The Kyrenia Ship Conservation Project

Kyrenia Ship Collection:

Conservation Progress Report

May 2017

Photograph of Veronica Ford, Stella Pissaridou, Cassy Cutulle, Tiziana Zennaro, Martina Zaccaro and Özge Sami during a visit to Kyrenia Castle in late-May 2017.

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General Introduction

May 2017 signified the concluding month of the Kyrenia Ship Conservation Project. The conservators focused their efforts on returning all objects and supplies to their permanent storage location—Kyrenia Castle—and re-housing the final objects and organizing the Kyrenia Ship Storeroom. This included labeling boxes and cupboards, situating the boxes in the metal cupboards, numbering boxes, creating a floor plan of the Storeroom.

Additionally, the conservators tended to preventive activities in lieu of their departure, such as changing and dehydrating exhausted silica gel, extraction of environmental data from the TinyTag data loggers and setting new pest traps, leaving the objects in a stable environment. The aim is for these preventive activities to be continued by appropriate personnel in the near future to ensure that good conditions are maintained for the objects. Lastly, several remaining remedial projects were finished to conclude the Project.

April 2017: Conservation Tasks in Progress

Preventive Conservation Tasks

During the course of May, the conservators entered the final phase of the project, returning all objects and supplies to Kyrenia Castle with the aid of the Department of Antiquities on May 9th. After cleaning and clearing the conservation laboratory in Nicosia, the conservators moved full time to Kyrenia Castle. This marked the end of the major remedial conservation treatment phase of the project and a shift towards rehousing and ensuring the long term archival storage of the collection, although remedial treatment continued as necessary.

One of the largest groups of objects for re-housing included the lead sheathing stored on chicken wire trays in the Kyrenia Ship Storeroom. This sheathing was originally placed on the exterior of the hull of the Ship and was excavated from the seabed in many pieces. Due to environment of the Storeroom, the lead had corroded over time, becoming weakened, powdery and discolored. The large sizes and quantity of lead pieces made it a difficult re-housing project, requiring special airtight archival boxes. Furthermore, as corroding lead and lead dust is particularly toxic, this project posed many health and safety hazards, which the conservators prepared for. Lab coats, nitrile gloves, hair covers and high efficiency filter face masks were all worn when working with the lead.

For the lead, it was critical that it was stored in archival-quality boxes with minimal air exchange. This is due to the fact that the moisture as well as volatile organic compounds off gassing from the wooden shelves in the air of the Storeroom environment are particularly damaging to the lead. Additionally, the large dimensions of the lead were challenging and the conservators needed to purchase boxes that best accommodated this. Research was conducted and the appropriate boxes were sourced from Energon—a chemical and laboratory supplies company that was utilized in the past to obtain the water deionizing unit. Fifty polypropylene boxes with clip lids were purchased and delivered in mid-May. The clip lids were especially useful as they minimized air exchange with the outside environment more than traditional snap-in lids. Additionally, the placement of the lead in secure boxes such as these meant that the risk of exposure to lead and lead dust was greatly reduced, making the Storeroom a safer environment for people to work in.

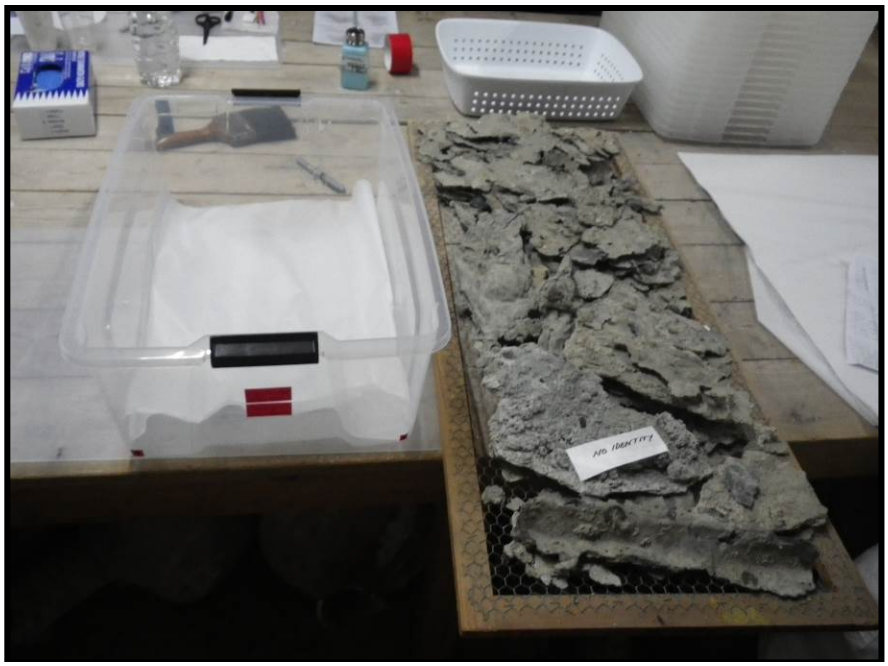


Fig.1: Photograph during the re-housing of a tray of lead sheathing into an archival plastic box with clip-lid (Photograph courtesy of Veronica Ford, 2017).

Veronica and Cassy worked throughout the span of 3.5 weeks to store the lead sheathing. The sheathing pieces were re-housed one-by-one by their original chicken wire trays. In most cases, one tray was possible to fit into one box. Often times, the lead was placed into the box in layers. When layered, the lead was supported by an archival plastic tray or smaller box lid. Oversize pieces were placed in some larger boxes left over from the storage of the wooden hull pieces. In all boxes, acid-free tissue paper was placed in the interior base, over any layers present and on the very top of the lead prior to closing the lid.

Fig.2: Photograph showing the placement of lead sheathing within the archival plastic boxes.

BEFORE AFTER

Fig.3: Photograph of the lead sheathing storage before and after the conservators re-housed the material (Photograph courtesy of Cassy Cutulle, 2017).

BEFORE AFTER

Fig.4: Photograph of the lead sheathing storage before and after the conservators re-housed the material (Photograph courtesy of Cassy Cutulle, 2017).

A key aspect of rehousing both the lead as well as the other objects within the Storeroom was ensuring that they were properly labeled. As previously, objects were clearly labelled with their contents, including object numbers. Boxes were also numbered in a sequence between 1 and 151 and a list created so that each object could be more readily located (see separate list entitled ‘’Kyrenia Ship Object Storeroom: Object Boxes List”). Warning labels were also applied to the boxes designating that fragile objects were within and which way up the boxes should be carried, as previously. In addition, care was taken to label any heavy boxes (which mostly contained wood and lead) along with warnings about the toxic lead dust in boxes containing degrading lead objects and sheathing. A particularly time consuming part of this process was labelling the boxes in Turkish as well as in English. This was deemed important so that the northern Cypriot custodians at Kyrenia Castle could understand the handling and safety instructions.

