

Lower-layer Image of *Woman in Blue Shawl* by Pablo Picasso: Report and Analysis of Infrared Reflectance Imaging Spectroscopy

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Objective of Paper

The purpose of this paper is to report new findings from an infrared imaging survey conducted in May 2022 on *Woman in Blue Shawl* (1902) by Pablo Picasso [Fig. 1], which is in the collection of the Aichi Prefectural Museum of Art. Basic information on the work is as follows:



Fig. 1 *Woman in Blue Shawl*, 1902, Aichi Prefectural Museum of Art.

Artist:	Pablo Picasso (1881-1973)
Title:	<i>Woman in Blue Shawl/Femme au fichu bleu</i>
Date:	1902
Medium:	Oil on canvas
Dimension:	60.3 x 52.4 cm
Accession Number:	FO198700001000
Acquisition Date:	31 March 1988

Provenance of the Painting

Pablo Picasso returned to Barcelona from Paris around the 18th of January 1902, sharing a studio on Nou de la Rambla with his friend Ángel Fernández Soto and others, and remained there until the 18th of October of the same year. Although this work is not dated, it is believed to be one of a series of paintings produced during the above period, based on the characteristics of its colour tone and motif. The model has not been identified.

The earliest known exhibition to date where the work was exhibited, is Picasso Exhibition at Galeries Georges Petit in Paris (16 June - 30 July 1932, work no. 11) [Fig. 2]. The exhibition was a major retrospective, in which the artist himself selected works to summarise his career spanning almost 30 years at the age of 50, and included



Fig. 2 Installation view of the Picasso Exhibition, Georges Petit Gallery, 16 June - 30 July 1932.

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225 paintings, 7 sculptures and 6 illustrated books.¹ The exhibition also travelled to Kunsthaus Zürich in September of the same year with almost the same content, which became Picasso's first solo museum exhibition (11 September - 30 October 1932, work no. 17).

Picasso kept the painting in his possession afterwards. After Picasso's death, his granddaughter Marina inherited it and the Marina Picasso Foundation took care of it.² In 1988, Tōkai Bank (now MUFG Bank) learned of Marina's intention to part with the work. The company purchased it for approximately 1.4 billion yen on condition that it be "displayed in a public exhibition space"³ and donated it to Aichi Prefecture to be part of the museum collection of Aichi Prefectural New Art Gallery (provisional name at the time), the construction of which was being planned.⁴ In 1992, the Aichi Prefectural Museum of Art (APMoA), the successor of Aichi Prefectural Art Gallery opened with this work as one of its centrepieces.⁵

Current Condition and Conservation History

The painting shows evidence of lining, retouches, and varnish application, but it is not clear when or by whom these were done. A review of the published illustrations shows no significant difference between the current painting and the colour illustration in the catalogue⁶ of the exhibition held at the Palazzo Grassi in 1981, when it was in the Marina



Fig. 3 Illustration in *Picasso, The Early Years, 1881-1907*, 1981.



Fig. 4 Illustration in *The Blue and Rose Periods: A Catalogue Raisonné, 1900-1906*, 1966.

Picasso Collection. However, the colour illustration in *Picasso, The Early Years, 1881-1907*,⁷ also published in 1981 [Fig. 3], and the black-and-white reproduction in the 1966 catalogue raisonné⁸ [Fig. 4], show flaking at the top edge of the painting and next to the woman's right eye, and patches of slightly different colour throughout the background. These seem to have been suppressed by the thick layer of varnish on the present painting.

1 Tobia Bezzola et al., *Picasso by Picasso: His First Museum Exhibition 1932*, exh. cat., Kunsthaus Zürich, Munich, Prestel, 2019; *Picasso 1932: Catalogue d'exposition*, Musée national Picasso, Paris, 2017.

2 'Ken Shin Bunka Kaikan no Medama ni,' *Mainichi Shimbun*, 31 March 1988.

3 'Mado,' *Nikkei*, 31 March 1988.

4 '14 Oku en no Pikaso Aichiken Shin Bijutsukan ni,' *Asahi Shimbun*, 31 March 1988.

5 '14 Oku en Pikaso Kizō,' *Mainichi Shimbun*, 31 March 1988.

6 *Picasso: opera dal 1895 al 1971 dalla Collezione Marina Picasso*, exh. cat., Palazzo Grassi, 1981, p. 89.

