



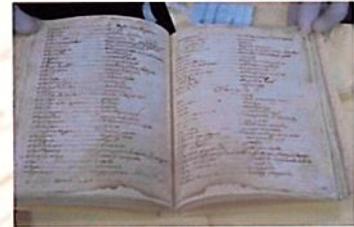
O acervo da Divisão de Manuscritos da Biblioteca Nacional: ações de preservação

A Fundação Biblioteca Nacional, depositária do maior patrimônio bibliográfico e documental do Brasil, tem a missão de garantir a todos os cidadãos o acesso à memória cultural brasileira. Para isso, diversas atividades e projetos têm sido desenvolvidos com o objetivo de preservar e democratizar esse patrimônio.

A Divisão de Manuscritos possui cerca de 800.000 documentos, que vão do século XI ao XXI, reunindo manuscritos em grego, latim, persa, português arcaico, clássico e contemporâneo, com os mais variados tipos de escrita, linguagem e suporte. Dentre as várias coleções que compõem essa Divisão, dois fundos documentais exigem um tratamento imediato de preservação: os **Códices Históricos** e os **Documentos Biográficos**. São fundos com cerca de 5.600 volumes encadernados e 43.613 documentos avulsos, respectivamente, abrangendo o período dos séculos XVIII ao XX

Entre as ações de preservação já implementadas, estão a substituição gradativa das embalagens de má qualidade por caixas e folders confeccionados com materiais alcalinos, e a recente aquisição de armários deslizantes, para onde foi transferida grande parte da coleção.

Contudo, sabe-se que entre os mais graves sinais de deterioração apresentados pelos manuscritos está a **corrosão pelas tintas ferrogálicas**, que atinge uma grande proporção do acervo. As obras apresentam diferentes graus de corrosão e de acidez do suporte, chegando a um estado em que ficam impedidos de ser consultados. O **Laboratório de Restauração** realizou, até alguns anos atrás, o tratamento de manuscritos - entretanto, as técnicas empregadas eram as convencionais, e a partir da difusão das novas técnicas de tratamento desenvolvidas no ICN/Holanda, decidiu-se interromper o trabalho com essas obras até que as novas técnicas pudessem ser implantadas.



Tendo em vista esse problema, está em andamento um projeto elaborado pela **Divisão de Manuscritos** e pelo **Centro de Conservação** com o objetivo de executar nessas coleções o diagnóstico e os procedimentos de conservação e de reprodução do acervo, de forma a garantir sua preservação, ao mesmo tempo em que se disponibiliza parte mais significativa dos documentos em meio digital no **portal da Biblioteca Nacional** (www.bn.br/bndigital).



Para que se possa ampliar o alcance desses projetos é que o Centro de Processos Técnicos da FBN, através do Laboratório de Restauração, pretende investir na capacitação dos servidores, na realização de convênios com profissionais e na aquisição dos equipamentos necessários para a implantação das mais recentes técnicas de tratamento de obras em suporte de papel.

Agradecimentos: Fundação Biblioteca Nacional - Divisão de Manuscritos - Centro de Processos Técnicos - Coordenadoria de Preservação - Coordenadoria de Microrreprodução / Laboratório de Fotografia e Digitalização



SÃO PAULO - 20 A 24 DE OUTUBRO DE 2008



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Colour and parchment degradation in a 15th century Book of Hours: the case study of Cofre nº 31 from Palácio Nacional de Mafra

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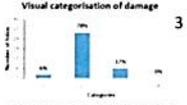
The case study: The *Cofre no.31* is a French 15th century Book of Hours from the Library of the *Palácio Nacional de Mafra*, in Portugal. This prayer book, composed by illuminations and devotional texts, was in a bad condition due mainly to the rebinding done between 18th- 19th centuries (Fig. 1, 2).



