UNIVERSITÀ DEGLI STUDI DI TRENTO

Composition and morphology of the priming in Hayez paintings

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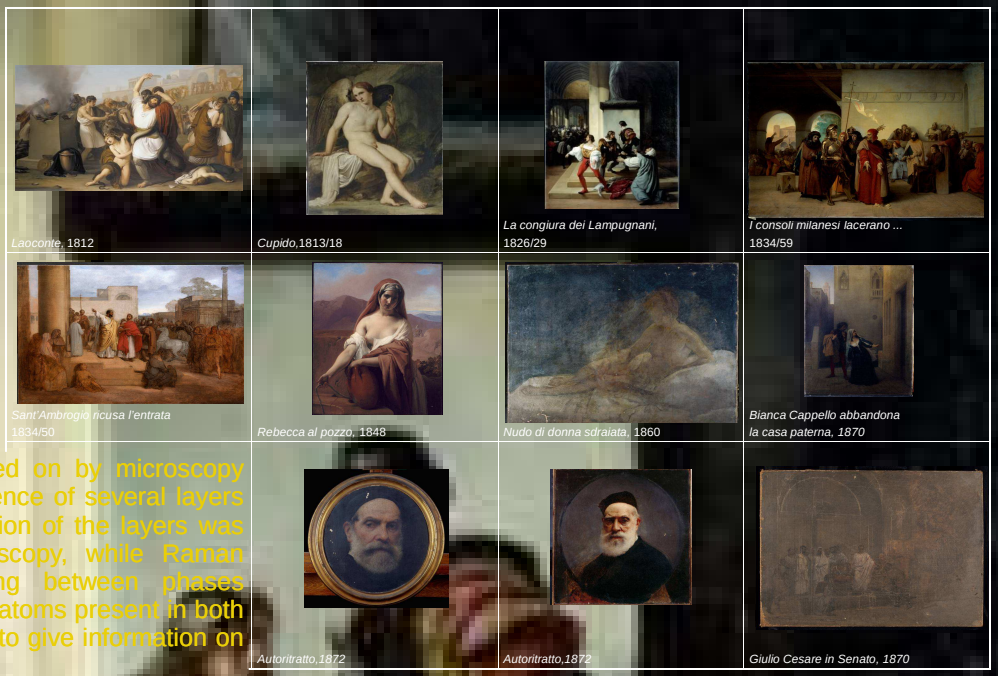
Background: Primings and ground layers of a painting have several roles and should satisfy both artistic and conservation issues. During the 19th century, a major change in the field of the primings for canvas paints occurred. What was made until then in small workshops or directly by the artist became an industrial product and several recipes were developed. Francesco Hayez (1791-1882), one of the leading artists of Romanticism in Italy, lived just during this period of transition, so that the study of the primings he used allows evidencing such aspects, as their structure and conservation state. Occasionally, degradation aspects of the priming and canvas were also observed.

In this work, we present an accurate characterization of the priming of several paintings by Hayez, chosen over a time span (1812-1879) covering most of his career. The aim is on one hand to give an accurate characterization of the primings and the other hand to assess their effect on the conservation.

Analytical techniques:

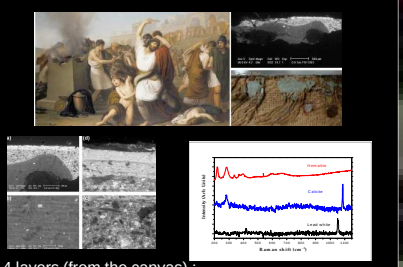
- Scanning Electron Microscopy,
- Optical Microscopy,
- Raman Spectroscopy,
- FTIR
- XRD.

The morphological characterization was carried on by microscopy techniques, able to evidence visually the presence of several layers in the primings. The actual chemical composition of the layers was studied by X-ray energy dispersive spectroscopy, while Raman Microscopy and XRD allowed discriminating between phases composed by the same atoms (for instance Ca atoms present in both calcite and gypsum). The FTIR analysis aimed to give information on the organic binders.



