

MICRO-XRF MEETS *MAERTGEN VAN BILDERBEECQ*: INVESTIGATING AN EARLY PORTRAIT BY REMBRANDT

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ABSTRACT The *Portrait of Maertgen van Bilderbeecq* (1633) in the Städel Museum in Frankfurt am Main raises numerous questions. In 1986, the Rembrandt Research Project expressed doubts about Rembrandt's authorship in the execution of the lace cap, which led to the exclusion of the portrait from the Rembrandt *Corpus* in 2015. Micro-XRF examination has now provided new insights into the painting's creation, giving a more detailed picture of the artist's painting technique. Analytical results are presented and evaluated here in relation to other early Rembrandt portraits, with specific attention paid to the depiction of lace. By aiming to deepen knowledge of the work's genesis, this examination contributes to the ongoing discussion of the portrait. A pivotal question is to what extent particular working conditions – namely, time constraints, collaboration and efficiency in approach – were formative factors in Rembrandt's early portrait production while he was working for Hendrick Uylenburgh in the first half of the 1630s.

Portrait of Maertgen van Bilderbeecq

The sitter in this oval-shaped portrait of Maertgen van Bilderbeecq (Leiden, c.1606–47) in the Städel Museum in Frankfurt am Main appears in three-quarter profile before a dark background (Figure 1). The painting is signed and dated at the left, at shoulder level: 'Rembrandt • ft | • 1633 •'. This inscription is considered 'probably authentic'.¹ When this picture was created, Rembrandt had been active for nearly two years in Amsterdam, working for the art dealer Hendrick Uylenburgh, with whom he is documented as having been in contact since 1631.²

Maertgen van Bilderbeecq was about 27 years old when she posed for Rembrandt. The portrait shows her with rosy cheeks, a double chin and her hair pulled back taut. She is dressed in a black *vlieger*, an open, cloak-like overgarment with shoulder rolls. Her black bodice is decorated with horizontal stripes and gilt buttons down the centre of her chest. She wears a wide so-called 'millstone collar', or ruff, with two-tiered pleating which spans the upper area of her chest and nearly the full breadth of her shoulders. Bobbin lace decorates the cap's edge and the translucent fabric of



Figure 1 Rembrandt, *Portrait of Maertgen van Bilderbeecq*, 1633, oil on oak, 67.4 × 55.2 cm, Städel Museum, Frankfurt am Main, inv. no. 912. © Städel Museum, Frankfurt am Main.



Figure 2 (a) Rembrandt and Workshop, *Portrait of Willem Burchgraef*, 1633, oil on oak, 67.5 × 52 cm, Staatliche Kunstsammlungen Dresden, Gemäldegalerie Alte Meister, inv. no. 1557. © bpk/ Staatliche Kunstsammlungen Dresden, Gemäldegalerie Alte Meister, Dresden (image: Elke Estel and Hans-Peter Klut); (b) Daniel Mijtens, *Portrait of Willem Burchgraef*, 1635, oil on panel, 71 × 54 cm, private collection (image: Tajan); (c) exhibition view *Nennt mich Rembrandt*, 2021/22, Städel Museum, Frankfurt am Main. © Städel Museum, Frankfurt am Main.

the starched cap allows the collar and the rear of the sitter's head to show through. The lighting appears to come from the upper-left front, causing the cap to cast a shadow onto the collar, imparting luminosity to the front top of the collar and forming highlights on the forehead and nose.³

The sitter is identified in an inscription on the reverse of the panel where, in an 18th-century script, she is referred to (partially incorrectly) as 'Margareta Hendrikse van Bilderdijk Huisvrouw. van Willem Burggraaf'.⁴ Her position within the oval format, with her body turned to the left (her proper right), is a further indication that this work depicts a married woman and therefore must have had a male pendant. However, there is significant disagreement in the literature over which extant work might represent her husband.⁵

When the *Portrait of Maertgen van Bilderbeecq* was purchased for the Städelches Kunstinstitut at auction in Rotterdam in 1844, a male pendant was acquired along with it and described in the Städel's inventory book as a 'copy after the original in Dresden'.⁶ This copy has since been lost.⁷ Aside from the portrait in Dresden (Figure 2a), another male likeness, this one by Daniel Mijtens, came to light in the 1960s (Figure 2b).⁸ The reverse of the Mijtens painting bears an inscription reading 'Willem Burggraaf' in the same hand as that on the back of the *Portrait of Maertgen van Bilderbeecq*. Knowledge of the portrait by Mijtens caused the Rembrandt Research Project (RRP) to dismiss the previous identification of the man in the Dresden painting, which they considered a product of Rembrandt's workshop, and to dissociate it from the *Portrait of Maertgen van Bilderbeecq*.⁹ However, more recent scholarship speaks in favour of the Dresden and Frankfurt portraits forming a pair, which is why they were displayed side-by-side in the exhibition *Nennt mich Rembrandt* held at the Städel Museum in 2021/2022 (Figure 2c).¹⁰ In addition to the common provenance of the Dresden and Frankfurt portraits up to 1720,¹¹ evidence against the Mijtens portrait lies in the inscription situated to the right of the sitter, which until recently received little attention as the painting had been kept in an unknown private collection. Placed above

the artist's signature, the inscription states that Willem Burchgraef is shown at the age of 50 in the year 1635.¹² Yet, the Willem Burchgraef whom Maertgen van Bilderbeecq married in 1625 was born in 1604 and therefore only about 30 years old when Mijtens created the work. The Willem Burchgraef painted by Mijtens must therefore have been an older member of the family.¹³

Aside from the circumstances of the commission and the question of the pendant, the extent of Rembrandt's contribution to the *Portrait of Maertgen van Bilderbeecq* has been debated ever since the RRP first published its findings and opinions on the work in 1986, in the second volume of the *Rembrandt Corpus*.¹⁴ The authors identified concrete features of the Frankfurt portrait that align with Rembrandt's portrait production of the early 1630s: notably the careful execution, characterised by a refined handling of the effects of light, the suggestion of three-dimensional form in the modelling, and the nuanced rendering of the varied textures of the skin, eyes and clothing. In particular, they assessed as 'utterly characteristic' the treatment of the shaded half of the face and the impression of gentle relief created by the modelling of the facial features set against the dark background. The authors attributed the successful representation of three-dimensionality mainly to the contrast between the opacity of the lit areas with high impasto in the face and the translucency of the thin background paint layers, with their lower concentrations of pigments.¹⁵ Whereas those features can be regarded as representative and typical of Rembrandt's handling, the execution of the lace edging on the cap raised questions about the portrait's attribution and the hands involved in its creation – and continues to do so.

The authors of the *Corpus* volume attempted a distinction of hands in the Rembrandt workshop based on the different manners of describing lace.¹⁶ They found the lace on the cap of Maertgen van Bilderbeecq impossible to fit into any of the stylistic groupings they had defined. Describing the execution as 'remarkably casual and chaotic', they found fault with the lack of clarity in the lace's

structure, the apparent haste with which the openings in the lace were rendered, and the unconvincing overall sense of symmetry and plasticity. Their conclusion was that the face, with its nuanced gradations of light and shadow in the flesh tones, was painted by Rembrandt, whereas the 'hurried manner' of the lace edging could be indicative of another hand, presumably that of a workshop member.¹⁷ Despite having raised that issue, they classified the portrait as an authentic, autograph Rembrandt. The decisive criterion must therefore have been the assessment of the face as 'typical enough of Rembrandt'.¹⁸ This means that an attribution to 'Rembrandt' did not necessarily exclude the involvement of multiple hands. However, in 2015, when Ernst van de Wetering published the sixth volume of the *Corpus*, containing all the paintings he considered to be either wholly or partly by Rembrandt, he did not include the *Portrait of Maertgen van Bilderbeecq*.¹⁹ Volker Manuth, Marieke de Winkel and Rudie van Leeuwen followed suit in their 2019 catalogue of the complete paintings.²⁰ Although no concrete reason was given, the criteria for judging Rembrandt attributions had apparently changed: the part of the head with subtle chiaroscuro modelling, once regarded as authentic, was now given lower priority than the lace presumed to have been executed by a second hand.

