The gallery of the former town hall of Amsterdam. An interrelation between painting, architecture and light?

Margriet van Eikema Hommes (Researcher & Lecturer), University of Amsterdam, and (Researcher), Netherlands Institute for Cultural Heritage

Emilie Froment (Conservator & Lecturer), Stichting Restauratie Atelier Limburg, Maastricht

Anna Zwagerman (Postgraduate Student), University of Amsterdam

Suzan de Groot (Researcher), Netherlands Institute for Cultural Heritage

Matthijs de Keijzer, (Senior Researcher), Netherlands Institute for Cultural Heritage

Henk van Keulen, (Researcher), Netherlands Institute for Cultural Heritage

Luc Megens (Researcher), Netherlands Institute for Cultural Heritage

Abstract
The town hall of Amsterdam (today the Royal Palace) was built in the middle of the 17th century, designed by Jacob van Campen. The building was conceived a ‘Gesamtkunstwerk’ in which architecture, sculptured decorations, and paintings would harmoniously interact with one another. The galleries surrounding the central hall are decorated with eight very large paintings by Jacob Jordaens, Jan Lievens, Govert Flinck, Jurriaen Ovens, and Giovanni de Groot. They are hung about eleven metres above ground level in half moon shaped niches, surrounded by sculptured walls and vaults. From April 2006 to September 2008, the paintings were treated by the Stichting Restauratie Atelier Limburg. One of the reasons for their treatment was the fact that the interrelation between the architecture and the paintings could no longer be appreciated; in the white painted gallery the dark paintings stood out as dark, illegible ‘islands’. The research revealed that the paintings had darkened considerably over time while the architectural setting had become lighter and the light situation in the galleries had also changed. This has disturbed the original tonal balance of the ensemble. However, it also became apparent that no true harmonious interaction between painting, architecture and sculpture, had been ever achieved in the galleries, not even at the beginning. It is argued that this was because of Van Campen’s premature departure from the project.

Keywords
Historic interior, cultural heritage, Jacob Jordaens, Royal Palace Amsterdam, Jacob van Campen, darkening, preparation layers paintings, architectural paint research.
Figure 1: Centre: ground of the first floor of the Royal Palace Amsterdam. Around: location of the paintings in the galleries. © SRAL
Introduction

The eighth wonder of the world: such was the reputation of Amsterdam’s new town hall in the seventeenth century [1]. The architect Jacob van Campen (1596-1657) had designed a classical edifice that was intended to reflect the cosmos and God’s creation and thus display the might and glory of Amsterdam and her governors [Fremantle 1959; Buchbinder-Green 1974; Huiskens et al 1995; Goossens 1996]. The plan of the town hall (since 1936 the Royal Palace) consists of two inner courtyards, one either side of a large central hall, the Burgerzaal. The administrative chambers are situated along the outer gable wall while four galleries are ranged round the courtyards (Figures 1 and 2).

For the occasion of the official opening on 29 June 1655 of the still incomplete building, the city’s pre-eminent poet, Joost van den Vondel, wrote his Inwydinge Van ’t Stadthuis t’Amsterdam (Consecration of the Amsterdam town hall), in which he praised not only Van Campen’s architectural design but also the sculpted and painted decorations: a ‘treasure of chisel and brush(work)’ harmonizing with the architecture. The paintings complemented the sculpture and enhanced it, ‘accompanying each other as two sisters, side by side’ [Vondel, 1655]. As examples, Vondel cited a number of paintings, even though, like various sculptures, these were not yet at the time in place. Thus he spoke admiringly of the canvases planned for the galleries with the revolt of the Batavians – the
earliest inhabitants of the Netherlands – against the Romans. It is these canvases which are the subject of the present paper.

Whoever walks round the galleries these days will find it difficult to recognize themselves in Vondel’s words. There is no question in the galleries of any ‘sisterly’ interaction between the dark, scarcely legible paintings and their white sculpted and architectural surroundings. It was the darkness of the paintings that led to their conservation (2007-2009) [2]. Although the removal of ancient layers of grime, varnish and overpaintings certainly improved the legibility of the canvases, they still stand out against their white surroundings as inaccessible, dark ‘islands’.

