Field Conservator's Report: 2009 Season

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INTRODUCTION

The 2009 Conservation season took place between July 6th, 2009 and August 29th, 2009. This year's Conservation team consisted of the Conservation Director, Alice Boccia Paterakis (July 5 – July 18); Field Conservator, Colleen Healey (July 5 – Aug 28); Preventive Conservator, Melissa Mariano (July 6 – August 15); Conservation Interns, Ida Pohoriljakova from Queen's University, Canada (July 12 – August 22), and Jessica Arista from University of Delaware, U.S.A (July 12 – August 28).

The season began with the move of the conservation laboratory from the old lab into the newly built Japanese Institute Conservation Laboratory. This process included taking inventory of supplies, furniture, and equipment, and disposing of old chemicals and outdated supplies. This task consumed the majority of the first week of the field season, however, to our benefit, the artifacts found during excavation at the beginning of the season were few, so this did not impede the work of the conservation lab too greatly.

The main work of the Conservation team this year involved artifact cleaning and stabilization in the main laboratory, and when necessary, consolidating and lifting charred wooden structures from the excavation site to preserve them for Carbon-14 dating and dendrochronology. The Conservation team carried out a condition survey of the entire metals collection in the Institute depot, as well as treated some of the unstable metal artifacts uncovered during the survey. The Conservation team also regularly presented presentations to site staff, researchers, and students on various conservation issues and techniques throughout the field season.

2.0 ARTIFACT TREATMENTS

This year, the Conservation team aimed to reduce its use of toxic chemicals in the treatment of artifacts from Kaman-Kalehöyük. In the past, most of these chemicals consisted of toxic corrosion inhibitors that coated the metals to reduce further corrosion when the objects were in storage. However, recent analysis of Metals Survey data over the past several years at Kaman-Kalehöyük, has shown that a large quantity of objects treated with corrosion inhibitors have continued to corrode in storage, regardless of chemical stabilization treatments. As a result, a system of bagging objects with oxygen scavengers (RP System™) has been introduced this year on a large scale for the storage of metal objects at Kaman-Kalehöyük. The RP System has been tested over the past several years at the site as a potential preventive conservation storage system, and has shown exceptional results. This RP System has been selected for use on all newly excavated metals, and for previous years' metals found to be actively corroding in storage.

2.1 Summary of Materials Treated

In 2009, the Conservation team conserved 196 objects. Of these, 87 were placed into RPS only, and did not receive chemical or mechanical treatment, while the remaining 99 were treated prior to being placed into RPS. Only 186 objects received Conservation Numbers (i.e. C09-#), as the 10 charred wooden structures conserved onsite were only maintained for C-14 and dendrochronology, and therefore they did not make it into the database system. Finally, 33 of the treated objects were from previous years (32 newly treated, 1 retreated), which had been earmarked for treatment during the

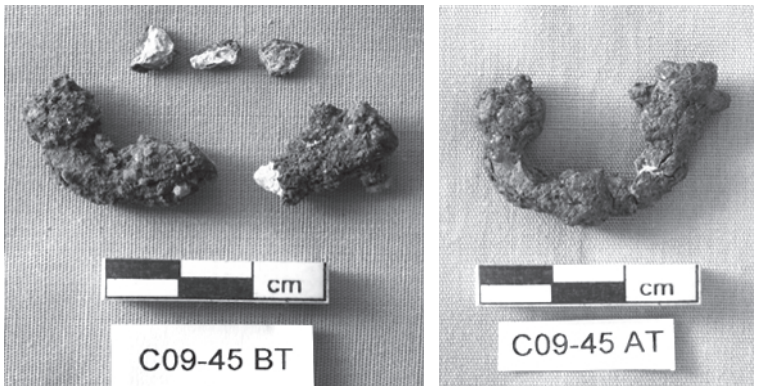

Fig. 1 **Mineralized copper alloy fibula, shown before and after conservation treatment.**

2009 Metals Survey. Separated by material type, the objects treated in 2009 were:

Copper Alloy	105
Iron	73
Lead	1
Ceramic	3
Unbaked Clay	3
Bone	1
Charred Wood	10

The above figures do not include those objects from previous years that received new mounts or rehousing, nor those objects that were placed into RPS™ that were registered with Conservation Numbers prior to the 2009 season.