In pursuit of new evidence

Methodology

This state of the research served as the starting point for the micro-X-ray fluorescence scans (micro-XRF) carried out at the Städel Museum in 2020 using the M6 JETSTREAM.²¹ In this article we present analytical results relevant to the painting process and crucial areas of interest in the portrait. These findings are then considered within the historical context of Rembrandt's portrait production of the 1630s and the ongoing scholarly debate.

Prior to 2020, the painting had already been investigated thoroughly using infrared reflectography (IRR),²² X-ray radiography (X-radiography)²³ and both macro- and microscopic examination in visible light in the course of the research carried out on the Städel Museum's Dutch paintings by both the RRP and Mirjam Neumeister for the 2005 collection catalogue of the Städel's Dutch paintings.²⁴ The findings of those examinations can now be supplemented by the information about materials gained from the four micro-XRF scans.²⁵

The painting technique of the portrait

The work's genesis

The portrait was executed on an oak panel consisting of three boards. The dendrochronological analysis performed by Peter Klein in 1995 indicates a plausible creation of the painting from 1630 onward, which accords with the date

of 1633 inscribed on the work.²⁶ Concerning the ground, analogous to the findings published earlier, the results of micro-XRF analysis point to the application of an initial ground layer prepared with a calcium-containing filler, such as chalk or gypsum, owing to the strong Ca-K signals that are detectable in exposed areas. This applies especially to the edges and the background, where the surface received only a thin dark coating, roughly applied with loose brushstrokes. In a second step, a translucent brown imprimatura was thinly applied over the white ground.²⁷ The imprimatura presumably contains lead white and one or more earth pigments, such as ochre or umber, as in exposed areas, strong lead, iron and manganese signals are detectable. The components and application of this layer are consistent not only with recipes found in 17th-century sources, such as the De Mayerne Manuscript,²⁸ but also with findings from other panel paintings by Rembrandt on which a thin chalk ground layer is covered by a light brown, oil-based imprimatura containing lead white, chalk and umber.²⁹

As has been described previously, the form of the sitter was established by means of a partial, light grey brush underdrawing and bright underpaintings containing lead white in light-toned areas such as the ruff collar. In the area of the ruff, the lead white underpainting creates a reflective base that was applied in broad brushstrokes running roughly perpendicular to the collar's breadth, visible both with X-radiography and in normal light (Figure 3: XRR, arrow 4).³⁰ Further traces of the painting process now revealed by micro-XRF analysis make it possible to understand the work's genesis in greater detail. A fine line containing iron and manganese, corresponding to the left edge of the ruff, is covered in the finished work by the black of the sitter's clothing and the background (Figure 3: Fe-K, arrow 1). This line probably describes an initial contour of the ruff. Compared with the final form, the line indicates a somewhat stronger curvature in the ruff's edge. Further lines of the same nature were not detectable,³¹ possibly because iron and manganese signals appearing across the paint layer mask the presence of fine contour lines underneath. In the area of the face, previous examinations had discerned fine, light grey lines applied with a brush to capture the sitter's features.³²

In addition, the iron and manganese distributions show that the initial application of the background colour, containing a mixture of earth pigments and lead white, was not fully attentive to outlining the contours of the sitter's clothing. In the left half of the picture, this first layer of background colour extends beneath the black garment (Figure 3: Fe-K, arrow 2). However, because this phenomenon occurs only locally, it presumably does not suggest that the sitter was differently positioned at first. Rather, it would seem that leftover paint was smeared off the brush for no particular reason. This posed no problem in this area because, in contrast to the garment's contour in the right half of the painting, the lighting situation here required no clearly defined border. Furthermore, the iron distribution shows a broad brushstroke in the chest, to the left of the buttons which, based on investigations under visible light

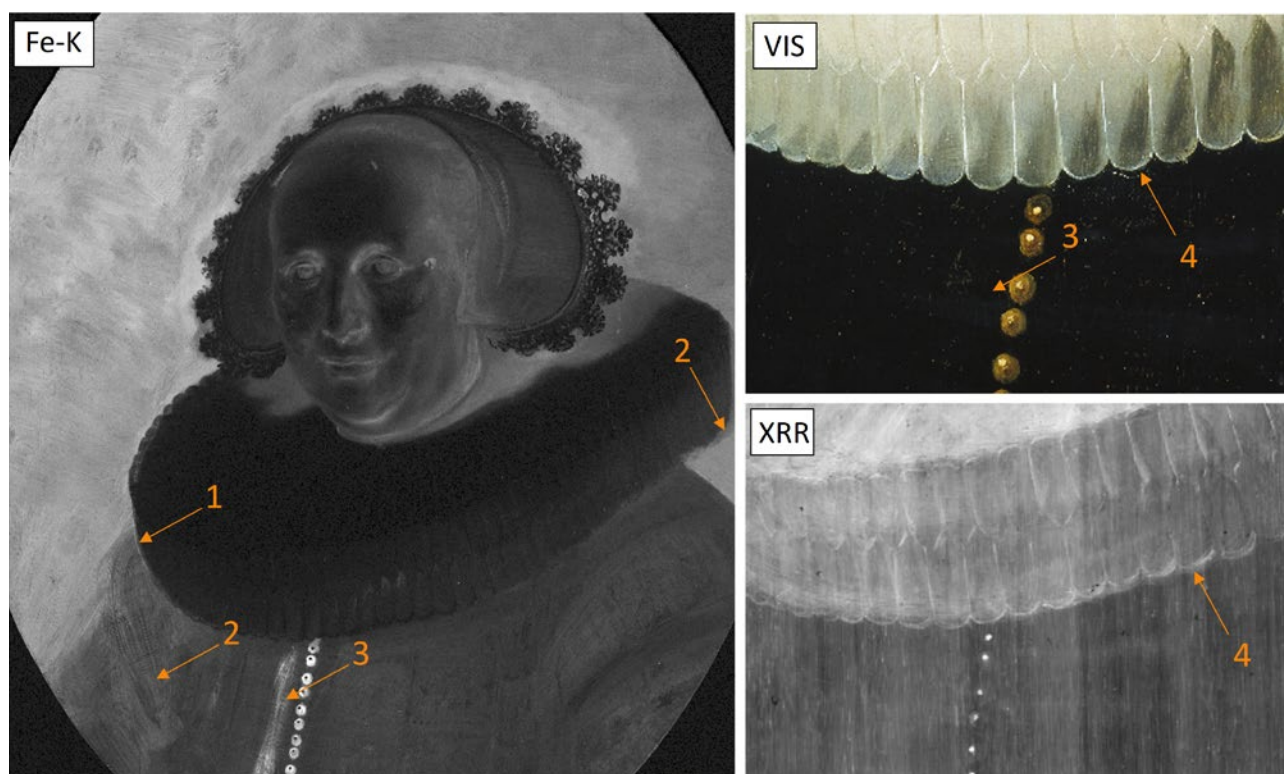


Figure 3 Traces of the working process and pentimenti. The micro-XRF iron distribution (Fe-K) reveals compositional lines (arrow 1), overlapping application of paint layers (arrow 2) and initial compositional markings using a broad brushstroke (arrow 3). In addition, partially applied light-toned underpaintings containing lead white were used (XRR, arrow 4). The initial locations of all these compositional elements displayed (1–4) were slightly adjusted in the course of the painting process. © Städel Museum, Frankfurt am Main (image: Mareike Gerken).