What was the original visual concept for the galleries? To what extent does the present tonal balance between paintings, architecture and sculpture correspond to the original situation? That is the question posed in this paper. What role does daylight play in the galleries? And to what extent do we today see the original tonality of the paintings, or has this changed with the passage of time? And what about the decorative finishing of the architecture, is that still original? Before dealing with these questions, a brief account is given of the galleries and their painted and sculpted decorations.

The galleries and the paintings
Anyone entering the galleries will be struck immediately by the monumentality of the more than 11 metre high spaces. On their outer side they give access to the administrative chambers while on the inner side their windows look on to the inner courtyards. The gallery walls are sectioned in three horizontal levels, separated from each other by a moulding. Below, the walls are covered with grey-veined white marble and divided by means of double Corinthian marble pilasters. The second level has the same sections, but with more sober pilasters and, instead of real marble, a painted marbling. The coffered, semi-circular sandstone barrel vault is painted white. Artus Quellinus (1609-1668) was responsible for the eight marble sculptures in the bottom corners and the many marble and sandstone reliefs on the walls and the coffered ceiling.

The paintings with the Batavians are located in the lunettes of three of the four corners of the gallery – the fourth corner has always remained empty (Figure 2). These are enormous arch-shaped works, measuring six by five and a half metres, which are placed at right angles to each other above the lowest moulding and are enclosed by the barrel vaulting. Jacob Jordaeus painted two canvases (The peace negotiations between Civilis and Cerialis 1661-1662 and The nocturnal attack of the Batavians 1661-1662), while Jan Lievens produced a single painting (Brinio raised on the shield 1661). A fourth work (The conspiracy of Claudius Civilis 1659-1663), begun by Govert Flinck in 1659, was completed after his death in 1663 by Juriaan Ovens. In the third corner are two paintings on plaster produced by Anthony de Groot in 1698 (The peace negotiations between Civilis and Cerialis and The erection of the trophies). The arches in the east gallery that open on to the main hall, the Burgerzaal, are similarly furnished with paintings on canvas: scenes of the Biblical heroes David and Samson, by Jordaeus (Samson and the Philistines 1661 and David and Goliath 1664).

The themes of the paintings were not chosen by Van Campen [3]. A print of a design for one of the gallery walls perhaps gives an idea of the kind of mythological imagery that Van Campen had in mind (Figure 3); it would seem that he intended these images to correspond with the cosmic theme of the building. However, the master architect left the project in 1654 following a conflict that probably had to do with changes regarding Van Campen’s architectural concept, changes that were carried out by Daniël Stalpaart, who was responsible for the day-to-day execution of the work. One of these changes concerned the galleries. Van Campen had intended depressed barrel vaulting here, whereas what was actually constructed was a ‘normal’ semi-circular barrel vaulting. The greater height of this vaulting resulted in considerably taller paintings whose upper part especially would receive little light.
The lighting in the galleries

Today the galleries get their light solely from the windows that open onto the inner courtyards [4]. Originally, however, there were four other sources of light. Each corner of the gallery had two more arch-shaped doorways leading to a double staircase that was well lit by means of windows in the outer gable wall (Figure 4). These doorways were all blocked up in the 1960’s [Vlaardingerbroek 2004]. The daylight that had previously streamed through these doorways, was reflected by the white marble of the gallery floor, thus further illuminating the corners. It is doubtful, however, whether this improved the legibility of the paintings, since these were placed some six meters from the floor. Moreover, to see the paintings above the doorways one would have had to look at them against backlighting (Figure 8).
The darkness of the paintings in the galleries: a century-old problem

The darkness of the paintings in the galleries is not just a recent problem; even shortly after they were placed, when the doorways in the corners were still open, this was already a problem. In 1697 the four burgomasters put a proposal to the city council regarding the eight lunettes, only half of which had then been filled with the canvases by Jordaens, Lievens and Flinck/Ovens. It was thought that the paintings were largely decayed and were moreover not easily seen because of the lack of light. It was therefore proposed fresco paintings be included in all lunettes – ‘in fresco ofte in plaisterwerk’ (fresco or in plasterwork), a choice dictated by the anticipated durability of this technique [Vlaardingerbroek, 2004]. In the event, the plan for eight fresco wall paintings was not fully realized; only two works by Anthony de Groot were painted and the canvases all remained in situ.

