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TECHNICAL STUDY OF PAINTINGS BY PETER BRUEGHEL THE YOUNGER IN BELGIAN PUBLIC COLLECTIONS: PRELIMINARY RESULTS

Christina Currie

Abstract: As part of a doctoral thesis into the working techniques of paintings by Peter Brueghel the Younger in Belgian public collections, the Ghent version of the *Wedding Dance* was closely examined using dendrochronology, X-radiography, infrared reflectography and the binocular microscope. Dendrochronology, plus analysis of the Antwerp brand and the "clover" panel maker's mark of Michiel Claessens, dates the panel to 1620 or after. Infrared reflectography and cross-sections reveal a characteristic streaky grey imprimatura above the ground layer. Infrared reflectography also identifies particular stylistic traits in the underdrawing. X-radiography shows that the artist used the traditional technique of leaving reserves in the background paint for his major forms.

The technical study of paintings by Peter Brueghel the Younger (1564-1638) in Belgian public collections forms the subject of a doctoral thesis begun in 1998. The research is based at the Institut royal du Patrimoine artistique in Brussels under the supervision of Professor Dominique Allart of Liège University. The project aims primarily to characterise the typical techniques and working methods of Brueghel the Younger. This involves the comparison of observations regarding his painting supports, grounds, *imprimaturas*, underdrawings, use of reserves, paint layer structures, pigments and mediums. Longer term goals include a re-examination of some of the issues that have long puzzled art historians. What techniques did Brueghel use to copy the works of his father? Were other hands employed in the creative process and if so, is it possible to characterise them? Do Brueghel's techniques and painterly style change over the course of his career? The study was limited to paintings by or attributed to Brueghel the Younger in Belgian public collections. Examinations almost always take place on-site in the museums and where possible, works are examined unframed. X-rays¹ and infrared reflectography are carried out routinely for each painting². Where authorised, samples are taken from around the edges of the painting for cross-sectional and medium analysis; tracings are made of the painted image. Dendrochronology is performed in certain cases by Pascale Fraiture from the laboratory of dendrochronology, in the Interdisciplinary Archaeometry Group, at the University of Liège³.

¹ X-radiographs were taken and developed by Guido van de Voorde at IRPA/KIK.

² The camera used for infrared reflectography at IRPA/KIK is Inframetrics InfraCAM — SWIR, purchased in 1999 with the aid of the National Lottery. For more information, see www.inframetrics.com or www.flir.com. Mosaics were made using Adobe Photoshop by V. Aversa at IRPA/KIK.

³ The "Laboratoire de Dendrochronologie de l'Université de Liège" uses a more precise and rapid method of measurement for dendrochronology than the traditional *loupe*. The growth rings are measured through the microscope with a precision of up to one hundredth of a millimetre. The microscope is attached to a moving stage connected to a computer. The stage is turned manually until the

The focus of this short paper is the *Wedding Dance* from the Royal Museum of Fine Arts in Ghent (inv. 1914.C-J). The painting was studied at IRPA where it was being restored after an attack of vandalism. Although unsigned, this version of the *Wedding Dance* is one of Brueghel's best examples⁴. It measures 40 cm in height and 55,5 cm in width and is made up of only one broad plank, cut radially. Interestingly, Brueghel's *Peasants' Lawyer* (Groningemuseum, Bruges, inv. 0.1606) is painted on an even wider single plank. This panel is signed and dated ".P.Br[eug]hel 1620."⁵ and measures 54,5 in height and 87,5 cm in width.

Tool marks visible on the reverse of the *Wedding Dance* are most probably original as the panel has not suffered thinning during restoration. These include deep gouge marks in the lower part and horizontal plane marks over the whole surface causing a slight ripple effect. Bevels are also present on all sides and vary from 1 to 2.5 cm in width.