Fig.5: Photograph of conservator Veronica Ford placing labels on the boxes to be packed (Photograph courtesy of Cassy Cutulle, 2017).

After the successful re-housing of objects and supplies at Kyrenia Castle, final activities included organizing the storage of boxes and supplies within the metal cupboards and creating a floor plan so that visitors are aware of the location of objects. Objects were stored according to material type and the cupboards appropriately labeled. Additionally, the numbering of the boxes allowed the conservators to label the cupboards with the box numbers included within. The floor plan also included the location of pest traps so that they can easily be checked and changed in the future. Additionally, several last objects were placed on display in the Shipwreck Museum Gallery which were delivered to the Castle with the last group of objects and supplies. These included P15 and P11.

Fig.6: Photograph of the metal cupboards containing ceramic objects and supplies. This photo shows the labels and floor plan included on the fronts of the cupboards to ease access to objects later (Photograph courtesy of Veronica Ford, 2017).

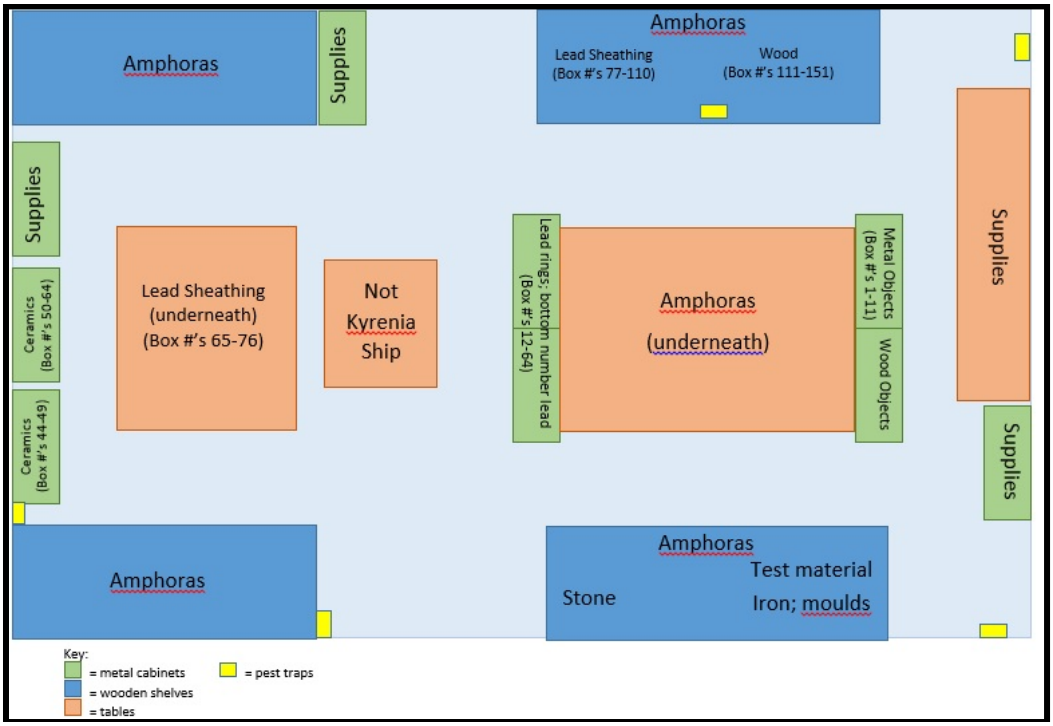
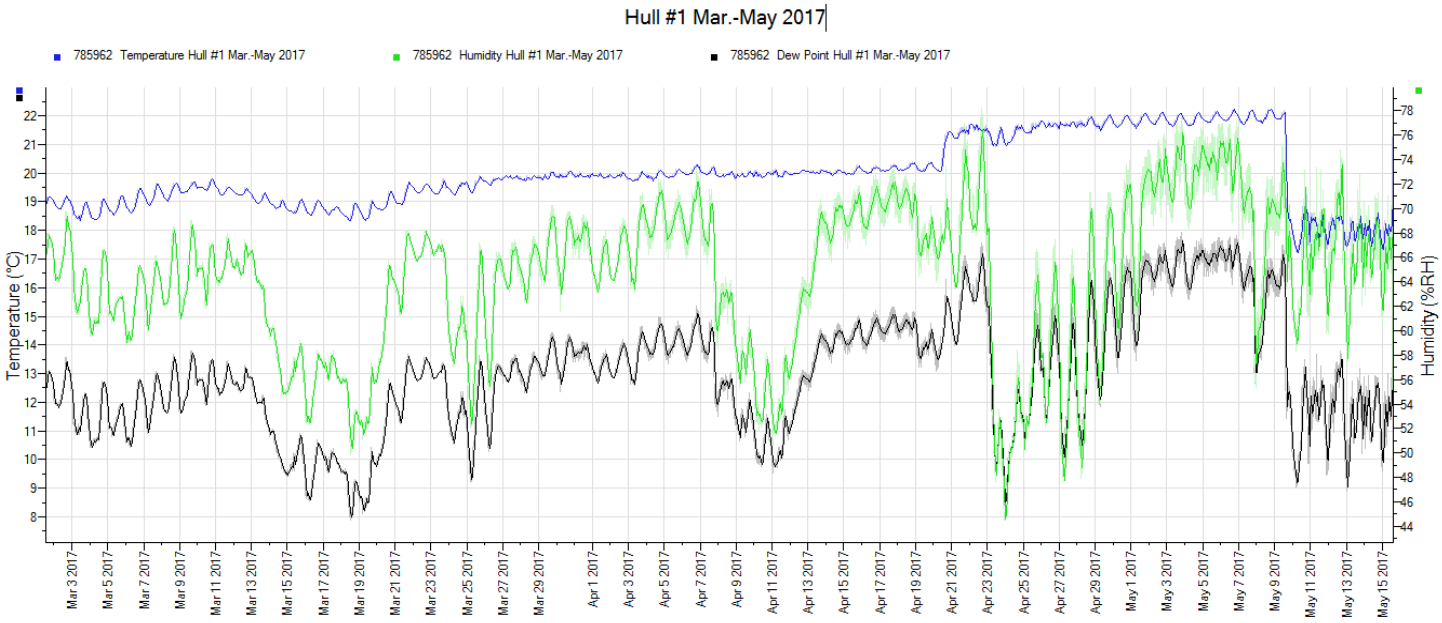


