Kyrenia Ship Preservation Project

Summary on Past, Present and Future Conservation Work

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Project Goals

Short-Term Tasks*

[In the context of this conservator's project plan with the Collection, the phrase, "short-term" is used to refer to the first three-month period of work]

In the first, three-month phase of the Kyrenia Ship Preservation Project, several objectives were highlighted: assessment of the Collection and current storage/display areas, cleaning of the Kyrenia Ship Hull and organization of the Conservation Laboratory and commencement of the treatment of the ceramic objects. Chief Objects Conservator, Cassy Cutulle, will undertake these activities throughout August to November 2015.

Long-Term Tasks*

[In the context of this conservator's project plan with the Collection, the phrase, "long-term" is used to refer to the period of work taking place after the initial three month period]

In this portion of the Kyrenia Ship Preservation Project, more interventive work will be conducted, which includes conservation treatment of the ceramic and metal objects, the establishment of a program for preventive conservation of the Collection and the implementation of archival-quality storage for objects in the long-term. The conservation treatment undertaken will be focused on the smaller ceramic finds and metallic objects associated with the Kyrenia Ship. Conservation activities will include cleaning, physical and chemical stabilization, and preventive conservation activities such as purchasing and installing equipment for climate and light control, creation of mounts and appropriate storage for objects, establishing a program of pest management and cleaning, and also preparing a plan for emergency response and salvaging. The long-term goals will also include the identification and selection of pieces to be restored for gallery display. Throughout all activities, written and photographic documentation will take place, which includes the production of continuous reports. These tasks will be carried out by Cassy Cutulle and an additional assistant conservator to be hired in January of 2016.

The Importance of Taking Action

The Kyrenia Ship and its finds are regarded as one of the foremost archaeological shipwrecks in the world. Both the reassembled Hull and the plethora of ceramics, amphorae, copper-alloy based finds, lead objects and organics have and still do provide archaeologists, researchers, scholars, museum professionals and the public with a wealth of information pertaining to Hellenistic-era life and trading in Cyprus and the Eastern Mediterranean. Additionally, this Collection holds immeasurable importance, pride and value to those not just residing in Cyprus, but all over the world. That the Collection is at serious risk of damage and is actively deteriorating is sincerely concerning. With the lack of preventive and remedial care and the elevated risk of damage due to the lack of climate control, if action is not taken now, precious information will be lost and the Collection will suffer as a result. Future generations may never understand or be able to enjoy all that this wonderful archaeological find has to offer. As it stands, it is clear that active deterioration is occurring to the objects and the risk of future damage is high if action is not taken now.

Conservation Work Conducted and Tasks Currently Underway

August-September: Condition Assessments and Laboratory Preparation

The months of August and September have been utilized as an introductory period, whereby the Chief Objects Conservator has become acquainted with the goals for the project, while becoming familiar with the Ship, the objects and the current storage and gallery spaces for each. This initial phase has provided a crucial understanding of the amount and type of conservation work needed.

A condition assessment for the small ceramic finds was conducted by Cassy from mid-August to early September. The overall objective of this evaluation was to collect information about the current condition concerns for the ceramic objects, ultimately allowing Cassy to understand which objects are in need of treatment and what types of treatments are necessary. Additionally, it has allowed the Project Team to understand the overall condition of the Collection and the issues which are either causing the condition concerns or exacerbating them. A 1 to 5 condition grading scale allowed Cassy to rate the condition of each object, with 1 signifying a good condition and 5 representing a poor overall condition. Most of the ceramic objects were noted as being within the 2-4 condition grade range. As a result, 61 out 89 ceramic objects were determined to be in need of conservation treatment in a laboratory setting. The condition grading has also allowed for a prioritization of treatment for the objects and thus, those that are in the 3-5 condition range will be treated first as their condition concerns were observed as in need of urgent treatment to varying degrees.