2

The assessment: Main damages in the text block and binding : volume distortion, loose and deformed gatherings and signs of bio-deterioration ; IDAP (Improved Damage Assessment of Parchment) evaluation of parchment and pictorial layer [1]: surface contamination, deformation, some discoloration of the parchment and damages in the text and illuminations, categorized visually and quantified according to Fig. 3. Concerning colour/pigment degradation, 90% was considered damaged and extension of damage is classified according to Fig. 4.

Visual categorisation of damage



Legend: 1 Undamaged, 2 Slightly damaged, 3 Damaged, 4 Heavily damaged

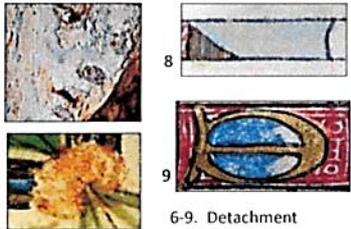
Damages in text / illumination



3

4

Colour identification: Colours were identified by μ -EDXRF, FORS and μ -Raman (Fig. 5) and in general they are in accordance with a medieval palette. Nevertheless, some particular mixtures were found: a mixture of minium / vermillion; silver applied with a glaze of indigo or lapis lazuli or associated with minium or with its mixture with vermillion. **Colour degradation:** Strong oxidation and darkening of the mixture of minium / vermillion; silver darkening and strong migration specially when associated with minium, partial or total detachment of azurite, used mainly in the decoration of text and margins, as well as lead white and its mixtures in light colours.



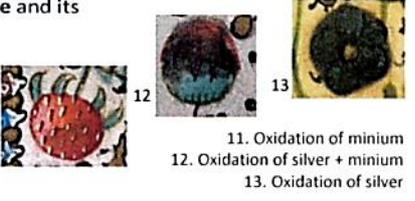
6 7 8 9. Detachment

5: Palette of Cofre nº 31





10. Colour degradation in folios 72v -73



11. Oxidation of minium
12. Oxidation of silver + minium
13. Oxidation of silver



14. Migration of silver + minium
15. Migration of minium

Main deterioration processes:

a) Reaction of pigments with sulfur compounds: with silver, producing Ag_2S and with minium (Pb_3O_4) producing PbS (galena); its main source is the air containing H_2S .

b) Inadequate binding to the support \Rightarrow entrance of a bigger content of air into the manuscript \Rightarrow greater contact with humidity, oxygen and pollutants (such as H_2S) \Rightarrow free movement of the parchment skin, detachment of pigments and oxidation processes.

c) Granulometry of pigments (azurite) and possibly degradation by the pigments binding.

Conclusions: The codex is in a process of conservation and restoration focusing on the binding; this will allow the recovering of its functionality, but without removing any trace of its history and it will help to protect the parchment and pigments. **Future work:** further investigation of the product of degradation compounds of silver, minium and minium/vermillion as well as the influence of the pigments binding. Searching other examples of the pigments mixtures found in *Cofre nº 31* that may highlight a particular artist or atelier.

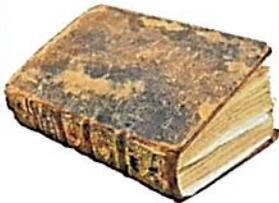
Summary of references: A. Lemos, *Os livros de horas iluminados do Palácio Nacional de Mafra*, 2012. R. Larsen, ed. *Improved Damage Assessment of Parchment (IDAP)*, 2007. M. Guerra et al, *X-ray Fluorescence Spectrometry as a Diagnostic Tool in Conservation of Illuminated Manuscripts*, 2013. M. Lawson and A. Yamazaki-Kleps, *Examination and conservation of the fifteenth-century parchment manuscript, the Belles Heures of Jean, Duke of Berry*, 2002.

