Architectural Finishes Research (AFR) Exhibit

Introduction to the AFR

Architectural Finishes Research

Between February, and June 2024, there was an Architectural Finishes Research (AFR) conducted in the Grote Eetkamer of Huize Kolthoorn. Generally, the purpose of AFR is to determine the historical colour schemes of objects and assemblages in interiors, architecture, and urban planning as they have evolved over time. More specifically, the research investigates the sequences of finishing layers to document their history. The information about the applied colours and materials in the investigated areas provides insight into the architectural history, significance of the finishes and the intended appearance. Moreover, AFR yields valuable details about the historic craftsmanship and techniques of painters. In-situ AFR is usually complemented by archival, literature, laboratory research, and upon the possibility, an analytical technique analysis. The results of AFR can be used in maintenance plans and for restoration or reconstruction purposes. This research, specifically, focused on finding the architectural finishes of the Grote Eetkamer during the time of Jan Kleintjes and Hedwig van Osselen-Kleintjes residing in Huize Kolthoorn.

This project was conducted by Ksenia Kiselova as part of her thesis research in the Conservation and Restoration of Cultural Heritage Master's program, with a specialisation in historic interiors, at the University of Amsterdam (UvA).

Fig. 1 Stratigraphy of the sliding door in the Grote Eetkamer, and an arrow pointing to where the sample for a cross-section analysis was taken from. Photo by Ksenia Kiselova.

Methodology

Archival and Literature Research

Archival research was conducted on the house's interior change over time, which included a written history search and an investigation into photographic evidence. Information was provided by the house owners, Jurn Buisman and Dunya Verwey, such as the oral history of the house, literature, and the floor plan. Several organisations and private individuals were contacted as well, and a variety of newspaper and photo archives were consulted in search of the photographic evidence. The written history exploration involved studying the literature and documentation about the residents and the interior or construction changes they conducted in Huize Kolthoorn. The photographic search focused on finding documented evidence of the Grote Eetkamer's interior from the time period of the Kleintjes family's residence in Huize Kolthoorn.

Fig. 2 Ksenia Kiselova and Jurn Buisman looking at the floor plan of Huize Kolthoorn. Photo by Dunya Verwey.

In-situ Research

In-situ research required starting with a visual assessment of the room with the use of several tools. Based on this, the locations for uncovering were selected, where probe cuts and slope cuts (small openings done with a scalpel knife) were first conducted to assess the number of paint layers in each location. After that, eight stratigraphies were made: on the room's wall, two doors, two door frames, the cabinet, and the wooden wainscoting. Stratigraphy implies uncovering layer after layer on an interior element until the substrate is reached. Usually, each of the finishing layers is uncovered in approximately 1x1 cm size. Additionally, a window reveal, which is a large opening of one of the finishing layers, was made on the wainscoting after discovering that all of the woodwork in the room was painted in wood imitation. The stratigraphies and the window reveal were conducted with the use of a scalpel holder and scalpel blades. The on-site research took four days in total.

Fig. 3 Ksenia Kiselova making the stratigraphy in Grote Eetkamer. Photo by Dunya Verwey.

Fig. 4 The making of a stratigraphy on the north door with a scalpel knife. Photo by Dunya Verwey.

Fig. 5 Ksenia Kiselova photographing the stratigraphies in Grote Eetkamer. Photo by Dunya Verwey.

Fig. 6 Photo camera used for the documentation. Photo by Ksenia Kiselova.

Laboratory Research

Eight samples were collected from the locations of the stratigraphies for a further laboratory cross-section analysis and the scanning electron microscopy energy dispersive X-ray spectroscopy (SEM-EDX) analysis of four samples to identify the pigments present in the paint layers. All of the samples were not analysed with SEM-EDX due to this project's limited scope. After the collection of the samples, they were embedded in the mounting agent, hardened with the use of the UV lamp and subsequently wet-ground on the grinding machine to reach the cross-section level and achieve transparency. The eight cross-sections were then analysed in two days with the use of the polarised light microscope. The cross-sections were analysed with the use of visible (VIS) light and ultraviolet (UV) light.