Fig 1: Photograph of Chief Objects Conservator Cassy Cutulle conducting a condition assessment for a ceramic object from the Kyrenia Ship Collection, August 2015.

Also in early September, the Hull of the Kyrenia Ship was cleaned by Conservators Esra Çelikeri and Cassy Cutulle, both of whom trained in the United Kindgom at the University of Lincoln and University College London, respectively. The Hull was cleaned over the course of a week using vacuum cleaners and soft brushes to remove the dust, dirt and particulate matter accumulated on the wood of the Hull and throughout its encircling platform. The Hull is cleaned on an annual basis, and for the last 2 years it has been cleaned by Esra, who is native Turkish-Cypriot and resides on the island. Esra has also received

specific training in the cleaning of the Hull through attending the SAVE course taught by Robin Piercy in 2010 which was titled, “Instructing Cypriots to Clean the Ancient Kyrenia Ship”.

Fig. 2: Conservators Esra Çelikeri and Cassy Cutulle cleaning the Hull of the Kyrenia Ship using vacuum cleaners and soft brushes, September 2015.

Thorough observations pertaining to the conditions of the Kyrenia Ship Storeroom, Ship Gallery, and Shipwreck Museum Gallery were also undertaken by Cassy, with the purpose of highlighting any observed issues and possible short and long-term solutions. As a result of this evaluation, it was determined that the Kyrenia Ship Storeroom and Shipwreck Museum Gallery are both in need of significant alterations to bring both to modern-day collections management standards that will ensure the long-term preservation of the Kyrenia Ship Collection.

Additionally, it was observed that the Kyrenia Ship Storeroom is inappropriate as a work environment for health, safety and practical reasons. The primary concerns in both the Kyrenia Ship Storeroom and Shipwreck Museum Gallery include the lack of heating, ventilation and air conditioning (HVAC), the lack of climate control, the presence of poor or inappropriate storage and gallery display cases and lighting and the current state of the sandstone ceiling in the Kyrenia Ship Storeroom which is actively disintegrating. It was thus concluded that the Chief Objects Conservator should also be planning and instituting more appropriate storage facilities for the objects alongside equipping storage and display areas with new relative humidity and temperature monitoring devices.

Throughout this period, significant progress has also been made in securing the Conservation Laboratory, which is located in Nicosia, Cyprus. Conservation treatment will be conducted there throughout mid-September, October and early November. Great efforts were made by the Project Team to source and purchase supplies for this laboratory, allowing for conservation treatment to commence soon after the objects were transported on September 23rd, 2015.

September-November: Conservation Treatment--Ceramics

After the Conservation Laboratory was adequately organized, conservation treatment on the first group of ceramics began. Treatment goals for this first 3-month phase included deconstruction of the previously reconstructed ceramic objects and cleaning.

Deconstruction is typically undertaken through the placement of the ceramic object within a sealed container in which a small jar filled with cotton wool and a solvent is placed. The evaporation of the solvent will aid in solubilizing the adhesive/glue that the ceramic was previously reconstructed with. Alongside deconstruction of the objects, previously restored sections of the objects will be removed as these filled areas are aged and failing, putting the objects at risk of further damage. After deconstruction and removal of previously restored areas, the original ceramic pieces will be cleaned either with small molecular sponge traps ("Smoke Sponge"), soft brushes and a vacuum, or with solvents and brushes and wooden/metal tools. This work is projected to take until January-February 2016 to complete for this first group of ceramics, which numbers 33 in total.

Fig. 3: Photograph displaying some of the ceramic objects that are in need of conservation treatment at the Conservation Laboratory in Nicosia. Note the state of the previous restorations on the ceramic objects.

During this time, efforts will also be made to establish a program of preventive conservation at the Kyrenia Castle Storeroom, Ship Gallery, Shipwreck Museum Gallery and also within the Conservation Laboratory. This preventive program will include the purchase and installation of thermohygrometers/thermohygrographs to monitor and record the relative humidity and temperature, monitoring of pests and pollutants in object storage and display spaces, acquiring adequate archival-grade storage cupboards and planning and purchasing mounts for object storage.

