

# Do We See What We Know or Do We Know What We See? Conservation of Oil Paintings in the Stedelijk Museum Amsterdam

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**Abstract** Some important issues in relation to the conservation, treatment and display of paintings at the Stedelijk Museum Amsterdam over the last 25 years are discussed. Examples of the treatment include key works by Kazimir Malevich, Modern American painters from the 1950s-1970s and Cobra artists. The challenges for conservators and criteria for decisions about treatment and display at the museum included reviewing former conservation treatments and the question of material authenticity. The discovery of water sensitivity in oil paint used by artists including Jasper Johns and Karel Appel in the 1950s and 1960s has had an impact in relation to cleaning these works. The relationship between painting technique and paint quality is discussed in relation to the works of Karel Appel and Asger Jorn. These studies have led to the characterisation of novel degradation phenomena and technical evidence has helped to predict water sensitivity and inform more specific cleaning methods. Despite these advances not every work of art can be treated and sometimes we have to except that *'less is more'*.

**Keywords** Oil painting • Water solubility • History of conservation • Stedelijk Museum • Cleaning • Malevich • Johns • Appel • Jorn • Ernst

## Introduction

Conservation research begins with a close and detailed visual examination of the surface of a painting. What do we see at first sight? Does it concur with our notion of authenticity and the artistic quality of a certain painter from one period of creation? These notions are a combination of ethics, experience and research influenced by contemporary context.

During the Conference *Modern Paint Uncovered* in London in 2007, the participants were invited to take part in *The Paint Quiz* and were asked to identify

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the artworks of nine different artists by looking at nine detailed pictures taken from the collection on display in the galleries of Tate Modern.<sup>1</sup> ‘The Quiz’ summarises in a way the same questions that we try to answer such as: do we recognise and understand certain artist’s hands and their specific paint surfaces while we are examining a work for conservation purposes? We learn to recognise colours, brushstrokes, drips, spots or the evidence of deterioration such as wrinkling, cracking or yellowing that prompt characteristic associations. On the other hand technical studies of pictures aim to provide deeper understanding of the artistic process by ascertaining the build up, the order and quality of applied paint and the drying and deterioration processes which take place in modern oil paints.

## History

In the 1990s the painting conservation lab of the Stedelijk Museum started a restoration program of 18 Suprematist paintings by Kazimir Malevich (1879–1935). Just after the acquisition of the Malevich paintings in the 1950s by the Stedelijk Museum, these paintings had been wax-lined. Subsequent display of the Stedelijk pictures with works by the artist from largely unknown Russian collections during the first Malevich exhibition in 1989 in Amsterdam prompted crucial observations of major differences in surface quality. This could be accounted for in part by the conservation history of the different collections. Surface quality of the artist’s non-varnished paint surfaces were studied and a better understanding of how these paintings should look was understood by the conservators. The consequence was a new conservation treatment which involved the removal of a thick discolored ‘restoration patina layer’ (Fig. 1) to reveal the ‘real qualities’ of the paint layer.

In 1989 the Stedelijk Malevich paintings were loaned to the *Biennial of Sao Paolo* that offered another opportunity for contextual comparison with a Russian collection of the artist. The Malevich paintings from the two exhibited collections showed markedly different surface qualities as a consequence of different conservation histories. While the works from the Russian collection were unvarnished and had matte surfaces, the Dutch collection pictures on canvas that were wax lined and varnished appeared relatively glossy and saturated. This observation prompted a reconsideration of the notion of authenticity in relation to the treatment of these works that was last discussed in the 1980s (Wijnberg et al. 2007). It was understood that the return to a more authentic state of the paint layer and its presentation had not completely succeeded. With the introduction of wax and varnish, the aesthetic appearance of the paint had definitely changed in quality. We compared our paintings with ones which had also a restoration and conservation history but a different one. Were these works still authentic? In addition to the materials and techniques used by the artist, which may change in the course of time or even from

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<sup>1</sup>Learner T, *The Paint Quiz*, unpublished.