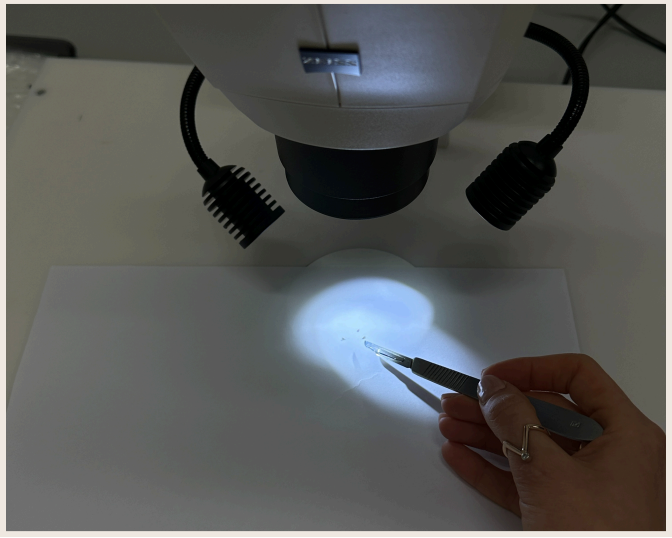

Fig. 7 The scalpel knife used for moving the collected samples with a static microscope. Photo by Ksenia Kiselova.

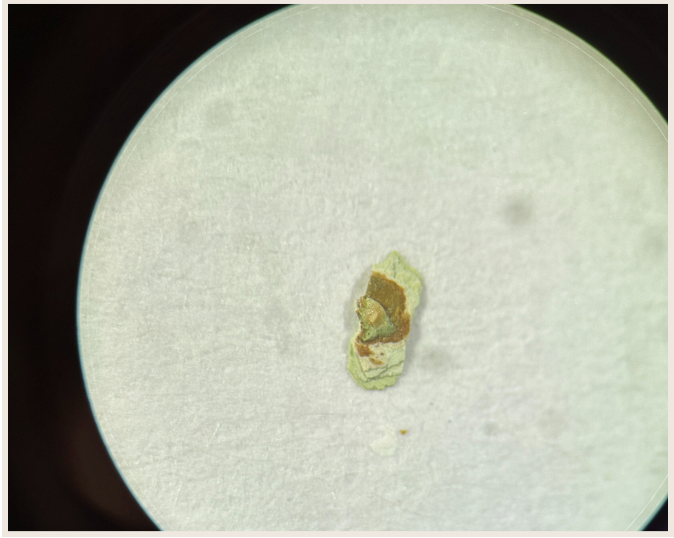

Fig. 8 A sample under the static microscope to assess the presence of all layers. Photo by Ksenia Kiselova.

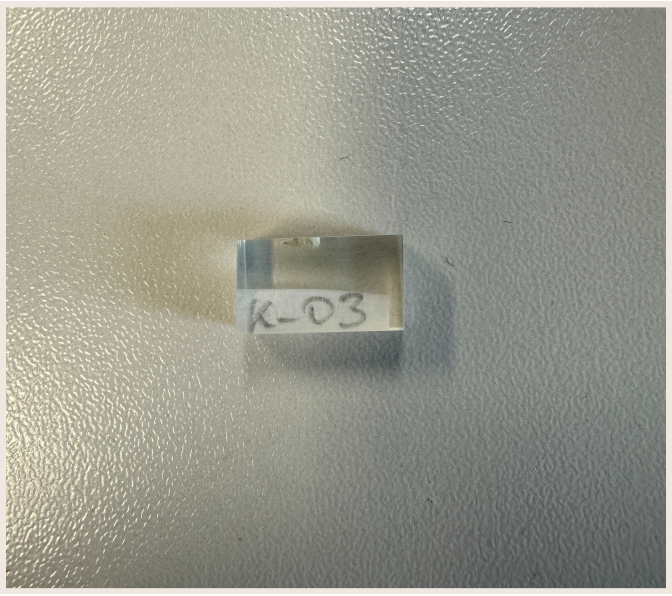

Fig. 9 A cross-section sample embedded in a mounting agent, ground and polished. Photo by Ksenia Kiselova.