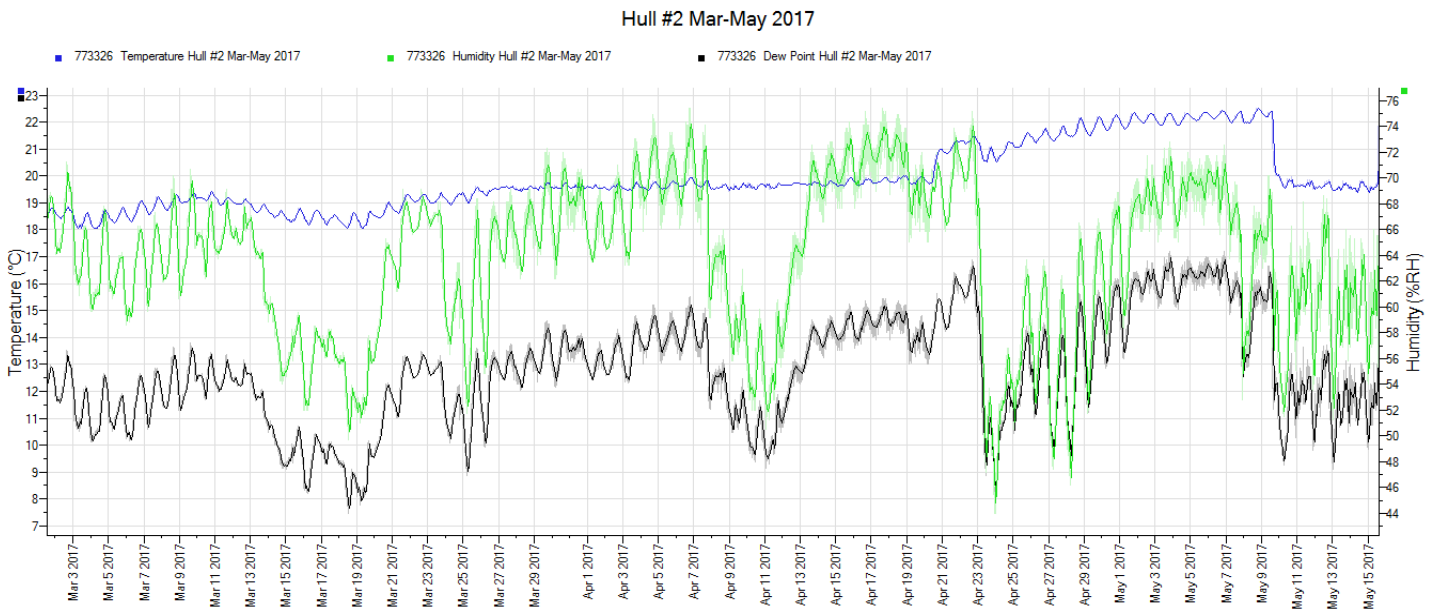
Fig.7: Photograph of the floor plan created after the final organization of the Kyrenia Ship Storeroom (Floor plan courtesy of Veronica Ford, 2017).

Further to the installation of the air conditioning unit in the Storeroom in April, the conservators were keen to ensure the best environment for the objects prior to their departure. The lower temperature of 21 C that the air conditioner was initially set at in April produced a rise in humidity to 65-70%. In order to reduce this, the conservators experimented with different settings on the air conditioning unit. The best compromise found was to place the air conditioner on 27 C on the heating setting, which reduced the relative humidity to around 60%. Instructions were left on the unit detailing the best settings and the conservators discussed these with the staff at Kyrenia Castle prior to their departure. It is recognized that 27 C may be too warm for the comfort of people working in the vicinity, so it is suggested that temperature is reduced temporarily during hours that people are working in the Storeroom.

Given the relatively high levels of relative humidity seen in the Storeroom, another essential task was to change the silica gel which had been placed in the boxes containing the metals, to ensure that the relative humidity remains as low as possible in the vicinity of these objects. This was completed on May 19th. The exhausted silica gel was removed at the same time and re-invigorated ready for its reuse by heating it in an oven at around 100° C for 2 hours (stirring 2-3 times).

Additionally in May, the conservators alongside team member, Owen Gander, extracted the March to May data from the TinyTag environmental loggers placed in the Kyrenia Ship Storeroom, the Shipwreck Museum Gallery and Ship Gallery at Kyrenia Castle. After extracting this set of data (see graphs below), the data loggers were set up to record relative humidity and temperature every seven minutes for the next three months. In early August, Owen Gander—who has been properly trained in extracting the TinyTag data—will extract the data for May to August 2017.

