THE CONSERVATION OF ARTIFACTS
FROM THE OXON HILL SITE (18 PR175)

As part of the mitigation performed by Garrow and Associates, conservation treatments were performed on site in order to stabilize as many artifacts as possible in a twenty-day period. This length of time is very short for many preservation treatments, which often require weeks for success. Nevertheless, by performing treatments on different classes of artifacts simultaneously, and by performing mass treatments where possible, conservation was streamlined so that more than 275 small finds, or bags of small finds, were processed by the conservator during this time.

The classes of materials treated included copper and lead alloys, silver, leather, fabric, and small wood; about 90% of these artifacts from 18th and 19th century proveniences were treated. Other classes treated to a lesser degree were iron, glass, shell, and bone.

SETTING PRIORITIES

Because of time constraints, priorities had to be established. Wet organic materials from the well (leather, textile, paper, and reed) were given top priority. Small pieces of worked wood, like pegs and spatulas, also were given top priority. Large structural timbers and boards, however, were regarded as too expensive and time-consuming to conserve, and were instead wrapped and kept damp until identification of species could be made in Atlanta.

Small finds of copper, lead, and silver constituted the next level, because of their relative ease of treatment. Many datable artifacts, including buttons and coins, fell into this group, as did personal effects, like jewelry and buckles.

Iron, which is notoriously difficult to stabilize quickly and easily, was given the lowest priority as a class, although 51 iron artifacts were chosen and treated. Factors considered for iron were the uniqueness of an artifact, its diagnostic importance, and its possible value for publication or future display. A representative sample of architectural iron (shutter parts, hinges, locks, keys) was selected, as well as artifacts that indicated plantation activities (hoes, harness parts, horse shoe, file). Many iron artifacts (like barrel hoops or chain fragments) that could be readily identified despite their encrustations were rejected for treatment.
ORGANIZING THE WORK AREA

Small equipment, chemicals, and supplies were purchased for Garrow and Associates by the contractor. A list of these supplies, which may prove useful for organizing future excavations, is found in Appendix A. Most materials were purchased from a local hardware store, from Fisher Chemicals in Silver Spring, or from Conservation Materials Ltd. in Sparks, Nevada. The contractor also provided incidental equipment.

A small corner of the processing warehouse in Upper Marlboro was set aside for conservation activities. Access to an electrical outlet and proximity to a sink were factors in the location. Mechanical cleaning of artifacts was performed on a table, while "dirtier" processes, like chiseling encrustations off iron or processing wet materials, were carried out nearby on the floor. A small electrolytic tank and a two burner hot plate were set up for processing and boiling iron.

The hot washing of iron required large volumes of deionized water. While Garrow and Associates paid for a disposable deionizing column for the project, the contractor’s unit at home was used for purification, and the treated water had to brought by car everyday. Installation of a unit at the processing warehouse would have tied up a tap, and would have been an inconvenience for the employees washing artifacts.

Metallic artifacts, unidentifiable or unusual artifacts, or materials recovered wet from the site were separated out by the washers, and a notation was made of the artifacts' removal for conservation. The conservator then separated the artifacts by material (copper, lead, iron, glass, wood, leather, and textile) so that artifacts could be mass treated when possible. Throughout the stages of treatment, the provenience number stayed with each artifact. Artifacts which were rejected for conservation were returned to the cataloguers.

A treatment form for individual artifacts and clusters of similar artifacts was filled out as conservation proceeded. This form has been duplicated in Appendix B. Quick diagrams were attached to the form before artifacts were mass treated, in order to facilitate identification. Notations often were made of inscriptions, encrustations, or associated materials, although no real analyses or spot tests could be performed because of time. The treatment records submitted with this report should remain as part of the written records of the Oxon Hill project and should be curated with the collection.
SUMMARY OF TREATMENTS PERFORMED

Glass. Iridescent glass was washed with tap water with a soft brush, taking care not to dislodge the peeling or loose layers of deteriorated glass. A non-ionic detergent with a neutral pH, Triton X-100, was used as a surfactant. The glass was rinsed with tap water, and then with deionized water. The glass was then de-watered with acetone and/or denatured alcohol. Two to three applications of an acrylic copolymer resin, Acryloid B-72, a 3-5% solution in toluene and acetone, was applied by swab. Acetone was often applied first to encourage the resin to penetrate the layers of rotten glass. Successive layers were applied until the deteriorated glass seemed secured. No acidic treatments were performed to remove the layers of patinated glass.

