

Around the Set of Early-Modern Miniatures
Painted on Parchment
Donated by Konstanty Schmidt-Ciążyński
in the Collection of the National Museum in Kraków

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Abstract

In 1885, Konstanty Schmidt-Ciążyński donated 14 miniature paintings on parchment to the National Museum in Kraków (M[uzeum] N[arodowe] K[raków]). Despite many obvious differences, all of them were previously attributed to one artist, Willem van



Bemmel. During their conservation treatment, a search for arguments that would confirm or deny the technical relationship of the miniatures was undertaken. The technological aspects, stylistic features and nature of the age-related damage were analysed. Non-destructive examination of paint layers, microscopic analysis, and technical photography using various types of radiation sources was carried out. This paper presents a summary of the abovementioned research results and an attempt to put forward various hypotheses related to the history of these objects. In some cases, it was possible to make analogies and find iconographic references. In a few objects, stylistic and workshop features indicate shared authorship.

Abstrakt

Wokół zespołu nowożytnych miniatur malowanych na pergaminie z daru Konstantego Schmidt-Ciążyńskiego w zbiorach Muzeum Narodowego w Krakowie

W 1885 roku Konstanty Schmidt-Ciążyński przekazał Muzeum Narodowemu w Krakowie (MNK) czternaście miniatur malowanych na pergaminie. Mimo wielu oczywistych różnic historia przypisała autorstwo jednemu artyście, Willemowi van Bemmelowi. W trakcie prac konserwatorskich podjęto próbę uzyskania argumentów mogących potwierdzić lub zanegować warsztatowe pokrewieństwo miniatur. Analizowano technologię, cechy stylistyczne oraz charakter zniszczeń. Przeprowadzono nieniszczące badania warstw malarskich, analizy mikroskopowe powierzchni, wykonano fotografie w światłach analitycznych. Niniejszy artykuł stanowi podsumowanie tych badań oraz próbę postawienia tez sumarycznych. Okazało się, że dla niektórych obiektów można wskazać analogie i odnaleźć odniesienia ikonograficzne. Udało się również dokonać podziału analizowanych miniatur pod kątem podobieństw w użyciu pigmentów zidentyfikowanych w warstwie malarskiej. Cechy stylistyczne i warsztatowe wskazują na wspólne autorstwo nielicznych miniatur z tego zbioru.

Introduction

In 1885 Konstanty Schmidt-Ciążyński donated fourteen Early-Modern miniatures painted on parchment¹ (fig. 1) to the National Museum in Kraków (MNK: Muzeum Narodowe w Krakowie)². All of them depict landscape motifs

¹ Kraków, National Museum (henceforth as: MNK): MNK III-min-412, *Fire in a village*; MNK III-min-413, *Rider on a white horse*; MNK III-min-414, *Mountain landscape*; MNK III-min-415, *Forrest*; MNK III-min-416, *Fields*; MNK III-min-417, *A horseman speeding in the gale*; MNK III-min-418, *Landscape with trees and two figures*; MNK III-min-419, *A wanderer*; MNK III-min-420, *Fishermen by a river*; MNK III-min-421, *An invalid*; MNK III-min-422, *Watering cattle*; MNK III-min-423, *Landscape*; MNK III-min-424, *The Arch of Septimius Severus in Rome*; MNK III-min-425, *The Golgotha Mountain*.

² The miniatures made only a small portion of the donation. The complete list is published in *Katalog przedmiotów ofiarowanych przez Konstantego Schmidta-Ciążyńskiego do Muzeum Narodowego w Krakowie* (Kraków: Muzeum Narodowe, 1884), available online: <http://mbc.malopolska.pl/dlibra/plain-content?id=17191>, accessed March 1, 2021.

and are round, of similar, however not identical dimensions³. Twelve of them were catalogued together as one entry, no. 239 in the catalogue as „views of mountain and flat environs”⁴ and labelled with a name of Willem van Bommel (1630–1708)⁵, the Netherlandish artist, a member of a well-known artistic family van Bommel⁶. The other two were catalogued separately – as entries no. 238 and no. 240. The first one, identified as *The siege of Jerusalem*, the benefactor had attributed to Brueghel de Velours⁷. The author of the second, described as *The view of the Arch of Constantine*, is hidden under a fragment or the whole name of Nicol[...] ⁸. The fact that – despite the miniatures’ similar shapes and sizes – the benefactor himself had clearly singled out the set of twelve of them (later MNK III-min-412–423), reserving subsequent, separate rows of the catalogue for miniatures 424 and 425, may indicate not only their different attribution, but also different origin and perhaps also different original functions. Interestingly, in later register⁹, catalogues and identity sheets, all miniatures are attributed to Willem van Bommel.