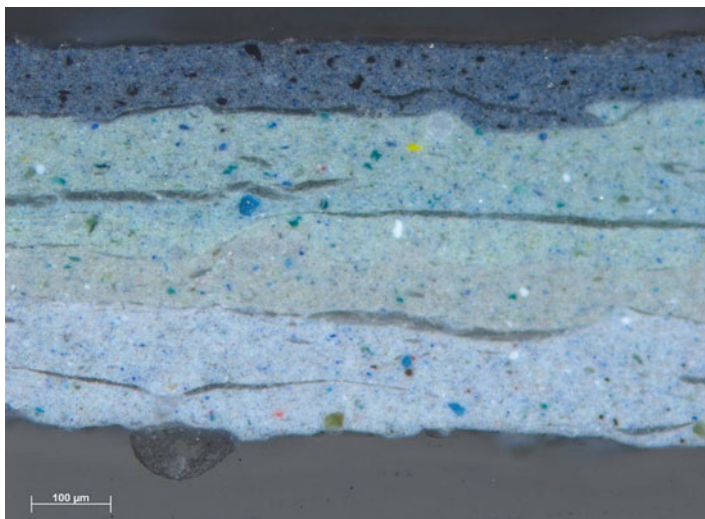


**Fig. 1** Malevich, detail of paint surface with patina before cleaning in 1989

painting to painting, the final appearance of a work of art is the result of the way a collection is kept during its lifetime. Often, the works of one and the same artist are spread out over different sub-collections. Differences might become visible sooner or later and are discovered when paintings are examined and found to have aged, or former treatments have become more visible.

Along the way, our notion of authenticity has developed due to a better understanding of the consequence of the effects of physical changes in oil paintings on aging and the impact of physical history including former treatments. Ten years later, in 1999, one of the paintings had to undergo a minor treatment. Observing the painting brought us back again to the consequences of the conservation history and the idea of no real return to authenticity; we clearly noticed that the wax used for relining had become completely incorporated into the painting and some material had migrated to the surface. The migration of the wax appeared to be an ongoing process which could not be stopped. The impact of the former treatment appeared to have long term consequences for future treatment. The consequence was that it made and makes at present a conservator more and more cautious.

Wax has been used as conservation material but it was also an important component of the painting technique used by artists from ancient to the modern era. Brice Marden added beeswax to oil paint in the 1970s at the beginning of his artistic career to paint monochrome works. During the 1990s conservators noticed that his mixed media technique was problematic in spite of the carefully prepared and applied paint medium. The slow migration of the wax from the oil paint became obvious in most of his monochrome works. During the years that followed, individual paint layers showed pronounced adhesion problems which resulted in extensive flaking especially along the edges of the painting. Microscopic cross-section analyses



**Fig. 2** B. Marden, *Horizontal Horizontal* (1972–1973), Inv. Nr. A 35202; visible transparent inter layers of beeswax (L. Megens, RCE)

(Fig. 2) illustrated the separation of wax from the other organic media and its concentration at the interfaces between the ground and individual paint layers. Since the wax has low cohesive strength the individual paint layers separate easily and flaking occurs in response to small stresses, such as those caused by changes in relative humidity.<sup>2</sup> The accumulation of wax between layers of paint indicated that this separation occurred shortly after the application process.<sup>3</sup> Droplets of wax were also present on the surface.

Marden's paintings will remain vulnerable. In addition to the difficulties in consolidating the flaking paint, monitoring of his works on exhibition and in storage is critically important for their preservation.

The Stedelijk Museum's conservation program from the late 1980s included treatment of monochrome paintings by American artists from the 1950s–1970s, including paintings by Newman, Kelly, Marden, Mangold, Tuttle, Ryman and Serra. The visual quality of the paint surfaces, mostly executed in oil, became an important consideration in relation to approaches to cleaning and retouching. New cleaning systems introduced by Richard Wolbers provided a wider choice of reagents for cleaning paintings. Some of these works that were originally unvarnished had been entirely varnished or over-painted as part of former conservation treatments that

<sup>2</sup>K.J. van den Berg, M. de Keijzer, L. Megens, H. van Keulen and S. de Groot, internal RCE report 2006-076, 2007.