Copper alloys. Copper and its alloys (brass, bronze) were mechanically cleaned using scalpels and a variety of glass fiber brushes. Heavier encrustations were sometimes removed with an electric engraving tool, which, if used carefully, could shear off corrosion products to reveal the "original surface" of the artifact. Formic acid (15%) was also used to dissolve carbonate corrosion products, although care had to be exercised with the chemical to avoid producing cuprite, a tenacious red oxide that is redeposited onto the surface as the carbonate is dissolved.

The artifacts were then immersed in a chemical inhibitor for copper called benzotriazole (BTA), a 3% solution in ethanol. For most artifacts, this was done overnight. The benzotriazole associates both chemically and physically with the copper to effectively "tie up" its reactive sites and prevent any attack by chlorides and moisture which results in the light green, powdery corrosion called "bronze disease" (basic cupric chloride). Although only a few artifacts had active bronze disease upon excavation, treating copper alloys with benzotriazole is really a preventive measure against future outbreaks caused by high humidity and contamination with handling. After soaking in the benzotriazole, the artifacts were passed quickly through denatured alcohol, allowed to dry at room temperature, and coated with a 5% solution of Acryloid B-72 in toluene and acetone applied by brush.

Silver. The few silver artifacts that were processed were cleaned mechanically with a glass fiber brush and/or chemically with 15% formic acid. The artifacts then were degreased with acetone, and lacquered with 5% Acryloid B-72. If the silver appeared to have been alloyed with copper (with green copper carbonate corrosion products on the surface), it was treated with benzotriazole before lacquering.

Lead. Lead, its alloy pewter, and some unidentifiable white metals were cleaned mechanically with a glass brush and scalpel. A 5% solution of EDTA (disodium salt of ethylene diamine triacetic acid) was used to dissolve the carbonate encrustation, although care had to be exercised to prevent the lead
itself from being etched by the chemical. The artifacts were then rinsed in deionized water, dewatered in acetone, and waxed with a microcrystalline wax paste (Bareco B-Square in naphtha).

Iron. Iron artifacts which seemed to be robust and have a sound core of metal (positive "pull" with a magnet), were cleaned using electrolysis. Electrolytic reduction strips away all the layers of rust and corrosion, leaving only a core of uncorroded metal. Often, however, the remaining core is only a vestige dimensionally of the original object. Unlike copper alloys and their compact "original surfaces", iron artifacts have a more voluminous corrosion product, and the original surface may be trapped or sandwiched in the rust, only to be removed by electrolysis.

The electrolytic unit was run on a 6-amp car battery, using a 5-gallon plastic bucket to hold the electrolyte and copper pipe and galvanized sheet metal as electrodes. A 5% solution of sodium carbonate served as the electrolyte. Because of time constraints, artifacts were electrolytically reduced only one to two days, just to get the corroded crust off.

Iron artifacts which were too fragile for electrolysis were cleaned mechanically, using a hammer and small screwdriver to carefully remove corrosion and essentially "sculpt" a surface. An electric engraver was also used to remove corrosion.

In some cases a combination of electrolysis and mechanical cleaning was used.

Following the removal of the corrosion by electrolysis and/or mechanical cleaning, the iron was boiled for a minimum of two days in changes of deionized water. The hot wash water was changed at least five times a day. The boiling was necessary to flush out the reactive chlorides as well as any residual electrolyte. Because of time constraints, prolonged hot washing was not possible. However, it is felt that a large amount of the reactive salts was probably removed in two days of boiling.

After the hot wash, the artifacts were placed, while still hot and wet, into molten microcrystalline wax (Multiwax W445) and heated until all the moisture was driven off. The artifacts were then removed from the wax and dried. Excess wax was removed by blotting the surfaces with paper towels and/or swabbing with naphtha.