Future Goals: Projected Plan, 2016-2017

Conservation Treatment—Ceramics

The second phase of the Preservation Project will begin in January of 2016 and proceed until 2017. During this time, conservation treatment of both the ceramic and metallic objects will take place. The treatment for the ceramics will have already started in 2015 and the next treatment stages will include desalination (removal of salts), reconstruction with a conservation-grade adhesive, and restoration with archival-quality materials. Throughout each stage of the treatment, consultation with the Project Team, stakeholders, consultant conservators as well as any other involved parties will determine which objects should be restored and what level of restoration is desired and acceptable.

Figs. 4-5: Condition assessment photographs showing the front (left) and reverse (right) sides of a ceramic jug that is in need of conservation treatment in the future.

Conservation Treatment—Metallic Artifacts

In addition to the treatment of the ceramic objects, the metallic finds will also be assessed and treated accordingly. Treatments for the metals will likely include some mild cleaning, physical and chemical stabilization and possibly coating of surfaces. Cleaning will take place with cotton wool swabs and solvents with some possible mechanical cleaning with wooden and metal tools and magnified glasses. Physical stabilization will involve reconstruction of loose pieces with archival-quality adhesive and also placement of conservation-grade filling material for the support of overhanging areas. Chemical stabilization incorporates the application of conservation-grade chemicals that will prevent and inhibit corrosion from occurring.

Coating materials made from archival polymers and waxes may be utilized to further mitigate corrosion processes, however, this is still to be determined.

Preventive Conservation and Collections Management

A program for preventive care and management of the Kyrenia Ship Collection is crucial to establish and maintain as it ensures the long-term preservation of the objects. Preventive care and collections management duties can include a range of tasks aimed at preventing deterioration of the objects, while organizing and providing better storage for the collection as a whole. The specific duties for both the Object Storeroom and Object Gallery at the Kyrenia Castle and the schedule for the execution of the tasks are listed in the tables below.

Figs. 6-7: Digital thermohygrometer (left) and thermometer (right) displaying the relative humidity and temperature of the Ship Gallery. These devices are aged and new equipment is needed.

Tasks	Projected Schedule
Instituting a program for preventive conservation (starting weekly monitoring of the Storeroom environment—RH/temperature, integrated pest management, UV/Lux/IR light monitoring and pollution monitoring and maintain appropriate storage throughout)	-Starting in November/January 2016
Installation of archival quality, metal cabinets with shelving for the storage of the lead objects.	-January-June 2016
Removal of wooden shelves currently used to house lead objects.	-January-March 2016
Removal of any items in the Storeroom that are not associated with the Kyrenia Ship or are aged, inappropriate storage materials	-January-March 2016
Purchasing of preventive equipment (pest traps, data loggers, orange-indicating silica gel, RH indicator strips, storage materials, etc.)	-November 2015-January 2016
Cleaning out the Storeroom using a HEPA filter vacuum cleaner.	-January-June 2016
Remedial conservation treatment of high-priority objects at the Conservation Laboratory in Nicosia	-Starting in September 2015, proceeding to June 2016-2017
Installation of AC and more appropriate extraction	-November 2015-April 2016
Structural maintenance of ceiling to prevent falling debris	-September 2015-February 2016
Continuous program of cleaning utilizing a HEPA filter vacuum cleaner	-Starting January 2016

*The Galleries**

[*Includes the Ship and Shipwreck Museum Galleries]

