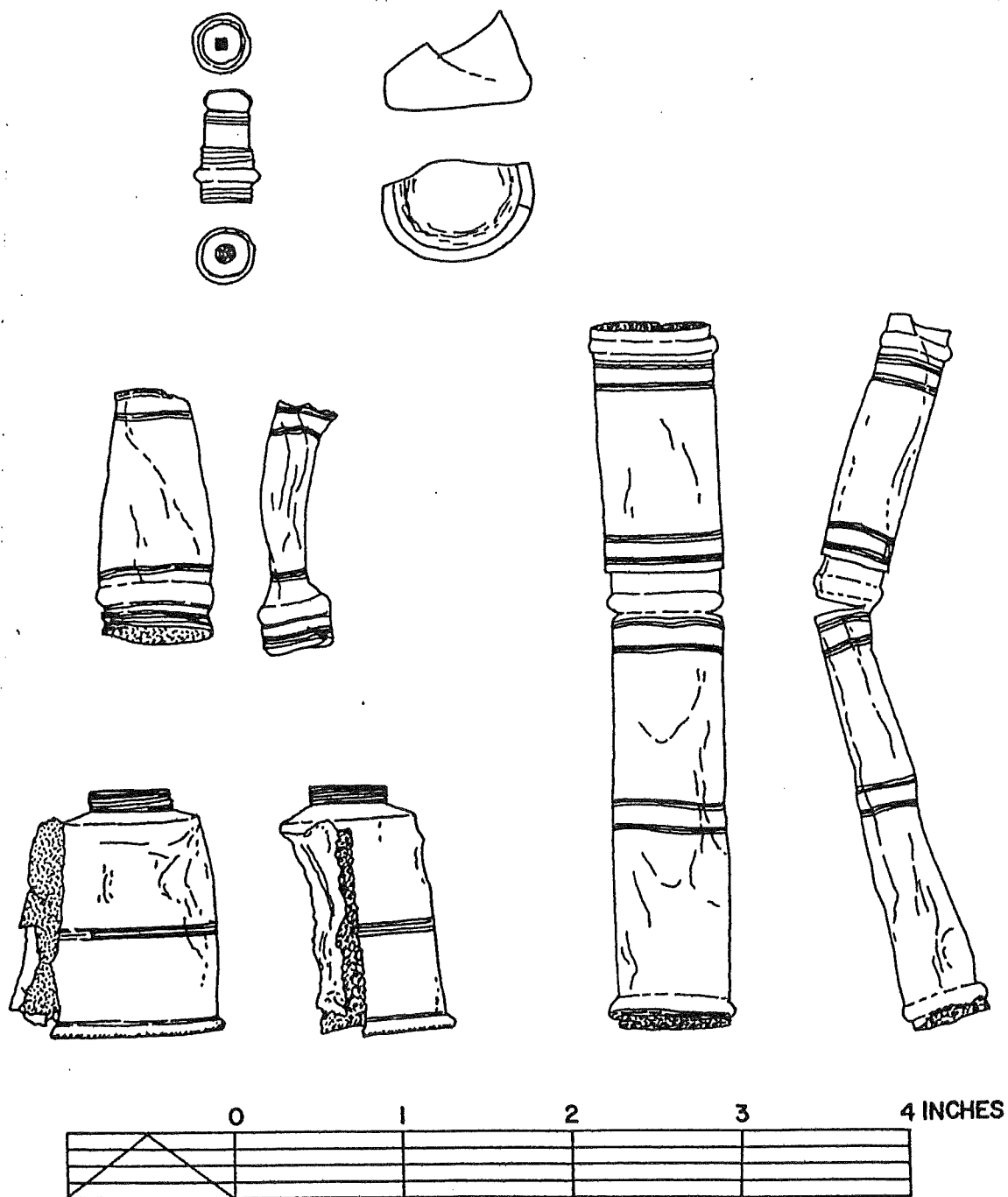


Figure 15. Brass and glass traveling inkwell with quill case.