A few very fragile iron artifacts, or iron combined with an organic material like bone, were unsuitable for boiling. Instead, after mechanical cleaning these artifacts were sprayed heavily with CRC 5-56 and then placed into the molten wax. While not ideal, this effort should preserve the artifacts for some time.
Leather. The well yielded a great number of shoe parts which were effectively mass treated. The fragments were washed first in tap water using a soft brush and Triton X-100 non-ionic detergent as a surfactant. The leather was rinsed in tap water, and then in deionized water for a few minutes. The fragments were then de-watered for an hour in a solvent (denatured alcohol). In some cases two de-watering baths, each an hour, of alcohol or alcohol followed by acetone were used. This difference in processing was based on an effort to economize, because the volumes of solvent needed to de-water leather makes its preservation very expensive.

The leather was then placed from the solvent bath into a solution of 15% Bayon ASAK-APB in stoddard solvent. Bayon is a commercial leather dressing, based on polyhydrolic alcohol ester-hydrocarbon coploymer and mineral oil. The leather remained in the lubricating bath at least overnight; often this stage of the treatment was carried out over a weekend. After lubricating, the fragments were dried flat on newspaper and paper toweling under weights. The paper was changed as needed, and drying lasted one to two days.

One piece of leather, a fragment of chair upholstery, was treated with a 5% solution of EDTA before de-watering and lubricating. The EDTA was used to dissolve any discoloring iron salts in the leather, thus lightening the color of the leather and returning it to a more natural color. Because of the relative importance of the chair leather, it was felt that an EDTA pre-treatment was warranted.

Fragmentary leather was backed with nylon netting, using Rhoplex AC-33 acrylic emulsion as an adhesive. All leather was wrapped in acid-free tissue.

Textiles. Fragments of textiles, including silk, were also washed in tap water using Triton detergent and a fine brush to loosen the dirt. The textiles were rinsed in deionized water, and then placed in a 1% solution of ethulose, a water soluble cellulose, for 7 to 14 days. The ethulose bonds with and strengthens the remaining fibers. The fragments were removed from the soaking solution and dried flat on plastic. While the fragments were still wet, the warp and weft of the weave were straightened. The pieces were then housed in archival-quality supports of mylar and acid-free board. No bleaching treatments were performed on the textiles.

Two unusual artifacts, a tobacco leaf (?) and a paper pouch (?) were treated with ethulose as above.

Wood. While large architectural timbers were not conserved, small pieces of worked wood like moldings or pegs were treated. Some fragments were placed in a 10% solution of PEG 1500 (a water soluble wax) to soak at room temperature for five weeks. Lysol disinfectant was added to the solution as a fungicide. Usually a PEG treatment takes much longer, up to a year.
of soaking and/or spraying during controlled and slow drying. Unfortunately, the time frame for conservation did not allow for these options. Because of the small sizes of the pieces, a reasonable result was achieved despite the shortened soak.

Even more surprising were the results achieved with a relatively new and experimental treatment that uses sucrose as a soaking solution. Both 3 and 6% solutions of the sugar (Domino Brownulated Sugar) were used, and, for comparison, 3 and 6% solutions of fructose. Artifacts of similar size were selected for the solutions, and for convenience the treatments were carried out in the artifacts' zip-lock bags. A small amount of Lysol was added to of the four sugar solutions. The wood was allowed to soak for two weeks and then the pieces were removed and allowed to air dry for almost a week.

In general, the sucrose results were better than the fructose and on a par with PEG 1500. Again, however, the small sizes of the artifacts probably contributed a great deal to the overall success of the treatments.

Generally, then, the wood treated with PEG and sucrose gave an acceptable result. Less successful were many of the pieces of cork treated with these solutions. This may have been due to the variability of the cork itself, i.e. degree of degradation, compactness of fiber.

CONCLUSION AND RECOMMENDATIONS

The Oxon Hill project proved that conservation can be an effective component of a mitigation and that many of the treatments can be performed in the field while the excavation is in process, even if the work is carried out in an environment which is hardly laboratory-like. Two pieces of equipment missing here which would have facilitated treatments are a vacuum desiccator with a hand pump (moderately expensive) and an ultrasonic cleaner (very expensive). The desiccator would have been useful for applying benzotriazole as well as consolidants. The ultrasonic cleaner would have made the cleaning and treating of fibrous materials like wet textiles and leather easier.

