

PETRA MANDT

## The Paintings of Kazimir Malevich in the Ludwig Collection from the Art-Technological Point of View



Petra Mandt is Deputy Head of Conservation at the Ludwig Museum in Cologne. Her article was first published as, “Die Gemälde Kasimir Malewitschs im Bestand der Sammlung Ludwig aus kunst-technologischer Sicht”, in *Kasimir Malewitsch und der Suprematismus in der Sammlung Ludwig, Russische Avantgarde im Museum Ludwig*, Cologne, 2011. It is an excellent demonstration of the contributions of scientific analysis to works of art. The photograph to the left shows Malevich retouching a painting in 1932.

In preparation for a presentation of works by Kazimir Malevich in 2010, four pictures from the collection were examined from an art-technological point of view in 2009.<sup>1</sup> The first results of the paintings *Suprematist Composition* (1915, No. 1) and *Supremus No. 38* (1916, No. 2) were presented in a “cabinet exhibition.”<sup>2</sup> The painting *Landscape (Winter)* was dated by the artist to the year 1909 (No. 3)<sup>3</sup> while, due to its impressionistic style, *Landscape* (ca. 1933/34, No. 4) is characteristic of the artist’s earlier creative phase. On the basis of art historical research, both pictures are assigned to a later period.

### An Overview of Contributions Regarding Kazimir Malevich’s Painting Technique

A first analysis of ten paintings (dating from 1904-1932/33) from the collection of the Tretiakov Gallery was made by Milda Viktorina and Alla Lukanova in 1990/91.<sup>4</sup> These works were considered with regard to paint and to layers of varnish or glaze, width of the brush and overall structure.<sup>5</sup>

In 1996/97 Ann Honigswald published a study which encompassed 31 paintings from 1908-1933.<sup>6</sup> The text systematically follows the composition of the paintings. The results are based on purely visual observation only, i.e. on ultra-violet and infra-red examinations.<sup>7</sup>

In the year 2000, the State Russian Museum in St. Petersburg exhibited its collection of works by Kazimir Malevich which, comprising 101 paintings, is the most comprehensive collection

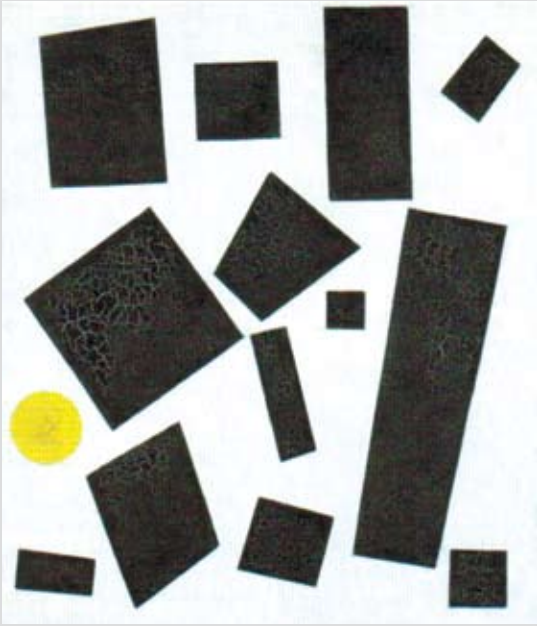
in the world.<sup>8</sup> Under the leadership of Svetlana Rimskaya-Korsakova a technological examination was made based on compositional comparison.<sup>9</sup> In the examination of Malevich’s later works where we observe the stylistic development of earlier creative phases, there are numerous paintings which were predated by the artist.<sup>10</sup> The aim of this investigation was to clarify the chronology of the works which, for a long time, had been a problem in art historical research. On the basis of firmly dated paintings and, in turn, on the basis of detailed analyses of the structure of the painting serving as a reference, it was possible to filter out pictures having similar structures and to date them anew.<sup>11</sup>

Andrei Nakov dedicated a whole chapter to Malevich’s painterly technique in his monograph, *Kazimir Malewicz, Le peintre absolu*, which was published in 2007.<sup>12</sup> The basis for this were the previously published analyses which completed the evaluation of heretofore undocumented objects.<sup>13</sup> Nakov placed the emphasis of his analyses on Malevich’s development of his Suprematist works.

A single study, also written by Andrei Nakov, of the painting *Black and White* (dated 1915, Moderna Museet, Stockholm) contains, besides the restoration report, also the results of the art-technological evaluation.<sup>14</sup>

### Provenance

When assessing the condition of a painting, its provenance must always be considered. The previous owners, among others, may play an important role as the initiators of restoration reports. The



No. 1 *Suprematist Composition*, 1915  
Oil on canvas, 66.5 x 57 cm.