(VIS), seems to have been carried out with a yellow ochre (Figure 3: Fe-K, arrow 3). This brushstroke runs parallel to the row of buttons indicating their initial placement which, during the painting process, shifted to the right into a more perspectively favourable position. In the finished state of the painting, this yellow brushstroke is covered by the black paint layer of the bodice. In this same area, there is a pentimento at the lower edge of the ruff, showing that it was originally placed slightly lower.

The portrait was executed with a reduced palette (Figure 4). The results of the micro-XRF analysis suggest the use of different earth pigments such as ochres and umber (Fe-K, Mn-K), vermilion (Hg-L), lead white (Pb-L, Pb-M), bone black (Ca-K, P-K), several glazes of a red lake (K-K) and some highlights in lead-tin yellow (Pb-L, Sn-L). In addition, the application of paint is relatively thin. Nonetheless, light and shadow and the materiality of different pictorial elements are skilfully characterised through the targeted application of individual brushstrokes. The brushwork ranges from coarse in the background to fine in the description of the face. Subsurface layers are often visibly integrated into the finished representation. Thus, in areas of shadow, for example in the ruff, a translucent brown layer was left exposed in places, covered only by semi-transparent paint in order to represent translucency in the fabric. In the face, light-toned areas such as the forehead, cheeks and the ridge of the nose were formed with opaque, heavily impastoed paint that is rich in lead white. Examination under the microscope reveals that individual highlights and

dashes of red in the skin were applied with remarkably deft, rapid brushstrokes, creating a vibrancy that contributes to the portrait's liveliness. This type of brushwork in the face produces the sense of three-dimensionality praised by the authors of the *Corpus*.³³ The effect is heightened by the contrast with the dark background paint's translucency, which was presumably achieved by increasing the amount of binder and applying the paint loosely. The contrast between the lit and shaded areas of the face also contributes to the sense of volumetric form. Moreover, in the areas of shadow on the face, a translucent brown layer remains exposed, covered only partially with transparent paint layers or opaque indications of light reflections. This not only lent depth to the areas of flesh but also helped to produce the aforementioned three-dimensional effect. The signature was executed with an iron- and manganese-containing earth pigment and bone black.

The lace in focus

The lace border of the cap, which is the main source of the disagreement over the attribution, underwent more extensive adjustment than any other part of the portrait. As was already known from X-radiography³⁴ and confirmed by the micro-XRF scans, the cap's position was shifted during the painting process (Figure 5). The sequence of the paint application in the lace is as follows. First, the area of the lace was given a grey underpainting. In the more shaded

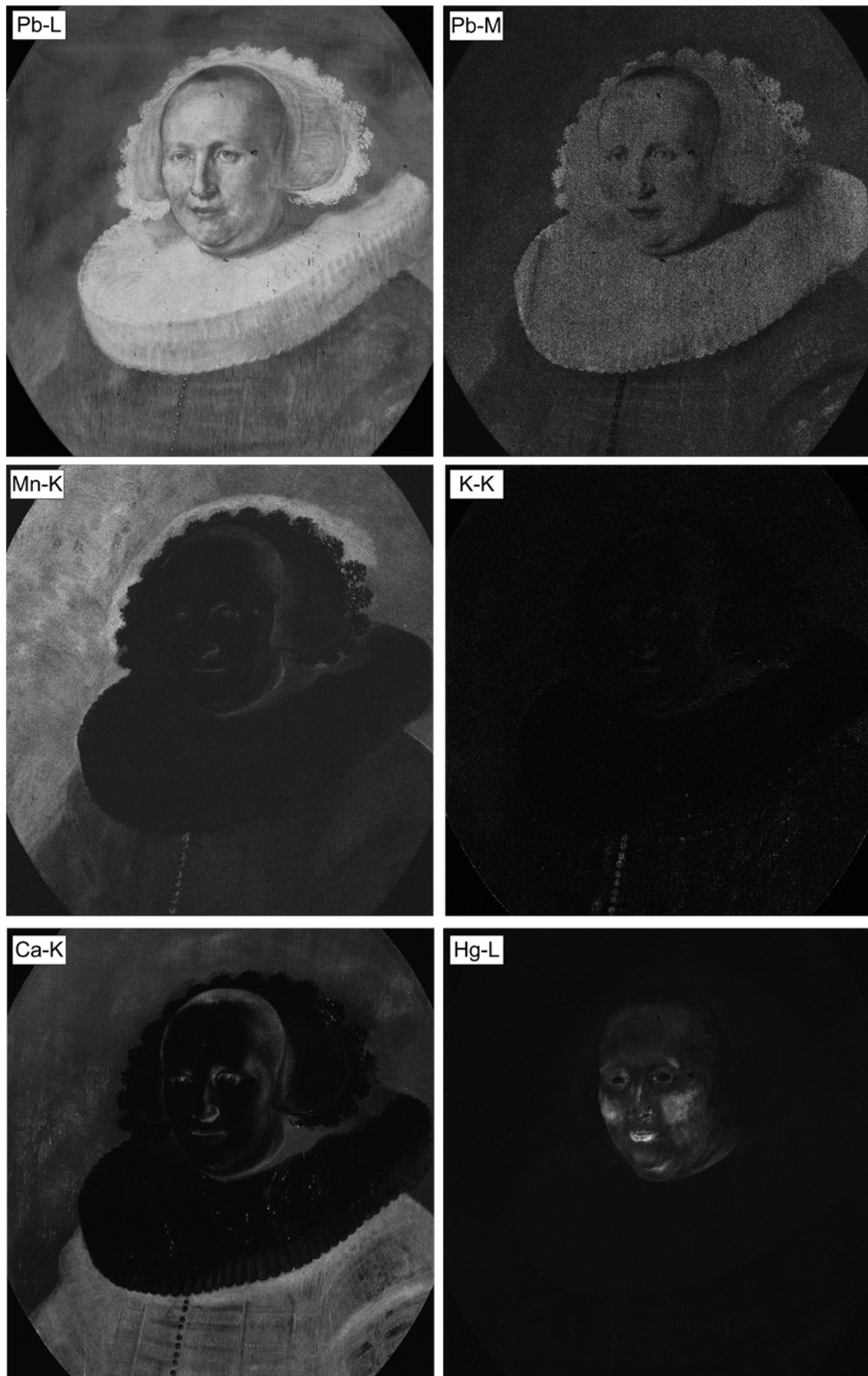


Figure 4 Micro-XRF elemental distributions of lead originating more likely from subsurface layers (Pb-L) and from the surface (Pb-M), manganese (Mn-K), potassium (K-K), calcium (Ca-K) and mercury (Hg-L). The elements identified and their distributions testify to the reduced palette and the economical application of paint. © Städel Museum, Frankfurt am Main (image: Mareike Gerken).

