



UvA-DARE (Digital Academic Repository)

Investigating the colourful world of Alessandro Mendini: Perserving *Nigritella Nigra*, a unique chest of drawers decorated with grease crayon drawings

Mol, T.; Stigter, S.; Cattersel, V.; De Vis, K.; van Halem, L.; van Duin, P.

Publication date

2019

Document Version

Final published version

Published in

Future Talks 017

License

Article 25fa Dutch Copyright Act

[Link to publication](#)

Citation for published version (APA):

Mol, T., Stigter, S., Cattersel, V., De Vis, K., van Halem, L., & van Duin, P. (2019). Investigating the colourful world of Alessandro Mendini: Perserving *Nigritella Nigra*, a unique chest of drawers decorated with grease crayon drawings . In T. Bechtold (Ed.), *Future Talks 017: Visions : Innovations in technology and conservation of the modern* (Silver ed., pp. 128-137, 140, 278-279). Die Neue Sammlung, The Design Museum.

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.

FUTURE TALKS

017

THE SILVER EDITION.

VISIONS.

INNOVATIONS IN TECHNOLOGY

AND CONSERVATION OF THE MODERN

CONTRIBUTIONS BY

SILVIA ANNICCHIARICO MILAN TIM BECHTHOLD MUNICH LYDIA BEERKENS MAASTRICHT MARIANNA
CAPPELLINA MILAN GIULIA CAPPELLONI ROME SIMONA CASONATO MILAN VINCENT CATTERSEL
ANTWERP JULIAN CECH VIENNA LOUISE CONE COPENHAGEN ISABELLE CUOCO PARIS MARTA GARCÍA
CELMA COLOGNE GRAZIA DE CESARE ROME SUZAN DE GROOT AMSTERDAM KRISTEL DE VIS ANTWERP
SASHA DROSDICK NEW YORK MAREN DÜMLER NEUWIED CHRISTINA ELSÄSSER MUNICH BARBARA
FERRIANI MILAN MARTINA HAIDVOGL SAN FRANCISCO EMILY HAMILTON SAN FRANCISCO DANIEL
HAUSDORF NEW YORK PAOLA IAZURLO ROME DANIELA JAČEK KOBLENZ JONAS JÜCKSTOCK MUNICH
BRENDA KENEGHAN LONDON ROBERT KETT SAN FRANCISCO SHU-WEN LIN NEW YORK YNGVE
MAGNUSSON BERGEN BRUNO MAZZONE ROME TIRZA MOL ANTWERP LAURA MONTAINA ROME
GIULIANA MORETTO NEW YORK DELIA MÜLLER-WÜSTEN NEW YORK MARISA PAMPLONA MUNICH
MONICA PIGNATTI MORANO ROME LUCA REDUZZI MILAN KENDRA ROTH NEW YORK JULIA SAWITZKI
MUNICH ELEONORA LEONE SCIABOLAZZA ROME YVONNE SHASHOUA COPENHAGEN MARTHA SINGER
NEW YORK MARTA SORRENTINO ROME SANNEKE STIGTER AMSTERDAM LEANNE TONKIN NOTTINGHAM
RAFAELA TREVISAN MILAN CARIEN VAN AUBEL AMSTERDAM PAUL VAN DUIN AMSTERDAM LUDO
VAN HALEM AMSTERDAM HENK VAN KEULEN AMSTERDAM OLIVIA VAN ROOIJEN AMSTERDAM MARTINA
VENTO ROME EVA WENTLAND BERLIN KATE WIGHT TYLER NEW YORK ELENA ZACCAGNINI ROME

