# The Kyrenia Ship Conservation Project

# Kyrenia Ship Collection:

# Conservation Progress Report

# April 2016

**Photographs courtesy of Veronica Ford and Cassy Cutulle, 2016**


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## Contents

## General Introduction

This month has been a productive one for the conservators working on the Kyrenia Ship Conservation Project. Great progress has been made in the desalination of the ceramics currently stored at the Conservation Laboratory in Nicosia. At the end of the month, 25 ceramics were successfully desalinated.

In addition, a second group of smaller ceramics numbering 34 was transported from Kyrenia Castle to the Conservation Laboratory in preparation for conservation treatment with the rest of the ceramics at the Laboratory. Treatment on this group of ceramics has commenced with the deconstruction of the objects that have been previously reconstructed/restored. Following deconstruction, the join edges will be cleaned and the objects desalinated.

Developments have also been made regarding the preventive conservation of the Kyrenia Ship Object Storeroom at Kyrenia Castle. Sticky pest traps were placed throughout the Storeroom to gain an understanding of the types of pests throughout the space. In addition, the Project Team collaborated at the end of April to conduct a thorough cleaning of the Kyrenia Ship Object Storeroom in preparation for the delivery of additional metal cabinetry for archival object storage.

## April 2016: Conservation Tasks in Progress

### Preventive Conservation Tasks

Progress continues to be made on the preventive conservation of the Collection, which aims to prevent degradation through modification of the environment. At the Object Storeroom in Kyrenia Castle, Cassy and Veronica implemented a pest-monitoring program in early April. This will prove particularly important for the preservation of organic materials stored within, such as fragments of the Ship's wooden hull, as pests are particularly damaging to these types of materials. Pest traps were strategically placed either in places where pests are likely to enter or pass through the storeroom, or where sensitive material was present.

**Fig. 1: Cassy Cutulle placing one of the new pest traps at the Storeroom in Kyrenia Castle (Photograph courtesy of Veronica Ford 2016)**

In addition, on April 21st 2016, the Object Storeroom was thoroughly cleaned and re-organized by members of the Kyrenia Ship Project Team, which included Helena Wylde Swiny, Stuart Swiny, Owen Gander, Cassy Cutulle and Veronica Ford. This provided the opportunity to removed old or expired products and furniture, increasing accessibility to the Collection. On the afternoon of April 21st, an additional four smaller metal cabinets were delivered to the Kyrenia Castle Object Storeroom which will allow plans to rehouse the material to proceed.

At the Conservation Laboratory, changes in temperature and relative humidity continue to be logged by the conservators in order to monitor the fluctuations in the ambient environment. In preparation for the transport of additional ceramics and metal objects from Kyrenia Castle to the Conservation Laboratory, an additional relative humidity and temperature sensor (sensor #2) was installed in a second cupboard on April 12th.

As in previous months, logging of relative humidity and temperature took place four times a week – two recordings were taken from each sensor on Monday and Friday mornings and afternoon at approximately 9:00am and 2:00pm, with occasional variation due to work demands in Kyrenia. For comparison, outdoor fluctuations in temperature and relative humidity were also determined through weather.com. In some cases, due to lack of internet in the laboratory, outdoor conditions were unable to be determined. Below are three graphs, two of which display the relative humidity and temperature recordings within the object cupboards in the Conservation Laboratory and the other which displays the outdoor overall humidity and temperature throughout this period.

By comparing the three graphs, it is apparent that the building and the metal cabinets have continued to act as a buffer to external environmental conditions, with indoor temperature and relative humidity readings fluctuating to a lower degree. However, the data from the sensors in both metal cabinets show some fluctuations in relative humidity, which remain a concern. It is envisioned that rehousing the objects, particularly the metals which are particularly susceptible to environmental changes, will help to increase this buffer to the objects and ensure their long term survival.

In addition to environmental monitoring, Cassy and Veronica have also been purchasing supplies. This month the conservators will be purchasing data loggers, which will allow the relative humidity and

temperature of the Kyrenia Ship Collection to be logged and recorded over time, which signifies that small fluctuations in the environment will be visible as well.

