

Restauro 2D: Digital Retouching & Infilling

Alessia Strozzi, Pierluigi Mulas

The Indian miniature *Yami on a buffalo preceded by a dromedary* (Muciv Museum, Rome) is a rare example of working-class miniature. It has stains that disfigure and compromise the general aesthetic appreciation of the work and degrade the support to the point of perforating it. The study of the painting has analysed the constituent materials, the manufacturing techniques and the causes of degradation. The diagnostic analyses using X-ray fluorescence and SEM have identified the presence of iron, a promoter of the degradation in the spots.

Iron, present as Fe^{3+} , could not be removed in a "safe" way for paper. The conservation involved deacidification, to create an unfavorable environment for the degradative action induced by iron. The operation was carried out in two successive phases: the first involved the simultaneous cleaning and deacidification by means of hydrogels.

The second deacidification was performed with nano calcium carbonate ($nanoCaCO_3$) dissolved in isopropyl alcohol. The dimensions of the nanoparticles allow a better penetration of the deacidifier and its solubilization in an unusual solvent, which does not damage the pictorial layer. The conservation of the work requires stable environmental parameters and exposure only when deemed essential.



Miniature before conservation



Miniature after conservation

Due to the miniature condition, we need to keep the work within strictly stable parameters. To allow student & scholars free access for studying, we have acquired a high resolution digital copy of the miniature, to obtain a digital copy in which the virtual removal of the disfiguring stains could recreate the original appearance of the miniature. Using Adobe Photoshop CC software, it was possible to reconstruct the missing fabric and color in the gaps, using the proximity sampling algorithms that the program makes available and perfectly blending the repaired pixels with the rest of the image.

The 2D virtual retouching and infilling allows for a correct reading of the original artistic expressive values, while the original is safely stored in the storehouse.



During digital retouching & infilling



Miniature after 2D retouching & infilling

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Alessia Strozzi
Conservation Officer
Ministry of Cultural Heritage, Italy
alessia.strozzi@beniculturali.it

Pierluigi Mulas
Photographer
pie.mulas@gmail.com
<http://www.pierluigimulas.com/>