ISBN 978-3-9818165-2-5

FUTURE TALKS

OCTOBER
11/13 2017
DIE NEUE SAMMLUNG
THE DESIGN MUSEUM

FUTURE TALKS 017

FUTURE TALKS

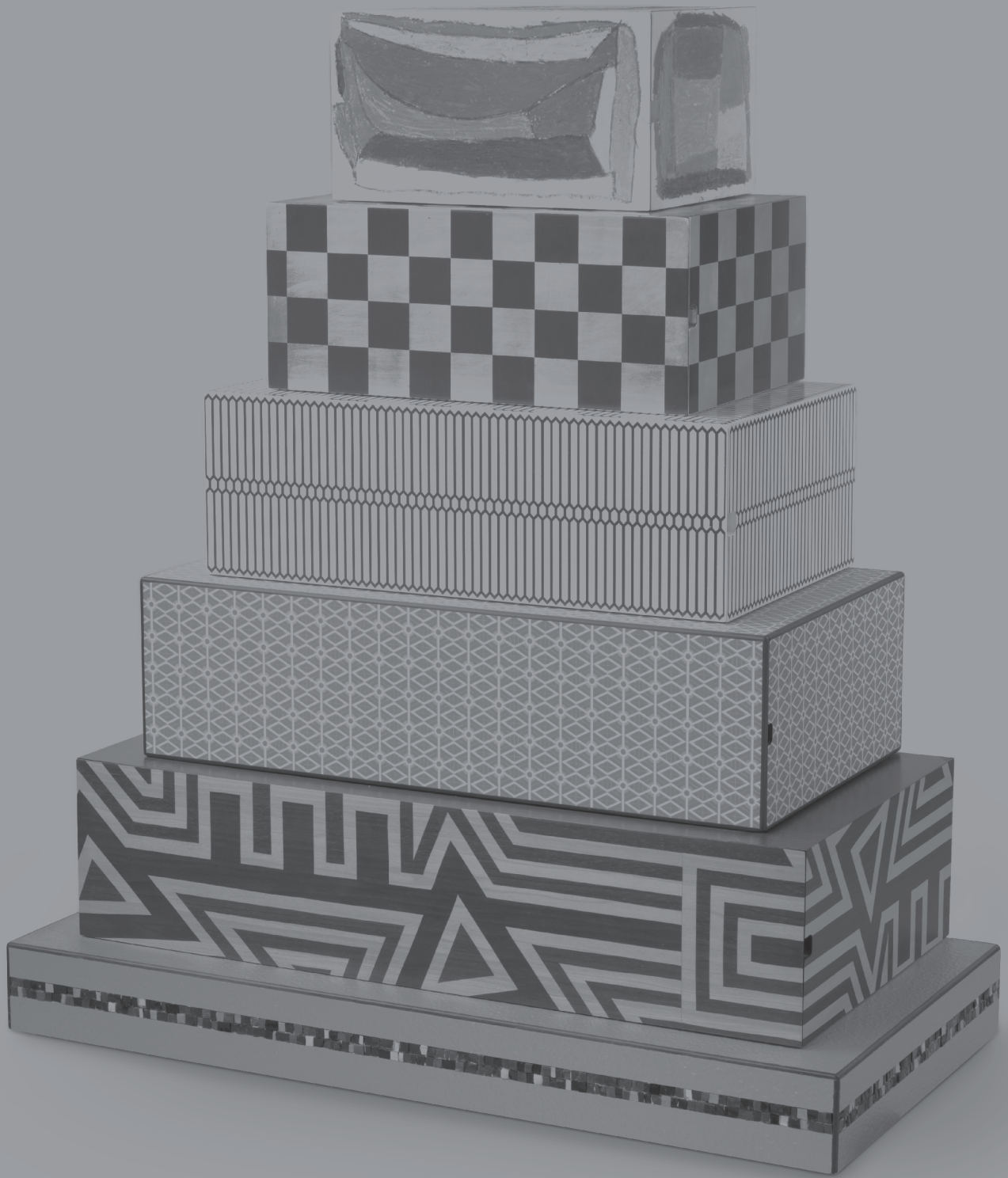
017

THE SILVER EDITION.

VISIONS.

**INNOVATIONS IN TECHNOLOGY
AND CONSERVATION OF THE MODERN**

TIM BECHTHOLD
EDITOR



LECTURE 014

INVESTIGATING THE COLOURFUL WORLD OF ALESSANDRO MENDINI: PRESERVING *NIGRITELLA NIGRA*, A UNIQUE CHEST OF DRAWERS DECORATED WITH GREASE CRAYON DRAWINGS

BY TIRZA MOL, SANNEKE STIGTER, VINCENT CATTERSEL, KRISTEL DE VIS, LUDO VAN HALEM, PAUL VAN DUIN

ABSTRACT

This paper discusses the decision-making process and the conservation treatment of *Nigritella Nigra* (1993), a chest of drawers designed by Alessandro Mendini (Milan, 1931-2019).⁽¹⁾ The top drawer case is decorated with several colourful abstract crayon drawings, making the chest a unique work of art. The varnish on top of these drawings was peeling off, lifting the crayon with it, with loss of material as a result. This study analyses the factors that may have contributed to the degradation process and describes the research performed preceding treatment, including ethical, aesthetical and artistic perspectives. Information from an artist interview has enriched deliberations in decision-making. For material analysis Py-GC/MS and FTIR were used, identifying grease crayon as medium for the drawings and cellulose nitrate (CN) for the varnish. Various options for consolidation and retouching were considered and tested, and a suitable approach was found with satisfactory result.

KEYWORDS

Alessandro Mendini, artist interview, grease crayon, cellulose nitrate, Acrylkleber 498 HV (Lascaux®), Medium für Konsolidierung (Lascaux®)

INTRODUCTION

In 2016 the Rijksmuseum Amsterdam accepted the donation of a colourful piece of furniture by art historians Johan Ambaum (1931-2018) and Frans Haks (1938-2006), the latter being the former director of the Groninger Museum. The chest of drawers is entitled *Nigritella Nigra* and designed by the Italian architect and artist Alessandro Mendini (Milan 1931) in 1993. Mendini's work is often associated with postmodernism. His designs are characterised by the use of contrasting materials and vivid colours in joint collaboration between artists, artisans and architects. Decoration and craft play a key role. As such, *Nigritella Nigra* is exemplary, as art historian Peter Weiß explained, considering it an important piece in Mendini's oeuvre, "a strong postmodern statement of his design-cosmos."⁽²⁾

The chest is handmade and composed of five different encased drawers stacked onto a low base, decreasing in size towards the top. The boxes are centred and aligned at the back, designed to place the object against a wall. Various types of manufactured board are used, some decorated with paint, others with wood, metal leaf, high-pressure laminate (HPL), and glass mosaic. The top drawer case is covered with colourful crayon drawings on all visible sides and finished with a transparent varnish (*Figure 1*). Whereas most of the object was still in fairly good condition, the top drawer case was not. The pictorial layer of the drawings showed severe cracks, cupping and flaking. The cupping varnish had locally pulled away the crayon, resulting in numerous losses all over the surface (*Figure 2*).

This study discusses object's history, its material composition, and degradation phenomena, as well as the concept of the artwork, the artist's opinion on its condition and the technical possibilities for conservation, to finally arrive at decision-making, testing, and treatment. The main challenge was to consolidate the brittle varnish that was peeling off, taking the crayon with it. Different products and methods were tested to consolidate the flaking varnish, while different approaches for retouching were considered, taking aesthetical, historical, and ethical perspectives into account.⁽³⁾

FURNITURE FOR THE MUSEUM MARKET

Nigritella Nigra is part of the *Museum Market*, Mendini's furniture collection produced by the Design Gallery Milan in a limited edition meant for the museum market. With a nod to agricultural produce and the market, all pieces of furniture were named after a different flower. *Nigritella Nigra* is a type of orchid. A special feature that sets this piece apart from the rest

Figure 1
Alessandro Mendini, *Nigritella Nigra* (1993), no. 1/12, manufactured board, high pressure laminate (HPL), paint, wood, metal leaf, glass mosaic, paper, grease crayon, varnish, 110 x 97 x 50 cm. Collection Rijksmuseum Amsterdam, BK-2016-127. Gift of J.W.M. Ambaum and F. Haks, Amsterdam. Photo: Rijksmuseum Amsterdam
see colour plates

of the series, are the handmade drawings on the top drawer case. As they all differ, each version of *Nigritella Nigra* is unique.

The drawings are not made by Mendini himself, but by Lucio Giudici, a young man with Down syndrome. Mendini recalls that he first saw the drawings during a visit to the psychiatric hospital where the boy lived, near Trieste, Italy. "This young guy was drawing a lot of drawings with beautiful colours. I asked whether I could use them and paid him some money."⁽⁴⁾ It was only years later that he used them to decorate the top drawer cases of each piece in the *Nigritella Nigra* series.

Although the *Museum Market* catalogue states that *Nigritella Nigra* has been produced in one series of twelve pieces, comparative research indicates that there are two series. In addition, a prototype is known, now part of Die Neue Sammlung - The Design Museum in Munich, purchased from a private collector in 2011.

