Change or Damage?

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Change or Damage? A new research project on complex furniture objects

Change or Damage? (2010-2013) will study the degradation of veneers and marquetry on furniture in historic houses, in collaboration with the project partner, English Heritage. Within conservation, research on wood has focussed on structural timbers and panel paintings with more recent studies looking at polychrome sculpture and lacquered furniture. However there has been little work to understand the interactions between the complex and often large number of different materials found within marquetry designs (for example see Figure 1 below), and this project will draw on the results of Woodculther to develop new scientific techniques of monitoring and understanding change.

Fig 1. Marquetry table top at Kenwood House. *Credit: N. Luxford*

Complexity of Objects

Marquetry designs can be created with a range of materials, including a large number of exotic woods, as well as metals (commonly brass and pewter), turtleshell and sometimes mother of pearl (see Figure 2). All of the materials respond differently to environmental changes, as does the glue beneath and the timber carcass. The interactions between the materials and the environment are commonly thought to lead to damage but the point at which damage occurs is less certain.

Fig 2. Brass and turtleshell on Boulle cabinet. *Credit: N. Luxford*

Fig 3. Crack and missing marquetry veneer (Victorian and Albert Museum). *Credit: N. Luxford*

Fig 4. Fading affects the design balance. *Credit: N. Luxford*

What is damage?

The word *damage* is commonly used within conservation, however its meaning is different for a range of heritage professionals and for different objects. Wood is known to crack, warp, bow, split and fade, and veneers and marquetry are particularly susceptible to lifting and losses (see Figures 3 & 4).

But at which point do the hygroscopic changes, which occur constantly with changing display environments, lead to damage? How can we identify, and monitor these changes, to prevent damage? And what are the environmental thresholds (or are there thresholds) at which damage occurs? Understanding these questions will help improve both preventive conservation measures and collections management.

Wood Science and Conservation

A number of wood science techniques (highlighted by Woodculther) will study artificially aged marquetry samples and real objects to determine whether changes can be measured. Monitoring of objects (whilst on display) will help understand the changes occurring and be used to adapt the display environments, preventing damage. By understanding how current display environments impact on these collections it is hoped to model how future changes to climate may also have an effect. This can help collections managers care for the objects now but also develop strategies for their future management.

Project tasks include:

- identifying available damage functions for similar materials from the literature
- determining the point at which change becomes damage
- artificial degradation of replica marquetry objects to study damage
- monitoring trial of equipment to record and measure changes
- case study to test suitability of monitoring and its capabilities *in situ*
- modelling of future climate change to assess the impact on collections

Fig 5. Housekeeper's Room Kenwood House. *Credit: N. Luxford*

Expected outcomes of this research are:

- project website (http://www.ucl.ac.uk/sustainableheritage/changeordamage.htm)
- video documenting changes and when damage occurs
- definition of damage in relation to these collections
- cost / benefit analysis of monitoring techniques from wood science for conservation
- exhibition and tours to explain monitoring equipment within historic interiors
- collections management recommendations
- conference, planned in 2013

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