

A 16TH CENTURY WOODEN POLYCHROME CRUCIFIX: FROM A PASSIVE TO AN ACTIVE MICROCLIMATE

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MEAT

Hourly readings and yearly mean RH and T for 2009

Hourly readings for the 8th february 2009

Tables with minimum,

mean values were prepared for each month. From these tables, the fluctuations were calculated on a daily

basis. From the table below a drastic change in T of 8.8°C (within 6 hrs) and a change of RH of 25.4%(within 11 hrs), both on 5th February 2009 can be noted. On the 13th October 2009 there

was a drastic 34.5%RH change in just 16 hours.

MEAN RH

umidity (atm3)

The Crucifix

The crucifix dates back to the period when the Knights of St John were in Malta. Primarily it was at the city of Vittoriosa and was eventually taken The dictions dates task to the period when rule reing us to of clothin where in mattar. Fininging it was at the incary or information and was ereflucing tasking to the Sacra full filterment better known as the known to the Sacra full tasking the set in the value task the beginning of the 20^o centruly when it was tasken and exhibited in the chapel of SL Luke's Hospital (SLH) at Pieta where it became very devotional especially to the size. On the 29^o September 2007 it was transported to the chapel at the new Matter Del Hospital (MDH) at Brinkinkan.



Monitoring relative humidity and temperature

ata logger was placed at the base of the cross and set to read hourly values of RH and T for 2009. Although mean RH and T were within acceptable limits, there were great fluctuations of both values throughout the year. Seasonal changes were quite insignificant. [Right figure]

A rise of T was accompanied by a drop in RH and vice versa. Figure below right]. Rapid fluctuations were quite rapid. For example on the 9th January 2009, between 10:00 and 11:00, there was a sharp rise in T of 7.28°C and a drop in RH of 21.3%. [Figure below]



Hourly readings and mean RH and T for the month of January 2009

studying the mean monthly values in the chart below it can be noted that there was a depression in RH during the month of February 2009. This effect can also be seen in the months of May, July and August of the same year

The predicted mean monthly wood moisture content below follows the same pattern of RH illustrated in the chart below on the left. The Mean monthly values for wood moisture content varied between 7.7% and 11.3%

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od moisture content fo

WY

2009

Prediction of mean m





Conclusions

The crucifix's support and preparation/paint layers seem to be in stable condition The crucitix's support and preparation/paint layers seem to be in stable condition, yet, will the continuous rapid T and RH fluctuations affect the artefact in the future? The external and surface temperatures need to be monitored to evaluate any possibility of condensation. Further tests, perhaps carried out directly on the artefact should take place in order to try and uncover any changes which may not be visible to the naked eye. Will by time the Air Handling Unit be a benefit or a detriment to the external. artefact?



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Location of air handling unit ve

Old restoration treatments

The crucifix underwent at least two major interventions. The first one was that of painting both the cross and Christ's figure in very dark colour. The second intervention was the removal of such dark paint. This intervention was the was drastically carried out by literally stripping off the paint and possibly also removing any underlying layers. The latter can be assumed in areas where the wooden support is exposed.



State of conservation

State of conservation The wooden support of the crudifix is in a very good condition. Most of the deterioration seems to be the result of the two major interventions previously mentioned above. Apart from being covered with superficial dust, the artefact suffers from the following: **Cross** - Possible overpaint, insect degradation, losses and detachments of preparation/paint layers. **Figure of Christ** - Possible overpaint, areas of blistering of the dark paint especially at the back, insect degradation, paint losses resulting to exposed surfaces of the wood

Chapel at St Luke's

Hospital The crucifix was displayed in a The crucifix was displayed in a passive microclimate. Light levels were low due to the limited number and size of the chapel windows.

Chapel at Mater Dei . Hospital

The four walls of the chapel are glazed. Light levels during the day are excessive. The climate inside the chapel is controlled by an Air Handling Unit system set at a temperature of 21°C.



Comparing the climate of both chapels vere simultaneously monitored for a period of three weeks



nd St Luke's Chapels – T and RH di Both Temperature (T) and Relative Humidity (RH) at MDH Chapel fluctuate more

than at the chapel at SLH, the possible reason being the air-conditioning system. Mean T and RH throughout the twenty one days were as follows:

T: MDH Chapel 19.5°C, SLH Chapel 17.7°C RH: MDH Chapel 48.2%, SLH Chapel 58.0%

When comparing the two chapels it is clear that the mean T at the chapel of SLH was 1.8°C lower than that at MDH, while the RH is greater by almost 10%. Some regions of rise and fall in RH can be noted simultaneously at both chapels and this may be attributed to the external environment.



light levels obtained from this monitoring phase were approximately five times higher than the recommended values for moderately sensitive materials.



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