The Rijksmuseum's piece is marked 1/12. The Montreal Museum of Fine Arts, Canada, owns number 5/12 from the same series since 1994, as part of a gift from the Liliane and

David M. Stewart collection. Gallery Collet Park, Paris, had number 9/12 for sale, a piece which was formerly owned by a private collector from Torino, and was sold to a private collector in 2017. An additional number 5/12 was located with Peter Weiß, acquired from a gallery in Münster in 1993.⁽⁵⁾ According to Weiß, Mario Godani of the Design Gallery Milano mentioned two series of 12 pieces, which had both sold out.⁽⁶⁾ Comparing the pieces that could be traced, reveals that the two series can be distinguished by the different decoration patterns on most drawer cases (*Figure 3*).

CONDITION OF THE TOP-DRAWER CASE

Except for the prototype, the top-drawer cases from all of the *Nigritella Nigra* chests that could be located have similar degradation phenomena.⁽⁷⁾ On chest nr. 5/12 the drawings have „local retouching of losses that also seem to have involved local lifting of the resin layer."⁽⁸⁾ Nr. 9/12 has „a flaking surface finish on the paper drawing."⁽⁹⁾ Nr. 5/12 from the other series shows similar degradation phenomena: "the wax crayon lost contact with the paper and the wax application frees itself of the paper."⁽¹⁰⁾ From these observations it could be suggested that this problem could be the result of incompatible use of materials. To support this assumption, the first phase of the investigation was the identification of the drawing materials.

Fourier Transform Infrared Spectroscopy (FTIR) revealed that the varnish on the top drawer case of *Nigritella Nigra* nr. 1/12 is a cellulose nitrate (CN) lacquer.⁽¹¹⁾ CN is notorious for its instability and has a tendency to disintegrate over time, which is strongly affected by exposure to UV, heat, and humidity. Decomposition can become autocatalytic by the initial breakdown products, resulting in shrinkage and distortion. Other causes of structural deterioration are the loss of plasticisers and stress cracking as a result of shrinkage (*Selwitz, 1998: 7*), phenomena that are clearly visible on the top drawer case.

Pyrolysis gas chromatography/mass spectrometry (Py-GC/MS) of a sample of the drawing material indicated that grease crayon was used. Grease crayon is predominantly composed of paraffin wax, pigments and tallow (*Ellis and Yeh 1998: 50*). Wax is usually considered a chemically stable material, but it is known to become problematic in laminated structures (*Mills and White 1994: 49*).⁽¹²⁾ Another well-known phenomenon is the migration of free fatty acids, causing a deposition of hazy irregular crystalline particles onto the surface of wax containing artefacts (*Ordonez and Twilley 1997: 416A*). Yet, none of the examples found in the conservation literature considers the combination of grease crayon with a varnish layer, which makes the case of *Nigritella Nigra* rather exceptional.

Mendini claimed that the varnish was applied with a brush.⁽¹³⁾ However, reconstruction tests showed that applying a CN varnish with a brush or roller smeared the crayon as the CN varnish dissolves it. (*Mol 2017: 26*). This explains the merging of layers observed underneath the flakes that were lifted off the paper substrate. Since the crayon on the drawings of *Nigritella*



Figure 2
Condition of the wax crayon drawing on the topside
of the top drawer case in raking light.
Photo: Tirza Mol

Nigra is partly dissolved into the varnish, but not smeared over the surface, it can be assumed that the CN has been sprayed onto the surface. The absence of brushstrokes or roller marks supports this assumption. In order to determine what factors may have additionally contributed to the deterioration of the drawings on the top case, the work's history is assessed.

NIGRITELLA NIGRA NO. 1/12

Little is known about the first years of the life of *Nigritella Nigra* no. 1/12, now in the Rijksmuseum collection. However, since 2001 the chest has had a prominent position in the apartment of former owner Frans Haks and Johan Ambaum in Amsterdam for 15 years. Haks had appointed Mendini as the designer for the new building of the Groninger Museum in 1994. When he and his partner moved to Amsterdam, Atelier Mendini designed the ground floor of their new apartment. A remarkable detail was a sunken bathtub right in the middle. *Nigritella Nigra* was positioned at a distance of less than two meters from the bathtub, facing it as the centrepiece of the room (Figure 4).

Ambaum confided that Haks took a bath daily, a routine that must have caused the relative humidity in the room to fluctuate, as there was little buffering material in the apartment.⁽¹⁴⁾ The walls and the floor are made up of glass terrazzo and granite (*Casciani 2011: 124*). The hygroscopic organic materials of the chest itself must have reacted instead, swelling and shrinking at different rates in response to the fluctuations in relative humidity. With CN becoming more brittle over time, it ceases to be able to adapt to such changes in volume, which leads to cracks. Craquelures facilitate moisture and oxygen to penetrate the structure, inducing an autocatalytic degradation process, ultimately disrupting the entire CN film.

ARTIST INTERVIEW

It was important to know whether the object's condition had affected the artwork's meaning. Apart from art historical research and consultation with curators and conservators at the museum, it was considered necessary to consult the artist. A semi-structured interview was prepared to enquire about *Nigritella Nigra*,

Figure 3
***Nigritella Nigra* (1993), no. 5/12 from the second series**
in Peter Weiß' apartment in Münster.
Photo: Peter Weiß

the meaning of the design, the materials used, and the artist's opinion on its condition.

Alessandro and his brother Francesco Mendini welcomed us in their studio in Milan on 2 February 2017 (Figure 5). At a long table in their office space, on a split level overlooking the studio, we started the interview addressing the design. Mendini explained how he had aimed at the shape of a ziggurat. This is a massive structure built in ancient Mesopotamia in the form of a terraced step pyramid with a temple on top. Knowing this, the top drawer case could be considered the most important part of *Nigritella Nigra*. Indeed, in Mendini's words, the lower drawers are the base for the top, which he conceived as "a monument for an artist."⁽¹⁵⁾ He purposely applied a glossy varnish "to transform the separate drawings into an object. ... a box with decoration – a shiny box."⁽¹⁶⁾ The fact that *Nigritella Nigra* is a showpiece is underlined by Mendini's suggestion to use "dramatic lighting" from below.⁽¹⁷⁾ At the same time the chest must remain accessible to suggest its use as a drawer chest. He does not allow a display case, nor a plinth, which is already included in the design itself.⁽¹⁸⁾

When explaining that there are losses in the drawing, Mendini replies spontaneously that he likes the idea of time becoming visible in this work.

Alessandro Mendini (AM):

In my opinion it could remain like this. I find it interesting to see the passage of time in the drawing.

Tirza Mol (TM):

Yes. So, no inpainting or retouching?

AM:

It depends on the politics of the museum. ...

I like it when an object becomes old, with storia.[...]