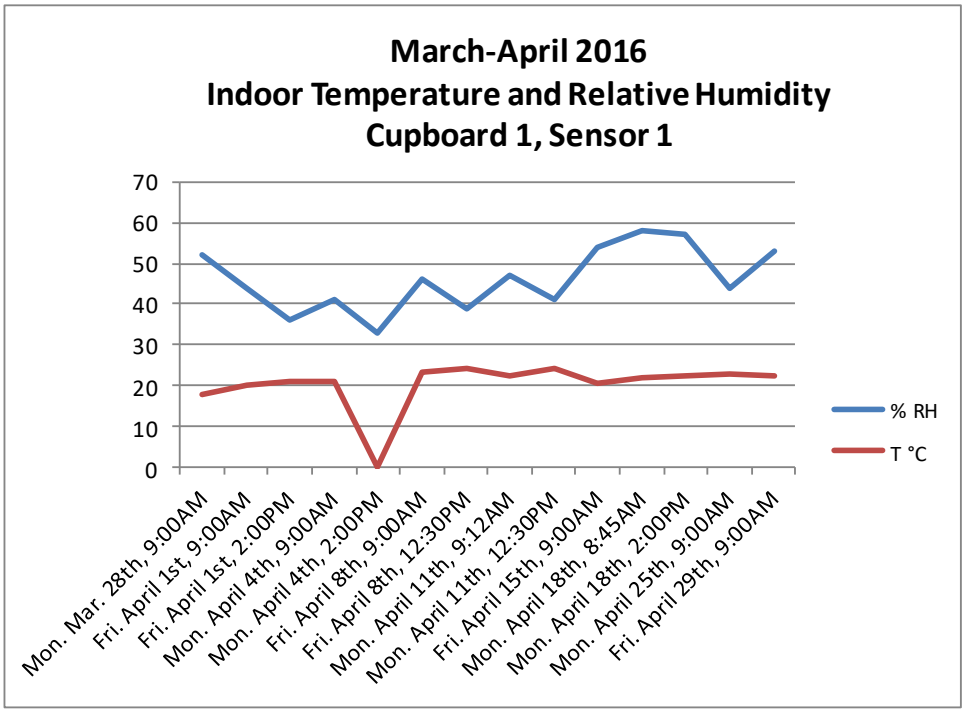


**Fig. 2: Line graph charting the fluctuations in relative humidity (blue line) and temperature (red line) from the end of March to the end of April 2016 for Sensor 1 located in Cupboard 1.**

