

Conservation Director's Report: 2009 Season

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INTRODUCTION

This report provides a brief overview of the work carried out by the conservation staff at Kaman-Kalehöyük during the 2009 excavation season. I started off the season from July 5 to July 18. Colleen Healey served as Field Conservator from July 5 to Aug 28 and Melissa Mariano served as Preventive Conservator from July 6 to August 15.

EDUCATION

Two conservation students joined us in 2009 for 6-week internships: Jessica Arista from the University of Delaware Master's Program in Art Conservation at Winterthur and Ida Pohoriljakova from the Master of Art Conservation Program, Queen's University. They were given the opportunity to carry out first aid treatment in the field, block-lifting of burned wooden architectural fragments in the field for C-14 dating and dendrochronology, and conservation treatments (cleaning and stabilization) of newly excavated artifacts from the current season as well as of unstable artifacts from previous seasons. They also contributed to the preventive conservation project of storing iron and bronze artifacts using the RPSystem®.

RESEARCH

Previous Student Projects

Iron

Based on the results of the Laramie Hickey-Friedman project (1999-2000) that were reviewed

and assessed by the author in 2008, the conservation department proceeded with anoxic and desiccated storage of iron in Escal® bags using the RPSystem®. Laramie Hickey-Friedman published her project in two issues of the *Anatolian Archaeological Studies(AAS)* journal: "Desalination and Storage of Archaeological Iron Artifacts" Vol. IX, 2000, 245-250, and "Practical Survey of the RP System" Vol. X, 2001, 225-230.

Bronze

Based on the results of the stabilization project of Stavroula Golfomitsou (2000-2001) that indicated a less than satisfactory prevention of bronze disease using corrosion inhibitors, coupled by the long term maintenance of anoxic and desiccated microenvironments achieved by the RPSystem® storage bags, it was decided to discontinue the use of corrosion inhibitors such as BTA (Benzotriazole) and AMT (5-Amino-2 Mercapto-1, 3, 4-Thiadiazole) at Kaman. Bagging of actively corroding bronze objects in Escal® using the RPSystem® was initiated during the 2009 season. Stavroula Golfomitsou published some preliminary results from Kaman in the article "Preliminary Experimental Results of Corrosion Inhibition of Copper/Copper alloy Artifacts from the Archaeological Site of Kaman-Kalehöyük" in *AAS*, Vol. X, 2001, 211-215; initial results after treatment of the Kaman objects in "Synergistic Effects of Corrosion Inhibitors for Copper and Copper Alloy Archaeological Artefacts", in *Metal 04, Preprints of the ICOM-CC Metal Working Group, Canberra, 4-8 October 2004*, 344-368; and the results of combined inhibitors without specific reference to Kaman in "Understanding the Efficiency of Combined Inhibitors for the Treatment of Corroded Copper Artefacts" in *Metal 07, Preprints of the ICOM-CC*



Photo 1
Four block-lifted
burned wooden
posts (left to right:
Jessica Arista,
Melissa Mariano,
Colleen Healey, Ida
Pohoriljakova)

Metal Working Group, Amsterdam, 17-21 September 2007, 38-43.

NEW STUDENT PROJECTS

The research component of the annual conservation student internship program, initiated by Glenn Wharton (former Director of Conservation), was reinstated in the summer of 2009. The research component involves the assignment of a research project to each conservation student intern based on the conservation needs of the excavation materials at Kaman-Kalehöyük and the interests of the students.

Jessica Arista's topic was the effect of consolidation on the anatomical structure of floated charcoal remains at Kaman-Kalehöyük. This involved consolidation testing of carbonized wood that had undergone flotation as part of an archaeobotanical study by Dr. Andrew Fairbairn of Queensland University, Australia. The consolidants tested were Paraloid B72, Butvar B98, Aquazol 500, and methylcellulose. The experimental methods used are presented in the article entitled "The Effect of Consolidation on the Anatomical Structure of Floated Charcoal Remains at Kaman-Kalehöyük" in this issue of *AAS*. The results will be published in a subsequent issue of *AAS*.

Ida Pohoriljakova's topic was the re-evaluation of adhesives used for mending ceramics at Kaman-Kalehöyük. The goal of this project was to determine

adhesives and methods of adhesive application for ceramics that are suitable for storage in elevated temperatures. This project involved the compilation of all results from tests run in 1999 and 2000 by student intern Sara Moy who tested the following adhesives on ceramics: Paraloid B72, Paraloid B48N, Butvar B98, and cellulose nitrate. Ida also carried out her own tests of solubility and physical strength using test coupons from the Moy project. Results are presented in the article entitled "A Re-evaluation of Adhesives used for Mending Ceramics at Kaman-Kalehöyük" in this issue of *AAS*.

NEW FACILITY

The conservation department moved from the old conservation laboratory into the new conservation laboratory of the recently constructed Japanese Institute of Anatolian Archaeology facility. The conservation staff anticipates the move of the collection from old to new storage in the near future.