The burgomasters’ plan to order fresco does throw light on the early problems of the paintings. The canvases were largely decayed and, as one reads, this was the result of the leaking roof of the Burgerzaal leading to damp in the walls that had affected the canvases [Vlaardingerbroek 2004]. During the last conservation treatment the seriousness of the damp damage could be clearly seen though all the canvas paintings were lined [Van Duijn, 2008]. The many splits, holes and tears along the seams and along the taking margins of the original canvases show how weak the weave has become. Cross-sections of paint further show that some grounds have been eroded by mould. The
burgomasters’ initiative implies that the canvases were also found to be too dark because of ‘het weinige licht’ (too little light) in the gallery corners, whereas the mat paint surface and the lighter tonality of fresco paintings would guarantee better legibility under such adverse lighting.

**The paintings: darkness versus darkening**

But why were the canvases found to be too dark in 1697? Had the paintings, which were no more than forty years old, already darkened, or was it that the works had retained their originality but that this had now become less appreciated? And how does the late 17th century situation relate to the present? To gain insight into these questions, we shall look at the influence of the painting technique, the natural ageing of the painter’s materials and the effect of earlier restoration treatments. Because we cannot deal with all the works in this paper, we shall concentrate on the works of Jordaens, who was responsible for half of the paintings.

The dark effect of Jordaens’ paintings is predominantly due to the dark brown ground that is visible in many passages. It is important to know whether the Antwerp master actually intended this ground layer to be so dark, or whether it has become so with the passage of time. For although these days the colour of the grounds visible at the paint surface is more or less the same in all four canvases, this was not originally the case: paint sections show considerable differences in build-up and pigment composition (Table 1).

The *David* and the *Attack* were both primed with a double ground. First a layer of chalk and ochres and then a layer of lead white and chalk with a good dose of ochres and umber. Given that in both paintings this top layer contains a high proportion of brown pigments and is oil based, the grounds of the *David* and the *Attack* must have originally been rather dark. That this brown scarcely differed from what we see today may be inferred from the modelling of the forms, in which the dark passages make efficient use of the brown ground. No more than a thin glaze was introduced for the shadow tones (Figure 5). In the light passages, on the other hand, a dense covering paint is used.

And yet both canvases have darkened markedly. In the *Attack* the shadow tones have been enormously abraded by over-cleaning in earlier treatments, such that the ground is now far more exposed than originally intended. This has had drastic consequences; the *Attack* is in fact a nocturnal scene in which shadows constitute the greater part of the image. The *David* has been strongly changed by the alteration of the smalt pigment of the sky, which includes almost two thirds of the composition, which has turned brown. As a result, the sky is nowadays no longer distinguishable from the brown landscape.

In the *Samson* the ground has indeed darkened considerably. The ground consists of two layers that include of chalk and ochre bound in a water-based medium. The first indication of this is the glue and starch found in these layers using GCMS analysis. Paint sections and study of the paint surface show that this glue and starch are not later additions (from an old glue lining) but components of a water-based binding medium; in addition the mould that has eroded this ground provides further corroboration of this. The ground of the *Samson* has an overall dark brown appearance. However, close inspection reveals that this darkness is uneven, and that the ground is even light beige in places. Paint cross-sections show that the build-up and pigment composition of the ground is the same in both lighter and darker areas. The difference is that the ground is light beige in the paint samples taken from the light areas, whereas in the samples from the dark areas, this layer (to a depth of 100 µm) is dark and saturated, and fluoresces strongly in UV. The oil binding medium of Jordaens’ paint layer has here impregnated the water-based ground layer. The colour difference is the result of the chalk in the ground, which was white and covering in the water-based medium, having become transparent when saturated with oil, so that under these circumstances only the colour of the ochres contained therein are still seen. Observations of the paint surface and cross-sections show that the impregnation and correlated darkening are most conspicuous below the paint layers that are richest in oil binding medium.
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| Pictures (reflected light) | ![Image](image1.png) | ![Image](image2.png) | ![Image](image3.png) | ![Image](image4.png) |
| Pictures (UV) | ![Image](image5.png) | ![Image](image6.png) | ![Image](image7.png) | ![Image](image8.png) |

| Results | Ca, Fe, (Mn), (Al), (Si) | Top layer: Pb, Ca, Si, Fe, (Al), (Mn) | Bottom layer: Ca, (Si), (Pb), (Fe), (Al) | Top layer: Ca, (Si), (Fe) | Bottom layer: Ca, (Si), (Fe) |
| Pigments | Chalk, ochre, umber | Top layer: lead white, chalk, ochre, umber | Bottom layer: chalk, ochre, lead white (very low amount), some charcoal black | Top layer: lead white, chalk, ochre, umber | Bottom layer: chalk and ochre |