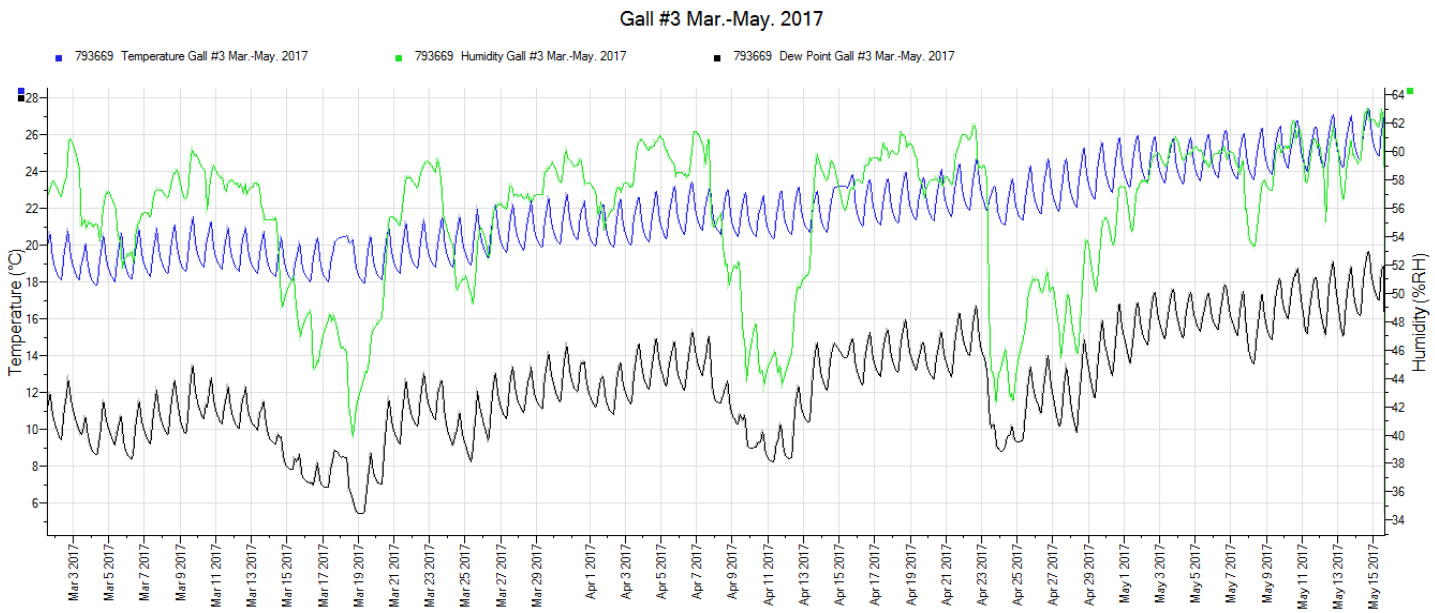


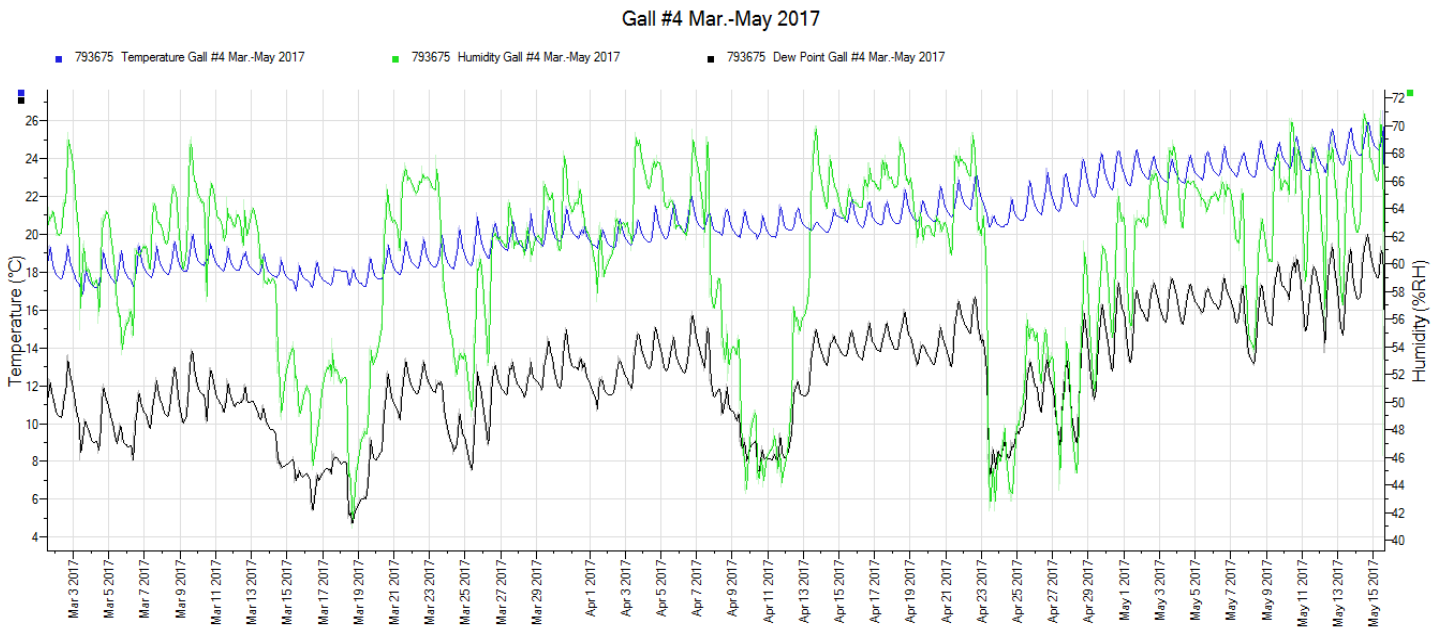


Figs.8-9: Line graphs displaying the relative humidity and temperature readings throughout March to May 2017 for the data loggers placed on the port and starboard sides of the hull.

Two data loggers were situated within the Ship Gallery: one at the bow area on the starboard side and one at the amidships area on the port side. The data between both loggers is very similar, although the logger placed on the port side shows lower temperature readings as it is on the side opposite the two A/C units in the Ship Gallery. Overall, the temperature readings extracted from both loggers show relatively stable temperatures with gradual, slower fluctuations. Some spikes are evident as the seasonal temperature rises, but again, most changes are slow and gradual, which is ideal. Additionally, the temperature readings are all within the range of 17-22°C, with most falling within the 18-20°C range, which is the most desirable.

The relative humidity for the Ship Gallery is not as stable, however. The frequency of the stark peaks and drops in relative humidity and the large percentage of change is concerning. Fluctuations here are not occurring gradually or slowly, but quickly. These types of variations can be damaging to the wood of the hull, as the wood swells and contracts with the vast changes in humidity in the environment. The readings fall within the overall range of 43-78%, constituting a large degree of difference.