7 Josep Palau i Fabre, *Picasso, The Early Years, 1881-1907*, Rizzoli, 1981, p. 294.

8 Pierre Daix, Georges Boudaille et. al., *Picasso: The Blue and Rose Periods: A Catalogue Raisonné, 1900-1906*, Evelyn, Adams & Mackay, 1966, p. 209.

Previous research has found that this varnish layer contains dark pigment particles throughout.⁹ Furthermore, microscopic examination of a recent sample of a varnish flake taken from within the forehead of the woman revealed that the varnish itself had a light green tint [Fig. 5]. This may be due to the colour migration of the fine Prussian blue pigment particles used in the painting onto the varnish, which then penetrated the yellowed varnish over time, making it appear to have a light green colour. In any case, these dark pigment particles and the light green colour of the varnish must have had some effect on the appearance of the painting, but further investigation is required to determine the composition of the varnish and cause of colouring. It should be noted that *Portrait of Mateu Fernandez de Soto* and *Portrait of Jaime Sabartes*, both paintings from the same period that Picasso himself kept for a long time, do not show the same thick varnish application as in *Woman in Blue Shawl*.

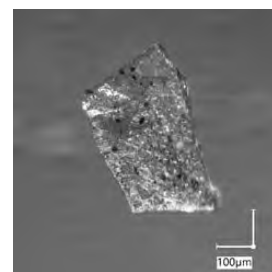


Fig. 5 Microscopic image of a varnish flake. (x150, Keyence Digital Microscope VHX-8000, recorded by Tokyo National Research Institute for Cultural Properties, 24 November 2022)

An X-ray transmission image of *Woman in Blue Shawl* [Fig. 6] shows traces of cutting on the left, right, and lower sides of the original canvas. In fact, the present canvas has no margins itself, and the margins of the backing cloth are nailed onto the wooden frame. The glue used for the backing appears to be wheat and animal glue,¹⁰ and the sides of the canvas are covered with brown paper tape for reinforcement. This method of treatment is not particularly unusual and it is difficult to identify the restorer from this information. Whoever the restorer was, it can be presumed that the restoration work was done before the Palazzo Grassi exhibition in 1981, as its catalogue shows the illustration after retouching.

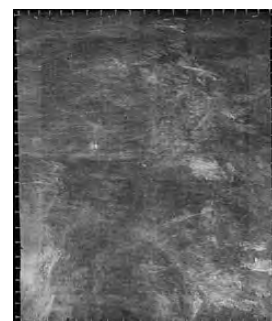


Fig. 6 X-ray transmission image. (voltage: 50Kv, current: 3mA, distance: 150cm, transmission time: 30 sec., resolution: 25µm / recorded by Nara National Research Institute for Cultural Properties and Tokyo National Research Institute for Cultural Properties, 27 December 2015)

Possible Reuse of the Canvas

According to John Richardson, in his Blue Period, Picasso often reused canvases.¹¹ Recent research into the works of the Blue Period has indeed reported a number of instances of canvas reuse.

In *Woman in Blue Shawl*, too, visual observation with raking light has detected

9 Nagaya Natsuko, 'Pikaso saku Aoi Katakake no Onna Kagaku Chōsa ni tsuite no Chūkan Hōkoku,' *Aichiken Bijutsukan Kenkyū Kiyō* (Bulletin of the Aichi Prefectural Museum of Art), vol. 24, 2018, p. 26.

10 From the investigation of the condition of the painting by Sōkei Bijutsu Gakkō Shūfuku Kenkyūjo (now Yūgengai-sha Shūfuku Kenkyūjo 21), 1990.

11 John Richardson, *Picasso I: Shindō 1881-1906*, Tetsuo Kinoshita trans., Hakusui-sha, 2015, p. 308; Anatoli Podoksik, *Picasso: La Quête perpétuelle*, Cercle d'Art, 1989, pp. 149, 163.

physical traces of brushwork, which clearly does not relate to the painted composition of this work [Fig. 7]. This uneven surface created by the brushstrokes are also recognisable as shades in the X-ray image [Fig. 6]. As these uneven parts do not form a concrete image at first glance, the possibility that they are shadows of the ground layer cannot be ruled out. But on the other hand, as the direction of the strokes varied and the mottling was large and uneven for the primer, it was also considered that they were intended to form some kind of image. Therefore, in addition to X-ray, infrared, and ultraviolet imaging, APMoA conducted terahertz spectroscopic imaging measurements in 2018, but no distinct image representing an additional now-hidden painted composition could be found in either investigation.¹² Attempts were also made to observe the underlying layer through the paint cracks found across the surface of the painting, but no clear colours could be seen in these cracks as the painting is covered by thick varnish. A black line was observed inside one paint crack in the raised area of paint that extends from the right chin of the woman to the lower left, but whether this was an intentional black line or not has not been determined at this stage [Fig. 8].