Ideally, during a project like Oxon Hill conservation should be a full-time, not part-time, activity. Throughout the project, the conservator can be a valuable member of the team, providing advice for lifting artifacts in the field or packing them for transport, identifying or analyzing materials, or planning for the long-term problems associated with curating a diverse collection. The lengthy treatments—especially hot washing iron and soaking wood—could be better accommodated in a longer work schedule.
An apprentice conservator, who could be trained on the job to check on the more "dormant" treatments and continue to hot wash the iron if the contracting conservator is absent, would be a valuable asset. This was proven by Aggie Lang, a Garrow employee who worked with me for six days. Her assistance greatly augmented the productivity of the makeshift laboratory.
APPENDIX A. EQUIPMENT AND SUPPLIES

5 prs. vinyl gloves (disposable)
protective goggles
2 small screwdrivers
1 hamburger flipper
1 pr. tongs
1 Dremel engraving tool
1 tack hammer
5 aluminum trays (disposable)
5 particle masks (disposable)
2-1" paint brushes
1 plastic baster
1 syringe
1 enameled boiling pot
2 gallons acetone
1 gallon denatured alcohol
1 galvanized iron sheet (anode)
1 galvanized grill (anode)
copper pipe, copper wire
1 deionizing cartridge (disposable)
6 kilos sodium carbonate
2 boxes scalpels (disposable)
1 large fiberglass brush
1 small brush with fiberglass and stainless steel refill
1 quart Acryloid B-72
1 kilo PVA-Ayat resin
1 quart CM Bond M-3 (PVA emulsion) -- froze solid 1/85
1 quart Bayon ASAK-ABB
2 gallons stoddard solvent
1 pint Triton X-100
100 sheets acid-free tissue
100 grams benzotriazole
1 kilo PEG 1500
5 lbs. Multiwax W445 (microcrystalline wax)
Hi

The procedures on the following pages should answer most metallic artifact cleaning needs. These types of reduction should not be used on pewter, tin, or very thin objects of any metal. These may be represented largely or entirely by oxidation products. Manual cleaning and consolidation with sealant or micro-crystalline wax are best for such artifacts.

Every cleaned item should be boiled in distilled water, thoroughly dried, and sealed from contact with air. I have used a variety of graphics fixatives for sealant. Flat black Rustoleum is good for iron. Plenderlieth describes various sealants that I've never used which are doubtless more effective. Indeed, a chemist might find my procedures naive. They usually work, however, and are safe to artifact and user.

Safety—Never breath deeply over any reduction process. The fumes burn lungs and throat. Lye on the skin is no big deal for brief periods, so it's safe to handle things in solution as long as the skin is thoroughly rinsed afterward. Never mix lye in a glass container. It will explode. I cant think of any other problems.

Electrolytic reduction using a battery charger is also an option, but one vastly more simple to set up and explain in person.

Call or write with any questions.

Jim

If doesn't bubble:

1. Clean zinc with wire brush or sandpaper.
2. Use a stronger solution (won't hurt iron).
I. CLEANING OF NON-FERROUS METALLIC ARTIFACTS.

This method is excellent for copper and copper alloys, as well as lead, nickel, and silver. In my experience, it is safe for plated or washed items like gilded buttons.

Materials: small plastic containers (tupperware or margarine tubs)
household lye
aluminum foil
brass bristle shoe brush (not plated steel)

Procedure:

Treat the artifacts with great care in the field and in manual cleaning. In most cases, small chips to the patina of a coin, button, etc., will show up on the end (cleaned) product because the apparently mineralized layer was in fact largely metallic.

Clean only the soil from the artifact.

Record any fine detail which might be represented entirely by corrosion products.

Cut a piece of foil several times the surface area of the artifact. Perforate the foil thoroughly. Dampen both foil and artifact, and wrap the artifact in the foil securely but loosely enough to allow liquid to penetrate all around the artifact. Prepare a strong lye solution (10-20%) in warm water, and cover the artifact completely. Agitate briefly to remove air pockets. The foil will rapidly dissolve, giving off very nasty fumes as it does.