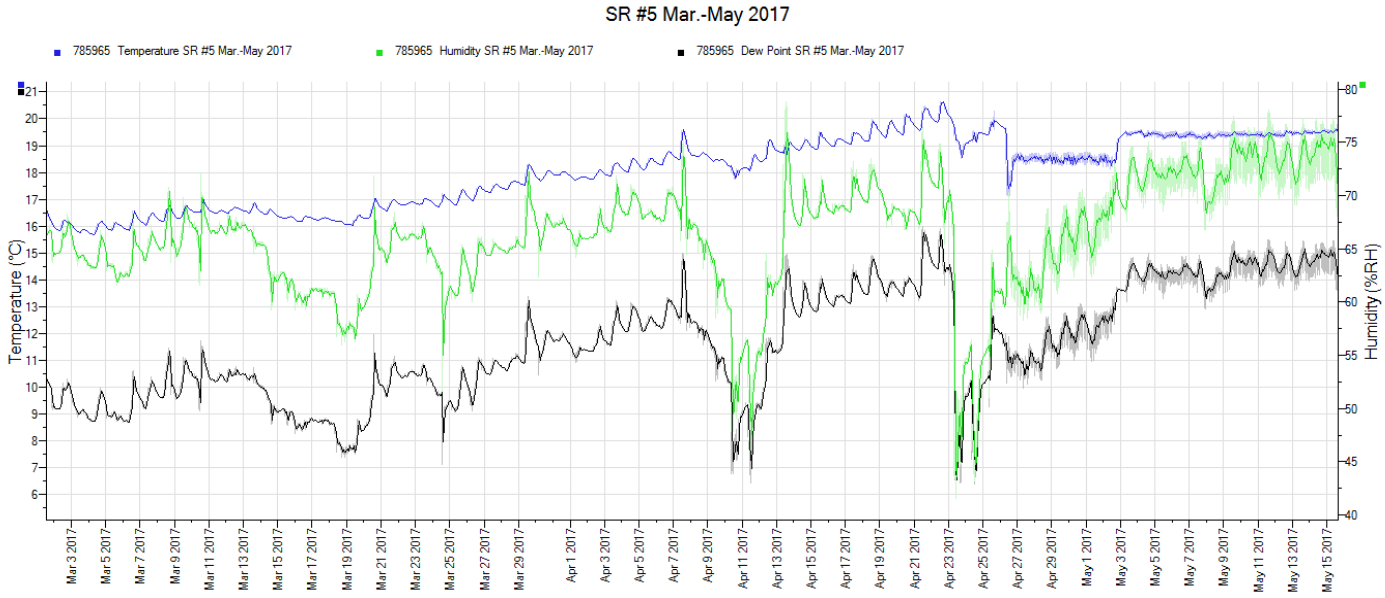


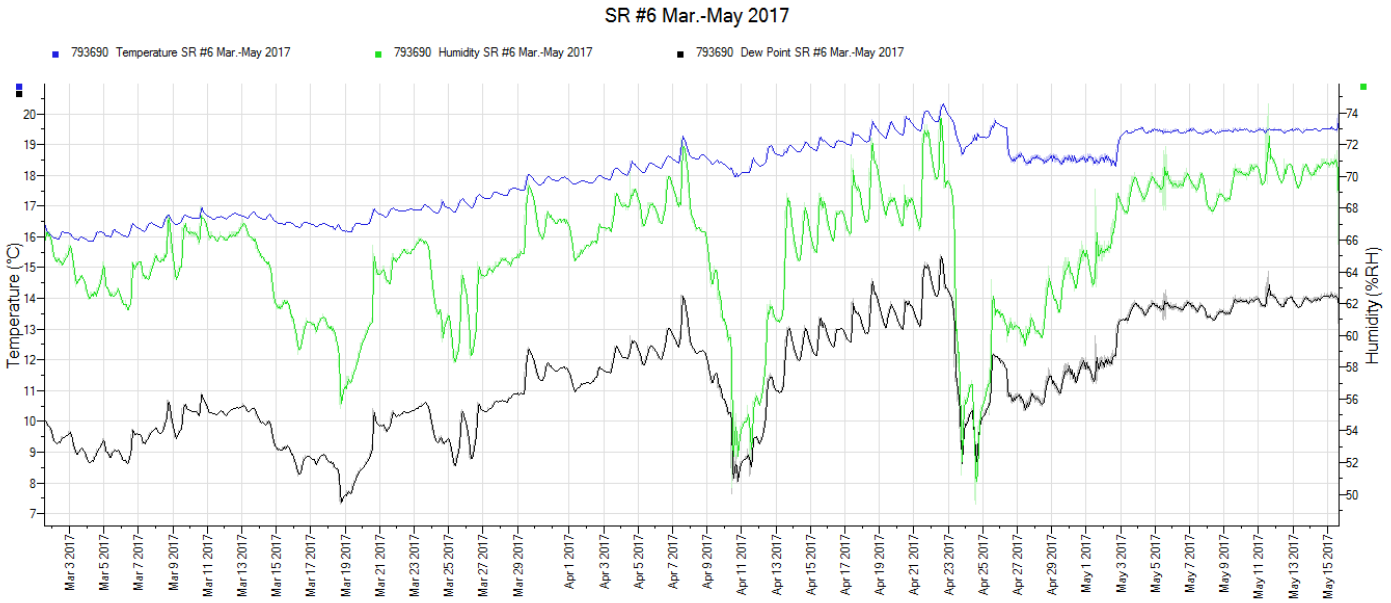


Figs.10-11: Line graphs displaying the relative humidity and temperature readings throughout March to May 2017 for the data loggers placed within the first and tenth display cases in the Shipwreck Museum Gallery.

For the Shipwreck Museum Gallery loggers, similar data was seen throughout March to May as was examined in previous months. For temperature, readings fell within the range of 16-27°C, which does need stabilization to 19-22°C, preferably. Peaks and drops in temperature followed a particular zig-zag pattern, indicative of the turning on and off of lights within the cases each day. Although the fluctuations do follow a regular progression, stabilization is desirable in the future. This can most likely be effected through installation of lighting within the cases that does not emit heat.

The relative humidity readings within the display cases are concerning as the fluctuations present are frequent with large drops and quick increases. In particular, these types of changes in relative humidity can create an environment that encourages the formation of corrosion on metal objects, mold growth and cracking/warping of both inorganic and organic objects. The installation of new lights should aid in stabilizing the relative humidity to a degree, however, the lack of any environmental controls in the Shipwreck Museum Gallery and the construction of the cases are other important factors affecting these readings.





Figs.12-13: Line graphs displaying the relative humidity and temperature readings throughout March to May 2017 for the data loggers placed within the Kyrenia Ship Storeroom.

Within the Kyrenia Ship Storeroom, the readings from both loggers appear quite similar. The temperature readings are quite stable, with gradual fluctuations present. The installation of the A/C unit can be seen in late April, which has greatly reduced the degree of fluctuation present. The A/C has stabilized the temperature to about 19.5-20°C, which is particularly ideal climate for the Storeroom environment.

Prior to the A/C installation, the relative humidity was not stable, and the readings shows erratic and irregular fluctuations over a large magnitude of change. However, in late April, the percentage stabilized as a result of the A/C, with variations that showed a smaller degree of change. However, the use of the A/C has caused the relative humidity to stabilize at a higher percentage (around 71%), which is not ideal as this can cause mold growth, metal corrosion and warping of objects. This higher humidity is a result of the A/C cooling the air, which subsequently allows the air to carry more moisture. As temperature drops, the humidity will then rise. To try to combat this, the conservators tested different settings for the A/C unit to assess which would provide the lowest humidity at about 58-60%, which is much more appropriate. As a result, it seems that the heating setting for the A/C with a temperature set to 27°C provides the lowest humidity in the Storeroom. These settings can be changed for comfort when working in the Storeroom as long as they are turned back to the optimum settings ("heat" at 27°C) after. In the future, a dehumidifier would be ideal to further bring down the humidity to around 50-55% as the air conditioning unit is not capable of dehumidifying to a large degree.