Tasks	Projected Schedule
Instituting preventive care (starting weekly monitoring of the RH/temperature, integrated pest management, UV/Lux/IR, purchasing of archival-quality display cases and object mounts) in both galleries	-Starting in November/January 2016
Purchasing of preventive equipment (pest traps, data loggers, orange-indicating silica gel, RH indicator strips, etc.)	-November 2015-January 2016
Remedial conservation treatment of high-priority objects at the Conservation Laboratory in Nicosia	-Starting in September 2015
Purchasing of archival-quality mounting and display products	-November-June 2016
Placement of museum personnel in both galleries to help safeguard the Collection/Hull.	-As soon as possible, preferably by June 2016
Establishing a program for the regular cleaning of both galleries	-As soon as possible, preferably by June 2016

Terms Used Throughout

- **Condition Assessment:** An activity conducted by conservators prior to conducting treatment to evaluate the condition of an object or collection. The overall aim of the assessment is to gain specific information about the object/collection, such as the need for treatment, the type of treatment needed and how best to prioritize the treatments based on the condition of the objects.
- **Conservation Treatment:** Conservation treatment involves activities which are aimed at the stabilization of an object to aid in its preservation. Conservation treatment in the context of this project refers only to actions aimed at stabilization and preservation and not restoration for aesthetic purposes.
- **Chemical Stabilization:** Chemical stabilization involves the use of archival-grade chemicals applied to a surface to stabilize a material, preventing further chemical reactions from occurring. In the context of this project, chemical stabilization specifically refers to chemical treatment of metallic surfaces.
- **Conservation Laboratory:** The laboratory located in Northern Nicosia where treatment of the objects from the Kyrenia Ship will take place.
- **Desalination:** A conservation treatment that involves the repetitive soaking of an object in water (tap, deionized or both) to remove harmful soluble salts such as chlorides, from the fabric of the object.
- **HVAC:** Abbreviation for "heating, ventilation, and air conditioning" systems.
- **Interventive Conservation:** Interventive conservation includes any treatment that involves an interaction with the material of the object. Interventive conservation activities can include cleaning, reconstruction, restoration, chemical stabilization, coating, etc.
- **Kyrenia Ship Preservation Project:** The branch of the Kyrenia Ship Project that deals with the preservation of the ship and its finds.
- **Objects Gallery:** The gallery located at the Kyrenia Castle which houses a portion of the objects associated with the Kyrenia Shipwreck.
- **Objects Storeroom:** The storeroom which contains the objects associated with the Kyrenia Shipwreck. This storage area is located at the Kyrenia Castle.
- **Physical Stabilization:** Efforts that are aimed at physically stabilizing an object. This can include the reconstruction of detached pieces or addition of an archival-grade material that will support a loose or overhanging area.
- **Preventive Conservation:** Actions aimed the prevention of deterioration or damage to a collection. Tasks include environmental monitoring (relative humidity, temperature, light, pollutant), integrated pest management (IPM), providing archival packaging, storage and mount materials and establishing an emergency/salvage protocol in case of disaster.
- **Project Team:** The group responsible for carrying out the Kyrenia Ship Project goals. Includes original archaeologists involved in the Kyrenia Ship excavation and recently added members.
- **Restoration:** Restoration involves the addition of materials not original to an object in order to aesthetically improve an object or to aid physical stability and/or interpretation of the piece in its original form.
- **Ship Gallery:** The gallery located at Kyrenia Castle which houses the hull of the Kyrenia Ship.
- **Smoke Sponge:** A molecular trap made of vulcanized, natural rubber, ideal for capturing and removing particulate matter on particular objects. This is considered a dry method of conservation cleaning. It should not be utilized to clean friable and delicate surfaces.

- **Solvents:** Chemicals which are utilized in the conservation treatment of an object. Solvents include deionized water, ethanol, and acetone, among others. These chemicals can be used in the cleaning of objects and also the deconstruction of objects that were reconstructed with a specific type of adhesive/glue that can be softened by a solvent.
- **Thermohygrograph/Thermohygrometer:** Devices used to monitor and record the relative humidity and temperature in a given area. A thermohygrograph is a device which produces a line-graph read-out on a weekly or monthly basis, while a thermohygrometer produces an electronic or analog reading, with some devices recording the data over particular intervals of time.