No. 2 *Supremus No. 38*, 1916  
Oil on canvas, 102.4 x 66.9 cm.



No. 3 *Landscape (Winter)*, 1909/ after 1927  
Oil on canvas, 48.5 x 54 cm.



No. 4 *Landscape*, c. 1932/33  
Oil on canvas, 31 x 52 cm.

painting *Suprematist Composition* used to belong to the Nikolai Khardzhiev (1903-1996) collection.<sup>15</sup> In 1992 began a series of photographs which documented the condition of the works in the Khardzhiev collection that were in his Moscow apartment.<sup>16</sup> The paintings had been removed from their stretchers for lack of space and placed one on top of the other.

In 1994, the *Suprematist Composition* was acquired by the

Gallery Gmurzynska (Cologne) and has been part of the Ludwig Collection since 1996. An undocumented restoration took place between 1992 and 1996.<sup>17</sup> The painting, *Supremus No. 38*, once belonged to the Museum of Artistic Culture in Moscow<sup>18</sup> and after its formal dissolution in 1929 was transferred to the Tretiakov Gallery.<sup>19</sup> In 1972, the Russian State gave it as an official gift to the American industrialist and art collector, Armand Hammer.<sup>20</sup>

At the request of the collector, in 1975 the painting was subjected to a thorough restoration<sup>21</sup> and sold in 1978 via the art market.<sup>22</sup>

The two paintings, *Landscape (Winter)* and *Landscape*, belonged to Malevich's student, Anna Leporskaya (1900-1982).<sup>23</sup> These works were acquired in 1978 by the Ludwig Collection from the Gallery Gmurzynska in Cologne.

## Summary of Results of the Art-Technological Examination

### Formats<sup>23</sup>

If one compares the entries in *Kazimir Malevich Catalogue Raisonné* (André Nakov), there is an enormous variety in the formats with medium sizes predominating. The two paintings from the Suprematist phase, *Suprematist Composition* (66.5 x 57 cm.) and *Supremus No. 38* (102.4 x 66.9 cm.), were done in a vertical format. For the two landscapes, *Landscape (Winter)* (48.5 x 54 cm.) and *Landscape* (31 x 52 cm.), Malevich selected the traditional horizontal format.

### Supports

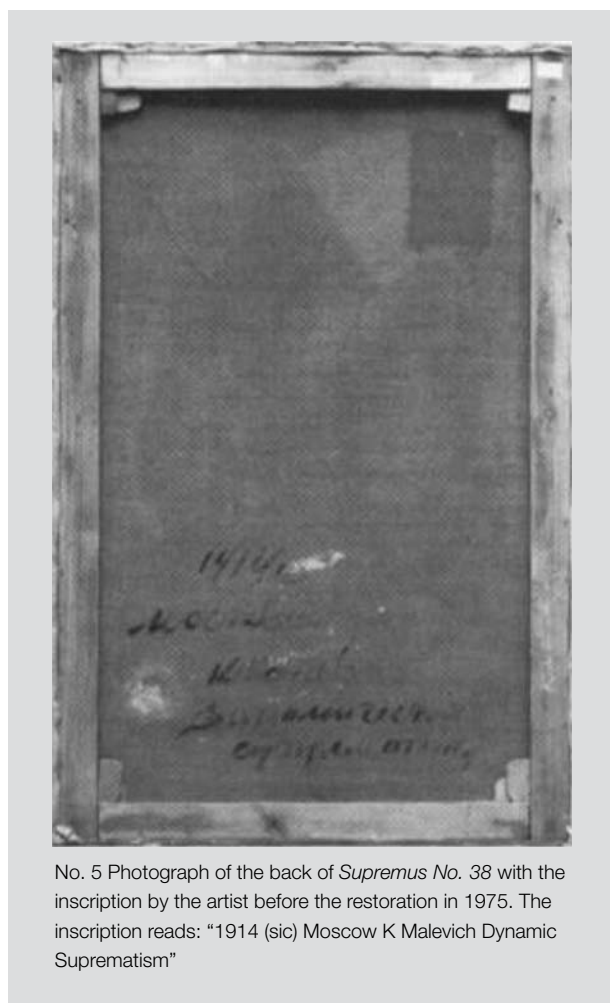
Although Malevich used both cardboard and wood panels, most of his pictures are on linen supports. From the works which were examined, he used simple and rough canvases which varied in density and weave structure. In the *Suprematist Composition* there is a thread density of 15/16 per square centimeter. The canvas, despite its density, is woven loosely. With *Supremus No. 38*, a rougher weave was used with 12 threads per warp and 13 threads of weft. The strengths of the threads are irregular and show knotting of the yarn.