Because already at first glance one can eliminate the probability of shared authorship of all fourteen works, when opportunity emerged while replacing the flat protective glazing with a convex one¹⁰, attempts were made to find the arguments that would support or deny the theory of workshop relationship of the miniatures. To this end the stylistic features were analysed as well

³ The differences in dimensions amount to several millimetres, the fact being a reason to enquire about the original function of that inhomogeneous set, which shall be addressed in the summary.

⁴ In the so called Old Catalogue, or the Łuszczkiewicz Catalogue. The catalogue had been initiated by Professor Władysław Łuszczkiewicz, the first director of the Museum, see MNK, Dział Inwentarzy, Inwentarz Muzeum Narodowego w Krakowie Władysława Łuszczkiewicza, manuscript (henceforth as: the manuscript of W. Łuszczkiewicz MNK catalogue).

⁵ The original spelling, the manuscript of W. Łuszczkiewicz MNK catalogue.

⁶ Willem van Bommel (1630–1708), the father of Johann Georg van Bommel (1669–1723), the brother of Jacob Gerritsz van Bommel (before 1628–1673), the pupil of Herman Saftleven the Younger (1609–1685); active in Netherlands (Rotterdam), Italy (Venice, Naples, Rome), England and Germany (Nuremberg); for the biography see: <https://www.getty.edu/vow/ULANServlet?english=Y&find=bommel&role=&page=1&nation=>, accessed March 1, 2021.

⁷ The original spelling, the manuscript of W. Łuszczkiewicz MNK catalogue.

⁸ The writing in the catalogue allows various possible interpretations.

⁹ Zofia Tobiaszowa, “Historia zbioru miniatur Muzeum Narodowego w Krakowie,” *Rozprawy Muzeum Narodowego w Krakowie* 7 (1962): 288–312; meaning the identity sheets from 1962, the present storage sheets and the digital catalogue database MNK MUZA.

¹⁰ The replacement was necessary because of dented edges of glass sheets and cracking (in just one case) that endangered the surfaces of miniatures. Besides, the faces of miniatures were in direct contact with the flat surface of glass sheets, which is not recommended. The work was carried out by Zofia Maniakowska-Jazownik.

as the technology and the character of existing damage. Non-invasive examination of paint layers was carried out¹¹, together with microscopic analyses of surfaces, and technical photography. The present paper is a recapitulation of the results of the above-mentioned research and an attempt at putting forward summary theses regarding the materials and technique of execution. For some of the miniatures it was possible to find analogies or iconographic references and the majority could be dated to the time after the first decade of 18th century. For that reason, and also because Willem van Bommel had died in 1708, and taking into consideration the stylistic and technological discrepancies – most of his preserved works are oil paintings and drawings on paper – his authorship must be discarded.

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Miniatures functioning as autonomous works, outside the illuminated codices, had emerged in late 15th and early 16th centuries and thanks to artists of Netherlandish descent were popularised in England and France. The majority, at least at the beginning of their history, were portrait representations¹². Themes other than portrait infiltrated the miniatures under various pretenses, mostly due to the growing popularity of that art form, its evolution and distortion of their main function¹³. This was also related to the search for more economically available techniques and multifaceted influence of oil painting¹⁴. The landscape, that had special significance in the Netherlandish art¹⁵, also exerted its influence on the miniature. Early examples of introducing landscape to miniature paintings can be found in the works of Simon Bening (1483–1561) and John Hoskins (1589(90)–1664)¹⁶; Isaac Olivier

¹¹ The X-ray fluorescent (XRF) Raman spectroscopy (RS) analyses were carried out by Marta Matosz and Anna Ryguła from the Laboratory of Analysis and Non-Destructive Investigation of Heritage Objects (LANBOZ) at the National Museum in Kraków (MNK). The technical photography study was conducted by Michał Obarzanowski. The identification of binders – despite trying – turned out to be beyond technical capabilities of the LANBOZ laboratory.

¹² The development of miniature as a separate genre, also in the context of technology and range of subject matter has been discussed in doctoral thesis: Zofia Maniakowska-Jazownik, "Problematyka konserwatorska miniatur na przykładzie zbiorów MNK" (doctoral thesis, Nicolaus Copernicus University in Toruń, 2021).

¹³ Torben H. Colding, *Aspects of Miniature Painting* (Copenhagen: Munksgaard, 1953), 120.

¹⁴ Colding, *Aspects*, 121.

¹⁵ *Natuur en landschap in de nederlandse kunst 1500–1850*, eds. Reindert Falkenburg et al. (Netherlands Kunsthistorisch Jaarboek, 48) (Zwolle: Waanders, 1998).

¹⁶ However Norgate stressed that "Landscape to an Art soe new in England", see Edward Norgate, *Miniatura or the Art of Limning*, ed. from the Manuscript in the Bodleian Library and

introduced the motif of garden to the miniature portrait¹⁷ and used the forest as a backdrop for more elaborated scenes¹⁸. In time, the miniatures started to appear as decorations on objects of everyday use, filling and adorning the surfaces of craft products¹⁹. Their popularity increased demand and – forcing mass production – led to the emergence of the so-called decorative miniature²⁰, while causing broadening of the thematic range and – quite frequently – decrease of artistic quality. The late 17th- and even 19th-century miniature landscapes on parchment were often used in elegant objects of everyday use, for instance in snuff-boxes²¹.