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*Multidisciplinary Conservation: a Holistic View for Historic Interiors*
Joint Interim-Meeting of five ICOM-CC Working Groups, Rome 2010
Sample reference | KPAN103-ground | - | KPAN105-ground

Organic materials | Wax-resin, chalk and gypsum | Top layer: the spectrum shows absorption bands which are also present in the reference spectra of a drying oil, lead white, chalk and lead carboxylate. Bottom layer: the spectrum shows absorption bands which are also present in the reference spectra of a drying oil, chalk and ochre. | - | Top layer: contains chalk, ochre and possibly natural resin. Bottom layer: contains chalk, gypsum and possibly a natural resin.

Results FTIR | Binding medium is identified as starch | - | - | Binding medium is identified as a mixture of starch and animal glue

| Results GCMS binding medium analysis | - | - | - | - |

Table 1: composition of the ground layers of Jordaens’ paintings for the Royal Palace Amsterdam © SRAL
The original beige ground must therefore have acquired its dark colour partly during painting, when it was impregnated with oil, and must have taken effect immediately. However, the now unnaturally modelled figures show that the tonal balance of the image has also changed since conception. The bodies have abrupt, fierce highlights, and for the rest are filled in evenly with light brown. It would seem that the middle tones have darkened and, as a result, on the one hand, they now merge with the shadows and, on the other hand, contrast too starkly with the highlights (Figure 6). These middle tones are found to have been executed with a paint very rich in binding medium; it is possible that the oil from the paint layer, partially absorbed by the ground, has darkened.

The *Peace* was primed with a single ground layer of chalk and ochre bound in starch; so just as the ground of the *Samson* a water-based ground layer. Paint cross-sections of the *Peace* thus similarly show the ‘saturated’ and ‘darkening’ effect of the oil impregnation from above into the water-based ground. However, this ground, which contains a higher ochre content than the *Samson*, was darker from the very outset. The ground of the *Peace* was also impregnated with the wax-resin mixture used for the lining of the canvas in the 1960’s (Table 1). This impregnation was clearly evident during the removal of varnish during the last restoration: the ground was found to be solvent-sensitive, i.e. it had a tendency to blanch and was difficult to clean evenly as the extraction of wax-resin created lighter spots.

Although all four of Jordaens’ works were wax-resin lined in the 1960’s, only the ground of the *Peace* has been strongly penetrated by wax-resin adhesive. The oil grounds of the *David* and the *Attack* may have been less vulnerable to this impregnation, while the thicker ground of the *Samson* would seem to have offered some resistance. With the *Peace*, darkening of the ground by wax-resin impregnation is made evident by the hard, illogical transitions in the *modelé*. As with the *Attack*, moreover, the image has been seriously damaged by over cleaning, disturbing the original tonal balance even further (Figure 7).
Jordaens’ canvases have thus darkened for a number of reasons. The effect of the oil impregnation and the discolouring of the smalt must have become apparent very soon after completion. Over cleaning and darkening of the binding medium could similarly have occurred early on, but were further exacerbated afterwards. And even more recently, the wax-resin lining of the Peace has caused serious darkening.

The original tonal value of the surrounding architecture

While the paintings have become darker with the passage of time, the converse has happened to the architectural decorative finishing: this has become steadily lighter and as a result the tonal contrast between the canvases and their surroundings has been considerably heightened. The Bremer and Bentheim sandstone used for the construction of the walls and the vaulting of the galleries is these days completely hidden from view by grey-veined Italian marble, imitation marble of the same colour and white paint. Originally, however, only the lower pilasters were clad in marble while elsewhere the sandstone remained visible.