Artwork	YEAR	PRIMING
Laocoonte	1812	Type 1
La congiura dei Lampugnani	1826	Type2
I consoli milanesi lacerano il decreto di Barbarossa	1834	Type3
Sant'Ambrogio ricusa l'entrata nel Tempio a Teodosio	1834	Type 3
Rebecca al pozzo	1848	Type 5
Nudo di donna sdraiata	1860	Type 3
Bianca Cappello abbandona la casa paterna	1870	Type 5
Giulio Cesare in Senato	1870	Type 3
Autoritratto	1872	Type 4
Autoritratto	1879	Type3

Type 1

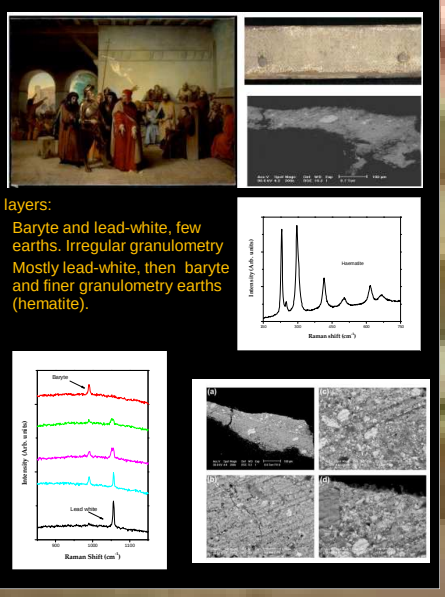


4 layers (from the canvas) :
Mixed aluminosilicates (as a filler), hematite, calcite, few hydrocerussite (lead-white).
Mixed aluminosilicates, lead-white. Irregular granulometric distribution
Mixed aluminosilicates, lead-white .
Lead-white and few earths. Finer granulometry.

Type 2

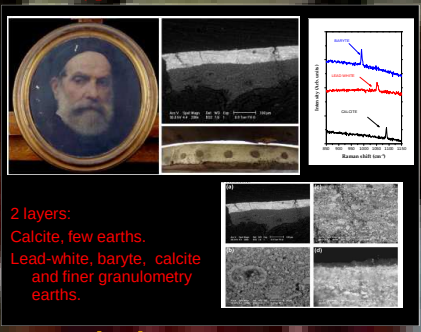
2 layers:
Mixed aluminosilicates, lead-white. Irregular granulometry
Mixed aluminosilicates, lead-white. Finer granulometry

Type 3



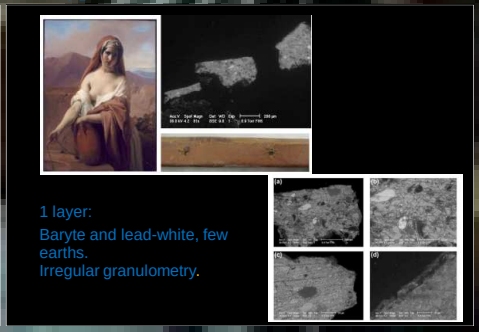
2 layers:
Baryte and lead-white, few earths. Irregular granulometry
Mostly lead-white, then baryte and finer granulometry earths (hematite).

Type 4



2 layers:
Calcite, few earths.
Lead-white, baryte, calcite and finer granulometry earths.

Type 5



1 layer:
Baryte and lead-white, few earths.
Irregular granulometry.

Conclusions

The study shows an extreme variety in the priming used by the artist. While the main components of the layers of the priming are usually white lead, barite and calcite: their concentration along the thickness (between 100 and 500 microns) of priming may change considerably. Moreover, aluminosilicates (clays/earths) were added as filler.

According to number of layers, composition and grain size at least five different preparation methods for the canvas were recognized.

From the point of view of the conservation, it is interesting to note that separated layers allow blocking of the cracks originating on the surface.

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