2.1.1 Copper Alloy

This year the treatment protocol for conserving copper alloy artifacts was altered to exclude the use of the carcinogenic corrosion inhibitor, benzotriazole (BTA), and bronze disease stabilizing treatments such as silver-oxide, which were previously established in the Conservation Manual for the Kaman-Kalehöyük Conservation Laboratory. Although this would not be the typical approach for treating archaeological metals, particularly in the field, we were fortunate this year to have a supply of RPS oxygen-free environment to house the objects in, which prevents oxygen from catalyzing the corrosion process within the metals, enabling conservators to reduce the amount of chemicals used to stabilize artifacts.

All copper alloy objects, with both active and inactive corrosion, were treated in the same manner. Mechanical cleaning was first carried out under a microscope to remove loose soil and accretions with a soft-bristle brush moistened with ethanol, and a bamboo stick. When necessary, additional cleaning would be carried out using pin tools, glass-bristle brushes and scalpels.

For objects exhibiting signs of bronze disease, corrosion pits were only occasionally excavated, where it was deemed necessary. However, as we were not chemically treating metals this year, it was not necessary for us to disfigure the objects surface by excavating corrosion pits, as these were stabilized within the oxygen-free environment. Finally, all objects were placed in an ethanol bath to clean and degrease the surface.

Most small, fragmented objects were readhered using 40% Paraloid (Acryloid) B-72 in acetone:ethanol (3:1), however, on occasion 40% Paraloid B-48 in acetone:ethanol (3:1) was used, where a stronger join was required. Additionally, some copper alloy objects, mainly those earmarked as significant for study or display, received a surface coating of 7% Paraloid B-72 in acetone with 1% fumed silica, to even out its surface appearance (*Fig.1*) .

See Section 4.1 of the Field Conservator's Report for details on mounting procedures and preparations for RPS oxygen-free environment.

2.1.2 Iron

The treatment procedure for conserving iron artifacts was also changed this year from the previously established protocol in the Conservation Manual for the Kaman-Kalehöyük Conservation Laboratory. Iron is no longer being treated with alkaline sulfite as a corrosion inhibition procedure at Kaman-Kalehöyük. Alkaline sulfite is a toxic chemical that is not required for stabilizing iron with the current RPS oxygen-free system in place for storing iron artifacts.

Prior to being placed into RPS, mechanical cleaning was first carried out under a microscope to remove loose soil and accretions with a soft-bristle brush moistened with ethanol, then using pin tools, bamboo sticks, glass-bristle brushes and scalpels. When necessary, more aggressive mechanically cleaning was carried out with a vibra-tool and/or Dremel rotary tool with silicon carbide grinding heads, to reduce the corrosion layers and remove large accretions. Finally, all objects were placed in an ethanol bath to clean and degrease the surface.

Iron objects that required mending were readhered using 40% Paraloid (Acryloid) B-72 in acetone: ethanol (3:1), and on occasion, 40% Paraloid B-48 in acetone: ethanol (3:1) where a stronger join was required. Several iron objects also received a surface coating of 7% Paraloid B-72 in acetone with 1% fumed silica, to even out their surface appearance.

See Section 4.1 of the Field Conservator's Report for details on mounting procedures and preparations for RPS™ oxygen-free environment.

2.1.3 Lead

Only one lead artifact was treated this year in the Conservation Laboratory. This was carried out with light mechanical cleaning under microscope using a soft-bristle brush moistened with ethanol, and a bamboo stick to remove soil and surface corrosion. The object was finally degreased with ethanol and placed into a polyethylene bag in a container with a sachet of silica gel desiccant.