CONSERVATION TREATMENTS

First aid treatment and block-lifting of Early Iron Age burned wooden architectural remains were carried out during the 2009 season. Burned wood in the field was consolidated with Paraloid B72. Block-

lifting of burned wooden remains was performed with a variety of materials including cheese-cloth, Japanese tissue, cling-film, plaster bandages, and X-Lite thermoplastic resin bandages (*Photo 1*). The purpose of block-lifting was to preserve the burned wood intact and uncontaminated for Carbon-14 dating and dendrochronology.

The Conservation team carried out a condition survey of the entire metals collection in the Institute storage depot, as well as treated some of the unstable metal artifacts uncovered during the survey. In total 7108 metal objects were surveyed. The conservation team treated 196 objects in the 2009 season of which copper alloys were predominant followed by iron objects (see article by C. Healey entitled "Field Conservator's Report – 2009 Season" in this issue of the *AAS* for exact figures).

PREVENTIVE CONSERVATION

During the 2009 season 300 inventoried metals were stored in Escal® bags using the RPSystem®. Two dataloggers were programmed in 2008 and placed in the old conservation lab and in a polyethylene storage box in a metal storage case in the old storage depot. After one year of recording they were downloaded and the temperature and relative humidity data were accessed. Four dataloggers were programmed in 2009 to monitor 1) the new large empty storeroom (west) and 2) the efficiency of the RPSystem® by comparing conditions in RPS® Escal® bags with and without iron objects and the conditions in the polyethylene storage box in which these Escal® bags were stored. Comparison of the climatic conditions in the old and new storage facilities will be used as a guide in the mitigation of corrosion of the metal artifacts. See the article by M. Mariano entitled "Preventive Conservation at Kaman-Kalehöyük: A summary of the 2009 Field Season" in this issue of the *AAS* for further details.

NEW EXCAVATIONS

In 2009 the JIAA began excavation of two new mounds. Yassihöyük is a mound site at Çaiyaz village approximately 30 km east from Kaman-Kalehöyük.

Büklükale is a mound site located approximately 40 km west of Kaman-Kalehöyük. The excavation of three mounds each excavation season, Kaman-Kalehöyük, Yassihöyük, and Büklükale, necessarily extends the length of the excavation season and increases the number of artifacts to be treated by the conservation staff. The conservation staff anticipates the extension of the conservation season to overlap with that of the extended excavation season so that all requirements of first aid, lifting in the field, and the treatment of newly excavated artifacts can be met.

DISSEMINATION OF CONSERVATION RESEARCH FROM KAMAN

The Table of Contents of the Journal *AAS*, published by the Japanese Institute of Anatolian Archaeology, can be viewed on the website http://www.jiaa-kaman.org/en/aas_index.html. Twenty conservation field notes (English and Turkish) were prepared by the excavation for archaeological conservation in Turkey in 1999 and 2002. PDFs of the articles can be downloaded from <http://cool.conservation-us.org/byorg/takiact/>

- Number 1: The Role of the Conservator on an Archaeological Excavation
- Number 2: Guidelines for Foreign Conservators Working in Turkey
- Number 3: Conservation and Related Materials: Suppliers and Shopping in Turkey
- Number 4: Selected Bibliography: Conservation in the Field
- Number 5: Legislation for the Protection of Cultural and Natural Property of Turkey
- Number 6: Health and Safety in the Field Laboratory
- Number 7: Educational Opportunities for Turkish Conservators
- Number 8: Documentation of On-site Conservation Activities
- Number 9: On-site Storage of Excavated Materials
- Number 10: Archaeological Site Protection in Turkey

- Number 11: Conservation of Metal Artifacts on Archaeological Sites
- Number 12: Conservation of Ceramic Artifacts on Archaeological Sites
- Number 13: Conservation of Stone Artifacts on Archaeological Sites
- Number 14: Conservation of Unfired Earth Artifacts on Archaeological Sites
- Number 15: Conservation of Wood and Plant Materials on Archaeological Sites
- Number 16: Conservation of Bone, Ivory & Antler Artifacts on Archaeological Sites
- Number 17: Conservation of Leather & Textile Artifacts on Archaeological Sites
- Number 18: Conservation of Mosaics on Archaeological Sites
- Number 19: Conservation of Wall Paintings on Archaeological Sites
- Number 20: Conservation of Marine Finds

FUTURE COURSES AND SYMPOSIA

Plans progressed for the organization of a Workshop for conservators on Materials Characterization and Spot Testing, to be held in July 2010 and presented by Nancy Odegaard and Scott Carrlee, at Kaman-Kalehöyük. Plans are also underway to host a Conservation Symposium for Archaeological Conservators in Turkey and from other countries in the summer of 2011. The Workshop will be held in the Conservation Laboratory and the Conference will be held in the Auditorium of the new Japanese Institute of Anatolian Archaeology Research Center.

SUMMARY

It was with great pleasure that I completed my second season as Director of Conservation in which I accomplished four main goals: re-establishment of the research project element of the annual conservation student internship program; inauguration of the preventive conservation program of metals using the RPSystem®; organization of the Workshop

for conservators on Materials Characterization and Spot Testing in 2010; planning for the International Conservation Symposium in 2011.

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