<sup>3</sup>K.J. van den Berg, personal communication February 2014.

aimed at replicating a perfect surface without marks or visible damage. Removal of these superficial layers required collaboration between restorers and scientists to formulate tailor-made solutions. An example is the treatment of a painting by Ellsworth Kelly where a layer of repaint was successfully removed using tailor-made gels. Conservation and technical study highlighted the variety of media used in his works despite their visual similarities in appearance, in particular in his monochromatic paintings (Wijnberg et al. 2011). This important observation has to be taken into account in the treatment and display of works by the artist.

A recent treatment in 2012 of a monochrome work *Blanc* (1978) by Richard Serra presented particular challenges. Executed using an oil paint stick, the painting has a uniform black paint surface that can hardly be touched without changing its fragile surface texture (Chavannes et al. 2014). A visually perfect state was a pressing demand by the artist who was present at the final installation of the two canvases on two opposite walls of one cabinet of the Stedelijk Museum at its reopening in September 2012.

## Water Sensitivity

The notion of non-intervention became equally relevant in relation to the treatment of a painting by Jasper Johns, *Untitled 1964–'65* ten years ago, in 2004 (Wijnberg et al. 2007). At first sight no degradation processes were visible and the painting appeared to be in perfect condition, however, attempts to remove dirt from the unvarnished paint surface revealed extreme sensitivity of the oil paint to aqueous and protic solvents. Examination using scanning electron microscopy (SEM) of the well-bound paint revealed crystals on the surface, protruding from the paint (Burnstock et al. 2006). The crystals were detected in later work as water soluble epsomite, which could explain the water sensitivity (Silvester et al. 2014).

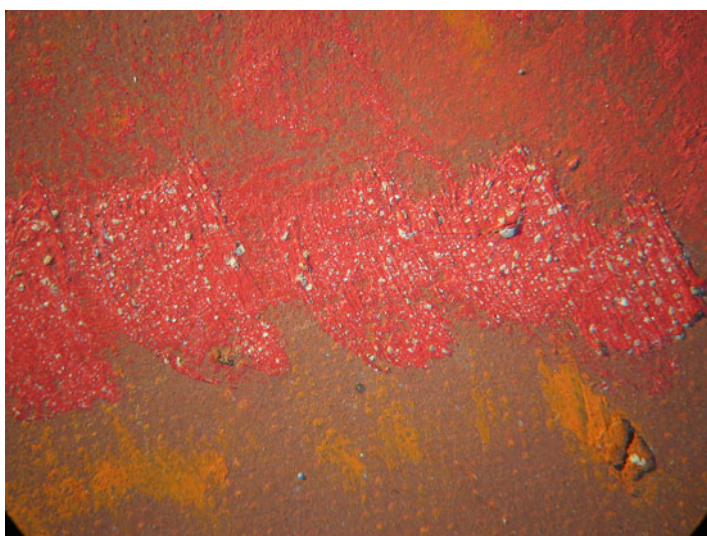
This study again made us fully aware of these risks related to the cleaning of some modern oil paints, and deterioration that is not evident by visual examination of the painted surface.

In this case, non-intervention was preferred to a compromised risky surface treatment.

This same notion of non-intervention was followed in the treatment of a painting by William de Kooning in the Stedelijk Museum; *Rosy Fingered Dawn at Louse Point* (1963). In 2008, tests for surface cleaning demonstrated the presence of tacky water sensitive paint in particular in paints containing cadmium yellow (Fig. 3). Organic analysis of the paint identified a mixture of oils and other additives of lipid origin (Izzo et al. 2014) which were degraded. In conclusion, the conservator decided not to clean the painting and that '*less is more*' (Mills et al. 2010). In this case the results of scientific analysis helped the conservator to understand the qualities of the paint surface to avoid disruption of the painting through an intervention.