Dendrochronology reveals that the oak is from the Meuse river basin rather than the Baltic, the last ring dating from 1590⁶. However, the lack of sapwood and the absence of any signs of slowing down in growth of the hardwood mean that dating of the panel can only be approximate. To calculate the date at which the panel might have been ready for painting, an unspecified number of hardwood and sapwood rings must be added plus the preparation time of the support, the latter estimated at between two and eight years in the sixteenth and seventeenth centuries⁷. However, taking into account the unusual width of the plank and the type of growth rings, it is likely that the panel was ready to be painted well before 1637-8, Brueghel's date of death. Another factor however, places the painting in a narrower date band. This is the presence of the brand for the Guild of St. Luke in Antwerp and the panel makers' mark (fig. 1). It is clear that the Antwerp brand has been burnt in and the panel makers' mark made by hitting cold. Jörgen Wadum, who has characterised some the common irons used for branding in this period⁸ kindly examined a rubbing and photograph of the brand mark. He concluded that it was not identical to but comparable to his iron n° 6, indicating a date between 1620 and 1637⁹. The panel makers' mark is a clover in this case. The clover mark was identi-

beginning of a growth ring is reached when a button is pressed sending a signal to the computer to register the distance travelled by the stage. The information is stored in an organised manner using a specially developed software so that dendrochronological curves generated can be easily compared with others.

⁴ Georges Marlier pointed out that some of the best works by Peter Brueghel the Younger were not signed. For example, discussing the various versions of the *Kermesse of Saint George*, he states, "celui de la collection Pottiez n'est ni signé ni daté et nous constatons une fois de plus que cela est fréquent, même lorsqu'il s'agit des œuvres les plus parfaites que l'artiste ait peintes", G. MARLIER, *Pierre Brueghel le Jeune*, posthumous edition, revised and annotated by J. FOLIE, Brussels, 1969, p. 382.

⁵ Most of the "E" and the whole of the "VG" are missing and have been retouched in but the rest of the signature appears perfectly authentic.

⁶ Dendrochronology and interpretation carried out by Pascale Fraiture, see note 3.

⁷ J. Bauch and D. Eckstein, cited in unpublished dendrochronology report by P. Fraiture.

⁸ J. WADUM, *The Antwerp Brand on Paintings on Panel*, in *Looking through Paintings. The Study of Paintings Techniques and Materials in support of Art Historical Research*, Leids Kunsthistorisch Jaarboek XI, ed. E. HERMENS, London and Baarn, 1998, p. 179-198.

⁹ J. Wadum, personal correspondence.

fied in 1990 by J. Van Damme as that of the Antwerp frame maker (lijstmaker) Michiel Claessens, whose working dates were 1590-1637¹⁰. However, panels were not usually marked with panel-makers' marks until after 1617, when a guild law made it obligatory¹¹. It can therefore be concluded from the panel evidence that the painting was probably executed sometime between 1620, when Brueghel was 55 or 56 and his death in 1637 or 1638.



Fig. 1. Peter Brueghel the Younger, the *Wedding Dance*, Ghent, Royal Museum of Fine Arts (inv. 1914.C-J). Reverse of panel. Detail: branding (© IRPA — Brussels).

Branding found on Brueghel's work is quite varied in appearance and has helped place numerous other paintings in an approximate date band, for example, the brand marks on an unsigned and undated version of *Winter Landscape with bird trap* (Antwerp, Mayer van den Bergh Museum, inv. 55). Here, the Antwerp brand was made with Wadum's iron number 1 which was in use between 1617 and 1626¹².

¹⁰ J. VAN DAMME, *De Antwerpse tafereelmakers en hun merken. Identificatie en betekenis*, in *Jaarboek van het Koninklijk Museum voor Schone Kunsten*, 1990, p. 193-236. Van Damme cites two panels by Brueghel the Younger, of similar size to the *Wedding Dance*, each branded with Claessens' clover mark, a *Winter Landscape* and a *Brawl in front of an Inn*. In total he lists 51 panels branded with Claessens' clover by a variety of artists, many anonymous. B. Cardon lists 12 panels, mostly by anonymous artists branded with the Antwerp brand and Claessens' clover in *Aantekeningen bij de Annunciatie uit het voormalige celledroedersklooster te Diest, thans in het Stedelijke Museum aldaar* (inv. Nr. S/38), p. 29-67, in *Arca Lovaniensis Artes atque Historiae Reserans Documenta Jaarboek*, 15-16, 1986-1987, 29-67. For another example of the clover mark see also M. SCHUSTER-GAWLOWSKA, *Marques de corporations, poinçons d'ateliers et autres marques apposées sur les supports de bois des tableaux et des retables sculptés flamands. Essai de documentation à partir des collections polonaises*, in *Jaarboek van het Koninklijk Museum voor Schone Kunsten*, 1989, p. 252 and EAD., *Znaki cechowe na odwrociach flamandzkich obrazów na drewnie. Propozycja systematyki i dokumentacji* (Guild Marks on the Backs of Flemish Panel Paintings, An Attempt at Systematization and Documentation), Krakow, 1992.

