



Reflections of a Conservator on the Utility of Biology in Conservation

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Three case studies are presented that describe the complexities encountered by a conservator when attempting to characterize a variety of biological materials on decorative arts and sculpture. The first and most complex was the application of Enzyme Linked Immunosorbant Assay (ELISA) and Immuno-fluorescence Microscopy (IFM) to identify the composition of a transparent organic layer sandwiched between a glue-bound paint and oil size on two French seventeenth century gilt and bronzed wooden sculptures. These techniques were successfully applied to the sculptures and subsequently, capacity for routine ELISA analysis was developed at the Getty Conservation Institute. The second foray into biological analysis involved the identification of the species of marine turtle shell found in 17th and 18th-century marquetry using a DNA barcoding protocol developed at the American Museum of Natural History. Although the technique is very successful with fresh sample material, the extraction protocols used at AMNH were unable to extract sufficient DNA from the aged and processed shell to allow successful sequencing. The final case study is the application of peptide mass fingerprinting for the identification of leather used as a support for early 18th century Chinese lacquer. This technique identified the leather as water buffalo hide, which conforms with historical accounts of period practice. As this is a relatively new technique to conservation science and the number of reference samples tested to date is relatively small, it will be interesting to learn more about the anticipated variability of results within species, the effects of deterioration, and the ability to discriminate between closely related species. Taken together these case studies exemplify some practical concerns that confront practicing conservators in the course of technical studies on artworks.