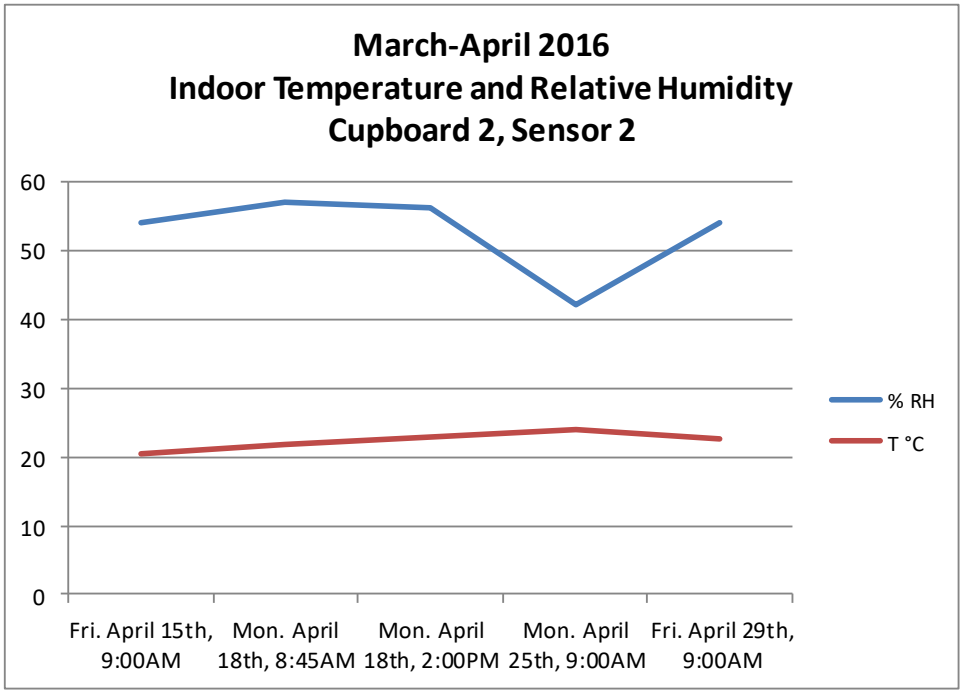


**Fig. 3: Line graph charting the fluctuations in relative humidity (blue line) and temperature (red line) from the end of March to the end of April 2016 for Sensor 2 located in Cupboard 2.**

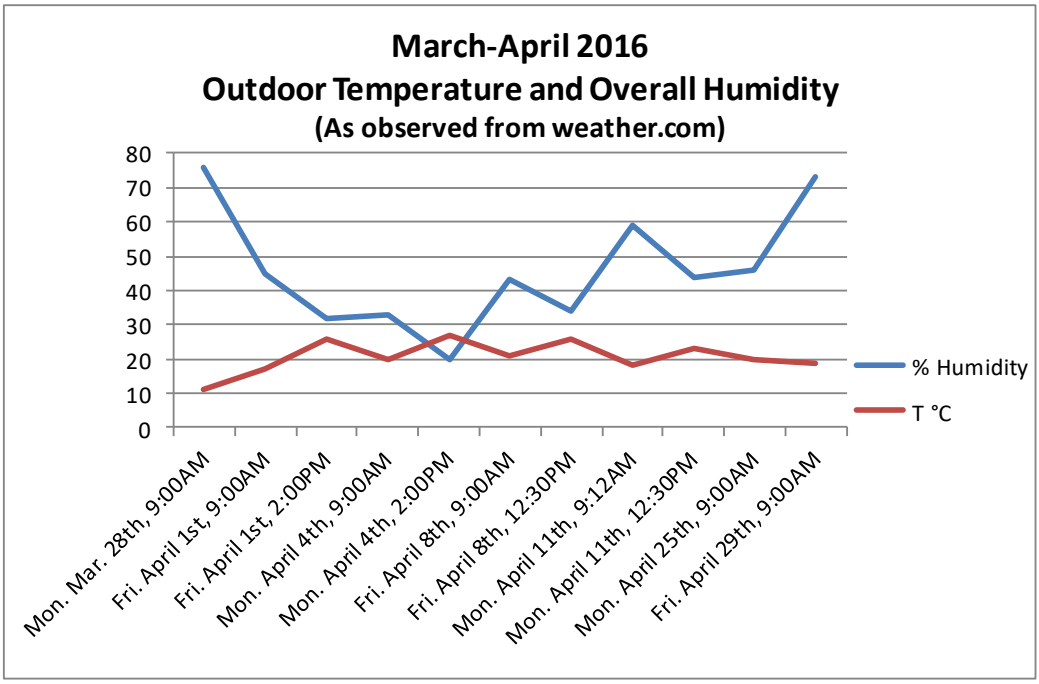


**Fig. 4: Line graph charting the fluctuations in overall humidity (blue line) and temperature (red line) outdoors from the end of March to the end of April 2016.**

## Remedial Conservation Tasks

This month the first 25 ceramics were successfully desalinated. Most of these objects were desalinated through immersion in deionized water, while 1 object was desalinated through the application of a poultice dampened with deionized water.