The reaction will stop when the foil is reduced. Remove the foil remnant and clean the artifact with a toothbrush. Most of the oxides should rinse away as a black or brown muddy substance (or white in the case of lead.) There will usually be dark spots which failed to clean completely. Simply repeat the procedure. When the artifact is free of visible encrustation and fairly uniform in color, it has been reduced to healthy metal. Rinse thoroughly.

When clean, most artifacts will have a dull, porous surface. Lead items can be burnished with a toothbrush or cloth. Surface treatment of copper based items presents several choices. Most will turn out with a pasty reddish or brown color that looks rather unnatural. They can be (1) sealed as is; (2) allowed to air tarnish dark brown or black before sealing, thus retaining the appearance of excavated artifacts; or (3) burnished with a brass brush to a bright metallic finish, and then sealed.

For purposes of artifact description, it should be noted that copper alloy objects which were originally white or yellow in color will usually turn out very red, as if entirely copper. This is due to the more rapid oxidation of the white metals with which the copper was alloyed. It is, in fact, a copper surface.
II. CLEANING OF IRON ARTIFACTS WITH ZINC AND LYE REDUCTION.

This is a cheap, simple method for reducing iron oxides. On occasion it fails to take effectively for any of a variety of reasons, but more often it yields good results. The process will not damage healthy metal at all, but of course any detail represented by oxides will be completely lost.

Materials: various sized (plastic) containers (tupperware, buckets, etc.)
zinc scraps—various flat pieces, as volume is extraneous
household lye
manual cleaning utensils (steel brush, tack hammer, pliers)

Procedure:
Manually clean the artifact as well as possible. Remove all loose scale and protruding encrustations.

The process involves constructing a wet electric cell. The performance of the cell is directly related to the degree of contact among the three components (metallic iron, oxidizing zinc, and the electrolytic solution).

Surround the artifact with enough zinc to easily exceed the surface area of the artifact. The more zinc the better, assuming good contact with the iron. Again, all but the surface of the zinc is extraneous to the process.

Prepare a strong lye solution (10-20%) in hot water. Heat is an accelerating influence, so it helps to start out with a hot solution. Its not really worth the trouble to keep the solution heated, however. Cover the artifact and zinc with the solution.

After an hour or so the solution should be giving off lots of gas in the form of small bubbles. If not, it isn’t taking and should be rebuilt. Try cleaner zinc, cleaner iron, or more lye. If it is working, let it run for a day or so, even if the reaction slows considerably.

Remove the artifact and clean manually. Repeat the reduction process as necessary. Secondary cleanings need run only an hour or two.

Before sealing any iron artifact, it should be thoroughly boiled in distilled water to remove chlorides, and oven baked to dry it completely.

The zinc pieces will need cleaning after several usages. Abrasion works fine but after a while its good to replace it or melt it down and re-cast it on a cookie sheet. The latter can also provide a variety of useful shapes. (Use a charcoal fire or a blowtorch.)
HARD TO FIND / MISSING

LOT 14
? 1069

K 101001M72 BONE TOOTH BRUSH
K 101002057 WOOD SHOE HEEL
K 101002057 WORKED STAKE?
K 101002057

K 101002071

WOOD HANDLE?
K 101001M72

U 100 01801A 8M. TURKED WIRE
Base to case

K 101001M72
**ARTIFACT FIND SHEET AND TREATMENT RECORD**

<table>
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<th>Site</th>
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**Description**: bone toothbrush

**Dimensions**: 5"

**Weight**: 

**Condition**: E 6 P

**Photo attached**: 

- copper/brass/bronze
- lead/tin/pewter
- iron/steel
- gold
- silver
- mineral
- gem

- bone, ivory
- foodstuff
- cork
- wood
- cloth
- leather
- rope
- paper

**Post excavation history**: 

**Recording**: 

- Photographs
- Drawing

**Location**: 

**Priority for treatment**: 3 2 1 0

(high) (medium) (low) (none)
Analysis/Examination

Spot tests
Chloride test (+) (-)
X-Ray
Other
Magnification

green stain from associated copper object

Dates
Treatment Record
4.5.85
washed in deionized H2O + Triton nonionic detergent. Rinsed.
de-watered in denatured alcohol 2 hrs. JOINTED w/ Duco cement.