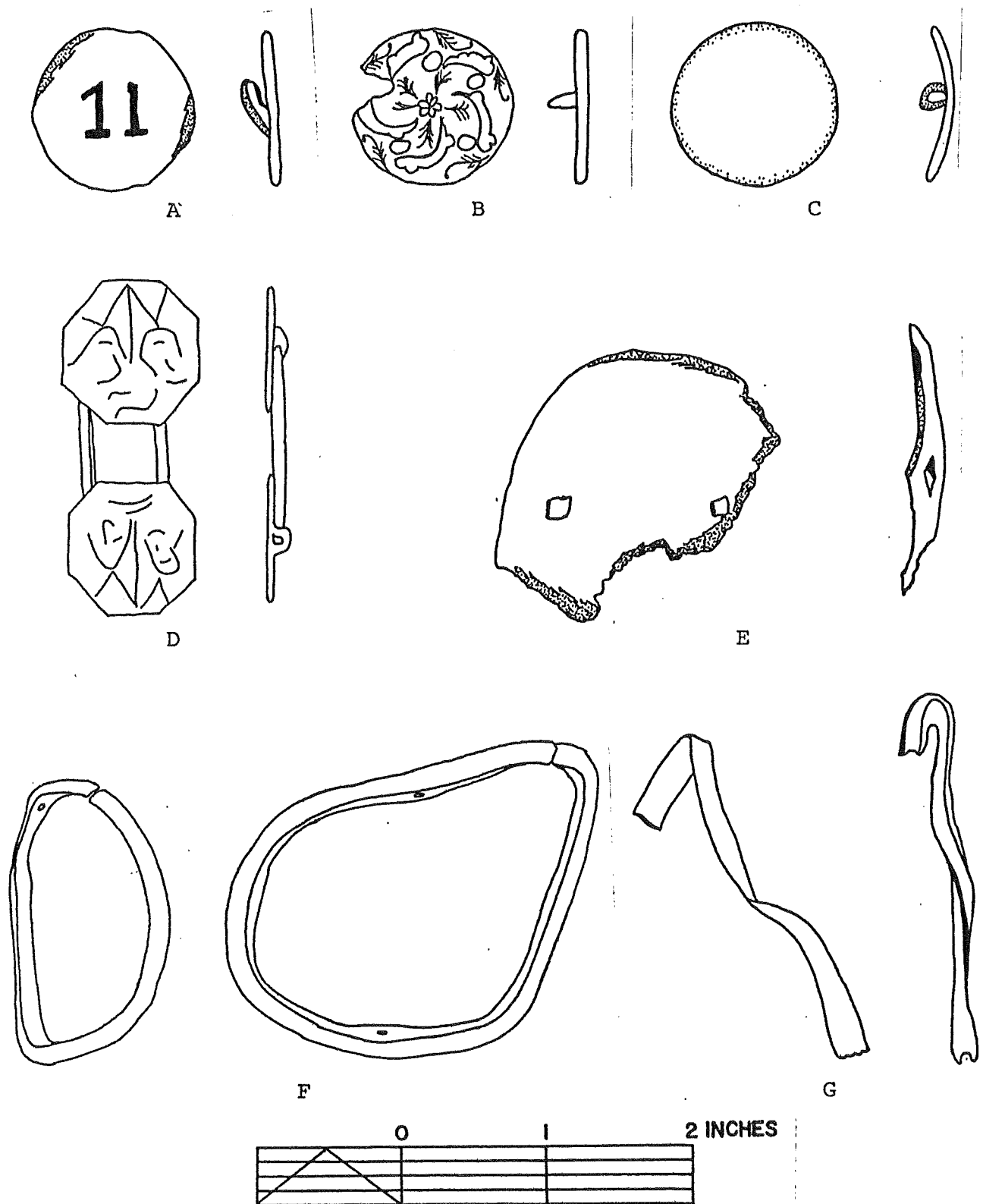


Figure 16. A-C. brass buttons, D. brass or copper cufflink, E. brass buckle, F. pewter(?) shoe buckle fragment, G. brass shoe buckle fragment.