Portrait miniatures from the beginning made use of parchment support, which had been utilised in that way until early 18th century, when it was replaced by ivory. Among the most valued parchments used for miniature supports belonged vellum, obtained from still-born animals (*gilding vellum* or *abortive parchment*)²², sometimes substituted with white vellum²³, that is parchment sized with starch glue and polished²⁴. Early miniatures were painted with opaque paints, with just faces executed in a watercolour manner²⁵. Carefully

collated with other manuscripts by Martin Hardie (Oxford: Clarendon Press, 1919), 42, on-line: <https://ia800209.us.archive.org/18/items/cu31924016785572/cu31924016785572.pdf>, accessed November 10, 2017.

¹⁷ For instance *A party in the open air. Allegory on conjugal love*, Statens Museum for Kunst in Copenhagen, acc. no. KMS6938, <https://open.smk.dk/artwork/image/KMS6938?q=miniature&page=0>, accessed June 14, 2022.

¹⁸ George Charles Williamson, *The Miniature Collector: a Guide for the Amateur Collector of Portrait Miniatures* (London: Herbert Jenkins, 1921), 57, on-line: <https://archive.org/stream/miniaturecollect00willuoft#page/4/mode/2up>, accessed November 10, 2017.

¹⁹ In the first half of the 17th cent. in the Netherlands area wooden furniture was known, kind of *escritoire*, so called *cabinet*, adorned with miniatures with landscapes, mythological or biblical scenes, most often painted with oil on wooden or metal panels. As an example can serve cabinets made by Marten Rijckaert, Kunstmuseum Den Haag in Haag, acc. no. OHI-1957, <https://rkd.nl/explore/images/279058>, accessed July 20, 2021, or by Isaac van Osten, from a private collection, <https://rkd.nl/explore/images/34614>, accessed July 20, 2021.

²⁰ A term used in publications in context of miniatures mass-produced, often with reproduction techniques that were only to imitate artworks.

²¹ E.g. Pierre-François Delafons (?), *Snuffbox with views at château of Chanteloup*, ca. 1767, MET in New York, acc. no. 1976.155.22, <https://www.metmuseum.org/art/collection/search/206422>; Johann Wilhelm Keibel, *Snuff-box with scene of harvesting fruit*, ca. 1820, MET in New York, acc. no. 17.190.1183a–b, <https://www.metmuseum.org/art/collection/search/193860>, accessed June 21, 2022.

²² Norgate, *Miniatura*, 52.

²³ Norgate, *Miniatura*, 52.

²⁴ Norgate, *Miniatura*, 52.

²⁵ Dale T. Johnson, *American Portrait Miniatures in the Manney Collection* (New York: The Metropolitan Museum of Art, 1990), 16.

ground pigments²⁶ were mixed with gum arabic dissolved in spring water. Concentrations of the solution were adjusted experimentally²⁷. To obtain a matt surface small amounts of binder were used compared to the bulk of pigment, which could later have resulted in chalking of the paint layer. Recent examinations of miniatures by Nicholas Hilliard, revealed – along with gum arabic – the presence of protein binders – egg albumins and fats from egg-yolk²⁸. Colour palettes were developed by artists individually. The most often used colours and their characteristics were described in Early-Modern treatises²⁹.

The miniatures being the subject of the present study were painted on parchment in watercolour and gouache. However, in miniature 424 the

²⁶ The process of preparing the pigments differed according to their properties, some were ground, others dissolved. See Maniakowska-Jazownik, “Problematyka konserwatorska,” appendix 11, Tab. 4, Tab. 5.

²⁷ Norgate, *Miniatura*, 21–22.

²⁸ Christine Slottved Kimbriel and Paola Ricciardi, “Secrets of a Silent Miniaturist: Findings from a Technical Study of Miniatures Attributed to Isaac Oliver,” *British Art Studies* 17 (2020): 42–50, DOI: 10.17658/issn.2058-5462/issue-17/kimbrieli Ricciardi.