For immersion desalination, a batch of ceramic objects—on average 4—were placed in baths of deionized water which was changed on a daily basis every day for one week, with the exception of the weekend days. The first of these baths was made up of a 1:1 ratio of tap water and deionized water so as to not shock the object by leaching out too many ions too quickly, which is a possibility when placing it directly in deionized water. Subsequent baths were made up of entirely deionized water. The conductivity of the desalination bath water was checked each day using a Thermofisher Scientific "total dissolved solids", or TDS/conductivity meter, which measured the conductivity of the water in micro-Siemens and provided a temperature for the water. When the conductivity reached an appropriate endpoint–approximately 70-100 micro-Siemens—the desalination was completed and the object removed from the water and slowly dried. This endpoint was reached after 7 days of soaking for most of the objects.

**Figs. 5: Photograph of Cassy Cutulle placing a ceramic object into a basin of deionized water for immersion desalination (Photograph courtesy of Veronica Ford 2016).**

**Fig. 6: Photograph of the immersion desalination set-up for batch #3 ceramic objects which numbered 6 in total (Photograph courtesy of Cassy Cutulle 2016).**

**Fig. 7: Photograph of Batch #2 immersion desalination objects in a slow-drying atmosphere after desalination was completed (Photograph courtesy of Cassy Cutulle 2016).**

Each day, the conductivity readings were recorded alongside the temperature and volume of water utilized for the soaking of the ceramic. This information is stored on an Excel spreadsheet where the conductivity with respect to the weight of the object, the volume of water used and the temperature of the water can be calculated and translated into a value (termed a "k adjusted value"). These values will be graphed to illustrate the progression of the desalination over time. As of the end of April, 4 batches of ceramic objects have been completed through immersion desalination, with a 5$^{th}$ batch underway.

For objects which were deemed too fragile or contained accretions which could not be removed, paper pulp poultices were utilized to remove the salts from the ceramic fabric. The use of the paper pulp poultice allowed for a more careful, controlled removal of the salts by way of drawing out the salts through the evaporation of the deionized water on the paper pulp on one side of the ceramic. For this, un-bleached, acid-free paper was purchased, cut into small pieces and dampened with deionized water and mixed together to create the paper pulp. One side of the ceramic was covered with acid-free tissue paper and the dampened paper pulp applied to the acid-free tissue. This paper pulp was left on for approximately 24 hours, after which the paper pulp was removed, placed in a beaker filled with 160ml of deionized water. The conductivity of the old paper pulp in the beaker was taken each day to track the desalination of the object. A new layer of paper pulp was applied each day for 9 days to continue the desalination. This poultice desalination was successful for 1 object thus far, with more objects planned.

**Fig. 8-9: (Left) Photograph of Veronica Ford placing paper pulp poultice on a fragile ceramic object. (Right) Photograph of a ceramic object after the paper pulp has been applied (Photographs courtesy of Cassy Cutulle 2016).**

Additionally, in late April, the second group of ceramics was transported from Kyrenia Castle to the Conservation Laboratory in Nicosia. In doing so, the conservators worked to appropriately pack the objects for transport. Polyurethane foam and bubble wrap were utilized as the padding for the boxes which contained the ceramic and metal objects, while a layer of acid-free tissue paper with a top-layer of bubble-wrap were used to pack the individual objects. These materials are not considered archival-quality, however, these were the only materials readily available within the allotted time frame. Moreover, these packing materials were only used temporarily and were removed from the boxes once the objects were safely transported to the Conservation Laboratory. Once packed, the conservators escorted the objects to the Laboratory, which were transported by vehicle by authorities in the north.

Upon arrival at the Laboratory each object was un-wrapped, re-packaged and housed within the second metal cupboard in the Conservation Laboratory. Efforts are now underway to begin treatment on the ceramics in this group, which includes deconstruction of previously reconstructed joins and removal of aged filling material used for restorations in the past.

**Figs. 10-11: Photographs of Veronica Ford (left) and Cassy Cutulle (right) packaging ceramic objects for transport to the Conservation Laboratory in Nicosia (Photographs courtesy of Cassy Cutulle and Veronica Ford 2016).**

## April 2016: Projected Work Plan

During the course of the next month, desalination of the ceramics will continue in order to ensure that damaging salts are removed from the structure of the ceramics. Concurrently, work will continue on the deconstruction of the second group of ceramics from Kyrenia Castle. Consolidation and desalination of this second group will proceed, where appropriate.