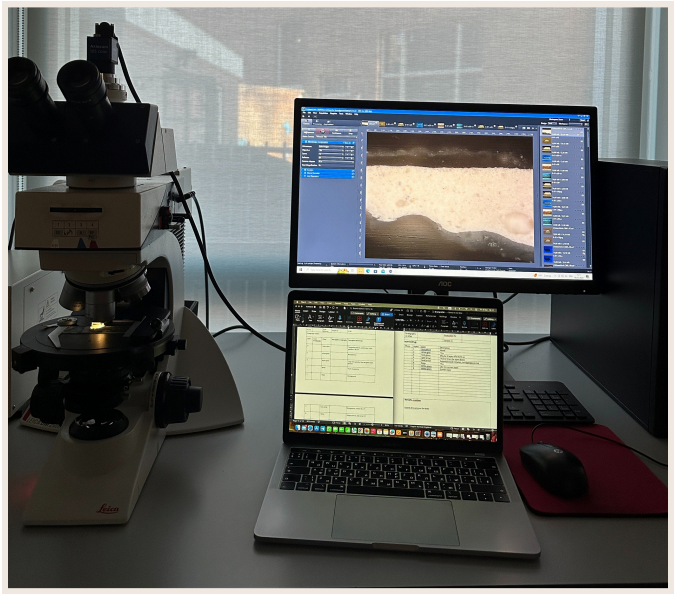

Fig. 10 Analysis of cross-sections with the polarised light microscope. Photo by Ksenia Kiselova.

Analytical Technique: SEM-EDX

To address the set research question, the SEM-EDX analytical technique was a useful tool for providing information about the elemental composition of the different layers of finishings. This assisted in the identification of particular elements and their associated pigments that were used in the layers of samples collected in Grote Eetkamer.

SEM-EDX is a strong instrument in the characterisation of paint cross-sections, providing information related to the elements present in the inorganic pigments or extenders and their distribution in the various structural layers. Through the inspection of optical microphotography of cross-sections, it is possible to select an area for a point and line analysis, and subsequently choose a set of elements for constructing the distribution maps. Thus, SEM-EDX was utilised to analyse the chemical composition of paint layers in four samples from the Grote Eetkame. Specifically, the samples were taken from the two doors' panels, the wall and the wainscoting. Through examining the elemental composition of the paint layers, it is possible to approximate the pigments used and subsequently their colours in those interior elements during the Kleintjes family residency in Huize Kolthoorn. In this research, Luc Megens (Rijksdienst voor het Cultureel Erfgoed) operated the electron microscope to conduct the SEM-EDX analysis.

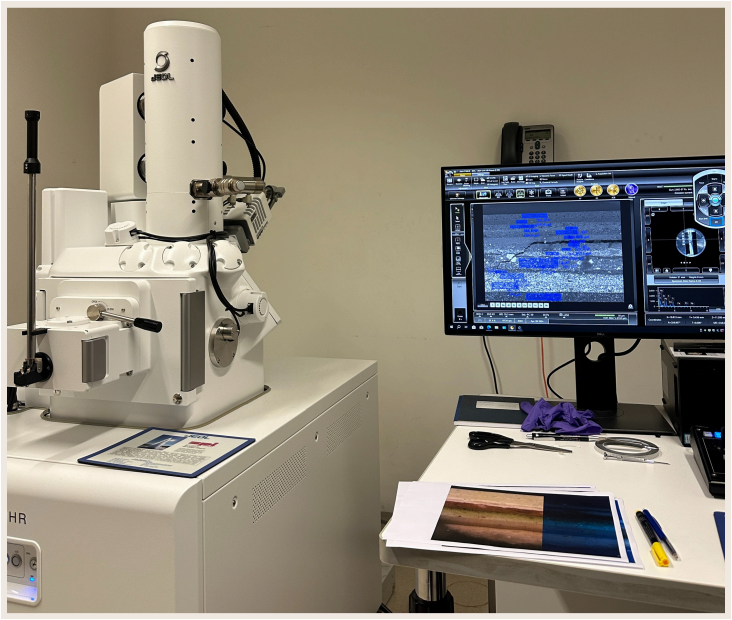

Fig. 10 The SEM-EDX microscope displaying one of the cross-sections. Photo by Ksenia Kiselova.