The two pictures from his later (creative) phase also showed differing weave densities: a finer weave of 13/15 threads per square cm. in *Landscape (Winter)* and a rougher weave of 10 threads per warp and 12 threads per weft in the *Landscape*. Characteristic for both canvases is an irregular strength of the threads, with bulges and knots in the rough canvas yarn.

### Stretcher and Tension

The original stretchers are no longer extant. For *Supremus No. 38* the earlier, possibly original, stretcher is documented by a photograph from the year 1975: it was probably made out of pine re-enforced with dowels.<sup>25</sup> The stretching of the canvases of both Suprematist works could be reconstructed on the basis of photographs from the period and X-rays.

The historic photograph of the exhibition of the *Last Futurist Exhibition of Paintings 0.10* which took place in 1915 showed most of the works unframed,<sup>26</sup> including the *Suprematist*



No. 5 Photograph of the back of *Supremus No. 38* with the inscription by the artist before the restoration in 1975. The inscription reads: "1914 (sic) Moscow K Malevich Dynamic Suprematism"

*Composition* (No. 1). The edges of the canvas pulled round the stretcher can be seen in the hanging of the picture on the wall. On the photograph from 1992, which shows the picture removed from the stretcher, the original nail holes are clearly visible.<sup>27</sup>

The edges of the canvas of *Supremus No. 38* were tacked to the stretcher in wide distances thus resulting in a drooping of the canvas. The traces left by the folds and the previous fastening points to the stretcher are clearly visible in the X-rays. The canvas was folded over on the right side of the stretcher. Here the edge of the canvas was retained.

In *Landscape (Winter)* the canvas was cut from a larger piece of canvas. The distance between the original nail holes differed in all corners ranging from 5.3 to 8 cm. Even with the impressionistic *Landscape*, the canvas was cut from a larger sheet. At the lower edge of the painting lines of creasing can be seen today which go up to as much as 10 cm. into the picture surface. The edge of the canvas is partially visible. On the left side of the picture surface, at a height of approximately 15.3 cm., there is a circular fingerprint by Malevich. This could mean that the canvas was not nailed to the stretcher during the painting process but that it was attached solely with thumb tacks.<sup>28</sup>



## Priming and Ground

The pictures which were examined all showed a bright ground. Besides a chalk layer<sup>29</sup> there was a mixture of oil and chalk ground.<sup>30</sup> There was evidence as well of zinc white and barium sulfate.<sup>31</sup> The colour of the ground was always determined by the mixture of additional pigments which also influenced the luminosity of the ground. With the paintings *Suprematist Composition*, *Landscape (Winter)*, and the impressionistic *Landscape*, primed canvas was used and then cut down to the desired size. With the impressionistic *Landscape* there are markings indicating the size of the canvas. These borderlines on the left and at the top of the picture surface have survived partially.

The ground layers of the *Suprematist Composition* and *Landscape (Winter)* have a very smooth surface and the priming did not filter through the back of the canvas. One can therefore assume that a layer of glue was previously applied to the surface of the canvas. This is particularly true of the fine but loosely woven canvas of the Suprematist work. With *Supremus No. 38* the artist himself primed the canvas after it was stretched. The creases that were created during the stretching were therefore removed. The edges of the canvas (which wrapped around the stretcher) were not primed.

With the impressionistic painting *Landscape*, the structure and weave pattern marked the surface of the picture because the priming layer covers only the surface of the canvas and the gaps between the threads.

## Underdrawings and Preparatory Sketches

Three of the analyzed paintings showed an underdrawing. They are all in graphite pencil on the ground of the canvas. Where these were not covered up during the painting process, they are partially visible to the naked eye or can be seen through a microscope or by way of an infra-red examination.

For all the paintings there exist separate drawings.<sup>32</sup> The smaller studies for *Suprematist Composition* and *Supremus No. 38* were done in pencil on squared paper, the use of which is typical for the Suprematist compositions.<sup>33</sup>



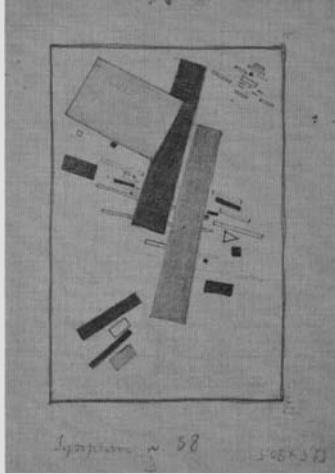
No 6 *Landscape (Winter)* (No 4), detail.  
The underdrawing in pencil is visible on the ground.



