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Cleaning 2010

New Insights into the Cleaning of Paintings

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Contents

Challenges in the Cleaning Procedure of 1960's Pop Art. Mixed Gouache and Egg Tempera on Plywood.

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In the 1960s, Pop artist Francesc Artigau (Barcelona, 1940), painted a series of 9 works on plywood panels using a traditional primer of commercial gouache, egg yolk and color pencils. After more than 30 years exposed to rubbish amidst an indeterminate number of dogs, the paintings show a deplorable state of conservation. In this symposium we examine the treatment undertaken on the paint and ground layers, consisting mostly of cleaning, since aside from the treatment carried out on the panels, this was one of the key challenges of the project.

The birch plywood supports which have recently been restored [1] had undergone a process of tremendous deterioration due to humidity from the ground and dog urine as well as from non-professional attempts at cleaning the works. The paint and ground layers also suffered from the effects of paint loss, damp spots, loss of cohesion of materials, fungi, grime imbedded into all levels, erosions, and traces from cleaning tools.

The painting technique used by the artist was commercial gouache (Talens®) mixed with egg yolk, applied on a traditional ground layer made of rabbit skin glue and calcium sulphate, on which the author had made a graphite and coloured pencil drawing. The work was afterwards burnished with agate stone, and no coat of varnish was applied. Apart from the information currently provided by the artist, compositional analyses and stratigraphs have been undertaken to identify the materials and the microorganisms which have grown in the works.

In the paint and ground layers of each of the works, pH tests have been executed on different colors and in different areas. A total of 171 points have been measured using the surface method with a CRISON® pH25 pHmeter, and 297 samples have been analysed using the cold extraction method with a HACH® pHmeter with a stainless steel micro probe. The pH measurements are carried out to detect whether changes in the pH of materials correspond with differences in the solubility of the areas analysed due to the ionization of binder proteins (rabbit-skin glue and egg yolk). We know that the proteins are amphoteric, that is, functioning as both an acid and a base. In the pH equilibrium known as the isoelectric point (pI), proteins have their point of minimum solubility [2]

The amount of data compiled does not allow to present here a thorough analysis of the results obtained, but it can be highlight that there is a significant

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difference between the surface and cold extraction pH values is considerable. The results obtained for the surface method are almost 2 points more acidic than those obtained from the cold extraction technique, and though both methods of measurement are considered suitable, it would seem that the cold extraction method is the more reliable of the two [3,4].

Cleaning of the paintings has been carried out using a combination of dry systems (eraser dust lightly spread over the paint surface and gently suctioned off) in the areas where the material has good cohesion and a wet system applying rigid agar gel to all the paint surface. So as not to ionize the proteins during the cleaning process we have prepared the agar with buffered water at a pH of 5,5.

Agar has been chosen after taking into consideration the components of the dirt on the paint surface and on the paint layer itself, both of which are water soluble. Agar's rigid structure allows the water needed in the cleaning process to be in contact with the dirt on the surface, while being retained within a gelatinous structure, thus ensuring the paint layers are not impregnated. It has the additional advantage of not needing to be rinsed afterwards thanks to its rigid structure which does not leave residues.

It has been impossible to remove all of the soiling adhered to the paintings after the cleaning process. This is due to the degree to which dirt has been absorbed into the strata and the fragility of the ground and paint layers which does not allow a differentiated treatment of grime, for this could mean risking the integrity of the original components. One must accept that some of the dirt embedded in the paintings over the years has come to form part of its composition.

Given the fragility of certain areas which have suffered the direct impact of degrading elements, the chosen option has been that of consolidating the paint layer after cleaning. Tests have been done with 1,5 % (w/v) of Jun-Funori in distilled water and with 2% (w/v) of Klucel®E (hydroxypropylcellulose) in absolute ethanol. The latter option has been chosen because applying a consolidant with an alcoholic vehicle has seemed a better means of avoiding new fungus colony proliferations.

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