In the next month, the conservators will be involved in the development of a plan for the reconstruction of select objects in the first group of ceramics. Additionally, a plan for the treatment of the metal objects – which were transported to the Conservation Laboratory earlier this month—will also be devised. It is also envisioned that additional supplies for rehousing, long-term storage and treatment of ceramics will be purchased. Note that due to shifting conservation priorities and needs, the long term work plan has been altered accordingly, as can be seen in more detail in Figure 12 below.

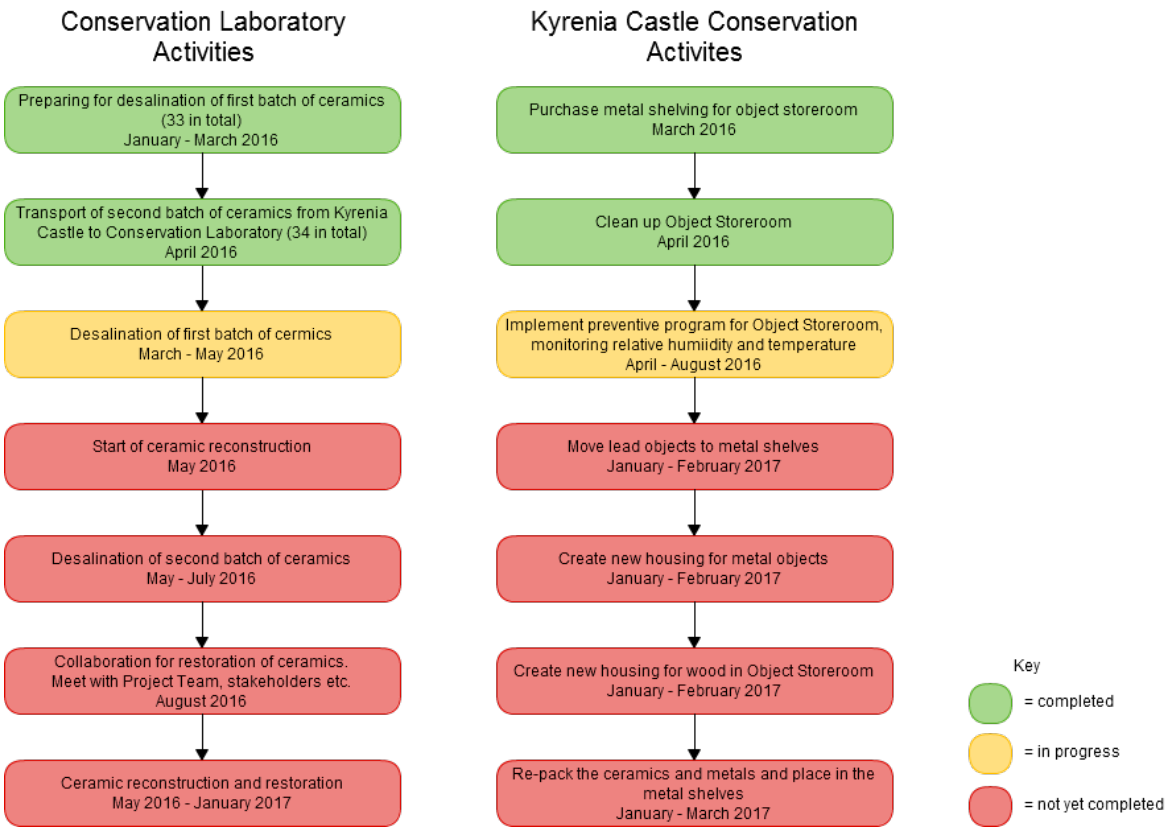


**Fig. 12: Flow chart displaying the activities to be undertaken by the conservators for this Project and the progress made thus far (Flow chart courtesy of Veronica Ford, 2016).**