¹¹ This guild law was rediscovered in the town archives of Antwerp by J. Van Damme, see J. VAN DAMME, 1990, p. 235-6.

¹² J. Wadum, personal correspondence.

However, the presence of the letter "A" helps locate the painting even more precisely. J. Van Damme first suggested that the letter "A" was a year date rather than a panel makers' mark¹³ and Wadum, through observations of branded panels by Rubens for which the dates are known managed to narrow this down to 1621-22¹⁴. Another unsigned and undated panel by Brueghel, the *Preaching of Saint John the Baptist* (Bruges, Groningemuseum, inv. n° 0.1561) can also be placed in an approximate date band owing to its characteristic Antwerp branding. Wadum associates this brand mark with his iron number 3 indicating a date between 1618 and 1626. A more unusual case is the *Peasants Lawyer* (Bruges, Groningemuseum, inv. 0.1606) discussed above, in which the branding of the hands and castle are physically separated from one another and probably made with different irons¹⁵.

The paint layer structure in the *Wedding Dance* is fairly straightforward. The ground layer, which extends to the edges of the panel on all sides is white and appears to consist of two layers as observed in cross-sections from the sky and grass. The upper part of the ground appears transparent in the cross-sections due to probable impregnation of medium from the layer above. The ground may well have been applied by the panel-maker¹⁶.

Just above the ground there is a very thin *imprimatura* or toning layer covering the entire surface of the painting¹⁷. This is not unusual in the work of Brueghel the Younger and was observed by Hélène Verougstraete-Marcq in a winter scene by the artist¹⁸. This medium-rich layer contains black acicular particles and some white ones, its appearance varying slightly depending on the cross-section viewed. The *imprimatura* would have served as a useful base colour to work from, speeding up

¹³ Van Damme found the "A" mark associated with a clover in an anonymous painting, suggesting the letter is not a panel maker's mark. The painting he found it in is *Marriage at Cana*, anonymous, cat. 26, Nokere, verz. Baron Em. Van Zuylen van Nyevelt, see J. VAN DAMME, 1990, fig. 4, p. 204.

¹⁴ J. WADUM, 1998, p. 198.

¹⁵ J. Wadum, in personal correspondence, commented that this is rather unusual and that it was a practice previously used for altarpieces, where the practice was to brand in two sequences.

¹⁶ J. WADUM, *Historical Overview of Panel-Making Techniques in the Northern Countries* in Getty Conservation Institute, *The Structural Conservation of Panel Paintings, Proceedings of a Symposium 1995*, Los Angeles, 1998. See p. 165-8 where Wadum describes how panels with ready-made grounds were available to painters from the late sixteenth century onwards and how panel makers were taking over panel preparation as well. See also N. VAN HOUT, *Meaning and Development of the Ground Layer in Seventeenth Century Painting*, in *Looking through Paintings* [...], p. 204-5 where he cites examples of "witters" and panel makers who were also "witters" mentioned in the Antwerp guild registers in the early seventeenth century.

¹⁷ For a definition of the term *imprimatura* and a discussion of its function, composition and purpose, see N. VAN HOUT, 1998, p. 119-225.

¹⁸ H. VEROUGSTRAETE-MARCQ, *L'imprimatura et la manière striée. Quelques exemples dans la peinture flamande du 15^e au 17^e siècle* in *Le Dessin sous-jacent dans la peinture, Colloque VI*, 1985. *Infrarouge et autres techniques d'examen*, ed. R. VAN SCHOUTE and H. VEROUGSTRAETE-MARCQ, Louvain-la-Neuve, 1987, p. 24 and pl. 25 and 26.

the painting process as well as sealing the ground layer¹⁹. Owing to the relative thickness of the paint layer the *imprimatura* is not visible to the naked eye, except where the paint is slightly abraded, as in the face of one of the female dancers where it is visible as a grey toned layer. The direction of the brushstrokes of the *imprimatura* is clearly revealed in the infra-red image and is also faintly visible in the X-ray suggesting it contains some lead white (fig 2). There is no relationship between brushstroke direction of the *imprimatura* and compositional forms²⁰; the edges of the painting, depicting trees and foliage contain both diagonal and vertical *imprimatura* brushmarks.