The first indication of this comes from two paintings by Pieter de Hooch from the 1660’s showing a view of the galleries (Figure 8). The walls here have a warm sandstone colour, very different from their current cool, grey-white finish. Travel description from the 1660’s also testify that the walls and the vaulting were at that time of stone and only the pilasters of marble [Monconys, 1665-1666; Van Domselaer 1665]. In addition, stratigraphic windows show that the sandstone was visible for some time. When hewn from the quarry this stone has a light grey-beige that can gradually discolour to grey-brown under the influence of daylight. The strong discolouration of the sandstone in the galleries, and the weathered surface with ingrained grime shows that the stone was for a considerable time exposed.
What was the reason for the restricted marble finish? The building and decoration of the Town Hall came to a standstill around 1666 because of financial problems, to be resumed again in the 1690’s. Was the lack of marble merely a question of money, or was it a deliberate choice for sandstone because of aesthetic reasons? It would seem to be the latter. Sandstone was at the time extremely expensive and Van Campen’s preference for this stone for the interior finish is evident in the almost contemporary decoration of the Oranjezaal (1648-1652), which he designed in the Huis ten Bosch, the Royal Palace in The Hague. There, the sham architecture (actually wooden panelling) is provided with a trompe l’oeil sandstone painting [6]. In the Town Hall the sandstone architecture had to interact with the lunette paintings. Jordaens’ Samson (1661) and both paintings by Anthony de Groot (1698) show a trompe l’oeil architecture of sandstone blocks. These must have been intended as a continuation of the surrounding ‘real’ architecture, which could have been either unpainted sandstone or painted with imitation sandstone.

The ‘lightening’ of the architecture began in 1699. At that time the burgomasters decided to face the bottom part of gallery walls with the present grey-white marble plates [Vlaardingerbroek, 2004]. In 1702 the sandstone walls higher up were covered with a matching cool, grey-white imitation marble: everything below the vaulting had to be painted just like the marble introduced shortly before and, emphasized the burgomasters, the work must not turn yellow. We learn about the finish of the gallery vaulting from a report from 1705 of a meeting of the burgomasters to discuss the new wooden vaulted ceiling of the Burgerzaal which had replaced the original, leaking vaulting in 1703 [Vlaardingerbroek 2004]. It was decided to give the new vaulting a ground layer ‘with a stone-grey colour [steengraauwe koeur] the same as the vaulting of the gallery’. At the time steengraauw meant the colour of sandstone [Pelleman, 2007]; the finish thus of the gallery vaulting. The colour of sandstone was obtained by mixing lead white with yellow ochre and a little brown, black and red pigment. This steengraauwe mix is indeed found as the priming colour of the vaulted ceiling of the Burgerzaal [Zwagerman, 2009]. Whether the vaulting in the galleries were also given a sandstone painting or
whether the burgomasters were referring to unpainted sandstone cannot be said; during the renovation of the Town Hall in the 1940’s all the old paint layers were removed from the vaulting.

One suspects that the gallery vaulting was painted white only at the beginning of the 19th century. After Louis Napoleon (1778-1846) had been crowned King of the Netherlands, the Town Hall in 1808 became the Royal Palace and was accordingly renovated, furnished and decorated in the Empire Style. The galleries were split up by means of wooden partitions into eight rooms; presumably the moment when it was felt that a light finish to the vaulting was desirable. There have been several subsequent re-paintings, the last in the 1960’s. The white, however, has never been changed.

Discussion and conclusion

In the galleries the tonal contrast, between the paintings on the one hand and the architecture on the other, has been heightened considerably over the course of time: the canvases became darker while the vaulting and the walls acquired a lighter finish. Moreover, in the 1960’s the light from the staircase was cut off. However, as early as 1697, when much of the darkening of the paintings still had to take place, when the walls and the barrel vaulting were still of sandstone and the doorways to the staircase were still open, the situation in the galleries was already considered problematic. The problem, it was thought, was that there was too little light in the galleries to be able to see the paintings well. Can we conclude from this that from the very outset the tonality of these paintings was not in balance with the lighting?