2.1.4 Ceramics

There were only three ceramic objects treated by the Conservation team this summer, two high-fired ware vessels fragments, and one low-fired spindle. The treatment for the high-fired ceramics included desalination in tap water, pre-treating joins with 7% Paraloid B-72 in acetone, and joining the ceramic shards with 40% Paraloid B-72 in acetone: ethanol (3:1).

The low-fired ceramic was mechanically cleaned with soft brushes and pin tools, and consolidated with increasing concentrations of Paraloid B-72 in acetone, from 5%-20%. Large fragments were readhered with 40% Paraloid B-72 in acetone.

2.1.5 Unbaked Clay

Several unbaked clay spindles were found this season that were extremely friable. These were mechanically cleaned with soft-bristle brushes and an air puffer to remove surface soil. The spindles were then consolidated with 5% and 10% Paraloid B-72 in acetone, until they were no longer at risk of fragmenting. Special mounts were finally constructed for them out of Ethafoam™ and Tyvek®, which were inserted into polyethylene containers for storage.

2.1.6 Bone

Only one bone artifact was treated this year in the Conservation Laboratory. This was carried out with light mechanical cleaning under a microscope using a soft-bristle brush and a bamboo stick to remove soil. The object was then placed into a sealed polyethylene bag for storage.

2.2 In-Situ Conservation

The Conservation Team worked at the Kültepe on several occasions throughout the 2009 season (*Fig. 2 and 3*). The majority of the work carried

Fig. 2 Conservation team working together to transport a block-lifted charred wood post out of the excavation pit.

Fig. 3 Director Omurasan assisting the Conservation and excavation teams transporting fragile block lifts on site (L-R: Dr. Sachihiro Omura, Colleen Healey, Jessica Arista, Ida Pohoriljakova, Kader Sevindir).

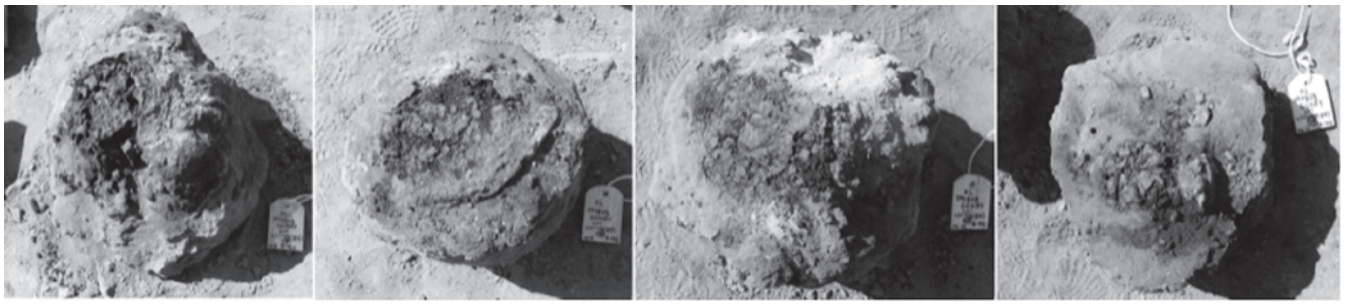

Fig. 4 Fragile charred wooden posts (No.'s 8, 9, 10, and 11) before block-lifting in situ (from LIII-48 (87), PL 49, Room 155). The posts were lifted by the Conservation team and preserved for dendrochronology and C-14.

out was in lifting charred wooden structures, and on occasion, for the sampling of floor deposits for materials-testing to determine the presence of plaster floors.

2.2.1 Charred Wood

There were 10 charred wooden objects block-lifted in the 2009 season, all of which were the remains of Iron-Age building structures (*Fig. 4*). These remains were preserved for the purpose of Carbon-14 dating and dendrochronology (destructive analysis), and were not intended to be preserved as historical artifacts. The materials and techniques employed to lift these objects were therefore designed to preserve both the ring structure of the wood and prevent contamination before Carbon-14 dating.