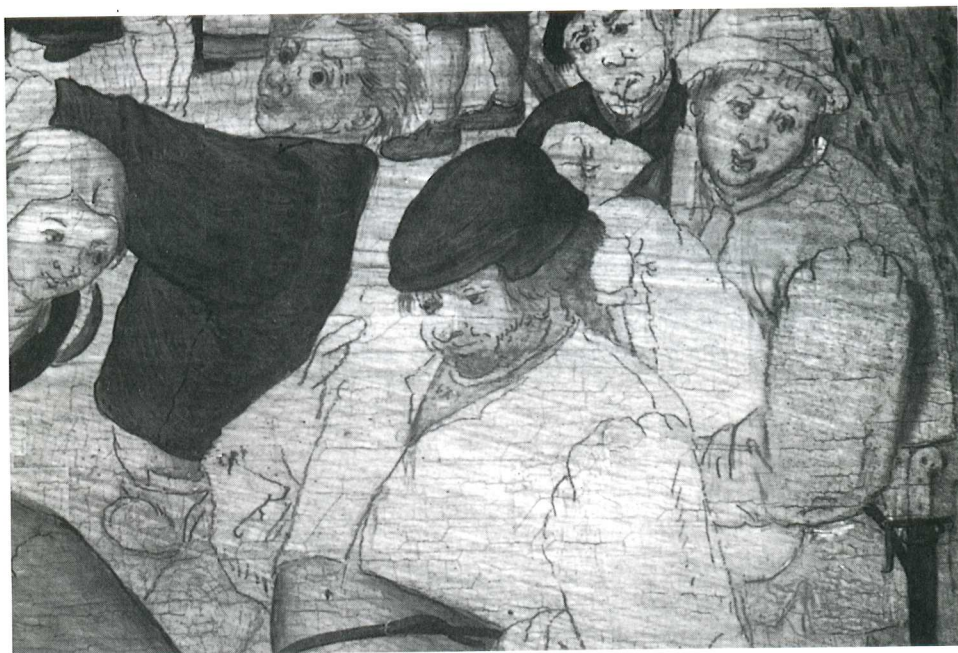


Fig. 2. Peter Brueghel the Younger, the *Wedding Dance*, Ghent, Royal Museum of Fine Arts (inv. 1914.C-J). IRR. Detail: figures, right foreground (© IRPA — Brussels).

¹⁹ The tinted *imprimatura* has been discussed by many authors. These include H. VEROUGSTRAETE-MARCQ, 1987, who traces the tradition back to late fifteenth century Italy and cites early cases in Flanders in the work of Bernard van Orley and Pieter Coeck d'Alost. See also J. DUNKERTON and A. BURNSTOCK, in *Two Wings of an Altarpiece by Martin van Heemskerck* in *NGTB* 12, 1988, p. 28, who describe the use by Van Heemskerck of a warm golden coloured priming layer above the chalk ground and underdrawing. J. PLESTERS, *Samson and Delilah: Rubens and the Art and Craft of Painting on Panel* in *NGTB*, 7, 1983, p. 33-4 and 36-9, describes the use by Rubens of a striped *imprimatura* in sketches and paintings. Nico Van Hout also discusses the "streaky *imprimatura*" in relation to Rubens, N. VAN HOUT, 1998, p. 205-10.

²⁰ H. VEROUGSTRAETE-MARCQ, 1987, p. 24 observed in a *Winter Scene* by Brueghel that the stripy *imprimatura* was applied in horizontal strokes in the area of the horizon whilst vertical strokes were used underneath the vertical compositional element of the house on the right.