TM:

If we don't do anything it may continue to flake.

AM:

Of course.

TM:

and eh...

AM:

Bene. [Looks at the camera, smiling].

TM:

How far could it go for you before you say it is enough?

AM:

Maybe in one hundred years it has become white.

Benissimo! (Laughter)⁽¹⁹⁾

Although Mendini suggests that decisions about conservation are theoretical problems as well, mitigating his personal voice, both he and his brother like the idea of the top drawer case becoming white over time, comparing it – once more – to a temple and the way these too have become white over time.

However, upon presenting a more detailed photograph of the drawing in raking light, showing the severe cupping, these initial thoughts are left aside and the conversation leads to the desire for active intervention. Notwithstanding the artist's general thoughts about material degradation, it became clear that he would not object to consolidation of the pictorial layer. On the contrary, he was in favour of retouching the drawing as well.⁽²⁰⁾

DECISION-MAKING

In consultation with the museum staff and in accordance with the artist, it was decided that the conservation treatment should include consolidation to avoid further damage, and retouching to serve its aesthetic appearance. The interview made clear that Mendini had designed *Nigritella Nigra* as a temple for artistic freedom. The top is meant to be the most sacred place of the ziggurat shaped drawer chest and this idea is no longer expressed with damaged drawings and flaking varnish.

Therefore, the option not to retouch the lacunas to leave the object's history visible was left aside. It was considered to use a monochrome colour matching its surroundings as a seemingly neutral way of retouching, leaving the intervention visible. However, a digital impression of such an intervention made clear

that the effect would be rather disturbing to the overall image (*Mol 2017: 62*). The nuances in colour and texture of the crayon turned out to be so significant for the visual appearance of the drawings that ignoring this texture seemed worse than not intervening at all. Finally, the choice was made for integral re-touching to visually enhance the top drawer box.

This choice may seem to neglect the object's inherent material properties, as the degradation phenomena seem to be intrinsic to the original materials used. Climate fluctuations in the room where the chest had been in use for fifteen years have adversely affected its condition. However, this part of the object's history does not add to the meaning of the artwork itself and can be disclosed by other means.

It can be concluded that the object's functional, aesthetical, and conceptual characteristics will be greatly improved by a conservation treatment that includes consolidation and re-touching of grease crayon drawings on the top drawer case.

ASSESSING CONSOLIDANTS

Adhering the brittle cupped CN flakes with grease crayon back to the paper substrate was a challenge. Paraffin wax is an extremely hydrophobic material (*Feist, Little, and Wennesheimer, 1985*). In theory the grease crayon film will protect both the paper substrate and CN from the adverse influence of humidity. However, this combination of materials complicates consolidation options. No heat could be applied to use the thermoplastic properties of CN, as the glass transition temperature (T_g) of paraffin wax (40-65 °C) is far lower than the T_g of CN (145-152°C) (*Horie 2010: 127; Shashoua 2008: 237*). The use of a solvent that plasticises the CN temporarily to facilitate pushing the flakes back in place was no option either, as CN is only soluble in solvents that dissolve the grease crayon adhered to it. Therefore, the solubility parameters of grease crayon limited the range of possible adhesives to water-based types.

The consolidant required demonstrating good adherence to grease crayon, excess material to be easily removable, and minimal shrinkage upon curing. In addition, low viscosity was important to allow for penetration into the network of cracks by capillary action. Finally, the consolidant had to have good ageing properties. Based on the literature, the following adhesives were selected as performing well on fatty surfaces: Aquazol 200 (*Arslanoglu 2003: 12*); Mowilith DMC2 (Lascaux) and Mowiol 4-88 (*Lang 2011: 4*); sturgeon glue and fish glue (*Lang 2011: 4*). In addition, the acrylic dispersion glues Medium für Konsolidierung (MfK) (Lascaux), Acrykleber 498 HV (Lascaux), and Acrykleber 303 HV (Lascaux) were selected as being suitable to consolidate CN (*Shashoua 2008: 216*). These products were tested on sample CN flakes and then clamped onto a grease crayon covered piece of cardboard.⁽²¹⁾ The adhesives were not diluted too much, as high tack is necessary on the greasy surface, while the water percentage was kept to a minimum. Only Acrykleber 498 HV and Acrykleber 303 HV were diluted with demineralised water at 50% v/v because of their viscosity.

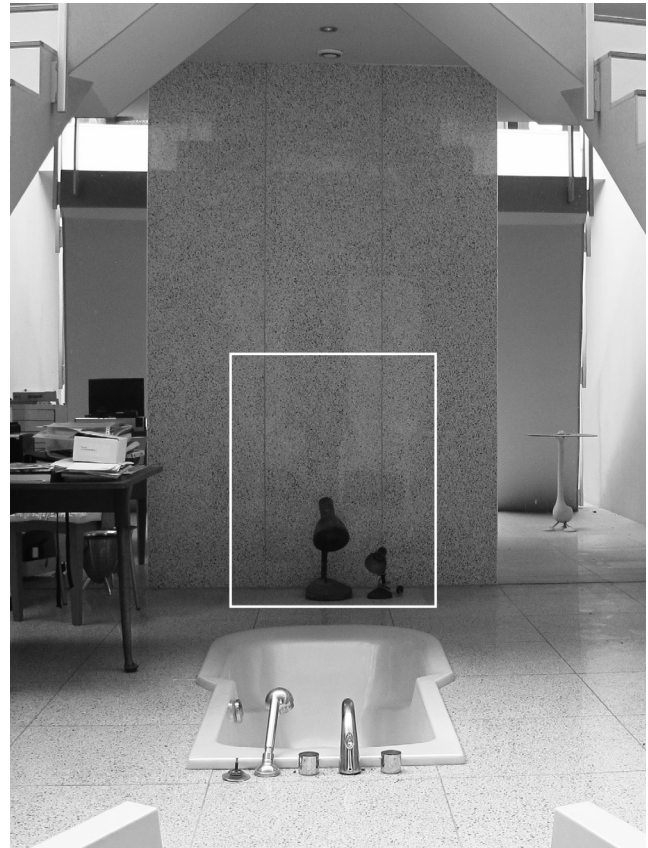


Figure 4
Interior of the ground floor of Frans Haks and Johan Ambaum's apartment in Amsterdam designed by Atelier Mendini. The square indicates the former position of *Nigritella Nigra*. Photo: Tirza Mol

MfK and Acrykleber 498 HV showed good adherence already after 5 minutes. Sturgeon glue (8%) and Mowilith DMC2 needed approximately an hour to dry and performed well. Both Aquazol 200 (10%) Mowiol 4-88 (8%) did not adhere the flakes at all. Acrykleber 303 HV remained tacky for days due to its low T_g and was not tested further. Ready-made fish glue turned yellow after drying and was also left aside. Acrykleber 498 HV, MfK, Mowilith DMC2, and sturgeon glue performed well and were further tested on their workability, reversibility, shrinkage, and ageing properties.