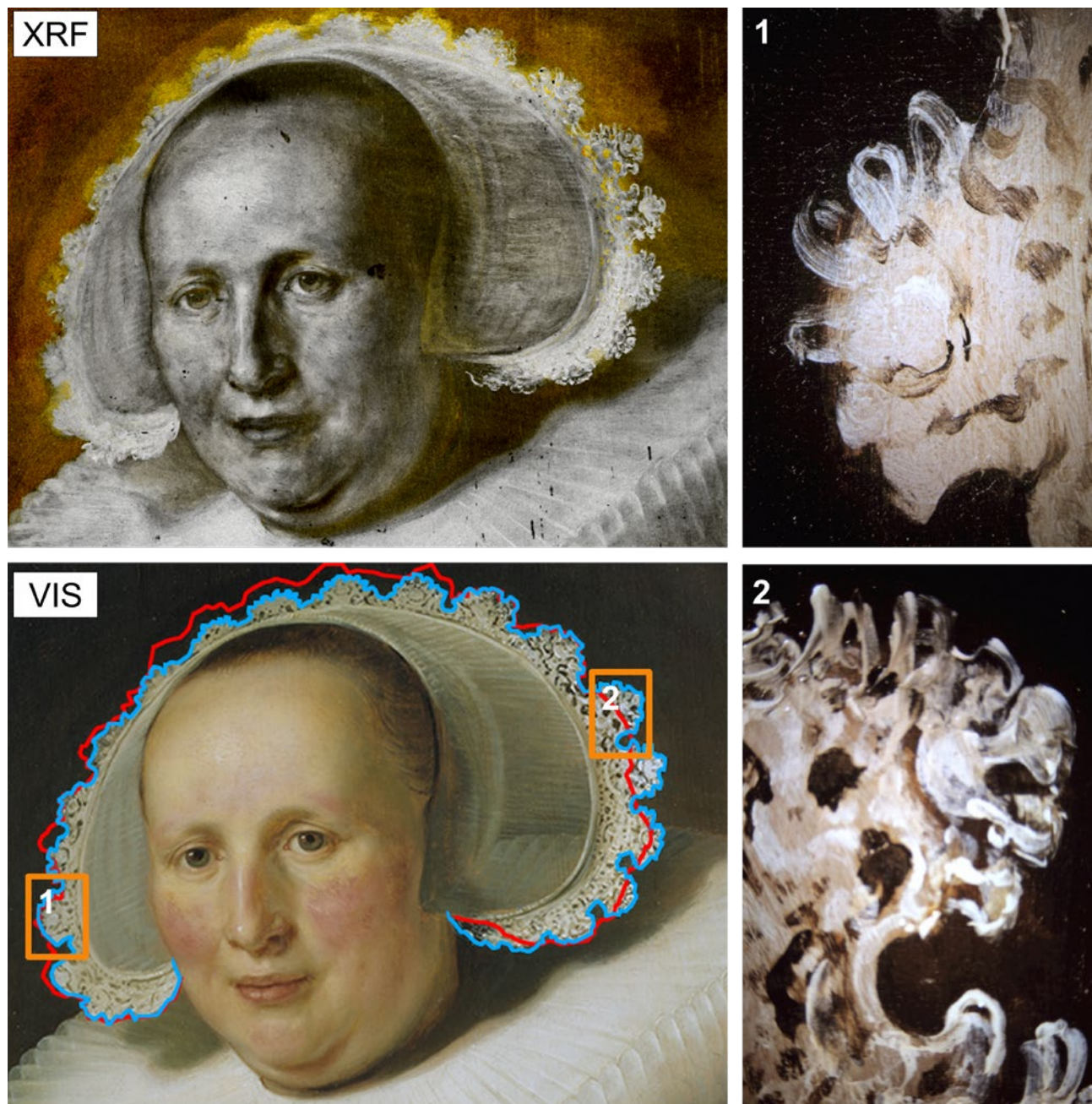


Figure 5 The alteration of the lace-trimmed cap is revealed in the micro-XRF scan by superimposing the distributions of lead (grey), iron (yellow) and manganese (green). The initial form of the cap (VIS, red) was adjusted in perspective to better align with the sitter (VIS, blue). The whole painted execution of the lace was highly economical, as is apparent under the microscope (1, 2). © Städel Museum, Frankfurt am Main (image: Mareike Gerken).

portion of the lace, left of the head, this underpainting is somewhat darker and extends across nearly the whole area (Figure 5: 1). In contrast, in the area of lace to the right of the head, where the sitter is lit more broadly, the grey underpainting is lighter in tone and was only partially applied underneath the lace (Figure 5: 2). This way the fine details of the lace could be contrasted directly with the dark background during the subsequent paint process. After the lace border was initially laid out in grey, its position was then shifted to achieve better perspectival alignment with the sitter. The portion of the grey underpainting that had been abandoned as a result of the shift was covered up with broad strokes of umber (Figure 4: Mn-K); only then did the final detailed depiction of the white lace begin. Interesting to note

is that the lace's dark interstices were applied on top of the white lace paint. Whereas on the left side the single colours are relatively lean and were often applied without overlapping, on the right side they were mostly worked wet-in-wet, with the light-toned details and dark interstices not only positioned side-by-side but also overlapping. As a result of the repositioning of the cap, only part of the lace on the right side lies on top of the grey underpainting; the rest is situated variously on top of a translucent brown layer, the background and the reworked area of the background. This also helps to enhance the suggestion of translucency in the depiction of the fine fabric. Lastly, several unmixed lead-white details were applied in various places throughout the cap. These show up clearly in the lead distribution (Pb-M) of

the micro-XRF, and the relatively low energy of the characteristic M emission lines is indicative of signals originating near the surface.

The whole build-up of the portrait, with its integration of underlying layers into what is visible on the surface and its use of expressive individual brushstrokes, is suggestive of an economical and efficient working method, marked by a swift execution. That inference is supported not only by the pentimenti observed in the row of buttons, the ruff and the cap, but also by the overlapping of adjacent paint applications – notably the instance at the lower left, where the first layer of the background extends far beneath the black garment, but for no functional reason.

How are these findings to be understood in relation to the rest of the portraits produced by Rembrandt and his workshop at the time? In the following section, factors that may have influenced the aforementioned alterations are discussed in comparison with a selection of other portraits. Next to questions of quality and attribution, the main consideration will be the extent to which the cap's lace border, hitherto regarded as the weak point in this work, could have been affected by factors such as possible time limitations and a need for efficiency, which the artist would have dealt with using his own skill and possibly the help of a collaborator.

Rembrandt's portrait production under Hendrick Uylenburgh

In 1633, Rembrandt was working for the art dealer and agent Hendrick Uylenburgh in Amsterdam, primarily as a portraitist.³⁵ Of the 97 paintings created between 1632 and 1635, 44 were commissioned portraits.³⁶ This considerable output resulted from the strong demand for the artist's portraits in Amsterdam, as well as Leiden, Rotterdam and The Hague, combined with a workshop at Hendrick Uylenburgh's residence set up with an eye towards efficiency to meet that demand. It can be assumed that the production of art under Rembrandt's leadership and Uylenburgh's management was organised similarly to that of other 17th-century portrait workshops in the Netherlands.³⁷ Labour was probably divided between the master and qualified assistants sufficiently skilled to imitate his style. Rembrandt and Uylenburgh possibly employed assistants, who may have specialised in painting costume details, as was common in portrait workshops of the time.³⁸ Such division of labour not only brought together different areas of expertise to achieve the best possible results, but could also expedite completion of commissions. Given his prolific production, Rembrandt most likely made use of such methods and must have learned how to organise his workshop accordingly.