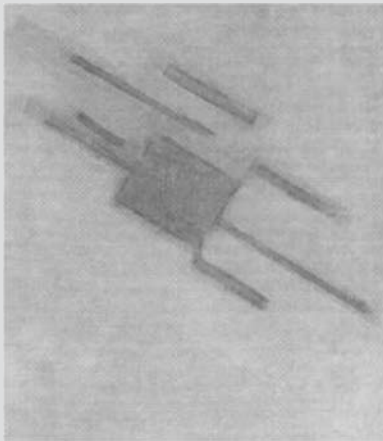
No. 7 *Suprematist Composition* (No. 1), detail.  
The underdrawing around the yellow circle remains visible.



No. 8 *Suprematism*, graphite on paper. Private Collection Preparatory drawing for *Suprematist Composition*, 1915



No. 9 *Suprematism No. 38*, graphite on paper.  
Khardzhiev-Chaga Cultural Centre Foundation,  
Stedelijk Museum, Amsterdam



No. 10 Detail of X-ray reflectogram of *Supremus No. 38* (No. 2). The underdrawing, in comparison to the separate preparatory drawing of this area, shows a significant reduction in the smaller geometric forms.



No. 11 *Landscape (Winter)*, pencil on paper  
L. Nusberg, Orange, New Jersey

The proportions and individual forms are essentially laid down in preparatory drawings for the *Suprematist Composition* (No. 9). When the drawing was applied to the surface ground, Malevich added a rectangle in the lower left and a square in the lower right corner and pushed the geometric forms in the middle closer together.

The preparatory drawing for *Supremus No. 38* is more detailed (No. 9). The order of the large geometric forms on the surface are consistent with the underdrawing but the number of smaller elements is significantly reduced. This is particularly true for the upper right corner and in the middle of the picture plane, as can be seen in No.10.

For the difference in the colours, the individual picture planes were indicated by Malevich in the preparatory drawing in the gradually lighter shades of grey. In the large rectangular form in the upper left corner we read in Cyrillic the instruction “goluboi” (middle blue).<sup>34</sup>

A preparatory drawing for the *Landscape (Winter)*, No. 11, shows interlocking semi-circles as receding hills which provide perspective. The tree trunks provide a kind of verticality whose rounded crowns reflect the semi-circles of the hills. In the centre of the picture the walking figure of a man is seen in front of a house.

The underdrawing of the painting is much more detailed. Of special note is the middle ground: it is arranged in perspective from left to right where there are sketchy outlines of houses, some of which show merely the front. On the far right is a house whose fence is in the design of a grid which cuts across it. Next to it one can see the sketchy outlines of two trees whose triangular forms remind us of pine trees. The figure of the walking man is also visible in the underdrawing. The receding hills are indicated with quick thin lines. Taken together, the underdrawing appears more sketchy than the preparatory drawing.

## Makeup of Pigments and Palette

With the two Suprematist pictures, the pre-drawn planes of geometric forms remained at first singular and discrete. Initially the white pigment layer was applied. To achieve a clean edge when painting the form, Malevich made use of a device: at the pre-drawn edge of the form he placed a piece of cardboard along which he in-painted the form at hand. Inasmuch as he placed the cardboard on the wet pigment, when he removed it from the painted surface, he created a surface ridge which looks like a raised paint application.<sup>35</sup>

In the painting *Suprematist Composition* the artist painted quickly and with assurance. The paint strokes are in either vertical or horizontal direction or in a diagonal direction according to the shapes of the forms. (No. 12) The white, black, and yellow are applied in a single layer. In the yellow, but particularly in the black areas, there is evidence of an early craquelure and resulting paint loss.