But how could this be compatible with Van Campen’s design? After all, he was the expert in the Netherlands on large-scale decorative cycles in which paintings and architecture formed an integrated, balanced whole. Van Campen, who was a painter as well as an architect, had an exceptional eye for the incidence of light within buildings and the consequences of this lighting for whatever paintings were present, as the recent research on the Oranjezaal has shown [Eikema Hommes (accepted for publication, end of 2010 or early 2011)]. There, the light paintings harmonize with the trompe l’œil sandstone architecture. One of Van Campen’s most important sources of inspiration, Vincenzo
Scamozzi’s *L’idea dell’architecttura universale* (1615), devotes a whole chapter to the various kinds of interior light in houses ‘with the aim of ensuring good and suitable [lighting], depending on the characteristics of the building’. Van Campen must have known that the light in the galleries was inadequate. Scamozzi would have characterized this type of daylight entering through the windows as ‘terminal light’ because it did not come directly from the open sky but via a closed inner courtyard. The kind of indirect daylight that entered the galleries from the staircase he would have called ‘secundair or divided light’ [Scamozzi 1615]. But if Van Campen deliberately chose two types of restricted light, what was then his concept for the paintings?

We know that Van Campen intended that there should be paintings in the gallery, but the canvases that eventually found their place there were all produced after his departure from the project in 1654. As already said, Van Campen had different subjects in mind for these paintings. Knowing what we now know, it seems likely that he would also have planned a different visual effect. For the sake of unity, in the *Oranjezaal* the painters received their canvases already primed with a ground of the same sandstone colour as the sham architecture [Eikema Hommes and Speleers, 2005]. If Van Campen had still been in control of decisions over the paintings in the Town Hall, he would probably have planned paintings suiting the tonality of their surroundings too.

This fact presents today’s curators and restorers with a dilemma. We have to accept that a tonal balance between architecture, paintings and sculpture in the galleries never existed. This raises the question of how the paintings should be presented now. Should the architecture be given a sandstone colour once again? And if so, does this apply solely to the vaulting or also to the upper part of the walls that acquired their marble cladding only in the early eighteenth century? Or should the light situation in the galleries be modified? And what then should one do with the impressive Empire chandeliers that were introduced in the nineteenth century? These questions demonstrate the complexity of the issues involved in the conservation and presentation of this unique monument, which bears the traces of several centuries of Dutch history.

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**Endnotes**

[1] This article is an initial brief discussion of the tonal problems of the paintings in the galleries. A more extended publication, including a precise discussion of the analytical results and the complex source material, is in preparation.


[3] From Vondel [1655] we know that the idea came from burgomaster Cornelis de Graeff.

[4] The present window frames with shutters date from the 1960’s. These reproduce the appearance, but not the construction, of the original window frames. The present lighting via these windows can therefore scarcely differ from the original situation: verbal communication Pieter Vlaardingerbroek.

[5] That sandstone was originally intended is also evident from the fact that when in 1699 marble plates were placed at the bottom part of the gallery walls, the sandstone had to be chipped away.
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Biographies

Margriet van Eikema Hommes (Researcher and Lecturer, author for correspondence) studied art history at the University of Amsterdam (UvA). In 2002, she obtained her doctorate with a dissertation on the discoloration of 15th to 17th century oil paintings. From 2002-2005 she has worked as a postdoctoral researcher, investigating the paintings in the Oranjezaal (1648-1652), Huis ten Bosch. Since 2006, she is working for the Netherlands Institute for Cultural Heritage (ICN). Currently as a postdoctoral researcher (based at UvA), she is carrying out research into 17th and early 18th century Dutch painting ensembles (research funded by Netherlands Organization for Scientific Research (NWO). Margriet van Eikema Hommes has published books and articles, both in the field of art history as in the field of conservation science. (University of Amsterdam, Research group History of Renaissance and Early Modern Art, Herengracht 286, 1016 BX Amsterdam, M.H.vanEikemaHommes@uva.nl, http://home.medewerker.uva.nl/m.h.vaneikemahomens)