In 2021, the APMoA had the opportunity to exhibit *Woman in Blue Shawl* as part of the exhibition *Picasso: Painting the Blue Period*.¹³ One of the institutions to which the painting was loaned, The Phillips Collection, is located in Washington D.C., which is also home of the National Gallery of Art. The National Gallery has had success in recent years in investigating the earlier painted compositions beneath some of Picasso's Blue Period works using infrared reflectance imaging spectroscopy with a high sensitivity infrared hyperspectral camera.¹⁴ During this recent analysis, APMoA requested the National Gallery and The Phillips Collection to carry out a study of *Woman in Blue Shawl*, using this hyperspectral camera. In May 2022, the survey was carried out in The Phillips Collection's



Fig. 7 Photographic image with raking light (from the top).

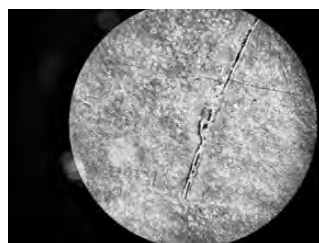


Fig. 8 Black line observed inside a crack.



Fig. 9 Survey at the Phillips Collection (25 May 2022).

¹² Nagaya, op. cit.

¹³ *Picasso: Painting the Blue Period*. Art Gallery of Ontario, Canada: 6 October 2021 - 4 January 2022; Phillips Collection, Washington D. C., US.: 26 February - 12 June 2022.

¹⁴ For the details of hyperspectral infrared optical investigation, see John K. Delaney et. al., 'Visible and infrared imaging spectroscopy of paintings and improved reflectography,' *Heritage Science*, 4 and 6, 2016; Patricia A. Favero et. al., 'Reflectance imaging spectroscopy and synchrotron radiation X-ray fluorescence mapping used in a technical study of *The Blue Room* by Pablo Picasso,' *Heritage Science*, 5, 13, 2017.

conservation studio [Fig. 9] by scientists from the National Gallery and the results are reported in the next section.

Examination and Results

The analysis of the data obtained with the infrared reflectance imaging spectroscopy revealed the presence of lines of paint, which appears to be a painted sketch of a human figure, in the approximately the centre of the canvas [Fig. 10] [Fig. 11]. These painted lines are beneath the *Woman in Blue Shawl* and partially overlap with the head of the woman. A detail from this area shows paint that has dripped downwards [Fig. 12]. This dripping of paint cannot be seen on the surface of the canvas and thus appears to be in the underlying paint lines. The fact that the drips are in the lower paint layer and are not smudged strongly suggests that the paint forming the lines of the lower layer was allowed to dry sufficiently before *Woman in Blue Shawl* was painted on top. It also shows that *Woman in Blue Shawl* was then painted without rotating the canvas as is often done when re-using a canvas. As mentioned above, the painting's canvas shows evidence of having been resized to its current form by trimming three sides, the left, right, and bottom sides, but the fact that prior painted sketch is located almost in the centre of the canvas suggests that the resizing of the canvas likely was done before the sketch was painted.

The brushstrokes seen in the mathematically processed infrared reflectance images of the sketch do not overlap with the brushstrokes observed in the X-ray image [Fig. 6] described above.¹⁵ On the other hand, the white-looking areas in the infrared reflectance images, which are prominent on the right side of the canvas, coincide in many parts with the brushstrokes observed in



Fig. 10 Minimum Noise Fraction transformed infrared image (1000-1650nm).



Fig. 11 Dotted lines added and brightness adjusted by the authors on Fig. 10.

15 Similarly, Hiroshima Museum of Art's recent hyperspectral camera survey of *Two Women at a Bar* (1902) also detected strokes that did not appear in the previously recorded X-ray images. Patricia Favero, John K. Delaney, and Kathryn A. Dooley, 'Technical Note: Recent studies of *Two Women at a Bar*,' Kaori Taguchi trans., *Picasso: Ao no Jidai wo Koete (Picasso: The Blue Period and Beyond)*, exh. cat., Pola Museum of Art, 2022, pp. 263-264.

the X-ray image and these brushstrokes appear to have been cut off at the edge of the canvas. It is, therefore, possible that there is another earlier painted layer on this canvas which was painted before the canvas was resized. To summarise, it is presumed that Picasso first painted the unidentified image on a larger canvas than the current, then cut down the left, right, and bottom edges of the canvas, then subsequently painted the newly found sketch of the figure in the processed reflectance images, allowing a certain amount of time for the paint to dry, and finally painted *Woman in Blue Shawl*.