Towards the end of May, several meetings were arranged with the United Nations Development Programme – Partnership for the Future (UNDP-PFF) to allow the conservators to report at the end of the project. The first of these constituted a visit to Kyrenia Castle on May 25th by representatives from the UNDP including Tiziana Zennaro and Martina Zacarro, along with representatives from north and south Cyprus, Özge Sami and Stella Pissaridou. This was an opportunity for the conservators to directly present the results of the project and receive feedback on the remedial treatment of objects, rehousing efforts and the transformation of the Castle Storeroom. This was followed up on May 29th by a second meeting in which the conservators gave a presentation of their work to members of the Technical Committee on Cultural Heritage and the UNDP-PFF. Again, this was an opportunity for the conservators to receive feedback from key stakeholders and to reinforce the importance of a regular monitoring and maintenance program to ensure the continued survival of the collection.

Fig.14: Photograph of UNDP-PFF visit to Kyrenia Castle alongside Stella Pissaridou and Özge Sami—members of the bi-communal technical committee.

Remedial Conservation Tasks

At the end of April, much of the remedial treatment work had been completed, with the exception of the restoration of two ceramics P15 and P21. Cassy completed the detachable plaster fill for P15 and painted the area in time for it to go on display at Kyrenia Castle in late May. Veronica also finished the sanding of P21, concluding its treatment. A final challenge was to continue the reconstruction of the large amphora P113, which was particularly time consuming due to its size. Due to an accidental breakage which occurred during transport, this object required additional reconstruction, which was carried out during the end of May, returning it to its pre-transport condition.

Figs.15-16: Photographs of the display cases showing the final arrangement of ceramics for display (Photographs courtesy of Veronica Ford, 2017).

Fig. 17: Photograph of P113 after its reconstruction after the accidental breakage during transport (Photograph courtesy of Veronica Ford, 2017).

Project Completion: Work Plan and Standing

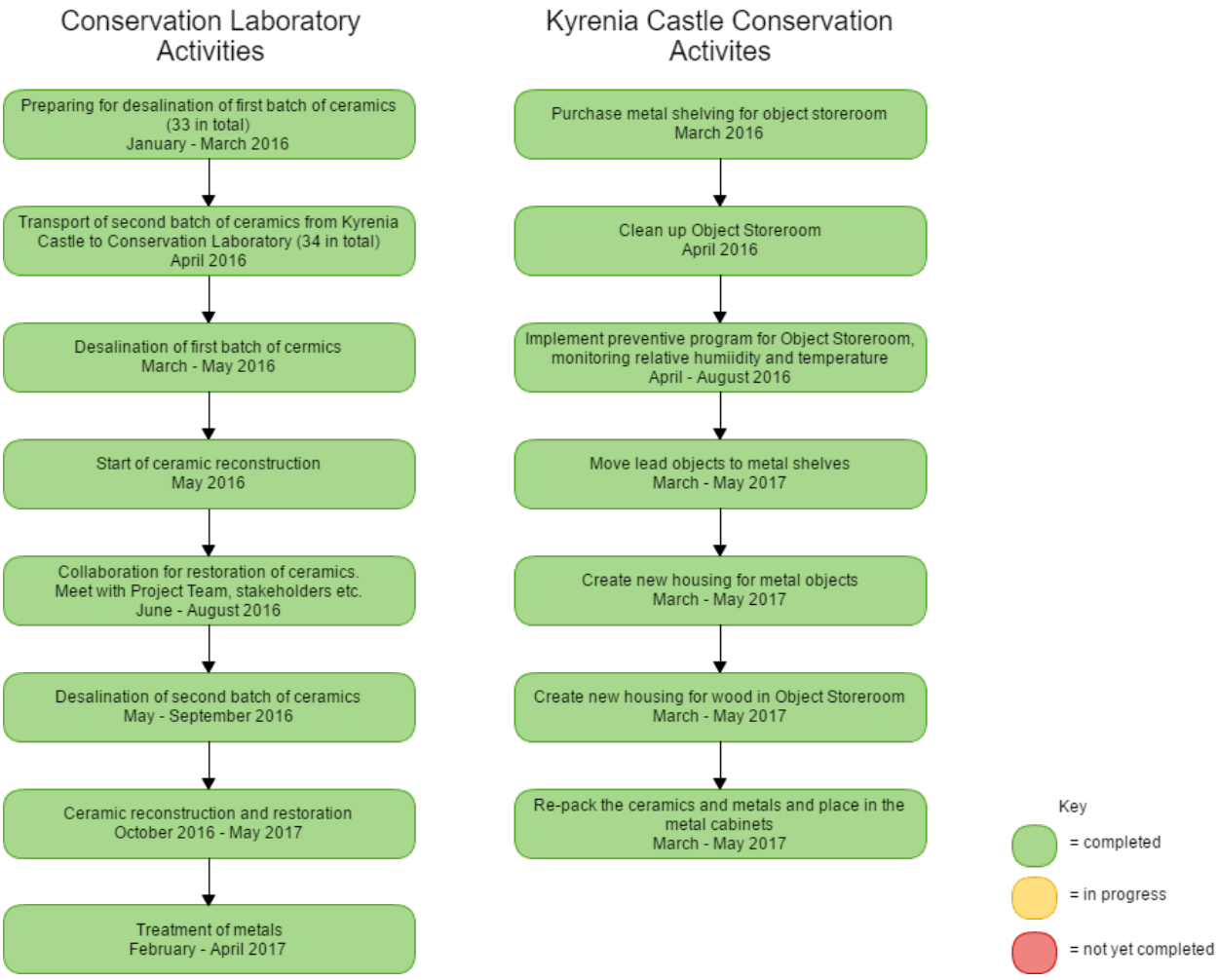


Fig.18: Flow chart displaying the activities completed by the conservators for the duration of this Project (Flow chart courtesy of Veronica Ford, 2017).