**Fig. 3** W. de Kooning, *Rosy Fingere Dawn*, Inv. Nr. A 22662, detail



**Fig. 4** M. Ernst, *La horde*, Inv. Nr. A 2500; detail

In 2010, bright white efflorescent particles were found on the paint surface of *La horde* (1927) by Max Ernst in the Stedelijk Museum collection (Fig. 4). The visible white particles were concentrated in the red passages of the unvarnished oil painting. The particles had been noted in a previous conservation campaign in 1991 but by

2010 had become more prominent and visually disturbing. The red layers were analyzed and identified as mixtures of vermilion for the darker red areas and cadmium red for the brighter parts.<sup>4</sup>

The white efflorescence was associated with the darker red vermilion paint, and identified as an inorganic sulphate, probably a sulphate containing zinc. The zinc sulphate was thought to be formed from zinc stearate, present in the vermilion paint as a stabiliser, and from airborne sulphur dioxide perhaps from the pigment. The water sensitivity of the paint layer was clearly related to the formation of this efflorescence.<sup>5</sup>

Surface deterioration phenomena have been observed in several paintings by the former Cobra artist Karel Appel, painted in the 1950s and 1960s. Visible to the naked eye, the deterioration included blooming, whitening, cracking, efflorescence and the presence of local hazes, all of which were characterised using different methods for technical analysis (Mills 2008).

In the last 8 years, several works by Appel have been restored. *Fleur de nuit* (1954) and *L'homme* (1958) from the Stedelijk collection were carefully cleaned and analysis of paint samples confirmed the presence of metal stearates and medium exudates.

New surface cleaning methods have been introduced that facilitate partial cleaning of water sensitive or degraded unvarnished paint surfaces. These include the use of an airbrush, gums, erasers, sponges, and other dry cleaning materials (Daudin and Van Keulen 2014).

The use of Agar gels with different aqueous and solvent components has also been used with a very good and convincing result (Volk and Van den Berg 2014).

An exhibition in 2008 '*karel appel, JAZZ, 1958–1962*', at the Cobra Museum for Modern Art Amstelveen, provided an opportunity to explore new perspectives of the artist's work (Sassen et al. 2008). Twenty large paintings from 1961 – 230 × 300 cm – were included in the exhibition. The making of these large paintings was the subject of a short film of nearly 15 min by Jan Vrijman (1925–1997).<sup>6</sup> The film documents the artist in full action in the creation of the works in 1961. Appel commented on his working style: '*I paint a barbaric art, in a barbaric Age*', sloshing paint around freely with a palette knife, squeezing tubes onto the canvas and manipulating the paint with his gloved hands or big flat brushes. One of the paintings in the film is *Archaic Life* (1961).<sup>7</sup> This painting was loaned by the Stedelijk for the *Jazz* exhibition and was installed together with the others made in the same year. In the film the work can be viewed at the moment of creation, when

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<sup>4</sup>Van den Berg, Megens, de Groot (RCE), and Burnstock (CIA), unpublished results 2009.

<sup>5</sup>Bracht, E, van den Berg, KJ, de groot, S, Megens, L (FTRI, XRF), RCE 2010, Project in progress.

<sup>6</sup>Dutch filmmaker who became well known with its presentation. It is called *The Reality of Karel Appel. Musique Barbare by Karel Appel* (1962).

<sup>7</sup>K. Appel donated the painting to the Stedelijk Museum end 1962 after the exhibition '*Art since 1950*', Seattle, as a part of the collection Sandberg. The painting was then titled '*From the beginning*'.



**Fig. 5** K. Appel, *Archaic Life*, Inv. nr. A 21604 detail ultramarine pigment and dripping binding medium

the paint was freshly applied without dust and drying phenomena that is apparent today. The work is large and the heavily impastoed paint contributes to its significant weight. Some of the oil has been absorbed into the canvas, and resulting staining is visible at the back.<sup>8</sup>

Before lending the work to the exhibition the painting underwent conservation treatment.<sup>9</sup> Brittle blue paint, that was water sensitive was tenting and flaking. The paint also exhibited pigment-medium separation, and brown vertical drips of oil medium were visible at the paint surface (Fig. 5).