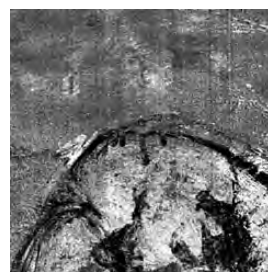


Fig. 12 Partially magnified image of Fig. 11.

Analysis

The discovery of the painted sketch of the human figure can be a starting point for further research. We pick up motifs similar to what these lines show from Picasso's works of the same period and others, and present very brief comparisons and analyses.

If we assume that this image on a lower layer depicts a single human figure, and that the current orientation of the canvas is correct for this image too as described above,



Fig. 13 *Femme assise se coiffant*, 1902, Ink and coloured pencil on paper, 14 x 9 cm, Private collection.



Fig. 14 *Nu assis aux bras croisés*, 1902, Ink on paper, 21.5 x 17 cm, Musée national Picasso-Paris.



Fig. 15 *Nu assis*, 1902, pencil on paper, 20 x 20 cm, Private Collection.



Fig. 16 *Nu accroupi*, 1902, Ink and watercolour on paper, 31 x 24.6 cm, The Picasso Estate.



Fig. 17 Lower-layer Image of *The Blind Man's Meal*, before 1903, 95.3 x 94.6 cm, The Metropolitan Museum of Art.



Fig. 18 *La Vie*, 1903, oil on canvas, 196.5 x 129.2 cm, The Cleveland Museum of Art

the figure appears to have a rather unnaturally bent back and bowed head, looking down towards the crossed legs. Although no image exactly corresponding to this can be found in the existing works by Picasso, figures in a similar posture appears in the 1902 drawings listed in Figures 13 to 16¹⁶, in the low-layer image of *The Blind Man's Meal* (1903) and in two paintings within the painting *La Vie* (1903).

If one looks at the gesture of this figure, especially the way it bends down and focuses on its crossed legs, one can imagine it taking off or putting on something such as slippers, socks or stockings. In the works of Toulouse-Lautrec, Degas and Bonnard, who are believed to have greatly influenced Picasso during this period, there are frequent images of women dressing themselves or relaxing in private and closed spaces such as dressing rooms or bedrooms. The women in these pictures are not conscious of the gaze of others and these images often suggest the voyeuristic perspective of the artist/viewer.¹⁷ Picasso had employed a similar motif the year before he produced *Woman in Blue Shawl* [Fig. 19] [Fig. 20], so it is not surprising that the figure on the lower level in this canvas shares a similar motif. The Hellenistic sculpture

Boy with Thorn (Spinario) [Fig. 21], which was well known among Picasso's contemporary artists,¹⁸ was later referenced by Picasso in *Two Youths* (1906) [Fig. 22] from his Rose Period and in one of his masterpieces from his Neoclassicism Period, *Seated Nude Drying Her Foot* (1921) [Fig. 23]. It is possible to see a reflection of this type of classical representation of the human body in the figure on the lower layer.

On the other hand, if the painted



Fig. 19 *La toilette*, 1901, Pastel on cardboard, 26 x 28 cm, John A. Beck Collection, Houston.



Fig. 20 *La toilette*, 1902, Charcoal and coloured pencil on paper, 8 x 12 cm, Private collection.



Fig. 21 *Boy with Thorn (Spinario)*, Roman era, Capitoline Museums.



Fig. 22 *Two Youths*, 1906, Oil on canvas, 151.5 x 93.7 cm, The National Gallery, Washington.

16 Enrique Mallen, ed., *On-line Picasso Project*, <https://picasso.shsu.edu/>, Sam Houston State University, 1997-2023.

17 Susan Behrends Frank, 'The Blue Room Reconsidered,' *Picasso: Painting the Blue Period*, The Art Gallery of Ontario, DelMonico Books, 2021, pp. 24-51.

18 For its influence on works by Pierre Bonnard, for example, see Sarah Whitfield, 'Fragments of an Identical World,' *Bonnard*, The Museum of Modern Art, 1998, pp. 9-31.

lines on the lower layer constitute more than one figure or image, it is necessary to consider similar motifs for each part, ignoring the consistency of the lines as a whole. But in order to do so, the number of motifs to be considered will, of course, increase dramatically. In this paper, we focus on the largely curved back and head of the upper body, and the gently bent arms, which are the most distinctive features of this figure. This posture strongly suggests a kinship with a number of examples representing the Blue Period, such as *Woman Ironing* (1901) [Fig. 24], *Woman Leaving the Bath* (1901) [Fig. 25], *The Blue Room* (1901), and *The Soup* (1902). The proportions of the head, the curved back and the arms falling from it in *Woman Ironing*, in particular, overlap in many ways with the lower-layer figure in question, if one disregards the difference in dimensions of the picture plane of the two.