after drying

Treatment Summary
scalpel, pick
wire brush
glass brush
air abrasive/sand blast
electrolytic reduction
chemical cleaning
ultrasonic

Intensive wash, hot
Intensive wash, cold
de-watered (solvent)
oven dried
inhibitor
coating
reshaped
mended
bleached
filled
consolidated
special support
silica gel
bio-clide

Dates
Photographs

Before treating
After treating
ARTIFACT FIND SHEET
AND TREATMENT RECORD

Site: 18 PR 175
Artifact number: (Blank)
Artifact type: VARIOUS
Date of recovery: (Blank)
Provenience: VARIOUS

Date logged into conservation: June 5, June 14
Date treatment started: June 5, June 14
Date completed: June 31, 1985
Conservator: SINGLEY LANG

30 BAGS w/344
Description: VARIOUS PIECES OF SMALL WOOD
Dimensions: CORK, PAPER / LEAF
Weight: (Blank)
Condition: E G P

ONE FRAG WOOD PAINTED (3441)
ONE (3441) HANDLE MAY HAVE BEEN OILED & PAINTED

Photo attached: copper / brass / bronze
lead / tin / pewter
iron / steel
gold
silver
mineral
gem
bone, ivory
foodstuff
cork
glass
wood
rubber
cloth
ceramic
leather
stone, clay
rope
other
paper

Post excavation history: (Blank)
Recording: Photographs
Drawing: (Blank)

Location: PAPER / TOBACCO
Acc. # s: 2340, 2341 in LOT # 1086
Acc. # 2347 (corks), 2306 (cork), 2345 (shaped / carved wood)
Wood molding, Acc. # 2340 in LOT # 1100
Acc. # 63844 (molding frag.) LOT # 1229

Priority for treatment: 3 2 1 0
(high) (medium) (low) (none)

SEE ATTACHED SHEETS
Analysis/Examination

Spot tests

Chloride test (+) (-)

Magnet

Probe

Magnification

NOTE: PAPER POCKET OR BACK?

3 dimensional

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Dates Treatment Record

6-5-85 thru 6-21-85

Fragments were washed in tap water, then sonic cleaned,

+ rinsed with tap water. Pieces were treated in three bags, which

were filled with treatment solutions (3% fructose + sucrose, 6%)

fructose and sucrose). Lyophil dehydrant was added to the solution

(1 drop in 300 ml mixed solution) as a fungicide. These treatments

were regarded as experimental, although some work using sucrose

were carried out successfully. Not enough time

for treating wood has been carried out successfully. Not enough time

for soaking was allowed -- only 2 weeks here. Results were

for soaking and treated for 2 weeks. Removed and air dried June 24, 1985. Alco,

2 1/2 weeks to dry. Removed and air dried June 24, 1985. Also,

the bathes were put in June 14. No real difference was seen

between those pieces treated for one 2 weeks.

Results were analyzed, sucrose being better in general than

fructose. No difference between 3% solution. Cork not

really successful, especially smaller fragments.

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Treatment Summary

scalpel, pick

wire brush

glass brush

air abrasive/sand blast

electrolytic reduction

chemical cleaning

ultrasonic

intensive wash, hot

X intensive wash, cold

de-watered (solvent)

oven dried

inhibitor

coating

X reshaped

mended

bleached

filled

X consolidated

X special support

silica gel

X biocide

---

Dates Photographs Before treating After treating
FRUCTOSE

JUNE 5, 1985

w/ L-YSOL

1. K101002007  Acc. 123-45  BAG 3841  ✔  5-12-85  Na
2. K101002007  Acc. 123-54  BAG 3905  ✔  5-30-85  BGR
3. K101002060  Acc. 2340  BAG 3699  ✔  5-21-85  BGR
4. U18 774010  Acc. 2340  BAG 3844  ✔  5-30-85  Na
5. K101002060  Acc. 2340  BAG 3699  ✔  5-21-85  BGR
6. K101002061  Acc. 2340  BAG 3788  ✔  5-21-85  BGR