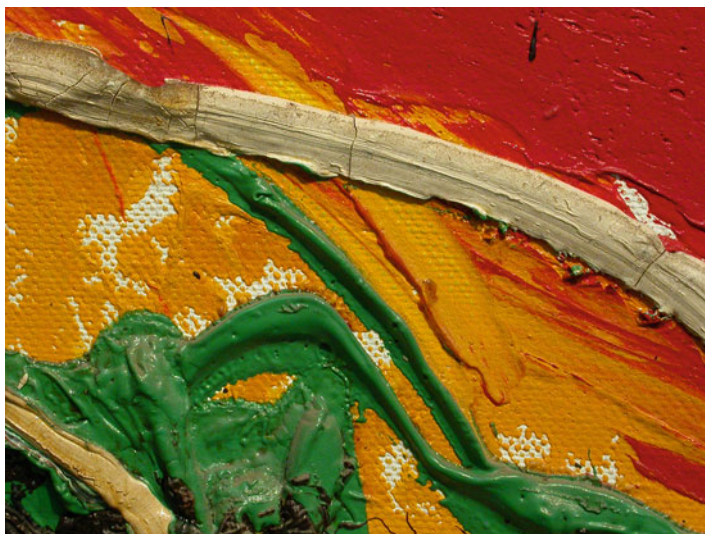
The blue paint shows characteristics typical of ultramarine pigment in oil media, known for its difficult drying properties. Research has provided explanations for this phenomena including water sensitivity and phase separation.

In the same painting, the white painted areas were in good condition, apart from the presence of disfiguring surface dust on the tops of the paint strokes, that had become embedded at early drying phase (Fig. 6). Appel's paintings are characterised by a great variety of colours each with its characteristic drying cracks, wrinkles or other deterioration.

This was clear in the exhibition that showed that all the works made in the same year shared similar painting phenomena. These included traces of dripping binding media now dried to a yellow or brownish hue, and a range of other surface phenomena. Appel stated '*The paint is applied to the canvas in all manner of expressive ways, because emotion has to be beaten into paint*' (Vrijman 1962).

<sup>8</sup>The film was shot on location in a build studio for the film in 'Huize Groeneveld', Baarn, The Netherlands at the time that Appel was still living in Paris.

<sup>9</sup>2008, conservator M. Engel and 2010 V. Blok.



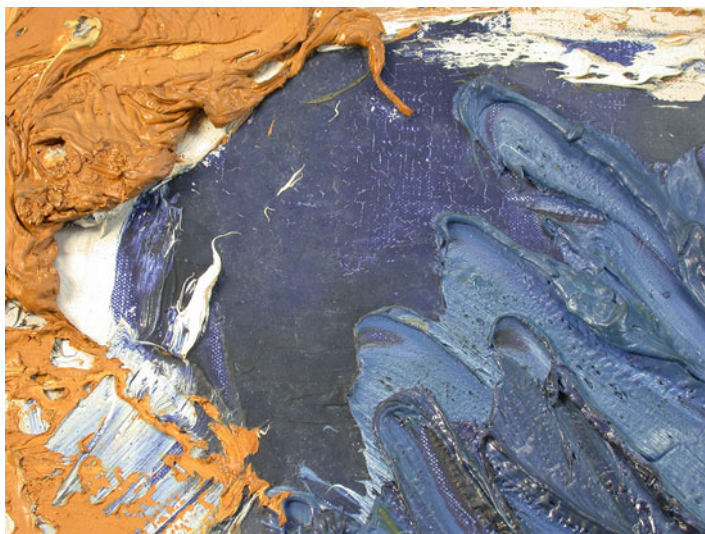
**Fig. 6** K. Appel, *Archaic Life*, nr. A 21604; detail dirty white paint

Comparison of the works in the exhibition prompted the question of whether the paint quality is the result of the particular materials employed or the painting methods used by Appel, or both.<sup>10</sup>

With regard to treatment, the water sensitivity observed in Appel's paintings was linked to the presence of water soluble crystals which formed on the paint by reaction with atmospheric pollutants. In 2010, conductivity measurements were proposed as a low-tech means to identify water sensitivity caused by this crystal formation on oil paints characterised by high conductivity at the paint surface (Soldano and van den Berg 2014). Tests were carried out on several paintings including a passage of ultramarine blue paint from *Fleur de nuit*, that registered high conductivity before cleaning. The conductivity decreased by 50 % after surface cleaning (Fig. 7), suggesting that ionic salts were removed in the process.