It is also conceivable that, when pressed for time, the master himself accelerated his own painting process by compromising on the care he devoted to certain parts of works. Likewise, patrons could have exerted pressure to finish in a timely manner or perhaps their limited financial resources may have required a simpler and quicker

execution. In the case of the *Portrait of Maertgen van Bilderbeecq*, it is unclear whether Rembrandt travelled back to Leiden or whether the sitter came for a brief stay in Amsterdam. Either way, the necessity of travel – by the artist or the patron – could have created conditions that were not ideal for the work's completion. A related question is whether Rembrandt relied on assistance from his workshop in Amsterdam to finish the job or if he might even have entrusted the completion to a colleague in his Leiden workshop who was less well acquainted with his manner of painting portraits.

In the literature, several portraits from Rembrandt's early years in Amsterdam are assumed to have been produced very swiftly. In particular, the 1634 *Portrait of Haesje Jacobsdr van Cleyburg* and its pendant,³⁹ both painted during a short stay in Rotterdam, and the 1635 *Portrait of Philips Lucasz*. (Figure 6) are regarded as examples of works created under significant time constraints.⁴⁰ Whereas the authors of the *Corpus*, both in 1986 and 2015, considered the portraits made in Rotterdam to be authentic Rembrandts, they placed the *Portrait of Philips Lucasz*. and its pendant in the category of 'Rembrandt and mainly workshop'.⁴¹ Concerning the latter portraits, the opinion of the *Corpus* authors is challenged by the hypothesis that the whole work is autograph but was completed in a hurry, since Lucasz. and his wife were about to emigrate to Batavia.⁴²

With the *Portrait of Philips Lucasz.*, just as with the Frankfurt portrait, the depiction of lace has been the crucial



Figure 6 Rembrandt, *Portrait of Philips Lucasz.*, 1635, oil on panel, 79.5 × 58.9 cm, London, The National Gallery, inv. no. NG850. © The National Gallery, London.

factor in the controversies over whether a full attribution to Rembrandt is justified and if a narrow timeframe for completion played a role. It should be noted that the lace in the Philips Lucasz. portrait was carried out according to a procedure that is fundamentally characteristic of Rembrandt's depictions of lace. Examinations have found the same method on the *Portrait of Maertgen van Bilderbeecq*: the light areas of Lucasz.'s lace collar were initially applied over the black garment with grey and white paint, after which the openings in the lace were indicated with black paint, applied wet-in-wet. Finally, the lightest passages were added in lead white.⁴³

A comparison of lace depictions

By 1635, Rembrandt had four years of successful portrait commissions under his belt and had presumably developed a reliable routine for the common task of depicting lace.⁴⁴ With that in mind, it is surprising that the execution of the lace pattern in the *Portrait of Philips Lucasz.* is neither particularly detailed nor systematic (Figure 7a). That imprecision represents a departure from the care Rembrandt had shown, for example, a year earlier in the lace of the *Portrait of Marten Soolmans* (Figure 7b).⁴⁵ The notion of haste gives a plausible reason for the summary rendering, which can be understood as a pragmatic, time-saving measure.⁴⁶ The imprecision of the lace in the *Portrait of Philips Lucasz.* may be unsatisfying when viewed up close, but from a distance the lace's treatment looks convincing and fully adequate. Also, a change of lace fashion around this time between 1633 and 1635 may have led to this particular rendering: a different type of lace would have required a different way of painting.⁴⁷

The situation is much the same with the lace on the cap of Maertgen van Bilderbeecq. Although when viewed up

close, and especially under the microscope, the lace disbands into individual, independent strokes of paint (Figure 5:1), from a distance the traces of the working process vanish from sight, merging together to form a coherent overall image. Moreover, the artist neither prepared the final form of the cap before starting with the execution in paint nor finished it to perfection in paint. The fact that the contours of the cap were shifted during the painting process demonstrates that the artist strove to perfect the design as he went along, and this is indicative of a painter adept at working his way from a rough composition through to the finishing touches. Yet the shift of the cap could also have come about through a mixture of hastiness and efficiency. In the adjustment of the cap, as in the handling of the lace, optical shortcomings were tolerated and left visible to the naked eye in the finished painting. The decision not to put any more effort into the lace border, a passage whose full elaboration would have demanded intricately detailed brushwork, can be seen as a choice motivated by efficiency. After all, the shortcuts in execution – as in the likeness of Philips Lucasz. – are of hardly any consequence to the painting's overall appearance.

However, between lace depictions in the Lucasz. and Bilderbeecq portraits there is a substantial difference in how the outer contours were rendered. The segmented curves that form the lace's edges in the Bilderbeecq portrait are less clear in contour due to a thinner application of paint that allows underlying – mostly dark – layers of paint to show through the white lace. It even leaves visible small portions of underpainting belonging to the initial compositional laying-in of the figure. This is notable not just in comparison with the lace collar of Philips Lucasz. but particularly when compared with the female portrait now in Braunschweig (Figures 8a and b), which is from the same year as the *Portrait of Maertgen van Bilderbeecq* but has a far more systematically and accurately painted lace

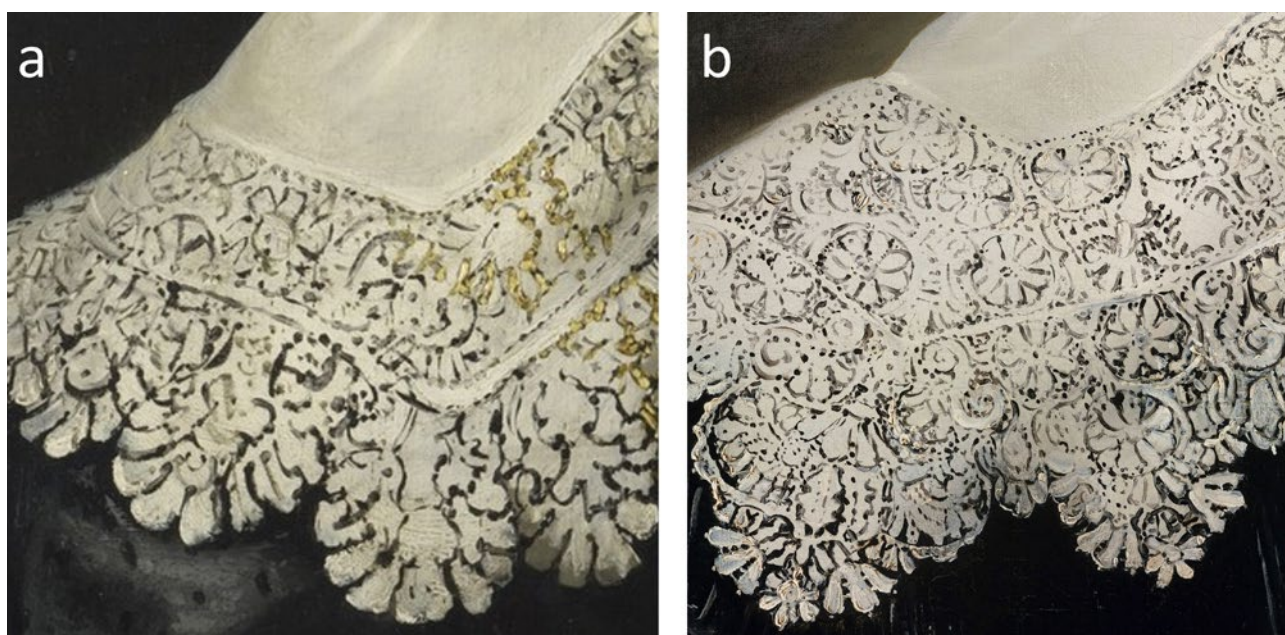


Figure 7 (a) Rembrandt, *Portrait of Philips Lucasz.* (Figure 6): detail. © The National Gallery, London; (b) Rembrandt, *Portrait of Marten Soolmans*, 1634, oil on canvas, 207.5 × 132 cm, Rijksmuseum, Amsterdam, inv. no. SK-A-5033: detail. © Rijksmuseum, Amsterdam.