Future Recommendations for Care

***Must be undertaken by a qualified conservation/museum professional every 6 months:**

- Keep relative humidity <60% and maintain temperature at 21°C. May have to change air conditioner settings to help with this.
- Check silica gel and change where appropriate. Dehydrate it the exhausted silica gel (put in an oven at 100°C for 2 hours, stirring 2-3 times).
- Check metals for corrosion products and in particularly, newly formed corrosion products.
- Extract data from data loggers (every 6 months).
- Check pest traps, record findings, set new ones.
- Check RH% humidity cards in boxes, make sure it's around 45-50%. Records this information.
- Check on ceramics: Make sure adhesive is not tacky, no deconstruction of objects or restored areas.

Kyrenia Ship Object Storeroom
Object Boxes List*

*Note: This list only contains those objects that were re-housed by conservators Cassy Cutulle and Veronica Ford in 2017.

Metal Objects (Copper, Copper Alloys)

- **Box 1: Cu6, Cu7, Cu9, Cu14, Cu20, Cu3, Cu26, Cu15 (contains silica gel, placed on May 21st, 2017 and no humidity card)**
- **Box 2: Cu4 (contains silica gel, placed on May 21st, 2017 and no humidity card)**
- **Box 3: Coins C1-C7, C8/Pb11 (contains silica gel, placed on May 21st, 2017 and also contains humidity card)**
- **Box 4: Cu18 (contains silica gel, placed on May 21st, 2017 and also contains humidity card)**
- **Box 5: Cu10 (does not contain silica gel or a humidity card)**
- **Box 6: Cu11 (contains silica gel, placed on May 1st, 2017 and no humidity card)**
- **Box 7: Cu19 (contains silica gel, placed on May 21st, 2017 and also contains humidity card)**
- **Box 8: Copper Tacks [75 in all] (contains silica gel, placed on March 31st, 2017 and also contains humidity card)**
- **Box 9: Cu21, Cu22, Cu23 (contains silica gel, placed on May 1st, 2017 and no humidity card)**
- **Box 10: Copper Nails [28 in all] (contains silica gel, placed on March 31st, 2017 and also contains humidity card)**
- **Box 11: Cu17 (contains silica gel, placed on May 21st, 2017 and also contains humidity card)**

Lead Objects (Including rings and bottom number lead)

- **Box 12: Post stern lead sheathing AEK 6A**
- **Box 13: Bottom numbers lead sheathing, starboard**
- **Box 14: Bottom numbers lead sheathing, port**
- **Box 15: Bottom numbers lead sheathing, port**
- **Box 16: BL^2 –VT without flange (contains silica gel placed on April 10th, 2017 and no humidity card)**

- **Box 17: VU-AIH without flange (contains silica gel placed on April 10th, 2017 and no humidity card)**
- **Box 18: Bottom numbers lead sheathing, port**
- **Box 19: Bottom numbers lead sheathing, port**
- **Box 20: Pb 27 lead curse tablet (on display), Cu28, W76**
- **Box 21: AIK-C.13.G without flange (contains silica gel placed on April 10th, 2017 and also a humidity card)**
- **Box 22: Flanged lead rings (contains silica gel placed on April 10th, 2017 and also a humidity card)**
- **Box 23: Bottom numbers lead sheathing, port**
- **Box 24: Nails, tacks from lead trays 2008, trays I-XXVI**
- **Box 25: Lead fishnet weights and curse tablet**
- **Box 26: Lead objects Pb23, Pb25, S9 (contains silica gel placed on January 12th and May 1st, 2017 and also a humidity card)**
- **Box 27: Lead patches ALS Pb31, Pb32, Pb26, Pb28, Pb29, Pb30, Pb33, and unlabeled patch**
- **Box 28: Bottom numbers lead sheathing, keel-bow, port 384,729,793, AQB, ANJ, 730**
- **Box 29: Bottom numbers lead sheathing, starboard**
- **Box 30: Bottom numbers lead sheathing, starboard**
- **Box 31: Bottom numbers lead sheathing, starboard**
- **Box 32: Bottom numbers lead sheathing, starboard**
- **Box 33: Bottom numbers lead sheathing, bottom layer: starboard, middle layer: AMG [starboard bow], top layer: ALV Pb104 [starboard]**
- **Box 34: Bottom numbers lead sheathing, starboard**
- **Box 35: Bottom numbers lead sheathing, starboard**
- **Box 36: Bottom numbers lead sheathing, starboard**
- **Box 37: Bottom numbers lead sheathing, starboard**
- **Box 38: Bottom numbers lead sheathing, starboard**
- **Box 39: Bottom numbers lead sheathing, starboard**
- **Box 40: Bottom numbers lead sheathing, starboard**
- **Box 41: Bottom numbers lead sheathing, starboard**
- **Box 42: Bottom numbers lead sheathing, starboard**
- **Box 43: Bottom numbers lead sheathing, starboard**

- **Box 44: P7, P88, P93, P103, P127, P132**
- **Box 45: P18, P20 + P22, P22, P23**
- **Box 46: P28**
- **Box 47: AIX 404**
- **Box 48: P89, P95, P100, P123, P134, P145**
- **Box 49: P19/P29**
- **Box 50: P9/P110, P13, P146**
- **Box 51: P8, P84, P98, P109**
- **Box 52: P24, P121**
- **Box 53: P1, P26, P96, P107**
- **Box 54: Knucklebones**
- **Box 55: P99, P126, P160, P97, P125, P144, P140, P153, P161, P154, P141, P158, P159, P148**
- **Box 56: P94, P27, P104**
- **Box 57: P11, P85, P105/P106, P120, P123, P124A/P124B**
- **Box 58: P112, P131, P136, P137, P140**
- **Box 59: P92, P130, P142, P147, P152, P155**
- **Box 60: P25, P101, P129, P135, P138, P143**
- **Box 61: P139**
- **Box 62: P133**
- **Box 63: P14, P102, P151**
- **Box 64: P5, P128, P157**

Lead Sheathing

- **Box 65: Port side lead sheathing P11-P12?**
- **Box 66: Lead sheathing, bow extremity port or starboard? S8?**
- **Box 67: Starboard side lead sheathing, S? Starboard**
- **Box 68: Starboard side lead sheathing, S10 Starboard stern**
- **Box 69: Starboard side lead sheathing, S10**
- **Box 70: Keel lead sheathing, keel piece 115, Pb100, Pb101**
- **Box 71: Starboard lead sheathing, S9 F9-F22, Futtock, ES2? EF6-15**
- **Box 72: Starboard lead sheathing, S4 F25-F29, ES7-EF18-21, S10 tray IV**