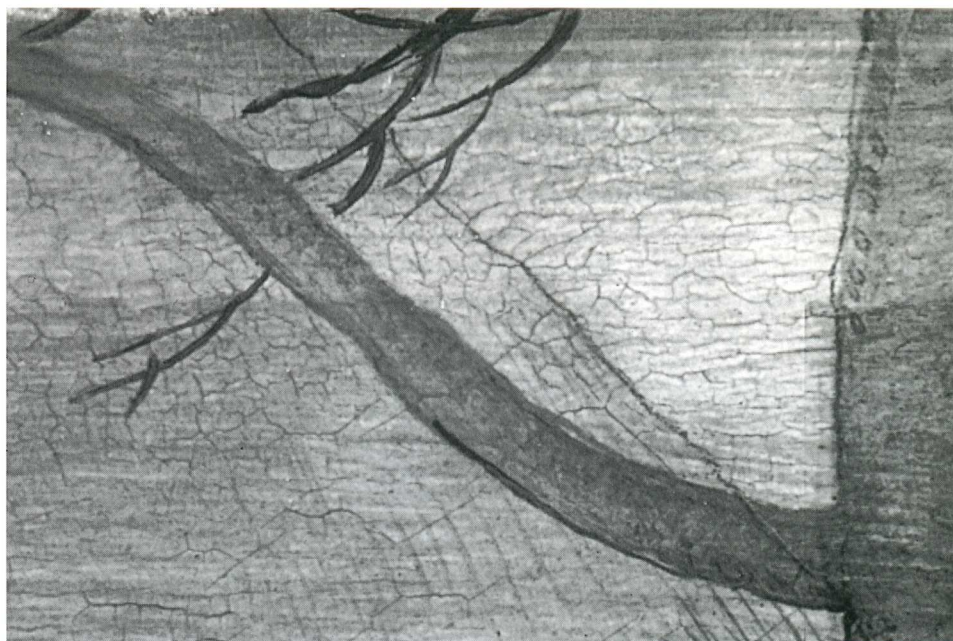


Fig. 3. Peter Brueghel the Younger, the *Wedding Dance*, Ghent, Royal Museum of Fine Arts (inv. 1914.C-J). IRR. Detail: roof line, upper left (© IRPA — Brussels).

Most paintings by Brueghel the Younger examined to date reveal the presence of an *imprimatura* of some kind. The most obvious example is in Groeningemuseum version of the *Preaching of Saint John the Baptist*. All down the left edge of the painting the ground and the *imprimatura* are exposed, as the paint layer stops about a centimetre from the left edge of the panel. The exposed *imprimatura* is a grey, thin, semi-opaque layer applied with a thick brush to give a streaky effect. In the *Preaching of Saint John the Baptist*, unlike the *Wedding Dance*, the streaky *imprimatura* seems to form part of the aesthetic effect intended by the artist and it is clearly visible to the naked eye in certain areas, for example, in the white collar of the gypsy in the centre foreground and in the ochre-coloured drapery of the oriental man on the far left. Curiously, although the left edge of the painting shows the ground layer extending right up to the panel edge, the right side has a classic *barbe* and ungrounded and unpainted border. The upper and lower sides of the painting are painted up to the panel edges²¹. It is possible that the panel maker supplied a panel that was slightly too wide for Brueghel who then cut off the extreme left edge before applying his *imprimatura*. This seems more plausible if one takes into account the fact that the branding marks are situated to the right of centre of the reverse of the panel.

Like most paintings by Brueghel the Younger, the underdrawing of the *Wedding Dance* is already partially visible to the naked eye. It has the appearance of a dry

²¹ Open worm channels on the bottom edge suggest the painting has been slightly planed down. The top edge may also have been slightly planed.

drawing material²². An infrared reflectogram detail of the brown skirt of the dancer in the lower left makes it clear that the underdrawing was applied after the *imprimatura* as it shows the drawing line skipping over the texture of the *imprimatura*.

Françoise Thomaes-Van Hauwaert described Brueghel's underdrawing in two different versions of the *Wedding Dance* as "aussi complet, aussi spontané, toujours exécuté à la pointe métallique en traits courbes, fins et légers"²³. Whilst the Ghent version reveals a very complete underdrawing including many of these characteristics, further details were also observed. The outlines of forms are often composed of a series of short strokes rather than being continuous. These broken strokes can be seen if one looks carefully at the upper part of the roof outline on the left and the outlines of some of the figures (fig. 3). The drawing line varies in thickness slightly, both along the same line and from form to form. Trees and foliage are more loosely and thickly drawn than the figures (fig. 4). Groups of leaves are indicated by roughly rounded shapes.

During the drawing process Brueghel made occasional minor adjustments, for example, modifying the left outline of the brown skirt of the dancer in the lower left (fig. 5). Small additions, omissions or adjustments were also made during the painting process. In the background vegetation, for example, a painted side branch of a tree in the upper left is neither reserved nor underdrawn, the drawing line of the roof clearly passing through the painted branch (fig. 3). In the upper centre, there are various side branches to trees in the underdrawing that have either been dropped or had their positions significantly altered during painting (fig. 6).