The ease of removal of excess material was tested with a cotton swab moistened with demineralised water both immediately and 24 hours. All consolidants were removable with water immediately. This was still the case after 24 hours, except for MfK, but that could still be removed with ethanol.

Shrinkage was evaluated by applying the adhesives onto two strips of Melinex, of which one was artificially aged to evaluate transparency upon ageing. The translucent Melinex substrate demonstrated that Mowilith DMC2 turned milky after curing.

Figure 5
Artist interview in Atelier Mendini with, from left to right:
Francesco Mendini, Alessandro Mendini, Tirza Mol and Sanneke Stigter.
Photo: Beatrice Felis

Sturgeon glue showed significant shrinkage after solvent evaporation, distorting the Melinex substrate. Acrykleber 498 HV and MfK retained their transparency and did not shrink.

These two acrylic dispersion glues were finally tested on each of the grease crayon colours on the actual object. A tiny droplet of the adhesive was left on the surface and visually examined with a Hirox 3D microscope for possible physical alterations, such as selective leaching and formation of tidelines. Both adhesives did not alter the grease crayon. Finally, long-term adherence was tested. Two CN sample flakes were adhered to a grease crayon covered paper strip, one with Acrykleber 498 HV and one with MfK. The two strips were artificially aged in a Xenon lamp test chamber.⁽²²⁾ After ageing both samples performed well and still showed good adherence.

The overall test results led to the choice for Acrykleber 498 HV 50% v/v in demineralised water to be applied with a fine brush, while the small cracks were filled with the less viscous undiluted MfK by use of a syringe. The flakes were carefully pushed down with the tip of a finger, allowing for the body tem-

perature to help plasticise the cupped CN particles. This method proved successful for consolidation of the entire pictorial layer.

RETOUCHING

The next step was retouching, which would also stabilize the consolidated areas. To protect the grease crayon remains on the paper surface, an isolation layer was required to ensure reversibility of the retouching. Several water-based glues were tested and sturgeon glue (8%) performed best. It adhered well, dried in a clear transparent film, and remained easily removable with water (*Mol, 2017: 138-141*).

The retouching medium had to be compatible with the isolation layer and to remain soluble in solvents that do not dissolve the isolation layer, nor the CN varnish. Furthermore, it had to have excellent ageing properties and allow for variation in opacity and imitation of the crayon texture. Based on these requirements the following products were selected, tested, and evaluated on their visual performance, adherence, and reversibility: pigments in Paraloid B72, QoR Watercolors, Golden Fluid Acrylics and Gamblin Conservation Colors.

All products adhered well to the sturgeon glue isolation layer. QoR Watercolors and Gamblin Conservation Colors dried even and matte, making it hard to imitate colour nuances, and impossible to create a structured surface. Pigments in Paraloid B72 dried rather translucent, while Golden Fluid Acrylics allowed for variation in opacity and structure, providing the closest match to the original, except for the gloss.

An additional layer on the retouched areas to match the gloss was deemed undesirable, as it may increase strain caused by different shrinking and swelling coefficients of the various layers. Moreover, it would complicate reversibility and compatibility, as all products had to remain soluble in different solvents. The main reason to renounce the use of a local varnish is the concept of water vapour permeability. The premixed acrylic emulsion has a long-term water vapour permeability of 84%, which is very close to CN: 81%, creating a nearly tension free film (*Hoadly, 2000: 208*). Instead, the gloss of the acrylic emulsion paint was enhanced by adding Golden Regular Gel Gloss to the Golden Fluid Acrylics in a percentage varying from 5-20% based on the different inherent gloss level of the colour. This colourless acrylic emulsion is a modifying gel composed of the same acrylic polymer as the Golden Fluid Acrylics, allowing for a stable blend.⁽²³⁾ Close by the retouched areas can be distinguished, while from a distance they become invisible. The final result satisfied both the artist and the curator of the Rijksmuseum (*Figure 6*).

CONCLUSION

Comparative research showed that Alessandro Mendini's drawer chest *Nigritella Nigra* was produced in two different series and at least one prototype. Examples from both series show similar degradation patterns on the grease crayon drawings on the top drawer case. The intrinsic instability of the cellulose

Figure 6
Wax crayon drawing on the topside of the
top drawer case after treatment.
Photo: Rijksmuseum Amsterdam

nitrate (CN) varnish layer on top can be considered the main cause for flaking, eventually disrupting the pictorial layer.

The artist interview with Mendini has significantly enriched decision-making preceding treatment. Mendini compares his ziggurat shaped *Nigritella Nigra* as a monument for an artist, with the top-drawer case decorated with handmade drawings, by a young boy with Down syndrome, as the most important feature. Therefore, treatment aimed to rehabilitate the visual appearance such that it would support this idea, improving the aesthetic value of the object.

The degraded CN varnish on the grease crayon drawing could be successfully consolidated with Acrykleber 498 HV (Lascaux), 50% diluted in demineralised water, and MfK (Lascaux) depending on the capillary action needed. The lacunae were retouched with Golden Fluid Acrylics, adjusted with Golden Regular Gel Gloss.

As a fragile but prestigious object with a meaningful design, Mendini's *Nigritella Nigra* called for an interdisciplinary approach because of the complex combination of materials and

degradation phenomena. Joint input from the artist's studio, paper conservators, paintings conservators, contemporary art conservators, art historians, and scientists was crucial for a successful conservation treatment.

ACKNOWLEDGEMENTS

The authors would like to thank: Johan Ambaum, Francesco and Alessandro Mendini and Beatrice Felis from Atelier Mendini for their kind collaboration; Barbara Ferriani for her insight and hospitality; Henk van Keulen, Suzan de Groot, Luc Megens, and Ineke Joosten of the Cultural Heritage Agency of the Netherlands for technical analysis; Peter Weiß, Tim Bechtold of Die Neue Sammlung - The Design Museum and Richard Gagnier of the Montreal Museum of Fine Arts for sharing information; Jan Dorscheidt, Iskander Breebaart, Davina Kuh Jacobi, Dionysia Christoforou, Alexandra Nederlof, and Lisette Vos from the Rijksmuseum Amsterdam, and Steven van Kolsteren from the Groninger Museum for their valuable insights.