- **Box 73: Starboard side lead sheathing, tray 2 on tray 1, Pb210, Pb207, S7-S8**
- **Box 74: Starboard side lead sheathing barnacles, S10, ZB, S9, Pb222, location?**
- **Box 75: Starboard side lead sheathing S3-S6**
- **Box 76: Starboard side lead sheathing, S3-S6, S9**
- **Box 77: Starboard lead sheathing EF12/13, F18-F20, S9?**
- **Box 78: Starboard lead sheathing S? starboard F31-F33**
- **Box 79: Starboard lead sheathing, Pb217**
- **Box 80: Starboard side lead sheathing, S6 Pb211, S7, Pb216, EF1-5**
- **Box 81: Starboard side lead sheathing east wale, S10, Pb208, S8**
- **Box 82: Starboard lead sheathing SR4 +SR5 under F42, S9 at F9, S? F17-F20**
- **Box 83: Starboard side lead sheathing S10 wale**
- **Box 84: Starboard side lead sheathing S4, S5, S9**
- **Box 85: Starboard side lead sheathing, starboard sheathing**
- **Box 86: Starboard side lead sheathing F11-F16, S6 F9 F10 at S6**
- **Box 87: Wood plus lead sheathing sternpost + lead, Pb215, Pb105**
- **Box 88: No identity lead sheathing**
- **Box 89: Port side misc. tray IX + X, strake F7 + F8, Forward or aft? Lead sheathing**
- **Box 90: Port side lead sheathing P10? Main wale, more than between F28 +F29, WS 10J Port P10 at F28-F29, Sample B [orange gunge], LW2, lead metal stip 4, Pb229, Pb228**
- **Box 91: Port side lead sheathing P4 [location?] P12, port strakes [various Ps]**
- **Box 92: Lead sheathing no identity P? or S?, Ratty's house**
- **Box 93: No identity lead sheathing**
- **Box 94: Tray IX-X bow extremity port or starboard? Starboard bow area attached to port bow, Pb227**
- **Box 95: Port side lead sheathing P4, P12, Pb209, Pb212, Pb213**
- **Box 96: Port lead sheathing P11 and P12 wale**
- **Box 97: Starboard lead sheathing F25-F29, Pb222, EF18-21**
- **Box 98: Starboard side lead sheathing S4, S6-S7, Pb200, Pb 205**
- **Box 99: Lead sheathing barnacle plaques Pb201, Pb202, Pb206**
- **Box 100: Starboard side lead sheathing S9-S10?, F25-F29**
- **Box 101: Keel lead sheathing keel piece 5-6, keel piece 95 + 85**
- **Box 102: Keel lead sheathing Pb204, Pb214**
- **Box 103: Keel lead sheathing Pb226, tray XX, Pb230, S1 plus others**

- **Box 104: Keel lead sheathing Pb100, Pb102, 2N**
- **Box 105: Starboard side lead sheathing S10 wale**
- **Box 106: Starboard side lead sheathing S5, Pb218, Pb219, Pb220, Pb221**
- **Box 107: Disassociated lead found under chicken wire trays**
- **Box 108: Keel corrosion product, bad stuff**
- **Box 109: Port side lead sheathing P11?, Pb225, P12, Pb223, Pb224**
- **Box 110: Lead sheathing S10**

Wood

- **Box 111: I Misc strake frags.**
- **Box 112: II Misc. strake frags.**
- **Box 113: III Misc. strakes; garboard; stem?**
- **Box 114: IV Misc. strakes starboard**
- **Box 115: V Misc. strakes starboard**
- **Box 116: VI Misc. strakes small frags.**
- **Box 117: VII Misc. strakes small frags.**
- **Box 118: VIII Misc. strakes small frags.**
- **Box 119: Logs 1, 2, 4**
- **Box 120: Logs 5, 6, 9, 10, 11 [includes bark for logs 8, 10, 11]**
- **Box 121: Logs 14, 15, UM28, WF 48, WF 50, UM117 [prob. Logs], bark frags. From logs 14-19 or WF48**
- **Box 122: Log 8 (on PEG tray)**
- **Box 123: Log 12 (on PEG tray)**
- **Box 124: Logs 16, 17, 18, 19**
- **Box 125: UM31 (on PEG tray)**
- **Box 126: Log 3 (on PEG tray)**
- **Box 127: Limber boards ["MP"] 1, 3, 4, 5, 6, 7, 8, also contains: "maybe MP", unlabeled pieces in limber board tray.**
- **Box 128: Limber boards ["MP"] 9, 10, 11, 12, 13, 14, 15, 16, 17 [?] 19, 20-21**
- **Box 129: Port ceiling PC1 [CP6 parts 1 and 2]**
- **Box 130: Port ceiling PC2/CP5 and PC3/CP4**
- **Box 131: Filler old WF45 (wrapped on Jiffy foam on shelf)**
- **Box 132: Filler boomerang (wrapped on Jiffy foam on shelf)**
- **Box 133: Port ceiling PC4/CP3**

- **Box 134: Port ceiling PC5/CP2 and PC6/CP1**
- **Box 135: Strake SG2 treated with alcohol (in bag on shelf)**
- **Box 136: UM61 found S under mast step (in bag on shelf)**
- **Box 137: Wood from sockets of spear/javelin heads, FE38, FE40, FE41, FE42, FE43, FE44, KS 11, wood shafts**
- **Box 138: Misc. Ums [unknown members]**
- **Box 139: Old WF 5 short piece, UM100, bow 5, UM114, {UM99A, UM99 which are both W81} UM32A, UM68 with an eyebolt Cu24, 216 which is bow strake with internal lead patch**
- **Box 140: Starboard ceiling planking [includes ECPs and UMs]**
- **Box 141: Bow sheathing [shoe under keel] and UMs + bow pieces**
- **Box 142: W80/UM32 and UM37, UM12, UM49, UM39, UM29 frag., stern elements, find UM38**
- **Box 143: Wedges and shims**
- **Box 144: Misc. ceiling, strakes + limber boards**
- **Box 145: UM16 wood**
- **Box 146: Frame frags.; keel; stern post**
- **Box 147: Under hull: P1+2, S1+2**
- **Box 148: Interesting UMs and frame frags.**
- **Box 149: W82/UM36 quarter rudder/steering oar**
- **Box 150: Unknown members: UM9+10, 64 [on display], 65, 67, 69**
- **Box 151: W77/UM 77, W78/UM78, UM96 group, W79/UM96, W18, W85/UM107, UM201**