Let us consider a few more possibilities. On the wall of Picasso's studio at 10 Nou da la Rambla in Barcelona, there was a photographic reproduction of Auguste Rodin's *The Thinker* (prototype: 1880) [Fig. 26].¹⁹ This is thought to be the illustration that accompanied the essay on Rodin by Joaquim Cabot y Rovira in *Pèl & Ploma*, 68 (15 January 1901)[Fig. 27].²⁰ The resemblance between the side view of *The Thinker* and the our lower-layer figure is also well worth noting. Picasso is believed to have seen Rodin's works some time during his first trip to Paris from October to December 1900. Picasso produced drawings of some of Rodin's works in the same year and was continuously interested in the sculptor from then on.

Other cases we cannot rule out are where the lower-layer image is not by Picasso himself. For example, *Head of a Woman* (1903, Oil on canvas, 40.3 x 35.6 cm, Metropolitan Museum of Art) is known to have been painted over a landscape by Joan González.²¹ *Crouching Beggarwoman* (1902, Oil on canvas, 101.3 x 66 cm, Art Gallery of Ontario) had an X-ray image taken in 1992 that reveals the presence



Fig. 23 *Seated Nude Drying Her Foot*, 1921. Pastel on paper, 66 x 50.8 cm, Berggruen Museum.



Fig. 24 *Woman Ironing*, 1901. Oil on canvas, mounted on cardboard, 49.5 x 25.7 cm, Metropolitan Museum of Art.



Fig. 25 *Woman Leaving the Bath*, 1901. Oil on canvas, 46.2 x 33 cm, Private collection.

19 Ann Temkin and Anne Umland, *Picasso Sculpture*, The Museum of Modern Art, New York, 2015.

20 Joaquim Cabot y Rovira, 'August Rodin,' *Pèl & Ploma*, núm. 68, 15 Janer, 1901, pp. 2-4.

21 Gary Tinterow and Susan Alyson Stein ed., *Picasso in The Metropolitan Museum of Art*, The Metropolitan Museum of Art, New York, 2010, pp. 57-58.

of a landscape on the lower level (identified in a 2018 survey as depicting the labyrinth of Horta, outside Barcelona), the date and artist of which are unknown.²²

The painted sketch of the human figure found in this survey consists of only a very simple outline and does not appear to have been worked on enough to be called a



Fig. 26 Pablo Picasso, *Two Women at a Bar on Studio Wall*, 1902, Gelatine silver print, Musée national Picasso-Paris.



Fig. 27 *Pêl & Ploma*, 68, 15 January 1901.

finished work. It seems that Picasso painted this lower-layer image and then, as mentioned above, left enough time for the dripping paint to dry out before painting the motif of *Woman in Blue Shawl* on top. In addition, the head contour of the woman partially overlaps with the line of the lower-layer image, which shows Picasso that reused the existing lines while creating the new image. Among the examples of Picasso's reuse of canvases in the Blue Period, there are a number of works that partially use the lines of the drawing underneath, such as *Melancholy Woman* (1902, oil on canvas, 100.0 x 69.2 cm, Detroit Institute of Arts), in which the head of the figure in the lower layer overlaps with the outline of the woman's hair on the surface of the canvas²³. *Crouching Beggarwoman* is also one of them: the line of the hill in the underlying landscape partially coincides with the outline of the woman on the surface of the canvas. In this respect, *Woman in Blue Shawl* is also a valuable example that gives insight of part of Picasso's image-making process.

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22 Emeline Pouyet, et. al., 'New Insight into Pablo Picasso's *La Miséreuse accroupie* (Barcelona, 1902) Using X-ray Fluorescence Imaging and Reflectance Spectroscopies Combined with Micro-analyses of Sample,' *SN Applied Sciences*, vol. 2, issue 8, article no. 1408, 2020.

23 Ann Hoenigswald, "Works in Progress: Pablo Picasso's Hidden Images," Marilyn McCully ed., *Picasso The Early Years, 1892-1906*, National Gallery of Art, Washington, 1997, pp. 299-309.