ENDNOTES

- (1) In the time between submission and publication of this article, Alessandro Mendini passed away. He deceased the 18th of February 2019.
- (2) Peter Weiß, personal email to Tirza Mol, 6 February 2017.
- (3) This paper is based on the first author's MA thesis (*Mol 2017*).
- (4) Alessandro Mendini, personal interview, Milan, 2 February 2017, by Tirza Mol and Sanneke Stigter. Video recorded and transcribed, archived at the Furniture Conservation Archive, Rijksmuseum Amsterdam.
- (5) Another version with a pattern similar to Peter Weiß' object was found in Rotterdam, the Netherlands, in a private collection. In the email correspondence (January 2019) the owners stated it concerns Nr. 1/12 and the top drawer case is in bad condition. At the time of publication there were no photo's available of this object.
- (6) Peter Weiß, personal email to Tirza Mol, 6 February 2017. The fact that we found two different objects numbered '5/12' and '1/12' proves Godani's statement. Mendini does not know whether all objects have been produced and is only aware of an intended edition of nine and two prototypes (personal interview, see note 3).
- (7) As Die Neue Sammlung's *Nigritella Nigra* is a prototype, the materials used may differ from the other pieces. Tim Bechthold, personal email to Tirza Mol, November 2016.
- (8) Richard Gagnier, personal email to Sanneke Stigter, 7 November 2016.
- (9) Dennis Collet, personal email to Tirza Mol, 16 November 2016.
- (10) Peter Weiß, personal email to Tirza Mol, 1 March 2017. Weiß' chest shows similar degradation phenomena on the grease crayon drawings of the top case. Microscopic cross-section analysis of a sample of Weiß' chest showed the same stratigraphic build-up as the samples of the Rijksmuseum chest. However, py GC/MS analysis indicated that the CN on the drawings differs slightly in composition. This may be indicative of a different batch or brand, and maybe different production dates (*Mol 2017: 138-141*).
- (11) Material analysis was kindly carried out by Henk van Keulen and Suzan de Groot of the Cultural Heritage Agency of the Netherlands (RCE).
- (12) For example, the beeswax that painter Brice Marden added to his oil paint was found to have migrated through the interfaces between individual paint layers, causing them to separate. Flaking occurred in reaction to a difference in tension (*Wijnberg 2014: 23-24*). Other studies indicate that gouache and crayon in adjacent layers in some of Karel Appel's gouaches failed in adhesion (*van Dalen and Beentjes, 2002: 155; van Dalen et al, 2000: 22-27*). In historical wax-resin lined paintings disintegration of the wax-resin mixture has been observed, the wax migrating through the painting's structure, darkening its surface (*Boon, Rainford and Pureveen 1994: 14*).
- (13) Personal interview, see note 3.
- (14) Johan Ambaum, personal notes of interview, Amsterdam, 4 November 2016, (*Mol 2017: pp 116*).
- (15) Personal interview, see note 3.
- (16) Ibid.
- (17) Mendini does not remember the type of varnish. *Nigritella Nigra* was produced by Design Gallery Milano. Although their website is still online, we were unable to get in touch. Mendini explained they are no longer active (personal interview, see note 3).
- (18) Personal interview, see note 3.
- (19) Ibid.
- (20) Ibid.
- (21) Hundreds of displaced CN flakes with grease crayon attached to them were found on the object. The smallest that could not be traced back to their original position have been used as samples for testing.
- (22) Artificial ageing was performed in a Xenon test chamber for 20 hours at a constant 40 % RH and 50°C, simulating five years under museum conditions, 3200 hours at 200 lux. An Atlas Xenotest Alpha High Energy with a Xenon arc-lamp was used. The air ventilated Xenon arc lamp radiates 105.087 lux and a 320 nm filter simulates daylight entering through glass.
- (23) <https://www.goldenpaints.com/products/medium-gels-pastes/gel>, accessed 15 September 2019.



r. 5/12

different

eries)

FUTURE TALKS

017

THE SILVER EDITION.
VISIONS.
INNOVATION.

Lecture 014 / Figure 1 / left

Alessandro Mendini, *Nigritella Nigra* (1993), no. 1/12, manufactured board, high pressure laminate (HPL), paint, wood, metal leaf, glass mosaic, paper, grease crayon, varnish, 110 x 97 x 50 cm. Collection Rijksmuseum Amsterdam, BK-2016-127. Gift of J.W.M. Ambaum and F. Haks, Amsterdam. Photo: Rijksmuseum Amsterdam

LECTURE 014

INVESTIGATING THE COLOURFUL WORLD OF ALESSANDRO MENDINI: PRESERVING NIGRITELLA NIGRA, A UNIQUE CHEST OF DRAWERS DECORATED WITH GREASE CRAYON DRAWINGS

SUPPLIERS

- Aquazol*[®] 200. *Fa. Kremer Pigmente*:
<http://www.kremer-pigmente.de>.
- Fish glue*. *Fa. Kremer Pigmente*:
<http://www.kremer-pigmente.de>.
- Gamblin*[®] *Conservation Colors*
(*Gamblin*[™]. *Kremer Pigmente*:
<http://www.kremer-pigmente.de>.
- Golden*[®] *Fluid Acrylics (Golden*[™]).
Kremer Pigmente: <http://www.kremer-pigmente.de>
- Golden*[®] *Regular Gel Gloss (Golden*[™]).
Kremer Pigmente: <http://www.kremer-pigmente.de>
- Acrylkleber 303 HV*
(*Lascaux* and *Acrylkleber 498 HV (Lascaux)*.
Deffner & Johann: <http://www.deffner-johann.de>.
- Medium für Konsolidierung (Lascaux)*.
Deffner & Johann: <http://www.deffner-johann.de>.
- Mowilith*[®] *DMC 2. Poly(vinyl acetate)*.
Kremer Pigmente: <http://www.kremer-pigmente.de>.
- Mowiol*[®] 4-88. *Poly(vinyl alcohol)*.
Sigma-Aldrich: <http://www.sigmaaldrich.com>
- Paraloid*[®] B72. *Deffner & Johann*:
<http://www.deffner-johann.de>.
- Sturgeon glue*. *Fa. Kremer Pigmente*:
<http://www.kremer-pigmente.de>.
- QoR*[®] *Watercolors*.
Golden[®] <http://www.qorcolors.com>