Block-lifts of charred wooden structures were carried out in a slightly different manner than previously establish in the Kaman-Kalehöyük Conservation Manual. The protocol for lifting wood in the past, involved wrapping the timber in cotton-tape, prior to blocking it out. This technique, however, was not possible to carry out on the charred wooden structures excavated this season, as the wood was so friable and prone to collapse that it would not have been able to withstand the wrapping process, even with partial consolidation (*Fig. 5*). Additionally, as most of the timbers could only be partially accessed during the lifting process (often one side of the timber would be against a stone wall), complete wrapping was not feasible. Therefore, cheese-cloth and/or Japanese tissue, in combination with cling-film, were used as an initial barrier layer, followed by plaster bandages and/or X-Lite thermoplastic resin bandages for the final blocking-material (*Fig. 6)*. All blocks were labeled with their site location information and North and South markings, to preserve their location and directionality reference after lifting.

Due to the fact that these wooden objects were not going to be preserved long-term, they were not assigned Small Finds Numbers nor Conservation Numbers during the field season, and therefore were not documented in the site database. In order to maintain a record of these objects and the procedures used to preserve them in-situ, a 'Kültepe Site Conservation Report' was produced this year, which will be archived in the Conservation Library at Kaman-Kalehöyük for future reference. The Kültepe Site Conservation Report was also provided to Dr. Takayuki Omori, who carried out the dendrochronolgical and Carbon-14 analysis on the charred wooden structures.

3.0 DOCUMENTATION

3.1 Treatment Database

The computer database used at Kaman-Kalehöyük to record excavation material is Claris Filemaker Pro. Conservation treatments are recorded in the Treatment Database, while the Metals Survey Database, Ceramic Survey Database, and Kırşehir Museum Database, are also regularly used by the Conservation team. These databases continue to serve as an integral part of Conservation record-keeping system. The total number of objects registered at end of the 2009 season for each of the databases used were:

Treatment Database	7497
Metal Survey Database	7108

Fig. 5 Director of Conservation, Alice Boccia Paterakis, consolidating charred wooden posts in situ.

Fig. 6 Conservation team block-lifting charred wooden posts (from Fig. 4) in situ with plaster bandages.

3.2 Laboratory Computer Files

Copies of all Conservation files, including treatment photographic archives, lab manuals, presentations, lab inventories, metal survey data, data logger readings, and other relevant information, were backed up onto a LaCie portable hard drive at the end of the season, and stored on a shelf in the Conservation Laboratory Library with the Labo laptop computer.

4.0 PREVENTIVE CONSERVATION & SURVEYS

4.1 RP System Oxygen-Free Storage

In preparing an object for storage in the RP System, a mount is first made for the object out of acid-free card and chemically stable closed-cell polyethylene foam, which keeps the object in place and allows for easier handling. The acid-free card serves as a rigid base for the mount, and a surface upon which the artifact's information is inscribed using archival ink. The card is attached with hot-glue to the base of the foam, which will have been cut to size for each individual artifact with a recessed area within which the object is encased. Finger holes are also cut into the foam to make is easier and safer to remove the object from the mount when necessary. Depending upon the size and shape of the artifact, unbleached cotton tape may be used to hold the object in place on the mount. For larger objects, Corex (corrugated polyethylene) board is also used as a base, or as a complete enclosure for artifacts that require additional support.

The RP System, consists of Escal™ bags made from a special plastic barrier film, a pouch containing oxygen and humidity scavengers, and a color changing oxygen indicator pellet. The object is placed into the bag with the RPS pouch and indicator pellet, and then heat-sealed to ensure no air can enter the bag. In the event that the level of oxygen in the bags rise over time, the indicator pellet will change color, allowing the Conservator to know when it requires changing.

The Escal bags are also cut slightly larger than required for the objects, in order so that they may be reopened (i.e. for artifact study, or replacement of RPS™ pouches) in the future, at which time they can be resealed, without having to make a new bag.

During the 2009 season, approximately 300 inventoried objects were placed into the RP System, which included objects excavated in 2009 and many from previous seasons that were earmarked during the Metals Survey as being unstable. All objects placed into RPS were separated by materials type (i.e. copper and iron objects stored separately) and where applicable, certain types of objects were occasionally placed in the same bags together (i.e. several fibulae stored in one bag). Generally, three to four small finds were stored together in an individual Escal™ bag, while larger objects were stored in larger Escal™ bags on their own, or in custom-made bags that were shaped to size.