Although the underdrawing situates the most important elements in the composition, the three small figures in the upper right of the painting were neither underdrawn nor reserved (for the two leftmost figures of this group, see fig. 4). The rightmost figure was in fact outlined during painting which is why black outlines are visible in the infrared image; these painted lines appear thicker and blacker in infrared than those of the underdrawing. This group of figures is not always present in other versions of the *Wedding Dance* and was not present in Bruegel the Elder's engraving on which the composition is sometimes thought to be based²⁴. The motif is typical of the anecdotal additions Brueghel the Younger made to the compositions of his father;

²² The drawing material has not yet been identified. M. Faries proposed black chalk or graphite as a likely material for the underdrawing of Brueghel's *Triumph of Death* from the Mildred Andrews Fund in *Extracts from Scientific Reports*, in the *Triumph of Death, Peter Brueghel the Younger*, ed. J.I.W. CORCORAN, 1995, p. 11-13. F. THOMAES-VAN HAUWAERT suggested metal point as a possible medium for the underdrawing of two versions of the *Wedding Dance* in *La véritable signature de Pierre Brueghel le Jeune: son dessin sous-jacent*, in *Le Dessin sous-jacent dans la peinture. Colloque V. Dessin sous-jacent et autres techniques graphiques*, ed. R. VAN SCHOUTE and D. HOLLANDERS-FAVART, Louvain-la-Neuve, 1985, p. 161. J. Folie proposed Brueghel's drawing material as metal point, possibly lead point in *Pierre Brueghel le Jeune*, in *Bruegel, une dynastie de peintres*, 1980, p. 141.

²³ F. THOMAES-VAN HAUWAERT, 1985, p. 161.

²⁴ F. THOMAES-VAN HAUWAERT analyses the possible source of this composition in her article, *La copie chez Pierre Brueghel le Jeune* in *Revue des archéologues et historiens d'art de Louvain*, XI, 1978, p. 84-100.

however, similar grotesque details have also been observed in the works of other artists including Bruegel the Elder, and were searched for enthusiastically by collectors²⁵.

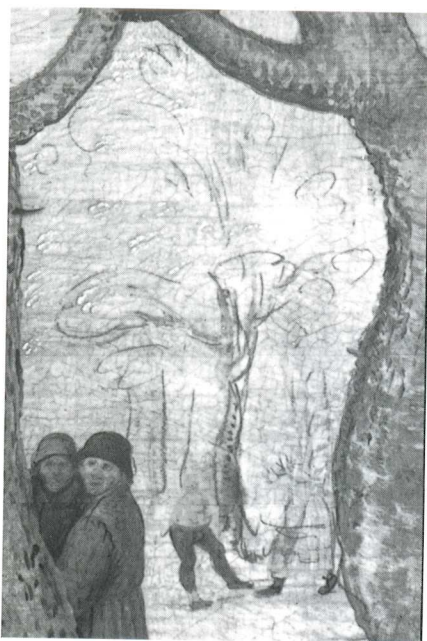


Fig. 4. Peter Bruegel the Younger, the *Wedding Dance*, Ghent, Royal Museum of Fine Arts (inv. 1914.C-J). IRR. Detail: foliage and small figures, upper right (© IRPA — Brussels).



Fig. 5. Peter Bruegel the Younger, the *Wedding Dance*, Ghent, Royal Museum of Fine Arts (inv. 1914.C-J). IRR. Detail: dancer, lower left (© IRPA — Brussels).

Françoise Thomaes-Van Hauwaert argued that the underdrawing in Peter Bruegel the Younger was his true signature²⁶. If this is true, then it is useful to compare the underdrawing of the Ghent *Wedding Dance* with that of a detail from the Groningemuseum version of the *Preaching of St. John* as the latter work has been suggested as a possible collaboration between the two Bruegel brothers, Jan and Peter²⁷. The drawing material appears to be the same and common stylistic traits include the non-continuous scallop strokes to indicate the chin line and the manner in which the ears, hair strokes and eyebrows are drawn. Whether it will be possible to conclude that the same hand is responsible for these two underdrawings will be made clear through full infrared reflectography of the *Preaching of St. John*.