REFERENCES

- Arslanoglu, J.* 2003
Evaluation of the use of *Aquazol*[®] as an adhesive in paintings conservation. In: *WAAC Newsletter*, Vol. 25, 2003, No. 2: 12-18.
- Boon, J. J., Rainford, D., Pureveen, J.* 1994
Massaspectrometrische analyse van wassen. *kM: vakblad voor beeldend kunstenaars en restauratoren* 9, 1994: 13-15.
- Casciani, S.* 2011
Masaico Mendini: progetti e opere della Fondazione Bisazza. Milaan: Skira editore.
- Dalen, P. van, et al.* 2000
Crayon and gouache: the conservation of Figures in the Woods, a work
by Karel Appel. *CR: interdisciplinair vakblad voor conserving en restauratie* 1, 2000, no. 1: 22-27.
- Dalen, P. van, Beentjes, G.* 2002
The treatment of two Karel Appel gouaches. *The Broad Spectrum*, ed. H. Stratis and B. Salvesen. *Archetype Publications*: London.
- Ellis, M.H., Yeh, M.B.* 1998
The history, use and characteristics of wax-based drawing media. *The paper conservator* 22: 48-55.
- Feist, W.C., Little, J.K., Wennesheimer, J.L.* 1985
The moisture excluding effectiveness of finishes on wood surfaces. *Wisconsin: Forest Products Laboratory*.
- Hoadly, B.R.* 2000
Understanding wood: A craftsman's guide to wood technology. *Connecticut: The Taunton Press*.
- Horie, C.V.* 2010
Materials for conservation: organic consolidants, adhesives and coatings. *Oxford: Butterworth-Heinemann*.
- Lang, J.* 2011
Adhesives for wax artifacts: Investigation of suitable materials and their adhesion properties via tensile and bending tests, *CCI symposium Adhesives and consolidants for conservation: research and applications*, Ottawa, Oct. 17-21: 1-16.
- Mendini, A.* 1993
Museum Market, exhibition catalogue, Milan: *Design Gallery Milan*, s.p.
- Mills, J.S., White, R.* 1994
The organic chemistry of museum objects. *Oxford- Amsterdam- Boston: Butterworth-Heinemann*.
- Mol, T.* 2017
De kleurrijke wereld van Alessandro Mendini. De behandeling van *Nigritella Nigra*, een moderne ladenkast. MA thesis

Conservation Studies, University of Antwerp.

Ordonez, E., Twilley, J. 1997

Clarifying the haze: Efflorescence on works of art, Analytical Chemistry 69 (13): 416A-422A.

Selwitz, C. 1988

CN in Conservation. Research in Conservation 2, Los Angeles: The Getty Institute.

Shashoua, Y. 2008

Conservation of plastics: materials science, degradation and preservation. Oxford: Butterworth-Heinemann.

Wijnberg, L. 2014

Do we see what we know or do we know what we see? In: van den Berg et al. (eds.), Issues in Contemporary Oil Paint. Switzerland: Springer International Publishing: 21-32.

ACKNOWLEDGEMENTS

SPONSORS

This publication was made possible with the financial support of the following institutions and companies:

Deffner & Johann
 Kremer Pigmente
 Plank
 Schoofsche Stiftung
 Quittenbaum
 Wüstenrot Stiftung

The **FUTURE TALKS** workshop: Soft Particle Blasting has been made possible by the generous support of: Deffner & Johann (www.deffner-johann.de)

The editor also likes to thank the following people for supporting the idea and the realization of the **FUTURE TALKS**:

DIE NEUE SAMMLUNG

Daniela Augstein, Andrea Czermak, Michel Daume, Julia Demeter, Helena Ernst, Michaela Kreuter, Alexander Lorenzo, Angelika Nollert, Rainer Schmitzberger, Monika Schubert, Cornelius von Heyking, Waltraud Wiedenbauer

MODERATION CONFERENCE

Tim Bechthold, Helena Ernst, Roger Griffith, Claartje van Haaften, Brenda Keneghan, Friederike Waentig

EDITORIAL TEAM

J. Luca Ackerman, Tim Bechthold, Helena Ernst, Delia Müller-Wüsten, Kendra Roth, Nanke Schellmann, Claartje van Haaften

DESIGN

Felix Kempf / Karin Klemm

DESIGNERS / ARTISTS IN DIALOGUE

Maarten Baas, Efrat Friedland, John Hamilton

ASSISTANCE ON SITE

Andrea Czermak, Michaela Kreuter, Anna Reichelt, Julia Sawitzki, Franziska Schittler, Felix Wilhelm, Waltraud Wiedenbauer

PAPER BAGS

Franziska Schittler

DJS @ BLITZ

Ayzit Bostan / Tanja Seiner

PHOTO CREDITS

The publisher and authors would like to thank the following photographers and copyright holders for the use of their material (page numbers are given in parentheses):