²⁹ The fundamental treatise describing painting miniatures on parchment is *Art of Limning* by a goldsmith and miniature painter Nicholas Hilliard, see *Nicholas Hilliard’s Art of Limning. A New Edition of Treatise Concerning the Art of Limning*, the text by Nicholas Hilliard, transcript by Arthur F. Kinney, comments and edition by Linda Bradley Salamon, foreword by John Pope-Hennessy (Boston: Northeastern University Press, 1983). The manuscript dates from the years 1591–1603. The title had been added by its 18th-cent. owner, George Vertue. The treatise itself is known by its handwritten copy made in London. The technique of painting miniatures on parchment has been discussed in Maniakowska-Jazownik, “Problematyka konserwatorska,” chapter II.I.B. illustrative palettes based on treatises: *Nicholas Hilliard’s Art of Limning*, 33; Norgate, *Miniatura*, 7–8; Henry Peacham, *The Gentlemans Exercise or an Exquisite Practise, as Well for Drawing in Manner of Beasts in Their True Portraitures: as Also the Making of all Kinds of Colours, to be Used in Limning, Painting, Tricking, and Blazon of Coates, and Armes, with Diers other Most Delightfull and Pleasureable Observations, for All Young Gentlemen and Others* (London: printed [by J. Legat] for I. M[arriott] and are to be sold by Francis Constable at the signe of the crane, in Pauls Church-yard, 1634), 71–83, on-line: https://archive.org/details/gri_33125008547412/page/n6, accessed August 10, 2018; William Salmon, *Polygraphice or the Art of Drawing, Engraving, Etching, Limning, Painting, Vernishing, Japaning, Gilding & c. In Two Volumes* (London: printed for A. and J. Churchill ..., and J. Nicholson ..., 1701), 92–93; Claude Boutet, *The Art of Painting in Miniature, the Speed and Perfect Acquisition of the Art without the Master* (London: Printed for J. Hodges ..., J. James ..., and T. Cooper ..., 1739), on-line: <https://archive.org/stream/artofpaintinginm00bout#page/2/mode/2up>, accessed August 10, 2018. See also Arthur H. Church, *The Chemistry of Paints and Painting* (London: Alpha Editions, 2020, reprint of the original work published in London in 1915), 146; Alicja Rafalska-Łasocha et al., “Rentgenowska dyfraktrometria proszkowa w badaniach zabytkowych obiektów. Nowe możliwości badawcze na Wydziale Chemii UJ,” *Opuscula Musealia* 19 (2011): 25–36; Nicholas Eastaugh et al., *Pigment Compendium: A Dictionary and Optical Microscopy of Historical Pigments* (Milton Parc: Routledge, 2008).

presence of gouache is very restricted³⁰. In the two cases catalogued in 1885 separately – at present the cat. No. 424 and 425 – the details were finished with gold. In these works the support was not primed. The results of analyses of the colour palette³¹ allowed to single out within the discussed set a group in which Prussian blue, a dating pigment, was used. Its presence in nine of the miniatures eliminates the possibility of them being painted before early 18th century, which makes them stand out in terms of dating. Due to its entirely different technology, the results of analyses referring to miniature 425 have been excluded from the present study to maintain clarity of the argumentation. They have been discussed separately in another study³².

The thirteen miniatures form the Kraków collection – workshop provenance in the light of the analyses of style and technique of the making

Miniatures on parchment, which can be considered earlier in terms of the history of techniques of execution and that would in the same time comprise landscape themes³³ are relatively rare³⁴. Among such examples belong the landscapes by Hans Bol (1534–1593), of which two – *Summer* and *Winter*³⁵ – are round (ø 53 mm) and have details finished with gold. In the collection of the British Museum in London, in turn, one finds an album³⁶ comprising 68 drawings by Gillis Neyts (1623–1687), the majority of them painted on

³⁰ To simplify the matters in the text the tail-end, numeric segments of the catalogue numbers are used.

³¹ The results of Raman spectroscopy and XRF analyses have been presented in Table 1.

³² The paper is being prepared.

³³ The MNK collection of miniatures on parchment apart from portraits comprises also mythological and religious themes, and – although they sometimes happen to be placed against the landscape backdrop – landscapes as such, among which belong the miniatures attributed to Willem van Bommel, are the only examples in the Kraków collection painted on parchment.

³⁴ Christine Slottved Kimbriel and Paola Ricciardi, *A Closer Look at the Cabinet Miniature of Lord Herbert of Cherbury*, <https://www.nationaltrustcollections.org.uk/article/a-closer-look-at-the-cabinet-miniature-of-lord-herbert-of-cherbury>.

³⁵ *Summer*, private collection (Sotheby's London, no. 24), <https://rkd.nl/explore/images/294754>, accessed February 10, 2021; *Winter*, private collection (Sotheby's London, 2018-07-04–2018-07-05, no. 24), <https://rkd.nl/explore/images/294755>, accessed February 10, 2021; the Nederlands Instituut voor Kunstgeschiedenis RKD database presents as many as 26 landscapes painted on parchment by Hans Bol (apart from others, attributed to Bol or from his circle), the vast majority of them from private collections. Five of them are circular, with the diameter of the smallest one being 0,53 cm, and of the largest one – 17 cm.

³⁶ London, the British Museum, acc. no. 1836,0811.716-784.