Data Analysis: Topographic Research

All of the obtained data was compiled into a concise, time-referenced period chart. The period chart aims to align finishing layers from various interior elements to specific time periods, providing an approximation of the Grote Eetkamer's appearance at different times related to the house owners. However, it is important to note that these correlations are not always definitive, thus it is impossible to draw precise conclusions from the period chart.

	Grote Eetkamer							
Main Phases	Sliding Door (K-01)	Cabinet (K-02)	South door panel (K-03)	South door frame (K-04)	North door panel (K-05)	North door frame (K-06)	North wall wainscoting (K-08)	North wall (K-07)
Jurn Buisman and Dunya Verwey (1990-present)	17. Green white	13. Green white	21. Green white	19. Green white	16. Green white	18. Green white	12. Green white	5. White
	16. White green	12. White green	20. White green	18. White green	15. White green	17. White green	11. White green	
Dolph Buisman and Margriet Boele-Buisman (1955- 1990)	15. White	11. White	19. White	17. White	14. White	16. White	10. White	
			18. Beige white	16. Beige white		15. Beige white		
	14. Grey white	10. Grey white	17. Grey white	15. Grey white	13. Grey white	14. Grey white	9. Grey white	
	13. Bright white	9. Bright white	16. Bright white	14. Bright white	12. Bright white	13. Bright white	8. Bright White	4. Transparent
			15. Beige		11. Beige			3. White
	12. White	8. White	14. White		10. White	12. White	7. White	2. White
Jan Kleintjes and Hedwig van Osselen-Kleintjes (1899-1955)						11. Dark brown (reparation wood imitation)		
						10. White (reparation wood imitation)		
	11. Translucent brown	7. Translucent brown	13. Translucent brown	13. Translucent brown	9. Translucent brown	9. Translucent brown	6. Translucent brown	
	10. Translucent	6. Translucent	12. Translucent	12. Translucent			5. Translucent	
	9. Dark brown	5. Dark brown	11. Dark brown	11. Dark brown	8. Dark brown	8. Dark brown	4. Dark brown	
	8. Brown	4. Brown	10. Brown	10. Brown	7. Brown	7. Brown	3. Brown	
	7. Brown	3. White	9. Brown	9. Brown	6. Brown	6. Brown	2. Brown	
		2. White					1. Wood	1. White
		1. Wood						
Frederik van Hoogstraten and Willem van Hoogstraten (1881- 1899)			8. Green	8. Yellow brown				
			7. Light green	7. Yellow beige				
			6. White	6. White				
	6. Grey green		5. Beige white	5. Beige white	5. Grey green	5. Grey green		
	5. Green grey		4. Dark beige	4. Dark beige	4. Green grey	4. Green grey		
	4. Beige		3. Light beige	3. Light beige	3. Beige	3. Beige		
	3. White							
	2. White		2. White	2. White	2. White	2. White		
	1. Wood		1. Wood	1. Wood	1. Wood	1. Wood		

Fig. 11 The topography table displaying the chronology of the finishing layers and related to them periods of Huize Kolthoorn owners.