Colour identification, degradation processes and findings in a 15th century Book of Hours: the case study of Cofre no. 31



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The case study



The *Cofre no. 31*: a French 15th century Book of Hours from the Library of the *Palácio Nacional de Mafra*, Portugal
162 folios
Dimensions: 182 x 132 x 38 cm

Bad state of conservation. Main damages: volume distortion, loose and deformed folios and gatherings, bio-deterioration and damages to the pictorial layer

Main cause of deterioration: the rebinding done between 18th - 19th centuries
> physical stress
> reaction of pigments with sulfur compounds

Plan of treatment: restoration of the current binding and stabilization of the text block
[I. Carvalho, 2015]*

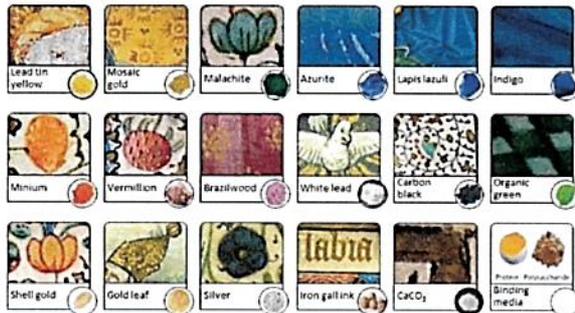


* <https://run.unl.pt/handle/10362/17113>

Colour: molecular characterization

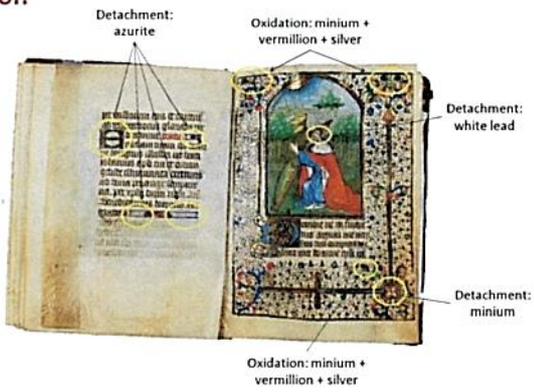
- The illuminations were analysed by:
1. Energy Dispersive X-Ray Fluorescence (μ -EDXRF)
 2. Fiber Optic Reflectance Spectroscopy (FORS)
 3. μ -Raman Spectroscopy
 4. Fourier Transform Infrared Spectroscopy (μ -FTIR)

Molecular palette

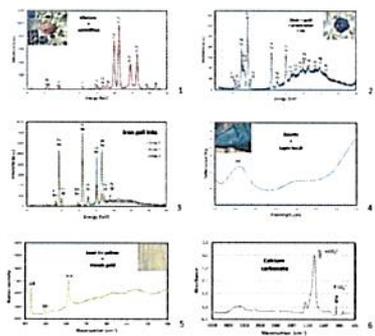


Colour degradation

Some of the colours show signs of degradation



Material testimony of production techniques



Spectra: EDXRF (1, 2, 3), FORS (4), Raman (5), FTIR (6)

Conclusions

- The palette of colours and materials is in accordance with the period and site of production
- Some differences in the palette and colour construction were found in three groups of folios
- Three different illuminators and two time periods
- Confirming proposals of art history studies

<ul style="list-style-type: none"> • Rich palette • Full use of lapis lazuli • No pure vermilion • Use of overlays and glazes • Red lines: organic lake • First illuminator <p>Group 1 (original)</p>	<ul style="list-style-type: none"> • No minium, only vermilion • No lapis lazuli, only azurite • No silver • Red lines: organic lake • Second illuminator <p>Group 2 (original)</p>	<ul style="list-style-type: none"> • Reduced palette • Red lines: vermilion • Iron gall ink: different proportions (more Zn than in groups 1 and 2) • Third illuminator <p>Group 3 (later addition)</p>
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SOME ISSUES ABOUT THE “BOOK OF HOURS OF D. FERDINAND”: A TREASURE OF THE NATIONAL LIBRARY OF BRAZIL