Table 1. Summary of pigment identification results obtained from XRF and Raman spectroscopy. The numbers represent the final sections of the miniatures' accession numbers. Miniatures 415 and 417, 414 and 420 and 417, 414 and 420 and 419, 421 have been distinguished in terms of colour due to the great similarity of the painting palette

Pigment / chemical formula	412	413	415	417	414	420	418	416	419	421	422	423	424	425
lead white / $[\text{PbCO}_3]_x \cdot \text{Pb}(\text{OH})_2$	v	v	v	v	v	v	v	v	v	v	v	v	v	v
chalk / CaCO_3	v	v	v	v	v	v	v?	v	v	v	v	v	v	v
gypsum / $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$								v	v	v				
azurite / $\text{Cu}_3(\text{CO}_3)_2(\text{OH})_2$		v					v	v	v	v	v		v	v
Prussian blue / $\text{Fe}[\text{Fe}(\text{CN})_6]_3$	v	v	v	v	v	v	v				v	v	v	
ultramarine / $\text{Na}_8\text{Al}_6\text{Si}_6\text{O}_{28} \cdot 2\text{H}_2\text{O}$		v		v									v	
smalt / $\text{SiO}_2 + \text{K}_2\text{O} + \text{CoO}$			v	v	v	v	v							
vermilion / HgS	v		v	v	v	v	v			v	v	v	v	v
hematite / $\alpha\text{-Fe}_2\text{O}_3$	v	v						v	v	v	v		v	
goethite / $\text{FeO}(\text{OH})$		v												v
litharge / $\alpha\text{-PbO}$								v	v	v	v		v	
massicot / $\beta\text{-PbO}$		v						v	v					v?
CuCl_2 derivative				v						v				
posnjakite / $\text{Cu}_4(\text{SO}_4)(\text{OH})_6$														v
unidentified copper pigment			v		v	v						v		
orpiment natural / As_2S_3			v	v	v	v	v			v				
amorphous AsS / $\gamma\text{-As}_2\text{S}_3$		v	v	v	v		v	v	v	v	v			
pararealgar / $\beta\text{-As}_2\text{S}_4$		v	v	v	v		v	v	v	v	v			
lead-tin yellow type I / Pb_2SnO_4														v
gold													v	v

Source: Authors' elaboration.

parchment. They depict small, round landscapes, several centimeters in diameter³⁷. Landscapes of that type much more often appear in collections as prints³⁸, that as a repetitive form and as such more easily popularised, contributed to creating popular patterns. Perhaps that is the reason why a survey for artistic analogies that would refer both to the technological and iconographic aspects of the discussed miniatures, carried out within the framework of this study has been mostly fruitless. The encountered examples rarely met both conditions³⁹ or were formally beyond the area of the notion of miniature⁴⁰. The present analysis, while indicating potential pictorial sources rooted in the Netherlandish art, is focused primarily on technological aspects of the Kraków miniatures and on verification of the state of research based on new assessment of their mutual formal and workshop relations. It also

³⁷ Illustrative examples from the album:

https://www.britishmuseum.org/collection/object/P_1836-0811-721;

https://www.britishmuseum.org/collection/object/P_1836-0811-712;

https://www.britishmuseum.org/collection/object/P_1836-0811-695;

https://www.britishmuseum.org/collection/object/P_1836-0811-780,

accessed December 12, 2020.

³⁸ For example in the Rijksmuseum in Amsterdam: Cornelis Danckerts (I), *Landscapes in tondos after Perelle* (a series), e.g. *Southern mountain landscape with wanderers on the way*, acc. no. RP-P-1909-1379, <http://hdl.handle.net/10934/RM0001.COLLECT.101001>, accessed December 12, 2020, and Anna Maria de Koker, *Landscape with two men and a dog*, acc. no. RP-P-OB-47.562, <https://www.rijksmuseum.nl/en/collection/RP-P-OB-47.562>, accessed December 12, 2020; see also Adam Perelle, Zeichner & Stecher and Jean Le Blond, *Tondo landscapes in the Staatliche Museen Preussischer Kulturbesitz in Berlin* or other landscapes by Adam Perelle in the Metropolitan Museum of Art in New York, e.g. *Landscape with travellers on the left*, <https://www.metmuseum.org/art/collection/search/417845?searchField=ArtistCulture&sort-By=Relevance&ft=perelle&offset=0&rpp=40&pos=7>, accessed December 12, 2020. Numerous examples of such representations can be found in the oeuvre of Stefano della Bella, e.g. in the collection of the Rijksmuseum in Amsterdam or the National Museum in Wrocław.

³⁹ One of the few examples, collected in Pushkin Museum in Moscow, depicts a nocturnal scene – *Landscape with a full moon*, acc. no. 5866, <https://rkd.nl/explore/images/245826>; the others are *Seashore with boats*, acc. no. 5863, <https://rkd.nl/explore/images/245823>; *Hilly landscape with a river*, acc. no. 5863, <https://rkd.nl/explore/images/245824> and *Landscape with a lake and a castle*, acc. no. 5864, <https://rkd.nl/explore/images/245825>, accessed January 20, 2020. Unfortunately, neither high-resolution photographs nor the results of any research that would allow to conduct basic comparative analysis are available.