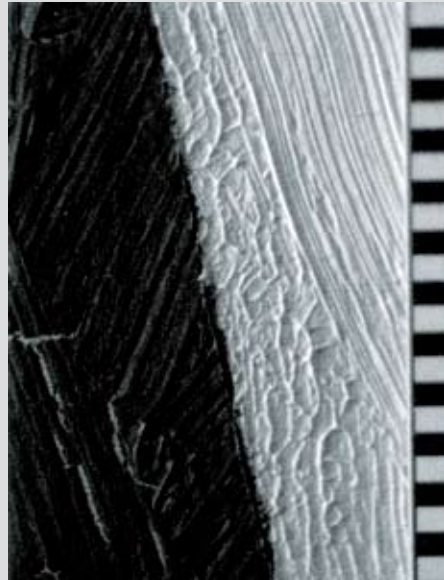
Regarding the pigments used, there is zinc white, chrome yellow and bone black, the latter with a partial mixture of chromium oxide green in an oily binding material.<sup>36</sup>

With *Supremus No. 38* the artist made changes in form and colour application while in the act of painting. Especially noteworthy is the overpainting of the largest rectangular form above left in the now yellow paint layer. As the microscopic examination demonstrated, the artist changed the colour in the preliminary drawing.<sup>37</sup>

In the upper right hand corner Malevich reduced the size of the narrow rectangular forms in the preparatory drawing above the square. In the final painting they were assimilated into a single plane. The small square which had originally been done in a lake pigment was overpainted by the now visible blue.<sup>38</sup> A triangle which at first was painted in red was slightly enlarged and overpainted in black.<sup>39</sup> The white colour layer was also reworked and the shapes partially changed in colouration. The application of the white paint layer was done in strong brush strokes which were in semi-circular shapes, at times crossing each other<sup>40</sup> whereas the geometric shapes were predominantly executed in vertical or horizontal brush strokes.

Besides zinc white and bone black, the pigments noted were cadmium yellow, chrome yellow, Berlin [Prussian] blue, ultramarine, a violet lake, and black, as well as a green made from a mixture of Berlin blue and chrome yellow combined in an oily binding material.

With *Landscape (Winter)* Malevich changed the contour lines of the underdrawing to a brush underpainting; this is still visible in the defining limits of the hills in the foreground. The crowns of the trees were in part underpainted with a thinned superficially black coating whereas the hills in the foreground are underpainted in red. To give spatial volume to the individual forms (hills, tree trunks, and tree canopies), Malevich used colour gradations from dark to light. The application of paint was done quickly using a slanting brush stroke. As demonstrated by an examination under the microscope, the artist at first dealt with the composition as a whole before he executed the details in the middle ground of the picture. There we see the smaller colour areas side by side which are partially done in double layers. The ground, with the underdrawing and/or underpainting, is partially visible. There are only minimal overlaps of the outer edges of the individual colour



No. 12 *Suprematist Composition*, detail of brushwork. Defining the line with the use of cardboard resulted in a clear outer edge of the black pigment. (Measurements in mm.)



No. 13 Cross section from *Supremus No. 38* (enlargement 200 x). The square in the upper right was originally executed in purple lake.



No. 14 Cross section from *Supremus No. 38* (enlargement 200 x). The square in the upper right was originally executed in violet lake.





No. 15 *Landscape (Winter)*, detail, showing traces of underpainting, colour gradations, brushstrokes, and tonalities. (Not in original article.)



No. 16 Detail from the painting *Landscape (Winter)*. The photograph done under the microscope shows the coating on the lower part of the chimney painted in white on the house. (Measurements are in mm.)

fields. It is important to note the broad impasto of the paint and the short brushstrokes in the white-yellow tonalities which, by way of thickness, are notably different from the flat colourations.<sup>41</sup>

The pigments found were zinc white, an organic yellow pigment, cadmium orange, vermilion, a translucent red lake, chromium oxide green, Schweinfurter [emerald] green, ultramarine, and iron oxide black made with an oily binding material.

The small painting, *Landscape*, (No. 4) is a view of a flat expanse of land. Painted in an obviously loose way, Malevich arranged cloud formations in a deep horizon. The colour value of the white ground layer is integrated into the composition. The blue tonalities of the sky and the yellow and grey shading are applied in quick brushstrokes which are applied in zigzag, in short curved, wavy, or even in long expansive lines disappearing at the horizon. The differing brushstrokes are found in the yellow, ochre and green tonalities which designate planted and unplanted fields; these are shown in the middle and foreground in fields of colour arranged side by side. Here the paint application is thicker, one on top of the other, and at other times painted wet on wet. With short vertical and parallel brushstrokes the artist indicates the vegetation along the horizon. It was obvious that he used a looser paint application in individual colours as for example in the violet greys or in the pale greens which were already visible in the microscopic examination.