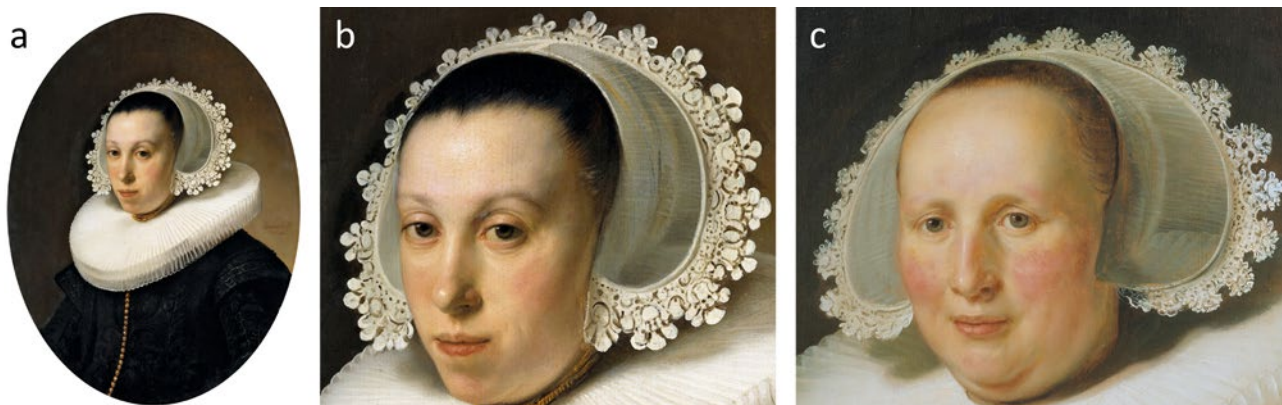


Figure 8 (a) Rembrandt, *Portrait of a Woman*, 1633, oil on oak, 63 × 48 cm, Herzog Anton Ulrich-Museum, Braunschweig, inv. no. GG 233 and (b) detail. © bpk/ Herzog Anton Ulrich-Museum, Braunschweig (image: Claus Cordes); (c) Rembrandt, *Portrait of Maertgen van Bilderbeecq* (Figure 1): detail. © Städel Museum, Frankfurt am Main.

pattern.⁴⁸ The Braunschweig portrait's 'highly detailed and smooth execution' led to it being listed as a product of the Rembrandt workshop in 1986,⁴⁹ yet in 2015 it was precisely those qualities that supplied the argument for classifying the work as an autograph Rembrandt. Van de Wetering accepted that the execution of faces could vary from one portrait to another, and that the artist or artists responsible for a painting would take into account patrons' demands and wishes.⁵⁰ Furthermore, the manner in which the lace was painted ended up seeming comparable to the characteristics of autograph lace that had been elaborated in 1986.⁵¹

In comparison with the female portrait in Braunschweig, the lace decoration in Maertgen van Bilderbeecq not only looks more imprecisely and swiftly executed but, owing to its more intricate patterning, it also seems more searching, more experimental and possibly even more daring (Figure 8c). Whereas in the Braunschweig portrait the application of white paint in the lighter areas of the lace (from the bottom left up to eye level and in the whole right half) are mostly uniformly thick, the light tones in the lace of Maertgen van Bilderbeecq are more strongly varied and, especially on the left side, quite thinly applied. The tonal gradations in the white paint are in part dependent on the picture's lighting. The thinner application of paint in the Frankfurt portrait also suggests a fabric with somewhat different properties. While the lace in the Braunschweig picture looks starched, stiff and therefore more fixed in place, the more dynamic handling in the Frankfurt painting causes its lace to appear softer and suppler, especially at the lower left. The particular use of colour and pattern here would therefore not seem to indicate a qualitative shortcoming; rather, it could very well represent an attempt to characterise the materiality and texture of the lace as softer and more diaphanous. Perhaps this different technical solution also indicates that a different type of lace was introduced at that time.⁵² In addition to the change in lace fashion during these years, the types of collars also changed: Maertgen's clothing is still typical of female burghers of the period, but it was no longer fully in fashion, as ruffs would be superseded by flat lace collars in the 1630s. By 1633, ruffs were typically worn only by women of more advanced age.⁵³

The characteristics of the lace in the *Portrait of Maertgen van Bilderbeecq* are thus almost opposite to those found in the Braunschweig portrait, and they run counter to the manner of painting that was favoured for attributions to Rembrandt in 2015 and upheld by Manuth et al. in 2019. Although the recent literature had made various arguments about how the choice of a more dynamic and experimental manner might reflect different material properties, patrons' wishes, market trends or hastiness on the part of the artist, this apparently did not lead to a validation of the portrait in Frankfurt. Evidently recent Rembrandt scholarship has favoured the more systematic depiction of lace for their attributions, even though they had often regarded a dynamic, experimental manner as the hallmark of Rembrandt's authorship in other works and in the faces represented in portraits. In assessing the various elements of the portrait and weighing those elements' importance to attribution, the recent literature has thus given more weight to the execution of the lace than that of the face.

As with the work in Frankfurt, the black pentimento to the left of the head in the Braunschweig portrait suggests that marshalling the perspectival alignment there, where the cap bends back and tapers, presented a particular challenge. Further evidence of this is provided by the so-called 'Middendorf Rembrandt' of 1633 (New York, Leiden Collection), another female portrait with ups and downs in its history of attribution.⁵⁴ In the same area along the upper left of the head, similar inconsistencies can be seen in the continuity of the cap's arched wing and its lace border (Figures 9a and b). Overall, this reinforces the impression that the artist had not fully understood how to render variation in the angle of the lace along the arched form of the cap, depending on the position of the head.

In the lace of the 'Middendorf Rembrandt', the authors of the *Corpus* detected a 'rather chaotic and uncontrolled execution' analogous to their assessment of that part of the Frankfurt portrait. From that, they concluded that more than one hand had been involved in the completion.⁵⁵ They also justified the work's deattribution through what they regarded as a lack of the liveliness and plasticity typical of Rembrandt's portrait heads.⁵⁶ However,

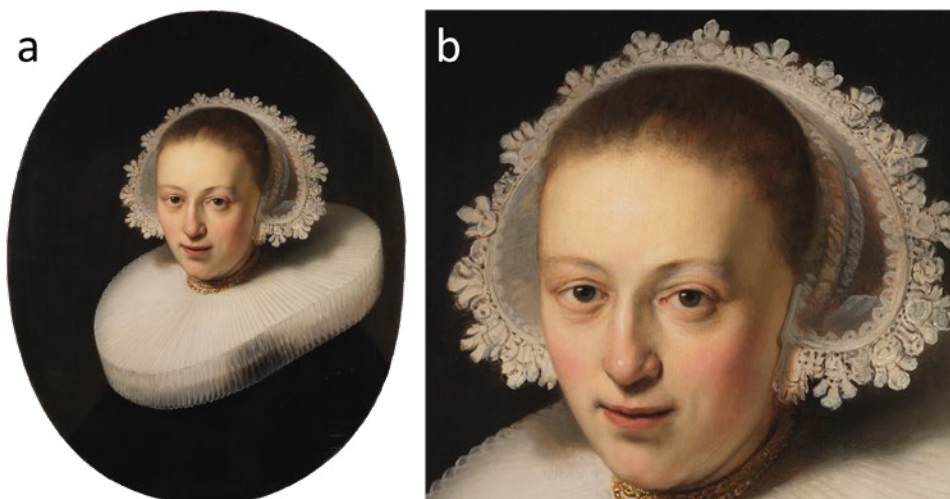


Figure 9 (a) Rembrandt, *Portrait of a Young Woman* ('Middendorff Rembrandt'), 1633, oil on panel, 62.4 × 50.4 cm, The Leiden Collection, New York, inv. no. RR-126 and (b) detail. © The Leiden Collection, New York.