Results

Walls

The first layer of the wall cross-section was primarily composed of calcium. This suggests that it might be a limewash or plaster from the beginning of the 20th century, based on the lack of modern materials in the layer. In this historic period, panelling was commonly used in the Netherlands for wall decoration purposes, the wallpaper was not directly applied to the wall. Starting from the 18th century, the technique of panelling was employed for uneven walls or to provide insulation against cold and moisture. This involved attaching lath strips to a wall, onto which linen or jute was stretched. The ground paper layer of wallpaper was then applied over the panelling, followed by the decorative wallpaper. Regarding wallpaper fashion of the period, from 1875 onwards, designs were known to be particularly dark. The neo-Renaissance style, inspired by the Golden Age, gained significant popularity, where gold leather emerged as a central source of creative influence. This trend aligns with the description of the Grote Eetkamer, which was said to have been dark and covered in leather or leather-imitation wallpaper on panelling. Moreover, the walls in the Salon (front room), which is separated from the Grote Eetamer with the sliding door, are currently covered with wallpaper applied on the old panelling from the time of the Kleintjes family. Thus, it stands to reason that the walls of the Grote Eetkamer possibly would have had panelling during the Kleintjes family period, given that the adjacent room did.

Furthermore, the historic photograph from 1900- 1906 may depict the Grote Eetkamer. Hedwig van Osselen-Kleintjes can be seen sitting with a woman at a table (Fig. 6.1). The interior in the background appears to be dark in colour, and wall panelling may be noticed, however, it is difficult to determine conclusively since the photo is in black and white. The photo is presumed to be taken in Huize Kolthoorn as other photos in this album depicted the house from the outside and its other rooms. Even though the fact that the women are depicted next to a table and drinking tea could hint that the photo was taken in the dining room, it may be more likely that guests were hosted in the front room. Thus, it remains inconclusive whether the photo can assist in determining the colour scheme of the Grote Eetkamer's walls.

Fig. 12 Hedwig van Osselen-Kleinties with an unknown woman in a dark interior. Photo by: Gerard

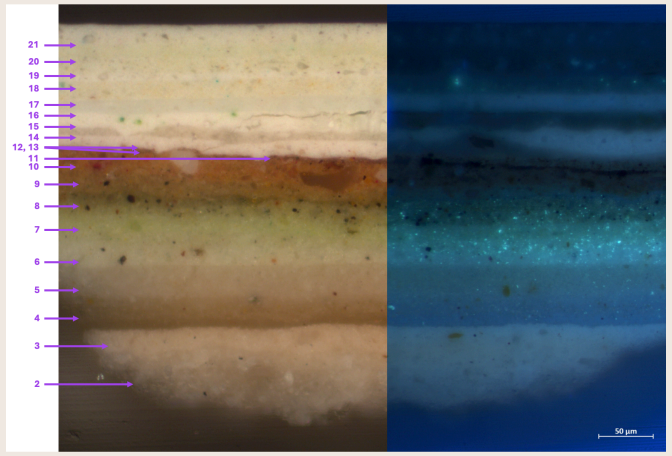

Fig. 13 A cross-section of the south door panel demonstrating the van Hoostraten period (layers 2-8).

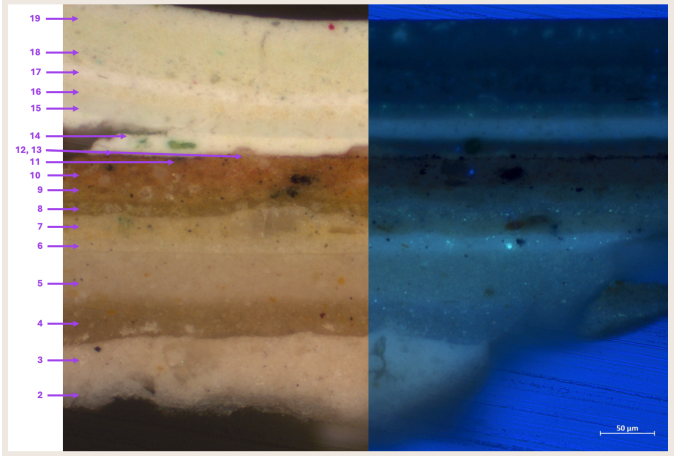

Fig. 14 A cross-section of the south door frame demonstrating the van Hoostraten period (layers 2-8).