## Varnishes and Surface Character

In its appearance, the painting, *Suprematist Composition*, is characterised by strong and straight brushstrokes and the consciously applied contrast between matte and shiny black and white fields of colour which Malevich achieved by the manipulation of the pigments.<sup>42</sup>

It is difficult to judge the condition of *Supremus No. 38*. The visible surface structure is due to the wax and resin varnish. The application of the paint appears flat and the thickly applied pigments seem in part pressed down. The varnish consisting of artificial resin makes the surface of the picture appear uniformly glossy.

With *Landscape (Winter)* there is a small area where the white chimney on the green roof is evidence of a coating with a protein base.<sup>43</sup>

The paint surface in the impressionistic *Landscape* is on the whole characterised by dry and matte pigments. The evaluation of the painting is made more difficult by its condition because the surface layer of the paint is partially flattened.<sup>44</sup>

## Conclusion

The comparison of the four works by Kazimir Malevich, two from his Suprematist phase and two of later works, shows the range of the materials employed by him. He used canvases with differing density, changed the size and format, used chalk priming grounds as well as oil made from various components. His Suprematist works revealed pencil underdrawings and he combined these in *Landscape (Winter)* with brush underdrawings. For his *Suprematist Composition* and *Supremus No. 38* he used cardboard guides to help him achieve clear contours of the geometric forms, a method he generally used. As a whole, his painting was quick and sure as we can see in the succinct brushstrokes. The preparatory drawing in which the idea for the picture is first developed plays an important role. During the evolution from the preparatory drawing to the underdrawing, the composition is further developed either by reducing or by adding elements. These are changes that occur during the painting process as we have seen in *Supremus No. 38*. The subtle use of chosen paint materials is demonstrated in the conscious use of contrasts between matte and shiny and in the variation of the paint application itself. The thus created surface structures become an integral part of the paintings by Kazimir Malevich.

*Translated from the German by  
Robert E. Hiedemann*

56

## Footnotes

[1] The examination was made possible with the financial support of Irene Ludwig. It encompassed the examination of the painting in incident and raking light, under a stereo microscope as well as with different scanning methods (ultra-violet [UV], infra-red [IR], X-ray). In addition, samples of grounds and paint were taken for the purpose of analysing the pigments, fillers and binding materials. The infra-red examination was undertaken with an Osiris-1 A camera (Opus Instr. Ltd.), which was provided to us by the Restoration Centre of Düsseldorf, the state capital of North-Rhine Westphalia. We would like to thank at this time the Director, Dr. C. Weyer, and Mr. I Holubec, M. A., for their technical assistance. The digital X-ray examination was conducted by the Cologne Institute of Conservation Sciences (CICS); the technical examination was conducted by Professor H. Portsteffen and academically certified restorer, A. Krupa. The analysis of pigment and binding materials was conducted by the Micro-analytical Laboratory of Dr. Erhard Jägers and Prof. Dr. Elisabeth Jägers in Bornheim. The identification of the materials was conducted with the help

of microscopic, micro- and physiochemical methods: micro-X-ray fluorescence Horiba XGT 7000 and IR-spectroscopy Nicolet 5 PC and Thermo Nexus 670 FTIR.

- [2] *Kasimir Malewitsch und der Suprematismus in der Sammlung Ludwig. Russische Avantgarde im Museum Ludwig*. Cologne: Wienand Verlag, 2011. (*Kazimir Malevich and Suprematism in the Ludwig Collection*). Projektreihe Russische Avantgarde (Russian Avant-Garde Project Series) 5 February 2010-20 February 2011.
- [3] Petra Mandt, “*Landscape (Winter)* dated 1909 or after 1927”, lecture at the international symposium, “Malevich under the Microscope”, on 18 June 2010, in the Museum Ludwig, Cologne. Publication in preparation.
- [4] Milda Victorina, Alla Likanova, “A Study of Technique. Ten Paintings by Malevich in the Tretiakov Gallery”, in *Kazimir Malevich*, Exhibition Catalogue of the National Gallery of Art, Washington D. C.; Armand Hammer Museum, Los Angeles; Metropolitan Museum, New York, Los Angeles 1990-1991, pp. 187-197.
- [5] Applied Research Methods: Incident and Raking Light, Analysis under the Microscope, UV and X-Ray.
- [6] Ann Honigswald, “Kazimir Malevich’s Paintings: Surface and Intended Appearance”, in *Conservation Research 1996/97; Studies in the History of Art 57*; National Gallery of Art, Washington D. C., pp. 109-125.
- [7] UV-, IR-, and X-Ray Analyses were carried out as well as X-Ray-fluorescent-spectroscopy RFS.
- [8] *Kazimir Malevich in the State Russian Museum*, Exhibition Catalogue, State Russian Museum. St. Petersburg: Palace Editions, 2000.
- [9] Svetlana Rinskaya-Korsakova, “Concerning the Technological Research of Malevich’s Paintings”, in *Kazimir Malevich in the State Russian Museum*, Ibid., pp. 28-31. In the catalogue the backs of the paintings are reproduced as well as a selection of infra-red and X-ray images.
- [10] Among the earliest art historical studies about this topic is Charlotte Douglas, “Malevich’s Paintings – Some Problems of Chronology”, in *USSR*, 1978, 5, Part 2.
- [11] Unfortunately, the research methods are not explicitly mentioned. One can deduce from the catalogue chapter that fibre analyses were carried out in order to determine the painting supports as well as pigment and binding vehicle analyses.
- [12] Andréi Nakov, “Procédés, style et réalisation: du ‘professionalisme’ de la pratique picturale de Malewicz”, in *Kazimir Malevich. Le peintre absolu* (“Method, Style and Realisation of ‘Professionalism’ in Malevich’s Pictorial Practice”, in *Kazimir Malevich, the Absolute Painter*). Paris: Edition Thalia, 2007, Vol. 4, Chapter 31, pp. 136-180.