Lara Yeager-Crasselt recently argued that Rembrandt employed a particular manner of painting here to capture the character of the sitter.⁵⁷ In her opinion, the differences between the Braunschweig portrait and the 'Middendorff Rembrandt' can be attributed to the differing requirements of their respective clients and to Rembrandt being relatively new in the Amsterdam art market.

When these three female portraits are compared, the lace in the Braunschweig portrait appears relatively flat, with most of its details neatly executed, lending a suggestion of rigidity to the fabric. On the other hand, the laces depicted in both the 'Middendorff Rembrandt' and the Frankfurt portrait show similarities in execution already visible under normal light. In the 'Middendorff Rembrandt', a brownish-yellow underpainting was also left exposed beneath the lace, and the underlying dark paint of the background, which extends partially into the lace area, is also visible. In addition, there are significant differences in the level of detail between the left and right portions of the lace border. Furthermore, the lace in the 'Middendorff Rembrandt' appears to have been underlaid with light grey paint. While this first light grey paint layer was still wet, the dark interstices and light fabric structure were added with fine brushstrokes. In the more strongly lit areas of lace, as in the Frankfurt portrait, pure lead white was used to add what appear to have been the final light-toned accentuations. In the current states of both paintings, these accentuations are partially translucent and thus allow the underlying layers to show through. Based on these comparisons in visible light, the respective handling of the lace seems to allocate the *Portrait of Maertgen van Bilderbeecq* artistically somewhere between the Braunschweig and the Middendorff pictures.

Comparison of three details (Figures 10a–c) calls attention to the spot in the *Portrait of Maertgen van Bilderbeecq* where the right end of the cap presses into the cheek: there, the lace border is less fully elaborated, possibly even unfinished. The initial application of dark paint lies exposed with no overlying application of details. By contrast, in both the

Braunschweig *Portrait of a Woman* and the 'Middendorff Rembrandt', the lace border abuts the sitter's cheek, and the last bit of lace is folded elegantly forward. The gap in the lace in the Frankfurt portrait has no clear explanation, possibly another indication that the portrait was finished in haste or perhaps a result of hesitancy on the part of an assistant who avoided painting over any part of the face already completed by the master.

Among the collars in these portraits, that in Braunschweig appears to be the most densely and opaquely painted of the three. In the 'Middendorff Rembrandt', by contrast, an underlying layer of light paint was incorporated into the depiction in a way similar to the technique found in the Frankfurt portrait, but left much more broadly discernible. And in other aspects, the layering of the ruff visible in photographs of the Middendorff painting also appears similar to that in the Frankfurt picture. This is particularly evident in the central openings of the collar, where high-contrast shading was created in relatively schematic fashion with quick and efficient strokes of dark grey paint.⁵⁸

Of all three faces, that of Maertgen van Bilderbeecq appears to display the most expressive brushwork. The individual brushstrokes used to describe the flesh tones and facial features were often placed next to one another, leaving the colours unblended. Was this a deliberate technique – a skilful use of painterly subtleties – employed to portray a woman of greater age than the sitters in the two other portraits? Or is it another indication that the Frankfurt portrait was painted more quickly?

A variety of interpretive possibilities

As is shown by the micro-XRF analysis and comparisons with other female portraits created at the same time, the *Portrait of Maertgen van Bilderbeecq* contains various examples of imprecision that cannot necessarily be explained as a matter of poor quality or the possible involvement of a second hand. The shift in the position of the cap,



Figure 10 (a) Rembrandt, *Portrait of Maertgen van Bilderbeecq* (Figure 1): detail. © Städel Museum, Frankfurt am Main; (b) Rembrandt, *Portrait of a Woman* (Figure 8a): detail. © bpk/ Herzog Anton Ulrich-Museum, Braunschweig (image: Claus Cordes); (c) Rembrandt, *Portrait of a Young Woman* ('Middendorf Rembrandt') (Figure 9a): detail. © The Leiden Collection, New York.

the overall treatment of the lace, and the gap in the lace where it should meet the sitter's cheek can be seen as evidence of swiftness of execution and a pragmatic, skilful efficiency of approach. From this perspective, the inconsistencies observed in this work seem less a matter of qualitative deficiency and artistic ineptitude and more the result of a narrow timeframe for completion. The artist could have been pressed for time not merely because of his busy working conditions in Amsterdam; the patron could just as well have imposed time constraints. It is also conceivable – especially for the unfinished part between the cap and the cheek – that Rembrandt could have resorted to the help of an assistant to expedite completion. In any case, it is clear that the sitter's face, distinguished by virtuoso brushwork, is surrounded by less fully developed elements. Beyond the factors of time and efficiency, this noteworthy combination may also be interpreted as a painterly effect deliberately employed by Rembrandt to create pictorial tension and enliven the depiction.

In addition, the appearance of the lace can be plausibly explained as having resulted on the one hand, from experimentation with pattern and form to achieve perspectival alignment and, on the other, from an attempt to convey the lace's material properties and a change of fashion at that time. Experimentation would seem to have been an important factor here, as the three female portraits in question are among the very first with this type of lace-trimmed cap to have been created in Rembrandt's workshop. Thus, it cannot be assumed that a fixed routine for painting such caps had already been developed.⁵⁹ Furthermore, comparison of the painting technique in the *Portrait of Maertgen van Bilderbeecq* with information gathered from visual comparison of the two other female portraits gives reason to see a development in the manner of painting, traceable in the respective handling of lace in the three works.

Moving from the highly schematic treatment of the lace in the Braunschweig portrait to the expressive, almost slapdash details in the Frankfurt portrait and the 'Middendorf Rembrandt', we seem to witness an abandonment of earlier representational options and a move towards a more daring approach. Each approach leads in its own way to the desired effect: on the one hand, the starched lace border in the Braunschweig picture and, on the other, the fine, translucent lace in the Städel's painting and in the 'Middendorf Rembrandt'.

These various interpretative possibilities are offered here to spur further discussion of the Frankfurt portrait's attribution. They also raise the broader question of what the notion of authorship by 'Rembrandt' might include. It may well be that he employed assistants during his busiest years as a portraitist, since this was standard practice in large workshops specialising in portraits. This latest investigation by no means settles the debates surrounding the *Portrait of Maertgen van Bilderbeecq*. Rather, our aim in integrating the findings of new technical research into the existing art-historical discussion has been to supplement and further stimulate longstanding debates with new insights into the painting process.