Emilie Froment (Conservator and Lecturer, author for correspondence) was born in 1973 in France. She studied art history (M.A, 1998) and painting conservation (M.A 2003) at the University of Paris (Paris IV, Panthéon-Sorbonne). Her studies were completed with internships at the Solomon R. Guggenheim Museum (New-York, USA) and in the Appolon Gallery (Louvre, Paris, France). She worked as freelance conservator in France before moving to the Netherlands in 2004. After been employed by the Stedelijk Museum Amsterdam, she joined in 2005 the staff of the Stichting Restauratie Atelier Limburg. In this context, she has been working almost exclusively since April 2006 for the Royal Palace Amsterdam project. Since September 2008 she has been teaching the practice of painting conservation in the University of Amsterdam (Master education program). (Stichting Restauratie Atelier Limburg, Postbus 1679, 6201 BR Maastricht, info@sral.nl, efroment@gmail.com)

Anna Zwagerman (Postgraduate Student) was educated at the University of Amsterdam (UvA). First she completed her BA in History with two half-year minors in Western Esotericism and English Literature. To be eligible for the Master program in Conservation and Restoration of Cultural Heritage at the UvA, she finished a one-year minor in Conservation Studies in 2007. She completed her two-year MA, specializing in Historic Interiors, in July 2009. During the summer holidays of 2007 and 2008 she worked as a reconstruction painter at the Rijksmuseum in Amsterdam and as an Assistant Conservator at the Royal Palace in Amsterdam respectively. In September 2009 she began her postgraduate phase of UvA course at Stichting Restauratie Atelier Limburg, from which she will graduate in summer 2011 as a Conservator of Historic Interiors. (Sphinxlunet 52E, 6221 JJ Maastricht, the Netherlands, annazwagerman@gmail.com)

Suzan de Groot (Researcher) is a conservation scientist working at the Netherlands Institute for cultural Heritage (ICN) since 1996. She studied analytical chemistry at the Hogeschool van Amsterdam and graduated in 1996. She is currently engaged in Fourier Transform Infrared Spectroscopy (FTIR) techniques such as FTIR-ATR imaging and Raman spectroscopy techniques. Using these spectroscopic techniques she analyses materials used in objects of cultural heritage, such as paintings and painting conservation materials. (Netherlands Institute for Cultural Heritage (ICN), Conservation Research Department, P.O. box 76709, 1070 KA Amsterdam, the Netherlands, suzan.de.groot@icn.nl)

Henk van Keulen (Researcher) is a conservation scientist employed by the Netherlands Institute for Cultural Heritage (ICN), Conservation Research Department since 1994. He was trained in analytical chemistry and particularly in Gas Chromatography Mass Spectrometry. He is currently engaged in the analyses of traditional and modern organic materials from different source, such as paintings, furniture and modern art. (Netherlands Institute for Cultural Heritage (ICN), Conservation Research Department, P.O. box 76709, 1070 KA Amsterdam, the Netherlands, henk.van.keulen@icn.nl)
Matthijs de Keijzer (Senior Researcher) is working in the Art Technological Research Department of the Netherlands Institute for Cultural Heritage in Amsterdam, The Netherlands, as a senior conservation researcher/scientist. His main interest lies in the area of microscopic and micro-chemical analysis of pigments on different sorts of art objects. In the last decade of the 20th century his research was focussed on the history of the modern pigments of that century. In this Millennium he is involved in the project 'Early Synthetic Organic Dyes'. This project is based on a selection of well-known synthetic dyes, covering all dye classes and focussed on the period 1850-1900. His part in the project is to collect historical information by studying the original historical sources, including the patent literature. Since 2010 he is a university lecturer on the University of Applied Art Vienna in Vienna, Austria. (Netherlands Institute for Cultural Heritage (ICN), Conservation Research Department, P.O. box 76709, 1070 KA Amsterdam, the Netherlands, Matthijs.de.Keijzer@icn.nl)

Luc Megens (Researcher) Dr. Luc Megens earned a master in Chemistry and a master in Classical Arcaeology at the University of Nijmegen (1994) and a Ph.D. on the characterization of particulate organic matter in coastal waters at the University of Groningen (2000). Since 2004 he works as a research scientist at the Netherlands Institute for Cultural Heritage (ICN), on inorganic analysis of objects of cultural heritage, investigation of the effects of treatment methods on objects, architectural paint research and art technological studies. Current projects are on the conservation of plaster casts, Van Gogh's studio practice and cleaning of painted surfaces. (Netherlands Institute for Cultural Heritage (ICN), Conservation Research Department, P.O. box 76709, 1070 KA Amsterdam, the Netherlands, luc.megens@icn.nl)