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The manuscript

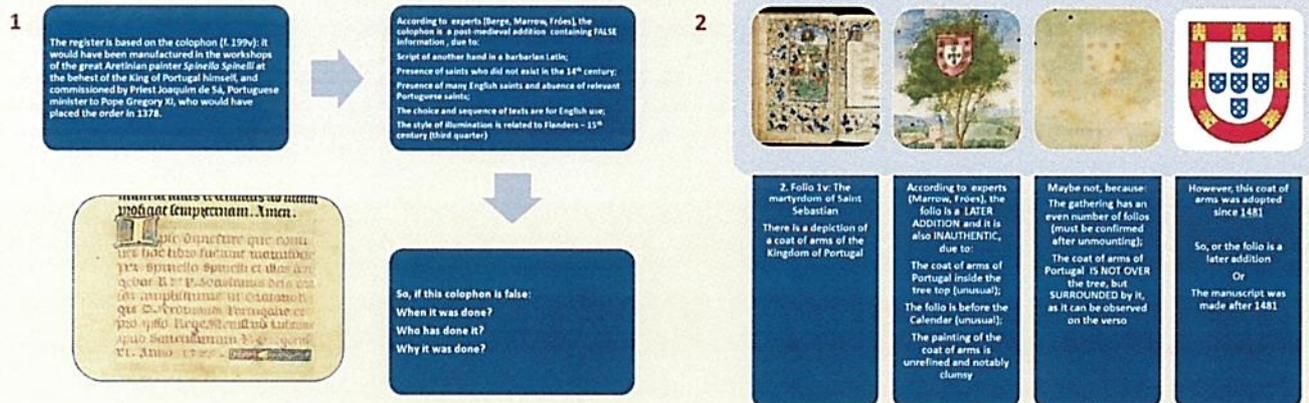


- The collection of Books of Hours of the National Library of Brazil :
 - * Nine manuscripts from 15th to 16th centuries and several origins
 - * Four mss came from the Royal Library of Portugal (Real Bibliotheca) between 1810-1811
- The “Book of Hours of Dom Ferdinand” is believed to have been owned by this King of Portugal (1345-1383)
- Ancient register: breviary, 14th century (1378), illuminated by Spinello Spinelli MS 50.1.1
- 200 folios, parchment
- 32 full-page and 45 small illuminations
- Gothic script, Latin
- 250 x 180 mm
- Binding: non original (19th century?)
- The other two manuscripts of this group are :
 - The Pembroke Psalter-Hours, Philadelphia Museum of Art, Philip S. Collins Collection, 1945-65-2
 - Fitzwilliam/Richard/7th Viscount Collection, Cambridge, UK, Fitzwilliam Museum MS 53

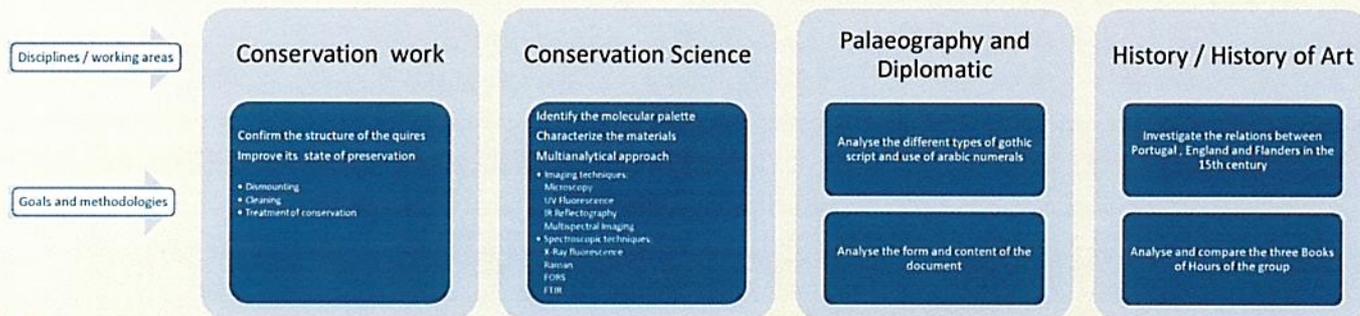
Current historical analysis :

Book of Hours
Origin: Bruges, ca. 1460
Sarium Use
It is closely related to a small subgroup of de luxe Books of Hours produced in Bruges for English clients (J. Marrow)

The issues: identification, dating and recipient



The research project



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