The most recent treatment of a painting by Karel Appel in the Stedelijk Museum conservation studio in 2013 was *Michel Tapié de Celeyran* (1956). It proved typical in its patterns of deterioration exemplified by flaking of blue passages of paint that required consolidation, together with pronounced cracking and cupping paint. The characteristic separation of blue paint medium from pigment showed as the thinner underlayers of leanly bound bright blue were covered by more medium rich ultramarine paint. Flaking of the top layer revealed a homogenous thin layer of bright blue on the canvas. Other paints exhibited different characteristic surfaces:

<sup>10</sup>Appel used a table as a palette. Among the metal jars we can distinguish a pot with ETA paint (emulsion of casein).



**Fig. 7** K. Appel, *Fleur de nuit*, Inv. nr. A 29186; detail cleaned (*left*) and non-cleaned (*right upper part*) ultramarine oil paint

the grey layers were severely wrinkled while thickly painted white areas formed deep linear cracks.

In conclusion, while the knowledge gained from advanced scientific investigations has undoubtedly informed the eye of the conservator, the particular painterly qualities of an artist's oeuvre and changes that occur on ageing of the works can largely be catalogued by a discerning eye.

## Technique or Paint Quality?

The changes in oil paint discussed in relation to Appel can also be found in works by other artists. The works of Asger Jorn in the Stedelijk collection present problems of delaminating paint probably related to the artist's use of gouache mixed with oil paint, exemplified in the case study of *Abstract Minded Figure* (1962) (Witlox 2003). The result of the investigation also highlighted delamination of cadmium yellow pigmented paint.

Another painting by the artist in the Stedelijk Museum, *Guillaume Apollinaire* (1956) had been wax relined in a former treatment that aimed to consolidate the flaking yellow and blue paint. Jacqueline de Jong (1939) explained that when Jorn was living in Paris in the 1950s, he used good quality oil paints from Lefèvre – Foinet and that the artist was mixing oil paint with gouache was not known to

de Jong.<sup>11</sup> In 1961 she was for a short time the assistant of Appel in his studio where she was asked to mount canvases on stretchers and to clean the large and numerous brushes he normally stored standing straight in tins.<sup>12</sup> De Jong remembered that Appel bought his paint in the ‘*Quincaillerie*’ in the rue Brézin just in front of the entrance of his studio. She commented that ‘He was not interested in the quality of paint but only in colour!’.

We can conclude that the conservation problems with the oil paintings of Appel and Jorn are the consequence of the quality of the paint they bought but linked to their very personal paint technique which is predominant for the conservation of their works.

## Conclusion

*Do we see what we know or do we know what we see?* The ‘20<sup>th</sup> Century Oil Paint Project’ RCE, could give many answers to both questions. We have partly cleared the haze. With the years we entered in new levels of science where phenomena detected by the restorer were little by little explained. Surfaces are visually well known by us but even so oil paintings still hide their interior qualities from us. It is a quest without an end but one that becomes more and more detailed, a continuing search for the truth and reality that these paintings have in store for us.

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<sup>11</sup>Interview with the author on the 25th Mars 2013. Jacqueline de Jong, Dutch artist, had a relationship with Asger Jorn from 1959 to 1970. Paint material was bought at Sennelier, 3 Quai Voltaire, Paris (Since 1887).

<sup>12</sup>17 rue Brézin, XIV Arrondissement, Paris, where he lived and worked from 1958 on. The place is shown in the very beginning of the film *The reality of Karel Appel* (Vrijman 1962): Two men with a wooden chariot working for ‘*Quincaillerie Couleurs de Montparnasse*’ are delivering quite large canvases packed in brown paper and big jars probably containing paint.

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