⁴⁰ Examples that can be compared with the discussed group are two works by F. D. Bergh (1700–1799), depicting architectural landscapes with staffage composed in tondos. They are however almost three times larger, which places them on the verge of the type and makes the comparison disputable; see <https://rkd.nl/en/explore/images/254797>, accessed July 7, 2021.

makes a new basis for dating those objects, refraining however – at this stage of studies – from suggesting more precise attribution.

Miniature 412, *Fire in a village*. The first miniature in the list (MNK III-min-412) is a nocturn depicting a village on fire. The scene is painted quite schematically and is contained within a narrow colour range⁴¹. Against the backdrop of dark skies a scene of fire is revealed. The flames illuminate silhouettes of people standing at a distance, reflected in a surface of water in the foreground and a cold disk of the Moon lightens the dark expanse of the sky.

An artistic conception of that little scene is rooted in the Netherlandish tradition. The contrasts of the dark of the night and the light of fire had fascinated many of the 17th-century artists⁴², and such representations may have been kind of documentation of dramatic or momentous events⁴³. Examples of such renderings are small paintings by Egbert Lievensz van der Poel (1621–1664) found in the Bojimens van Beuningen Museum in Rotterdam,

⁴¹ The number of pigments identified in miniatures 412 and 423 is the smallest in the whole group.

⁴² For example the circle of Aert van der Neer, *Nocturnal river landscape with a town on fire in the background*, private collection (Christie's in Amsterdam, 2010-11-09, no. 65), <https://rkd.nl/explore/images/226280>; Aert van der Neer, *Nocturnal fire in a Dutch city*, Städel Museum in Frankfurt/M., acc. no. 388, staedelmuseum.de/go/ds/338 or G. Doem, *A fire in a town at night, with figures escaping with bundles*, private collection (Christie's in London), <https://rkd.nl/explore/images/70338>, accessed April 9, 2021; or Jan Asselijn, *River landscape with figures by a fire, at night*, private collection, <https://rkd.nl/explore/images/283189>, accessed May 7, 2021; Philipp Hieronymus Brinckmann, *River landscape at night with travellers gathered around a camp fire*, private collection (Sotheby's in London, 1999-10-28, no. 362), <https://rkd.nl/explore/images/286652>, accessed March 8, 2021; Pieter de Bloot, *Nocturnal landscape with a fire*, private collection (Sotheby's in Amsterdam, 1994-11-16, no. 25), <https://rkd.nl/explore/images/286213>, accessed February 12, 2021; *Village on fire with people fleeing*, by an anonymous Netherlands artist, earlier attributed to both David Teniers, Dulwich Picture Gallery in Dulwich in London, acc. no. DPG14, <https://rkd.nl/en/explore/images/282859>, accessed February 12, 2021; Johann Georg Trautmann, *Nightly fire on the banks of a river*, Frankfurter Goethe-Haus, Goethe-Museum, <https://rkd.nl/explore/images/290866>, accessed February 12, 2021; Nicholaes Berchem, *Crab fishers by moonlight*, private collection (Trafalgar Galleries in London), <https://rkd.nl/explore/images/41612>, accessed February 12th 2021. Many works that can be associated with similar themes were left behind by Egbert Lievensz van der Poel, a pupil of Cornelis Saftleven, active in the years 1636–1664, e.g. *Fire at night*, Staatliches Museum in Schwerin, acc. no. G 374, <https://rkd.nl/explore/images/270829>; *Fire*, formerly in Suermont-Museum in Aachen, lost, <https://rkd.nl/explore/images/282888>, accessed February 12, 2021.

⁴³ E.g. Pietro Domenico Oliviero, *Nocturnal feast for St John in Turin*, Museo Civico d'Arte Antica e Palazzo Madama in Turin, acc. no. 0220/D, <https://rkd.nl/explore/images/293545>, accessed February 9, 2021.

dated ca. 1660 and painted in oil on wooden panel⁴⁴ and on canvas⁴⁵. Among the later miniatures on parchment *The outbreak of fire in a small village* by Johann Martin Däubler (1756–1821)⁴⁶ draws attention; similar nocturnal scenes appeared in the 18th century also in the output of the Blarenberghe family, active in Lille and in Paris⁴⁷. First of all, however, one should point out to a small painting by Barbara Regina von Dietzsch (1706–1783) and Christoph Ludwig Agricola (1665–1724) in the collection of the Rijksmuseum in Amsterdam⁴⁸, also painted on parchment, that undoubtedly – despite some changes – had to be the compositional model for the miniature 412. The original composition by Dietzsch and Agricola had been enriched with the water surface, the reflection and the Moon disc. The group of trees had been

⁴⁴ *Nocturnal fire*, Museum Boijmans van Beuningen in Rotterdam, acc. no. 1670, <https://www.boijmans.nl/en/collection/artworks/2573/nocturnal-fire>, accessed February 9, 2021.