CORK + CORK HAG

WOOD BEAD

3% (C) SUGAR (brown mould Diemno sugar) 3-4 tsp per 300 ml

JUNE 5, 1985

w/ L-YSOL

1. K101002007  Acc. 123-45  BAG 3841  ✔  5-12-85  Na
2. K101002007  Acc. 123-54  BAG 3905  ✔  5-30-85  BGR
3. K101002062  Acc. 2340  BAG 3781  ✔  Na  Na
4. K101002060  Acc. 2340  BAG 3699  ✔  5-20-85  BGR
5. K101002061  Acc. 2340  BAG 3788  ✔  5-29-85  Na

POINTED WOOD HAG

MOLDING HAG

SERATED WOOD

6% FRUCTOSE

JUNE 5, 1985

w/ L-YSOL

1. K101002007  Acc. 123-45  BAG 3841  ✔  5-28-85  Na
2. K101002007  Acc. 123-54  BAG 3905  ✔  Na  BGR
3. K101002061  Acc. 2340  BAG 3788  ✔  5-21-85  Na
4. K101002067  Acc. 2340  BAG 3861  ✔  5-21-85  Na
5. K101002059  Acc. 2340  BAG 3695  ✔  5-20-85  Na
6. K101002067  Acc. 123-45  BAG 3861  ✔  5-29-85

CORK

2 PIECES PTD NOE

CORK

PAINTED WOOD HAG

CORK

PAG "GOLF 722"
3% FRUCTOSE (15 g in 500 ml)

NO LYSOL

JUNE 14

6% FRUCTOSE NO LYSOL (30 g in 500 ml) JUNE 14

1011002071 12345 BAG 400 B 2X0 6/1/85 16 PIECES WOOD 0

REMOVED 6/22/85
**ARTIFACT FIND SHEET**

**AND TREATMENT RECORD**

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<table>
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<td>Dimensions</td>
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<td>Weight</td>
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<td>Condition</td>
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<tr>
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<th>copper/brass/bronze</th>
<th>bone, ivory</th>
<th>foodstuff</th>
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<td>silver</td>
<td>leather</td>
<td>stone, clay</td>
</tr>
<tr>
<td></td>
<td>mineral</td>
<td>rope</td>
<td>other</td>
</tr>
<tr>
<td></td>
<td>gem</td>
<td>paper</td>
<td>(tortoise shell)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Post excavation history:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording:</td>
</tr>
<tr>
<td>Photographs:</td>
</tr>
<tr>
<td>Drawing:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lot #1085 (brush handle Ac-#12340)</td>
</tr>
<tr>
<td>Lot #1100</td>
</tr>
<tr>
<td>Lot #1158 (turtle shell Ac-#12338)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Priority for treatment:</th>
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</thead>
<tbody>
<tr>
<td>(high)</td>
</tr>
<tr>
<td>3</td>
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</tbody>
</table>
Analysis/Examination

Spot tests
Chloride test (+) (-)
X-Ray
Other

Magnet
Probe
Magnification

Dates  Treatment Record

5-17  Washed in tap water. Placed in 10% PEG @ Room Temp to soak for 5 weeks. Lysol disinfectant added to soak to serve as fungicide but was not successful in controlling scum/fodden.

6-21  Pulled out & allowed to dry. No other application of PEG.

6-27  Tortoise shell glued with Rhoplex AC-33 acrylic emulsion

Treatment Summary

scalpel, pick  intensive wash, hot  mended
wire brush  intensive wash, cold  bleached
glass brush  de-watered (solvent)  filled
air abrasive/sand blast  oven dried  consolidated
electrolytic reduction  inhibitor  special support
chemical cleaning  coating  silica gel
ultrasonic  reshaped  biocide

Dates  Photographs  Before treating  After treating
10% PEG Soak
For Wood

If you put small wood in here:
1. Wash off dust and clay first and wash bag
2. Draw piece and its number on back of two slips. Record the date
3. Punch holes in the zip lock bag
4. Place bag in PEG solution and make sure solution gets in

The PEG may dissolve the pink tag numbers, so make sure you draw the piece first!
CyA!

Also record the day you put the wood in.