All of the studied wooden elements were discovered to be painted in wood imitation in the period of the Kleintjes family residing in Huize Kolthoorn. After the window reveal on the wainscoting, the wood imitation was assumed to be of a dark wood species, such as walnut, rosewood or dark oak. It is impossible to draw a definitive conclusion, as the design could have been inspired by another tropical or dark wood, or have been a blend of different types of wood styles imagined by the painter. However, several wood samples were studied in an attempt to match them with the uncovered wood imitation, and rosewood seemed to have the closest resemblance. Furthermore, images of wood examples were studied in an online database, where black walnut wood appeared to be the closest match. However, the grain pattern greatly resembled the one of the dark oak sample. Thus, the discovered wood imitation in Grote Eetkamer might have been of one of these species or even several species combined as an artist's own design.

Fig. 15 A sample of rosewood wood on the left and the wood imitation of the wainscotting window reveal on the right. Photo by Ksenia Kiselova.

Fig. 16 A sample of black walnut wood on the left and the wood imitation of the wainscotting window reveal on the right. Source: The Wood Database.

Fig. 17 A sample of brown oak wood on the left and the wood imitation of the wainscotting window reveal on the right. Source: The Wood Database.

Decorating with imitations is a timeless practice. In the Netherlands, the oldest imitations appear on the plastered walls and vaults of Romanesque churches in the north. In the 19th century, various wood imitation techniques were prevalent in the Netherlands. This ranged from moderately dark or reddish-brown smooth wood finishes to light oak ones. Towards the end of the century, wood imitations continued to be fashionable, with accommodating specific styles and decorations for different rooms. For example, dining rooms were frequently featuring old Dutch-style designs, sometimes with imitated oak panelling. This fact goes along with Grote Eetkamer's function as a dining room and the discovered results of potential dark oak wood imitation on the wainscoting. Softwood is known to have been frequently painted, with the primary aim of wood imitation to create the illusion of a more expensive type of wood employed. Oak was the most commonly imitated wood, due to the familiarity of its grain, while walnut and mahogany were also popular for conveying a greater sense of luxury.

Wood imitation, conducted through oil graining, usually proceeded with the following making process. Firstly, an opaque ground layer was applied to provide a base for subsequent paint or translucent glazes. The graining colour, often containing a mixture referred as 'megilp', was further rubbed in to prevent paint from flowing together while maintaining translucency. The

megilp composition varied, however, one usual recipe included lead acetate, rotten stone, white beeswax, turpentine, and linseed oil. The application of graining colour, being even and thin, accommodated for the accentuation of translucency, the marking of the grain was applied on a wet surface. Different tools such as combs for open-grained types of wood and sponges for close-grained ones were employed to create initial imitations of grain. Lights were then created by wiping out colour, frequently in diverse patterns. Following that, according to some recipes, overgraining was applied, which involved the application of colour to deepen and enhance the wood appearance. It was done to soften and create a natural look and was usually applied with a badger hair brush. Lastly, the wood imitation work was glazed, and the final layer was polished for an even finish.

Concluding Remarks

All in all, the findings suggest that during the period of the Kleintjes family residing in the house all of the studied wooden elements were painted in a dark wood imitation that could possibly be of dark oak, rosewood or walnut. This increases the likelihood of the walls being covered in panelling with leather or leather imitation wallpapers, based on the fashion of the time period. As per the oral history of Huize Kolthoorn, the dark colour scheme of the room may be confirmed. The colour finish of the room's ceiling, however, remains unclear, as the original was replaced during the house renovations. It is noteworthy to highlight that the room revealed not only colour finishes but also other materials such as varnish, glaze and potentially the wallpaper. It is interesting to see how various materials were skillfully integrated to create a cohesive and harmonious finish for an interior. Moreover, from these findings, the conveyed atmosphere of the room can be understood better. The combination of leather-look wallpaper and dark brown wood accents likely created a warm, inviting and sophisticated atmosphere, with a touch of displayed luxury.

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