⁴⁵ *Village fire*, Museum Boijmans van Beuningen in Rotterdam, acc. no. 2376, <https://www.boijmans.nl/en/collection/artworks/3648/village-fire>, accessed February 9th 2021.

⁴⁶ *Fire outbreak in a small village, night scene*, 17,2 × 22,6 cm, <https://www.zvab.com/kunst-grafik-poster/Feuersbrunst-kleinen-Ortschaft-Nachtst%C3%BCck-D%C3%A4ubler-Johann/30016181913/bd>, accessed June 22, 2022. While the similarity of motifs is evident, this nocturnal scene is painted much more diligently and precisely than the miniature 412.

⁴⁷ A family of miniature painters from Lille, famous also for painting snuff-boxes. Henri-Joseph van Blarenberghe, *Fisher on a barge by moonlight*, private collection, http://www.artnet.com/artists/henri-joseph-van-blarenberghe/p%C3%A4cheur-sur-une-barque-au-clair-de-lune-X9IRIjjurK_Nqp-7L7Mc0A2; and Louis-Nicolas van Blarenberghe, *A village on fire by moonlight*, private collection, http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/a-village-on-fire-by-moonlight-i3_Z3LTjztjWeUYNaD_49g2; *A river landscape by night with a traveller on a track, anglers and a church beyond*, http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/a-river-landscape-at-sunset-with-anglers-on-the-2QSoAf-NOtTI9GjiocOOu_A2; *Night scenes*, private collection, <http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/night-scenes-a-family-cooking-in-a-cave-f3gBf2NuW-ShBsBOpEu9E4A2>; *A moonlight landscape with a figure leading two cattle and a lake in the distance*, private collection, <http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/a-moonlit-landscape-with-a-figure-leading-two-w3dymMScroo6DviYPqXiXQ2>; *A river landscape at sunset with anglers on the riverbank + A river landscape by night with a traveller on a track, anglers and a church beyond*, private collection, http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/a-river-landscape-at-sunset-with-anglers-on-the-2QSoAf-NOtTI9GjiocOOu_A2; *Night fire in a village*, private collection, <http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/n%C3%A4chtliches-feuer-in-einer-stadt-SVR-fAzfCTwGfxt7y6pKyKg2>; *Nocturnal scene with a burning town on a riverbank*, <http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/n%C3%A4chtliche-szene-mit-einer-brennenden-stadt-an-is0f01HUKH3tmPyCzixAeA2>; accessed June 23, 2022.

⁴⁸ *Fire in a village*, Rijksmuseum in Amsterdam, acc. no. RP-T-1949-4, <http://hdl.handle.net/10934/RM0001.COLLECT.21510>, accessed February 12, 2021. Another painting by Agricola, executed in oil on copper plate and in many aspects similar to the discussed ones is in collection of the Staatliches Museum in Schwerin: Christoph Ludwig Agricola, *Landscape with a cave*, <https://rkd.nl/explore/images/285238>, accessed February 12, 2021.

shifted from the left side to the centre and the triangular roofs illuminated by the fire – from the right side towards the centre. The vertical element on the right side of the miniature that, due to simplification of form can be interpreted as a two-member pole, turns out to be a wayside shrine featured in the original composition. The direction of light had also been altered. The figures are lit from the front, as in the negative of the original version and the triangular gables of the buildings from the front instead of from the side (fig. 2–4). Because of its double authorship, the dating of the Rijksmuseum painting can be placed within quite a long stretch of time, ending with the death of Regina Dietzsch in 1783. Thus it is difficult to mark out precise time-frame for the miniature from the Kraków collection that had to be painted after the original was completed.

In terms of the composition of the colour palette the closest to miniature 412 in the Kraków collection is miniature 423, however stylistic discrepancies and differences in artistic quality set them quite far apart⁴⁹.

Miniature 413, *Rider on a white horse*. The composition of this painting is quite straightforward – with figures of a rider on a white horse and a pedestrian depicted in the foreground staffage against a landscape backdrop resembling a stage set – with a low horizon, a group of tall trees to the left, a distant stretch of woodland to the right and a vast expanse of livid sky. The landscape is painted quite schematically, also the modelling of figures is simplified, as if they were painted in a hurry. Nevertheless, considering the scale, the chromatic differentiation is considerable and the form shaped skillfully. The horse's silhouette seems to be rendered with greater care, more elegantly. Strong contrast of light and shadows is not managed consistently (fig. 5). The shadows, drawn strongly in the contours of human figures, in the horse's silhouette are marked just enough to build the form. A similar lack of consistence can be seen in the shadows cast on the ground.