(12, Fig. 1) (13, Fig. 2), (14, Fig. 3), (15 Fig. 4), (17, Fig.5) © Kendra Roth (22, Fig.1, 2, (23, Fig. 3), (24, Fig.4), (25, Fig. 5), (26, Fig. 6) © Carien van Aubel, (30, Fig.1) © Roel Siebrand, (31, Fig. 2) © Olivia van Rooijen, (32, Fig. 3) © Carien van Aubel, (32, Fig. 4) © Olivia van Rooijen, (33, Fig. 5) © Ron Kievits, (34, Fig. 6) © Peter Cox, (34, Fig. 6) © Paulien + Hoen, (40, Fig. 1), (41, Fig. 2, 3) © Christine Elsässer, (50, Fig. 1, 2) © Ico Parisi, (51, Fig. 3) © Triennale Design Museum, (52, Fig. 4) © Ico Parisi, (58, Fig. 1), (59, Fig. 2), (61, Fig. 3) © Contemporary Conservation, (62, Fig. 4) © Seth Price, (63, Fig. 5), (65, Fig. 6) © Contemporary Conservation, (70, Fig. 1), (71, Fig. 2) © Metropolitan Museum of Art (71, Fig. 3), (72, Fig. 4), (73, Fig. 5), (74, Fig. 6) © Leanne Tonkin, (82, Fig. 4, 5, 6) © Jonas Jückstock, (94, Fig. 1) © Martha C. Singer, (102, Fig. 1), (103, Fig. 2), (104, Fig. 3, 4), (105, Fig. 5), (106, Fig. 6) © SMK/CATS, (110, Fig. 1), (111, Fig. 2), (113, Fig. 3), (114, Fig. 4) © Sasha Drosdick, (115, Fig. 5) © Camacho 2011, (116, Fig. 6) © Sasha Drosdick, (124, Fig. 4), (125, Fig. 5), (126, Fig. 6) © Grazia De Cesare, (130, Fig. 1) © Rijksmuseum Amsterdam, (131, Fig. 2) © Tirza Mol, (132, Fig. 3) © Peter Weiß, (133, Fig. 4) © Tirza Mol, (134, Fig. 5) Photo: Beatrice Fells, (135, Fig. 6) © Rijksmuseum Amsterdam, (140, Fig. 1) © Associazione Archivio Storico Olivetti, (150, Fig. 1), (151, Fig.2), (153, Fig. 4), (155, Fig. 6) © SFMOMA, (173, Fig. 2) © Neri Oxman, Photo: Katherine Du Tiel, (178, Fig. 1) © Kendra Roth, (179, Fig. 3) © Carien van Aubel, (180, Fig. 1) © Roel Siebrand, (181, Fig. 3) © Triennale Design Museum, (182, Fig. 2) © Contemporary Conservation, (182, Fig. 7) © Leanne Tonkin, (183, Fig. 5) © Jonas Jückstock, (184, Fig. 1) © Martha C. Singer, (184, Fig. 2) © SMK/CATS, (185, Fig. 1, 2) © Sasha Drosdick, (185, Fig. 1) © Grazia De Cesare, (186, Fig. 1) © Rijksmuseum Amsterdam, (186, Fig. 2) © SFMOMA, (188, Fig. 2) © Neri Oxman, Photo: Katherine Du Tiel, (189, Fig. 1) © Die Neue Sammlung - The Design Museum, Photo: Julian Cech, (189, Fig. 3) © Isabelle Cuoco, (190, Fig. 1) © Paoloo Iazurlo, (190, Fig. 1) © Julia Sawitzki, (190, Fig. 1) © Marta Sorrentino, (191, Fig. 2) © Eva Wentland, (191, Fig. 2, 3) © Maren Dümmler, (196, Fig. 1) © Die Neue Sammlung - The Design Museum, Photo: Julian Cech, (197, Fig. 2A, 2b) © Die Neue Sammlung - The Design Museum, Photo: Julian Cech, (198, Fig. 3A, 3b) © Die Neue Sammlung - The Design Museum, Photo: Julian Cech, (199, Fig. 4a, 4b) © Die Neue Sammlung - The Design Museum, Photo: Julian Cech, (215, Fig. 3) © Isabelle Cuoco, (220, Fig. 1) © Paoloo Iazurlo, (221, Fig. 2) © Paoloo Iazurlo, (222, Fig. 3, 4, 5) © Paoloo Iazurlo, (224, Fig. 6) © Paoloo Iazurlo, (230, Fig. 1) © Julia Sawitzki, (231, Fig. 3) © Julia Sawitzki, (232, Fig. 4, 5) © Julia Sawitzki, (233, Fig. 6) © Julia Sawitzki, (238, Fig. 1) © Marta Sorrentino, (239, Fig. 2) © Marta Sorrentino, (240, Fig. 3, 4) © Marta Sorrentino, (241, Fig. 5) © Marta Sorrentino, (243, Fig. 6) © Marta Sorrentino, (248, Fig. 1) © Eva Wentland, (249, Fig. 2) © Eva Wentland, (252, Fig. 4) © Eva Wentland, (253, Fig. 5) © Eva Wentland, (255, Fig. 6) © Eva Wentland, (260, Fig. 1) © Maren Dümmler, (261, Fig. 2) © Maren Dümmler, (262, Fig. 3) © Maren Dümmler, (264, Fig. 4) © Maren Dümmler, (265, Fig. 5) © Maren Dümmler, (19, 27, 37, 47, 55, 67, 77, 83, 91, 97, 107, 117, 127, 137, 147, 157, 169, 175, 176, 177, 192, 193, 201, 217, 227, 235, 257, 299, 300, 302) Photo: Alexander Lorenzo © Die Neue Sammlung -The Design Museum

Not all owners of rights relating to illustrations could have been traced.

Claimants to such rights are invited to contact: Die Neue Sammlung - The Design Museum.

FRONTISPIECE

Felix Kempf, FX68 München

deffner & Johann
 Conservation and Restoration Supplies - Since 1880

KREMER
 PIGMENTE

PLANK



Schoof'sche Stiftung

QUITTENBAUM
 Kunstaktionen München

WÜSTENROT STIFTUNG

**THIS BOOK IS PUBLISHED
IN CONJUNCTION
WITH THE CONFERENCE
FUTURE TALKS 017
THE SILVER EDITION
VISIONS.
INNOVATION IN TECHNOLOGY
AND CONSERVATION OF THE MODERN
OCTOBER 11/13 2017
DIE NEUE SAMMLUNG
THE DESIGN MUSEUM**

EDITOR

Tim Bechthold
Head of Conservation
Die Neue Sammlung – The Design Museum

EDITORIAL TEAM

Luca J. Ackerman
Tim Bechthold
Helena Ernst
Delia Müller-Wuesten
Kendra Roth
Nanke Schellmann
Claartje van Haaften

GRAPHIC DESIGN AND TYPESETTING

Felix Kempf | Karin Klemm
FX68 München

PRINTER

MEOX München

PAPER

PlanoJet FSC Mix

Bibliographical information: Die Deutsche Bibliothek
Die Deutsche Bibliothek lists this publication in the
Deutsche Nationalbibliografie: detailed bibliographical data
are available online at: <http://dnb.ddb.de>.

ISBN 978-3-9818165-2-5

Printed in Germany

© Copyright
is held jointly among the authors
and Die Neue Sammlung – The Design Museum

This work is protected by copyright.
All rights based on copyright are hereby reserved,
particularly that of translation, reprinting, presentation,
use of illustrations and graphics or broadcasting,
microfilming or reproduction in any other ways and
storage in data processing systems, including where only
extracts are used commercially. Any reproduction of
this work or parts thereof, including a single instance,
is only allowed within the limits of the Copyright Act's
currently applicable statutory provisions and then only
with written consent by:
Die Neue Sammlung – The Design Museum
Türkenstr. 15
80333 Munich, Germany

Consent is in principle subject to a fee.

Contraventions are subject to the penalties stipulated
by copyright law.

The views and practises expressed by individual
authors are not necessarily those of the editors
or the publisher.

The editors and the publisher take no responsibility
for any harm or damage to collections or health hazards that
may be caused by the use or misuse of any information con-
tained herein.

Please visit our homepage
www.die-neue-sammlung.de