- [13] Ibid. Note in particular the list of the evaluated documents, pp. 180-185. Andréi Nakov discussed detailed images in raking light as well as infra-red and X-ray pictures.
- [14] Andréi Nakov, *Black and White. A Suprematist Composition of 1915 by Kazimir Malevich*, Moderna Museet, Stockholm, published in Göttingen, 2009, pp. 111-120. Conservation Report by Lars Byström.
- [15] Evgenia Petrova, Editor, *A Legacy Regained: Nicolai Khardzhiev and the Russian Avant-Garde*. St. Petersburg: Palace Editions, 2002.
- [16] Hella Rottenberg, *Meesters, Marodeurs. De lotgevallen van de collectie Chardzjiev*. Amsterdam, 1999. Illustrations, pp. 107-108. Colour photograph on the cover.
- [17] The restoration consisted of applying a strip lining as well as a partially extensive overpainting of missing black and white areas.
- [18] Christiane Post, "Die russischen Avantgardemuseen (1918-1928)", in Isabel Wünsche, Ada Raev (Eds), *Kursschwankungen. Die russische Kunst im Wertesystem der europäischen Moderne*. ("The Russian Avant-Garde Museums [1918-1928]") in Isabel Wünsche, Ada Raev (Editors), *Fluctuations in the Evaluation of Russian Art in the Value System of the European Modern Age*. Berlin, 2007, pp.157-165.) A photograph of the permanent exhibition of the Museum of Artistic Culture in 1928 shows, among other paintings, *Supremus No. 38*. It has been demonstrated that it cannot have been shown in the Malevich exhibitions in Warsaw and Berlin in 1927 as asserted by Andréi Nakov, *Kazimir Malewicz. Catalogue Raisonné*. Paris: Adam Biro, 2002, p. 70.
- [19] In an e-mail, Tatjana Gorodkova, Chief Curator of the State Tretyakov Gallery, reported that the painting was registered in the receipt book of the Tretyakov Gallery as *Suprematism #42* (oil on canvas; 102 x 66, KRTG 2893, inv. 11 968). The inscription on the back of the painting reads "1914, Moscow K. Malevi... Dynamic Suprematism".
- [20] Armand Hammer with Neil Lyndon, *Hammer*. New York: Simon and Shuster, 1987. "About the Origin of his Art Collection and the Circumstances of the Donation", see chapter 24: "Of Men and Masterpieces", pp. 432-455.
- [21] This procedure has left its mark on the painting in its present state. Among other things the procedure consisted of the application of a wax-resin plus the glueing onto a rigid panel and the further application of an art resin varnish.
- [22] Gallery Knoedler, New York. Purchased there for the Ludwig Collection.
- [23] Elena Basner, "A. A. Leporskaya. The Painting of Anna Leporskaya", in *In Malevich's Circle. Confederates, Students, Followers in Russia 1920s-1950s*. Exhibition catalogue, The State Russian Museum. St. Petersburg: Palace Editions, 2000, pp. 265-269.
- [24] The evaluation is based on the statements in Andréi Nakov, *Kazimir Malewicz, op. cit.* [18].
- [25] The stretcher was removed during the restoration which was performed in 1975. An identical stretcher is found on *Supremus No. 57* – today in the possession of the Tate Gallery, London. Cf. both illustrations in Andréi Nakov, *Ibid.*, pp. 48-49.
- [26] Cf. Andréi Nakov, "Kasimir Malewitsche, Suprematistische Komposition, 1915" ("Kazimir Malevich, Suprematist Composition, 1915"), in *Kasimir Malewitsch und der Suprematismus in der Sammlung Ludwig, op. cit.* [2], photograph of the exhibition 0.10, p. 34.
- [27] Hella Rottenberg, *Meesters, Marodeurs. De lotgevallen van de collectie Chardzjiev, op. cit.* [16], illustration, p. 107, and colour illustration on the cover. The edges of the canvas folded over are were of irregular width; the nail holes with traces of corrosion in the textile material are only partially preserved. Today the painting shows a strip lining.
- [28] Today the painting has a strip lining and is stretched with fibres positioned at an angle. This measure was taken during an undocumented restoration.
- [29] *Suprematist Composition*. Analysis of the priming ground: calcium carbonate and a protein binding component.
- [30] *Landscape (Winter)*. Analysis of the ground: calcium carbonate and carbonate of lead in an oily binding material.
- [31] *Supremus No. 38* and *Landscape*. Analysis of the ground: zinc white and barium sulfate in an oily binding material.
- [32] In Andréi Nakov, *Catalogue Raisonné, op. cit.* [18]. As for *Suprematist Composition* (ML. Inv.-No. 01620), see p. 59; as for *Supremus 38* (ML inv.- No. 01294), see p. 71; as for *Landscape (Winter)* (ML Inv.- No. 01300), see p. 258.
- [33] See exhibition catalogue by Tatyana Gorbyacheva, *Drawings by Malevich*, pp. 12-23. [Reference incomplete in original.]
- [34] The *Catalogue Raisonné* contains other preparatory drawings having colour indications. A systematic investigation concerning the extent to which these have been incorporated in the paintings has not yet been published.
- [35] See also A. Honigswald, "Kazimir Malevich's Paintings: Surface and Intended Appearance", *op. cit.* [6], p. 115. Honigswald describes an identical procedure in a *Suprematist Painting* of 1915 (Stedelijk Museum Amsterdam).
- [36] A drying oil has been used. The homogenous mixture of the colour material points to an industrial product. Cf. Andréi Nakov, *Black and White. A Suprematist Composition of 1915 by Kazimir Malevich, op. cit.* [14], pp.116-117. For the painting *Black and White* (Moderne Museet, Stockholm) as well as for the painting *Black Cross* (Centre Pompidou, Paris) the use of zinc white and bone black in a drying oil (walnut oil) was also confirmed. Both paintings were executed in 1915.