Further details on the RP System used at Kaman Kalehöyük can be found in the 2009 Preventive Conservator's Report.

4.2 Metals Survey

A survey of the complete collection of metal artifacts in the Metal Depot was carried out this season. This season's survey differed from previous years, as only half of the metals collection would normally be surveyed in a single season. By surveying the entire collection in one season, we were able to obtain a better understanding of the overall condition of the collection, and ensure that all unstable artifacts were identified and earmarked for treatment. All metals showing signs of active corrosion were pulled during the survey to be placed into RPS storage. Those registered objects found to be actively corroding during the survey were also updated in the Metal Survey Database with their condition and information on whether they were placed into RPS storage.

At the end of the season, several hundred unstable objects that were identified during the Metals Survey as showing signs of active corrosion, were set aside for storage into RPS. However, due to the lack of available RPS agent at the end of the season to store all of them into individually, and lack of time required to make individual mounts for most of these artifacts, they were instead placed into four oversized Escal bags (separated by material type) with bulk RPS agent. By storing them in this manner, it will help to reduce further corrosion of the artifacts over the coming year, until they are able to be placed into individual RPS storage bags next season.

Those objects that will require mounts and RPS storage next season, were color-coded with blue masking tape on their storage containers, so that they could be easily distinguishable from other stable artifacts. Other groups of metal artifacts that require conservation treatment, but may not require RPS storage, were color-coded with purple masking tape on their storage containers, for treatment at the beginning of next season. These groups of artifacts were placed into the Metal Depot next to the 2008 season artifacts, on the last three shelves of the storage cabinet.

Further details on this season's Metals Survey can be found in the 2009 Preventive Conservator's Report.

4.3 Kırşehir Museum Survey

The Condition Survey and remedial treatment of objects from Kırşehir Museum was not carried out this season. Although permission was sought at the beginning of the season, it was only granted in the last week of the excavation, which did not provide the Conservation team with enough time to carry out a proper assessment of the collections.

In the future, it is recommended that the Conservation team place their request for permission to the Kırşehir Museum, through the Director of Kaman-Kalehöyük excavation, before arriving in Kaman, so that ample time is available for the request to be processed.

5.0 RESEARCH

5.1 Intern Research Projects

There were two Conservation Interns working in the laboratory this year. Ida Pohoriljakova, who completed her first year of a Master of Art Conservation degree at Queen's University before coming to Kaman, interned for six weeks. Her research project involved finalizing the research that was initiated in 1999 by Sara A. Moy on the use of adhesives on cermics at Kaman-Kalehöyük, summarizing the results to date, and carrying out a final phase of testing on the aged adhesive samples.

Intern Jessica Arista, completed her second year of a Master's Degree Program in Art Conservation at Winterthur, University of Delaware before coming to Kaman, and interned for seven weeks this season. Her research project tested the effect of consolidants on charcoal that has undergone flotation, and their influence on wood species identification in archaeological charcoal. The majority of the initial phase of research was carried out at Kaman-Kalehöyük this season, and the final phase of testing and identification will be completed by Jessica at the University of Delaware over the winter of 2009/2010.

5.2 Future Research

During the Metals Survey, an issue came to light regarding the use of putty to hold metal artifacts during illustration. The putty is used to hold in place irregularly shaped objects while they are being drawn for publication. However, it appears that the putty

leaves behind a large amount of pink residue on the surface of the metals, partially disfiguring them and leaving residues that could potentially lead to their corrosion later on. It is highly recommended that alternative materials or methods be evaluated for this process that can be used in place of the putty in the future.

