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Introduction

The conservation conditions of Paul Cézanne's objects were investigated at his last studio "l'Atelier des Lauves", in Aix-en-Provence. This study was carried out in two steps: the improvement of the conservation conditions of the objects on display in the studio, and the determination of the nature of pigments and media deposits, painting droplets and blobs which are mainly present on palettes and several objects.

Scientific methods of investigation

Pigment identification was carried out on painting droplets and blobs using non destructive analysis such as micro-Fourier Transformed Infra Red spectroscopy (μ -FTIR), X Ray Diffraction (XRD), Raman microscopy and Gas Chromatography coupled to Mass Spectrometry (GC-MS) along with optical microscopy.



Paint box



Studio palette (74B)
displayed face



hidden face



Family palette

Methodology

Painting deposits on three palettes and the content of several painting tubes and a flask were sampled. The two palettes (ref. 74A & 74B) came from the painter's workshop in Aix-en-Provence. The third one was graciously borrowed from the Cézanne family.

Repartition of colours

The studio palettes display quite a different repartition of colour and density of matter volumes as opposed to the family palette.

on both faces : ultramarine, cobalt blue, emerald green either on the palette edge or close to the blue paint, vermilion

on displayed face : chrome yellow mainly on the palette edge close to vermilion

on hidden face : yellow ochre, lead white

This could suggest their use by other painters who came in the studio after Cézanne's death.

Results

Colours	Pigments	Extenders
blue	cobalt blue ultramarine	calcite titanium white & zinc carbonate
green	chrome green emerald green terre verte	barium white & zinc white
yellow	yellow ochre & lead white chrome yellow	calcium carbonate barium white & calcite
brown	burnt sienna	
red	vermilion	
purple	cassiterite & emerald green & cobalt blue &/or lead white	
yellowish white	lead white	calcite & rutile
white	lead white	
black	prussian blue & terre verte	

Media analysis showed linseed oil in the blobs and the flasks, poppy seed oil in most of the paint tubes.

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Pigments	Palette 74A	Palette 74B	Family palette
chrome yellow	X	X	X
terre verte	X	X	X
emerald green	X	X	X
chrome green			X
ultramarine		X	X
cobalt blue	X	X	X
prussian blue		X	
burnt sienna		X	X
vermilion	X	X	X
lead white	X	X	X
cassiterite		X	X

Conclusion

The nature of pigments and media from the three palettes was successfully characterized. The results showed that the pigments, media and extenders are contemporary to the artist. Their compatibility with all pigments used by Paul Cézanne has been verified as well as results published from various laboratories on many of Cézanne masterpieces.

The study of the repartition of colours has brought some significant informations to the knowledge of the artist's technique.

The work is now focused on the study of degradation processes affecting some pigments and the study of the interactions between the dirt layer present on each painting blobs and underlying painting materials. The aim is to improve both the display environment of objects and their durability.