Microscopic examination and the X-radiographs of the *Wedding Dance* help to establish the sequence in which the paint layers were laid in. The basic background

²⁵ D. Allart, personal communication.

²⁶ F. THOMAES-VAN HAUWAERT, 1985.

²⁷ G. MARLIER, 1969, p. 56: "la facture tient le milieu entre celle de Pierre le Jeune et celle de Brueghel de Velours."

vegetation colour and sky paint appear to have been laid in first and allowed to dry, with reserves left for tree trunks and figures. It is then likely that a thin ochre coloured underpaint was applied onto the spaces into which the faces were to be painted and allowed to dry, this underlayer serving as a midtone for the face. A thin layer of opaque pink paint was applied in places to the faces to give warmth to the cheeks followed by the application of highlights using thick, white strokes. Using the brush as a drawing tool, brown transparent paint was used to outline and define the main features. Minor adjustments to the planned positions of figures were made swiftly during painting, for example, the artist slightly enlarged the bridge of a man's nose and prolonged the left side of a lady's white headdress. Background faces were painted rapidly, again using the brush as a drawing tool. In one female face, the eye is "drawn" with paint as an upside down "v" in the same way as in the underdrawing. Draperies, probably painted around the same time as the faces, were also quickly executed; shadow contours and details of dress are painted wet-in-wet into mid-tones and highlights, for example, the seam of the yellow sleeve of a female dancer was indicated wet-in-wet into the body of the paint. In the landscape background, tree foliage was applied in one or two sessions using thick paint and opaque highlights. In some areas, leaves are suggested with upside-down "v" notations. The brush was also used in a fan-like manner in places. At a late stage in the painting process, thick blue paint, probably azurite was applied in certain areas, for example in the apron of the female dancer in the lower left. A rather clumsy addition of blue paint to the skirt of the female dancer with the yellow sleeve resulted in the flattening of the nose of the dancer in front. Final touches include the outlining of forms and the application of fine details and glazes. Examples include the application of fine green transparent strokes to denote the laces on a female dancer's bodice and the addition of dark glazes and light highlights to the grass to enliven the image and give prominence to the figures.

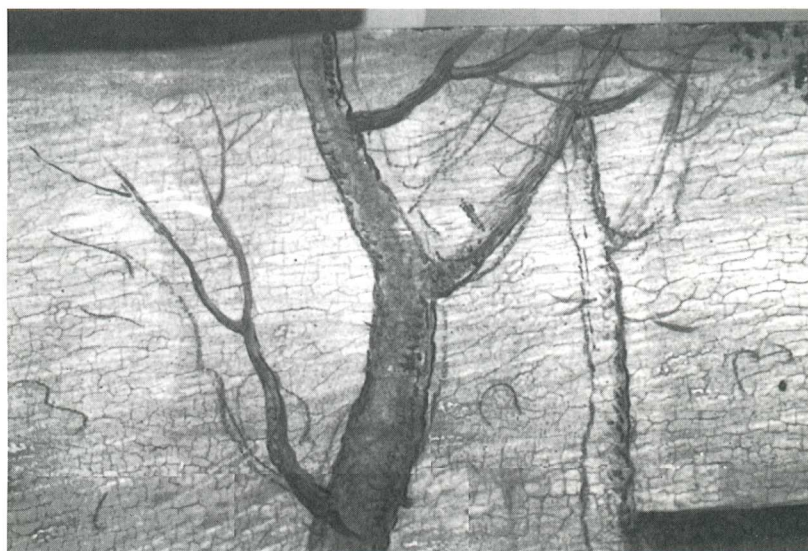


Fig. 6. Peter Brueghel the Younger, the *Wedding Dance*, Ghent, Royal Museum of Fine Arts (inv. 1914.C-J). IRR. Detail: trees, upper centre (© IRPA — Brussels).

The close examination of the Ghent version of the *Wedding Dance* gives new insights into the techniques and materials used by Peter Brueghel the Younger, in particular regarding the underdrawing and paint layer structure. Dendrochronology and the analysis of the Antwerp brand and the panel maker's mark dates the panel sometime from 1620. The technical observations will now be compared to other paintings by Peter Brueghel the Younger to help establish whether there is an evolution in his methods and the extent of collaboration of studio assistants.

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