6.0 OTHER ACTIVITIES

6.1 XRF Analysis

Dr. Kriengkmol Tantrakarn carried out XRF analysis on three artifacts treated during the 2009 season. This included a bronze vessel (C09-4), an iron knife with brass decoration (C09-39), and a white slipware vessel with a polychromatic design (C09-181). By analyzing these objects with XRF, we were able to clarify what elements were present in the objects in order to determine the best treatment methods. The bronze vessel and iron knife were both believed to have some gold details on their surfaces, however, XRF analysis uncovered that they, in fact, both had thin layers of brass decoration.

6.2 Spot Testing

Material-testing analysis was carried out on samples of white residues lifted onsite from various floor layers. It was necessary to discern the constituents of various floor layers to determine if plaster had been used in their construction. As there were many burnt structures uncovered this season, it was often difficult to tell if a floor layer consisted of ash (CaCo3 derivates), or plaster (i.e. gypsum [CaSO4] or lime [CaCO3]). Spot testing techniques were employed to assist with this process using standard chemical spot-testing techniques (Odegaard, Carroll and Zimmt 2005) to test for carbonates and further tests for calcium, in an effort to discern ash constituents from plaster. These results were compared with the samples' microscopy analyses, determining the most likely compound in the floor layer to be plaster. The results were later confirmed with XRF elemental analysis carried out by Dr. Kriengkmol Tantrakarn later in the season, which confirmed our initial findings. Spot testing is a useful tool for the initial identification of plaster/ash samples, however, they are not able to identify materials with absolute certainty, and it is best employed in combination with microscopy and/or XRF and/or XRD analyses when possible.

6.3 Presentations

The Conservation team presented talks on various conservation issues throughout the field season. The talks presented this season were, *Introduction to Conservation*, presented by Colleen Healey on three separate occasions throughout the summer for new staff and students, *Packaging and Handling of Technique for Small Finds*, and *RP System*, presented by Melissa Mariano, *Treatment of Copper Alloys*, presented by Ida Pohoriljakova, and *Carbon-14 Dating & Dendrochronology*, presented by Jessica Arista.

These presentations were given during the daily project meetings (Toplantı), for approximately 20-30 minutes, and were topics selected based on their relevance to the work currently being undertaken by the archaeological and conservation staff this season. Issues related to charred wood preservation and identification were significant to the excavation this year, as there were numerous charred structures uncovered on site. Additionally with the initiation of the RP System™ in the metals collections this year as well as there being concerns over handling procedures, it was important to the Conservation Team to raise awareness among all staff and students of the importance of these issues, and to ensure that they remained aware of the developments in Preventive Conservation.

The treatment of copper alloy objects is a large portion of the work carried out by the Conservation staff every year, and it was felt that it was important for the staff and students to understand what is involved in the artifacts' preservation process. An introductory talk on Conservation served to ensure that all staff and students were aware of basic handling protocols for objects, and ensured that the role of Conservation at Kaman was understood to be an integral part of the archaeological process.

Additionally, shorter presentations were regularly given on a daily/weekly basis on various topics, which were directly related to developments at the Kültepe. These included discussions on in-situ lifting techniques, treatment techniques used on specific artifacts, materials testing results, research developments in the Conservation Laboratory, etc.

In the future, it may be helpful for Conservation

to provide additional presentations on some of the following topics during Toplantı: *Archaeological Bone Preservation, Conservation of Unfired and Low-Fired Clay, Lifting Fragile Finds In-Situ, Treatment of Iron Alloys*.

6.4 Conservation Field Trips

This year, the Conservation Team visited several archaeological sites around Central Anatolia during weekend day-trips. The first field trip organized by Alice Boccia Paterakis during the second week of the excavation was to the Gordion Excavation to visit the Mound of Midas and learn about the site conservation activities undertaken at Yassıhöyük. Later in the season, the Conservation Team traveled to Alaçahöyük and Büyükkale, Çatalhöyük, and Cappadocia.

These trips were paid for by the individual Conservation Team members, however, it would be greatly beneficial to the Conservation Team, particularly the student interns, if assistance could be provided to fund these educational trips in the future. By visiting other archaeological/ conservation sites in the region, we are able to develop stronger ties with other organizations and Conservation colleagues, which is an important resource to maintain when working in such an isolated region. It would also be of benefit to the Conservation Team and excavation, if there were further support for knowledge-sharing activities in the future, including hosting conferences, training workshops, and day/overnight visits with other archaeological Conservators in Turkey.