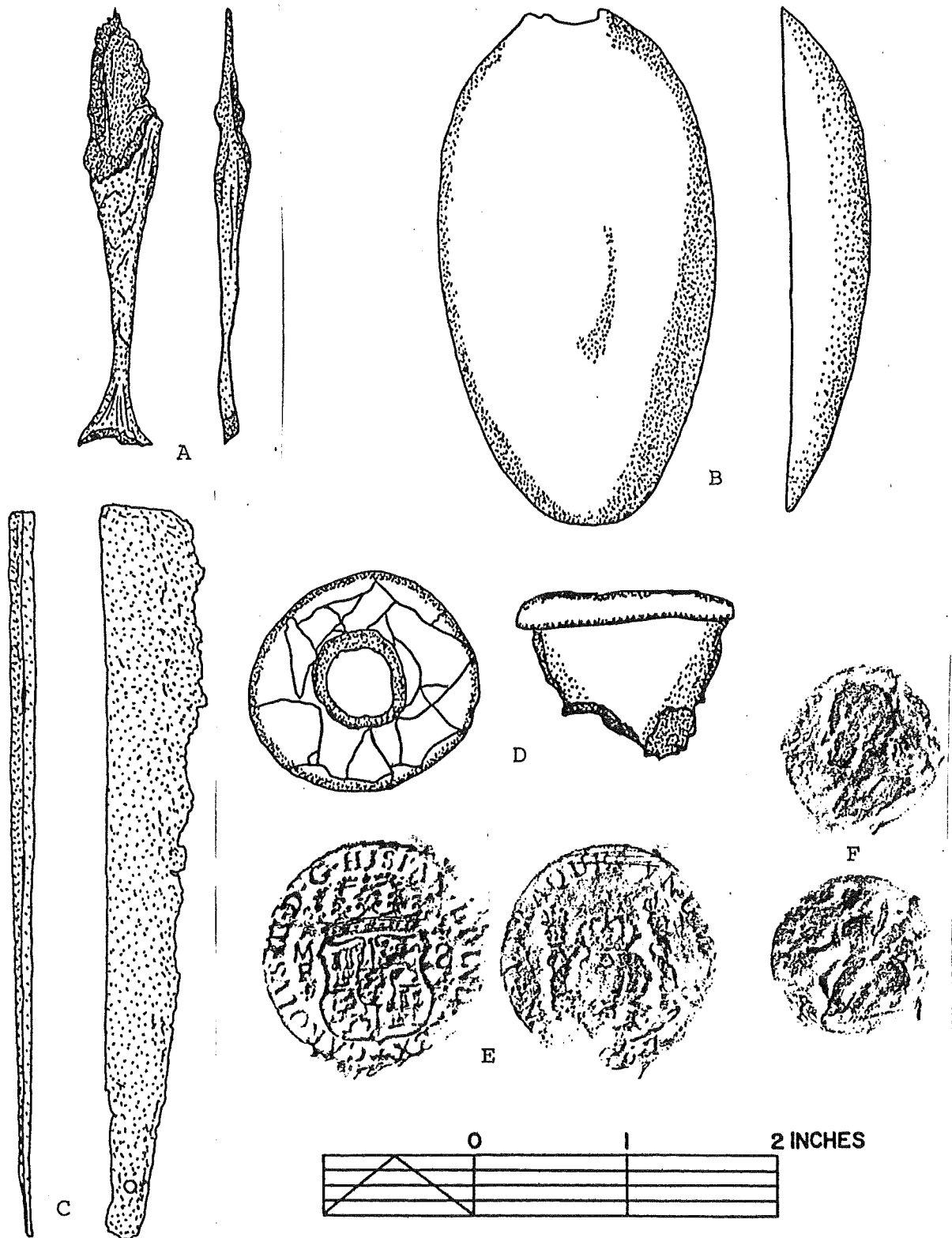


Figure 17. A. iron or steel fork handle fragment, B. pewter spoon bowl, C. steel razor blade, D. glass bottle rim/neck sherd, E. 1767 8-real (silver "piece of eight"), Mexico City mint, F. 1746(?) George II halfpenny.

References

- Arnold, J.B. III & Weddle, R.S., 1979, The nautical archeology of Padre Island: the Spanish shipwrecks of 1554. New York, Academic Press.
- Bellico, R., 1980, The search for Arnold's navy. Adirondack Life, XI(5): 22-26.
- Chapelle, H.I., 1949, The history of the American sailing navy: the ships and their development. New York, Bonanza.
- Crisman, K.J., 1983, A preliminary catalogue of artifacts from the United States Navy Brig Eagle, Lake Champlain, 1814. Montpelier, Vermont, K.J. Crisman.
- Dresser, P.F., 1978, Monthly report - July 1978 - Permit #3. Report to Vermont Division for Historic Preservation.
- Grimm, J.L. 1970, Archaeological investigations at Fort Ligonier, 1960-1965. Annals of Carnegie Museum, 42. Pittsburgh.
- Horsley, J.E., 1978, Tools of the maritime trades. Camden, Maine, International Marine.
- Lake Champlain Associates, Inc., 1954, Offering circular, 100,000 shares common stock. Willsboro, New York. Dated May 18.
- Maguire, J.R., 1978, Dr. Robert Knox's account of the Battle of Valcour, October 11-13, 1776. Vermont History, 46(3): 141-150.
- Morgan, W.J., 1972, Naval documents of the American Revolution, 6. Washington, DC, Naval History Division, Department of the Navy.
- Noël Hume, I., 1978, A guide to artifacts of colonial America. New York, Knopf.
- Peterson, M., 1973, History under the sea: a handbook for underwater exploration. Alexandria, Virginia, Mendel Peterson.
- Williams, J.A., 1975, Memorandum for the record: disposition of the vessels of Arnold's fleet during and after the Battle of Valcour, October 11-13, 1776. Memorandum on file, Vermont Division for Historic Preservation.