Notes

1. *Corpus* II [1986]: no. A82, 408, 410.
2. Hillegers 2021: 98–9. On the portrait commission and Rembrandt's connection to the families of Bilderbeecq and Burchgraeff see Hillegers 2021: 98, 102; Dudok van Heel 2020a: 140.
3. Neumeister 2005: 382.
4. In a paper presented at the *Historians of Netherlandish Art Conference* in Cambridge, UK, in June 2024, Jasper Hillegers questioned the identification of the sitter and provided new research on the provenance of the portrait and its possible

pendant. We thank him for sharing his findings with us. Pending publication of his results, we retain the present identification here.

5. *Corpus* II [1986]: 411; Neumeister 2005: 393.
6. Neumeister 2005: 382–3, 393.
7. The copy was transferred to the Städel School before 1846 to be used for instructional purposes. Its location has been unknown ever since. In 1845 the National Museum in Oslo acquired a copy of the Dresden original, but it remains uncertain whether that one is the same copy that had been in the Städel's collection.
8. The portrait by Mijtens bears a strong resemblance to Bartholomeus van der Helst's *Portrait of a Man*, 1647, Metropolitan Museum of Art, New York, inv. no. 71.73.
9. *Corpus* II [1986]: 411, 800–4, no. C77. The portrait by Mijtens was introduced to the discussion in Ter Kuile 1969. It was in a private collection in Zürich until 1965, after which its location remained unknown until it was offered for sale at the auction house Tajan in Paris on 15 June 2016, as lot 134. The note in the Städel Museum's accessions book referring to the companion piece in Dresden was known neither to Ter Kuile nor to the authors of the *Corpus*; see also Hillegers 2021: 115 n. 43.
10. The exhibition took place at the Städel Museum in Frankfurt and with the title *Rembrandt in Amsterdam: Creativity and Competition* at the National Gallery of Canada in Ottawa. The pair was shown in Frankfurt only.
11. Dudok van Heel 2020b: 70–71. Following Willem Burchgraeff's death, both portraits were inherited by his son Hendrick Burchgraeff (1639–1720). Shortly after the latter's death, the male portrait entered the collection of the elector of Saxony in 1722 as an 'onbekende man door Rembrandt' (Dudok van Heel 2020b: 70). The likeness of Maertgen van Bilderbeecq remained in Rotterdam with the descendants of Maertgen's eldest daughter, along with a copy of the portrait of Willem Burchgraeff (Dudok van Heel 2020b: 70–71; Neumeister 2005: 382).
12. The inscription reads 'Ætatus [sic] suæ 50 a° 1635 D: Mytens ft.'
13. Hillegers 2021: 102, 115 n. 41–3. Ter Kuile (1969: 53) gives 1590–1656 as the dates of birth and death. On the discussion concerning the affiliation of the possible pendants, see also the blog entry by Friederike Schütt of 11 January 2022: <https://stories.staedelmuseum.de/de/rembrandt-ehepaar-wieder-vereint> (accessed 27 March 2024).
14. *Corpus* II [1986]: 74–5 and 408–12, no. A82.
15. *Ibid.*, 410.
16. *Ibid.*, 62–76.
17. *Ibid.*, 74.
18. *Ibid.*, 410.
19. *Corpus* VI [2015].
20. Manuth et al. 2019.
21. Bruker M6 JETSTREAM with a rhodium-target X-ray tube at 50 kV and 600 µA. An introduction into the instrumentation is given by Alfeld et al. 2013.
22. Opus Instruments Osiris A1 with an InGaAs sensor (sensitivity: 900–1700 nm) and a maximum image size of 4096 × 4096 pixels (px) (Saunders et al. 2006).
23. Digital X-ray instrument by NTB X-ray GmbH: 30 kV, 30 mA, 30 ms.
24. *Corpus* II [1986]: no. A82; Neumeister 2005.
25. Bruker M6 JETSTREAM with a rhodium-target X-ray tube at 50 kV and 600 µA. The X-ray beam was focused, without filtering, to a spot size of 100 µm. Detection was carried out using a 30 mm² SDD detector at a maximum throughput of 275 kcps. Pixel size (µm) and dwell time per pixel (ms/px) were selected for each individual scan according to the question at hand and the timeframe available: overall scan D1 with 700 µm pixel size and 20 ms/px dwell time; detail scan D2, in the signature area, with 300 µm pixel size and 200 ms/px dwell time; detail scan D3 with 450 µm pixel size and 100 ms/px dwell time; detail scan D4, in the head area, with a pixel size of 550 µm and 70 ms/px dwell time. The data were evaluated with the Bruker M6 software, PyMca (Cotte et al. 2016; Solé et al. 2007) and datamuncher (Alfeld and Janssens 2015), taking into account the findings of past examinations.
26. Neumeister 2005: 551.
27. *Ibid.*, 380. On *imprimatura* terminology, see Koller 1988: 350–51 and Stols-Witlox 2012: 161.
28. Bischoff 2004: 216. Sir Théodore Turquet de Mayerne (1573–1655), born in Geneva, was a physician who collected recipes for painting materials and techniques. These are gathered together in the so-called De Mayerne Manuscript (Berger 1973 [1901]; Bischoff 2004). The treatise is digitised at the British Library (Sloane 2052).
29. Koller 1988: 348; Stols-Witlox 2012: 171; Van de Wetering 2009: 20–21. In historical recipes, 'whiting' referred to a chalk-and-glue ground, while 'priming' referred to an *imprimatura* (Stols-Witlox 2012: 171).
30. Neumeister 2005: 380.
31. This could also be because iron and manganese signals appearing across the paint layer mask the presence of fine contour lines underneath.
32. Neumeister 2005: 380.
33. *Corpus* II [1986]: 410.
34. *Ibid.*
35. Lammertse and Van der Veen 2006.
36. Hillegers 2021: 99.
37. Lammertse and Van der Veen 2006: 136.
38. Dirck van Santvoort might have been one of those assistants specialising in lace collars; see Dudok van Heel 2020b: 36. On the different methods of painting lace collars see also Dickey 2021.
39. *Corpus* II [1986]: A 103; *Corpus* VI [2015]: 117b.
40. Bomford et al. 1988: no. 4. Workshop participation in the companion portrait of Philips Lucasz.'s wife, Petronella Buys (New York, Leiden Collection) has also been debated; see Yeager-Crasselt 2019.
41. *Corpus* VI [2015]: 544, no. 132a–b.
42. Bomford et al. 1988.
43. See also Noble et al. 2018: 334–6.
44. *Corpus* II [1986]: 63.
45. *Ibid.*, 640–65, no. A100; Noble et al. 2018: esp. 334.
46. Bomford et al. 1988: 56.
47. Noble et al. 2018: 335.
48. *Corpus* II [1986]: 73, no. C71.
49. *Corpus* VI [2015]: 524, no. 87b.
50. *Ibid.*, 524, no. 87b.
51. *Corpus* II [1986]: 62–76.
52. Noble et al. 2018: 335.
53. Dickey 2021: 154.
54. *Corpus* II [1986]: no. C81; 72–3, 823–38; Manuth et al. 2019: 656; Yeager-Crasselt 2021.
55. *Corpus* II [1986]: 72–3.
56. *Ibid.*, 827.
57. Yeager-Crasselt 2021.
58. The execution of the ruff in the *Portrait of Haesje Jacobsdr van Cleyburg* also appears very similar to that of the Frankfurt portrait. Further discussion of this portrait is not possible here.
59. An additional example worth mentioning is the *Portrait of a Woman* (c.1632) in the Kunsthistorisches Museum, Vienna, although the cap depicted in it appears in a side view (*Corpus* II [1986]: no. C80, as by the workshop).

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