- [37] This can also serve as proof for the thesis that the drawing is definitely the preparatory drawing for the executed painting. Yet Andréi Nakov dated the drawing in his *Catalogue Raisonné, op. cit.* [18], p. 71, as having been done later in the 1920s.
- [38] In the infra-red reflectography illustration, the weave structure inside the square became noticeably visible, since the artist had scraped off the purple-coloured lake.
- [39] In the early shrinkage tears occurred in the black area, the lower red layer becoming visible.
- [40] See also Andréi Nakov, *Kazimir Malevich. Le peintre absolu, op. cit.* [12], p. 171ff. He stresses this brushstroke as a specific characteristic of the surface structure.
- [41] A similar colour application, particularly of the white and yellow hues, can be found in the painting, *The Washerwoman* (dated 1927; F-199 in Andréi Nakov, *Catalogue Raisonné, op. cit.* [18]).
- [42] One possibility is an additional thinning of the black colour in order to achieve an increased dullness when applying colour on the absorbant chalk material. As to the conscious use of dulling and brightening effects as well as surface structure, see Ann Honigswald, "Kazimir Malevich's Paintings: Surface and Intended Appearance", *op. cit.* [6], pp. 113-114.
- [43] See also O. Klyonova, "Features of Malevich's Painting Technique Revealed in the Process of the Restoration of his Works", in the exhibition catalogue, *Kazimir Malevich in the State Russian Museum, op. cit.* [23], in particular regarding the use of varnish (see *ibid.*, p. 33). Ann Honigswald, *Ibid.*, p. 122, points to Malevich's conscious use of varnish in order to differentiate small shapes and cites examples of his late works.
- [44] The original brushstroke application and the impasto method are flattened. Impressions of the textile fibres have been irreversibly pressed into the paint layer; in some parts one can find traces of fibres of different textures deposited in the paint layer.