6.5 Future Recommendations

6.5.1 Mounts

During the Metals Survey, it was found that many of the mounts previously constructed for metal artifacts were not supportive enough, and often resulted in the object falling out of their foam inserts in storage or during handling. More emphasis needs to be place on designing protective mounts for objects going into RPS that are more rigid, and prevent the object from moving about once it is stored. This includes using more rigid acid-free card backing, deeper foam mounts, and ensuring that larger objects are tied down with unbleached cotton tape when necessary, to prevent movement.

6.5.2 Metals Treatment Protocols

The protocol for the treatment of iron and copper alloys was altered this season to exclude toxic chemical treatments, primarily consisting of corrosion inhibitors. It is believed that through the application of bagging objects with oxygen scavengers it will be possible to reduce, and eventually eliminate, the need for toxic chemical treatments in the future. However, it is important that all metals placed into this system be regularly checked (on a yearly basis) for signs of active corrosion, and to reevaluate over the next few season, whether chemical treatments should be discontinued entirely, or on a case-by-case basis.

6.5.3 Kültepe Site Conservation Report

This season, several charred wooden structures were excavated onsite that were not registered into the object databases, including the Treatment Database, due to the fact that they were preserved for destructive analysis only. Each of the structures were block-lifted and some consolidated onsite prior to extraction. Although these objects were maintained as historic objects (for the time being at least), the treatments carried out on them (including the lifting process) are an important part of the objects' histories and may be relevant to later analyses. The 'Kültepe Site Conservation Report' was produced this year in order to preserve this information for future reference. It is recommend that this report be compiled on a yearly basis for any object(s) lifted or treated onsite, particularly for those not entered into the Small Finds or Treatment Databases at the end of the season.

6.5.4 Small Finds Storage

During the processing of small finds at Kaman-Kalehöyük, the ceramic and bone shards are washed by archaeological assistants and left to dry in sieving-crates outdoors. This has generally proven to be an effective system for the site, considering the large quantity of such finds excavated each year. However, with the building of the new Institute at Kaman, these crates are now stored on a paved area outside the new Institute Depot, where water regularly pools when it rains. On several occasions this season, this area has flooded, causing the crates to fill with water and the finds to become water-

logged, leading to their later embrittlement and deterioration. It would be advisable to have these crates placed on raised platforms in the future, such as wooden pallets, which would allow them to drain and avoid becoming waterlogged during the wet season. Additionally, it is recommended that a roof-structure be constructed to protect these finds from direct sunlight and rain, which will also help to reduce their rate of deterioration.

6.5.5 Disposal of Chemicals

The safe disposal of toxic chemicals is a concern at Kaman-Kalehöyük, as there is currently no facility in the region that is able to safely dispose of chemical waste. During the cleaning and move of the Conservation Laboratory into the new facility, a large quantity of old and waste chemicals were earmarked for disposal. It is important that a safe system for the disposal of these chemicals be establish in the near future which will not impact the local environment.

7.0 ACKNOWLEDGEMENTS

The Conservation staff and interns would like to thank Dr. Sachihiro Omura and Dr. Masako Omura for their endless support, knowledge, patience, and commitment to the Conservation Laboratory, and to Dr. Kimiyoshi Matsumura for his expertise and support, particularly in keeping the Conservation databases running smoothly all season.

Thank you to Alice Boccia Paterakis for her support in all aspects of Conservation this season. It was a first year for many of us at Kaman, and her guidance and vision for Conservation at Kaman-Kalehöyük helped ensure that the development of the new Conservation Laboratory and its activities were a success.

We are also grateful to Dr. Kriengkmol Tantrakarn for his assistance with materials testing and XRF analysis this season.

We would finally like to thank all the staff of the Japanese Institute of Anatolian Archaeology in Japan and Turkey, the site excavators, students, and researchers, for their hard work and camaraderie.

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