This work, with a characteristic texture of craquelure in the paint layer, suggests a specific preparation and technological approach. The layer of priming with lead white, of a glassy, porcelain character⁵⁰ is heavily cracked, while the cracks of the paint layer are of a dual nature. Creases of paint layer (fig. 6a) run irrespectively of other cracks and do not correspond with injuries to the priming, while the main network of cracks, presented by fig. 6b

⁴⁹ Further remarks on the miniature 423 see below.

⁵⁰ The layer of priming is clearly visible within the injuries of paint layer.

corresponds with the damage of all technological strata, which is visible in the area of delaminated paint layer. Nevertheless, those cracks create an additional, denser network, restricted to the paint layer. Even if such damage may be related to various factors – the miniature must have been kept in inappropriate conditions over some time in its history⁵¹ – the latter craquelure as well as the features of the surface of priming layer visible on its revealed fragment may indicate poor adhesion between the paint layer and the priming, resulting from technological shortcomings.

The painter used quite a restricted colour range, based on modification of value by adding white to the basic colour. However – which is intriguing – in this miniature, one of two in the whole set⁵², three kinds of blue were identified: azurite, ultramarine and Prussian blue, with their presence confirmed by Raman spectroscopy. XRF mapping⁵³ revealed that azurite was used for underpainting of a considerable part of the miniature's surface and – together with ultramarine⁵⁴ – for painting the rider's blue coat. The foliage was painted with Prussian blue. The maps of distribution of elements on miniature 413 are presented below (fig. 7). The map of lead (Pb L α) displays a layer of priming with lead white. The map of distribution of copper (Cu K α) presents the distribution of that element on almost the entire surface of the miniature. The brightest areas, that is those with higher concentration of copper, indicate addition of azurite used for painting the greenery of the landscape and the rider's attire. The map of iron (Fe K α) presents the distribution of ferrous pigments, both hematite and goethite, as well as of Prussian blue. The presence of the latter indicated that the miniature could not have been painted before 1710.

The group of miniatures: 414, *Mountain landscape*, 415, *Forest*, 417, *A horseman speeding in a gale*, 418, *Landscape with trees and two figures*, 420, *Fishermen by a river*. The macro- and microscopic observations together with technical photography allowed to single out some stylistic and formal analogies between miniatures 414 and 420 as well as between miniatures 415

⁵¹ As evidenced by an old retouching at the edge of the painting on upper right side of the composition.

⁵² Beside the miniature 413, the same three blue pigments were used also in 424.

⁵³ Matthias Alfeld et al., "A Mobile Instrument for in situ Scanning Macro-XRF Investigation of Historical Paintings," *Journal of Analytical Atomic Spectrometry* 24, no. 2 (2009): 760–767, DOI:10.1039/C3JA30341A.

⁵⁴ Intriguing is the use of ultramarine, that used to be a very expensive pigment, in such an insignificant spot and in a mixture that distorted its true colour.

and 417 (fig. 8) which can be regarded as a probable workshop group, without determining the identity of the hand. While the use of Prussian blue (that shall be expanded further on) decides on dating those works to the 18th century, some elements of their compositions are rooted in much older motifs, reaching the artistic tradition of the 17th or even 16th centuries.

The first of these objects, MNK III-min-414, depicts a distant mountain landscape, against which the bulks of buildings are silhouetted. In the foreground, the figures of two pedestrians and of a man riding a white horse are placed. The composition is closed on both sides by groups of sparingly painted, slender trees. In the context or artistic tradition the names of two artists should be recalled, in the works of whom some analogies can be found. The first one is Louis-Nicolas van Blarenberghe (1716–1794)⁵⁵, whose two works from the collection of Fine Arts Museums in San Francisco, *Landscape with a churchyard*⁵⁶ and *Landscape with two fishermen*⁵⁷ – both painted in gouache on parchment – deserve particular attention. Most of the composition of miniature 414 is taken by the expanse of sky, and what first drives the attention is the way of painting the clouds on a wide, flatly applied sky, that in its lower part are painted with horizontal brushstrokes. Along the horizon, more to the left, the sky lightens and by the power of contrast makes a characteristic bulk of the hill stand out. The same solution is present in both Blarenberghe's miniatures⁵⁸. A broadly painted sky is juxtaposed with the lower part of composition, where form is more fragmented. The bond between both spaces is made by the silhouettes of trees, very subtly painted. Individual strips of composition in Blarenberghe's works also bring evident analogies for miniature 414: the clouds – both billowing and horizontal ones, the sky lit up over

⁵⁵ Louis-Nicolas (on more than one occasion collaborating with his soon, Henri-Joseph), a painter with a very abundant landscape oeuvre, using gouache and parchment support; see Nathalie Lemoine-Buchard, *De la guerre en dentelles aux charges héroïques. Miniatures des van Blarenberghe et des peintres de la légende napoléonienne*, exhibition catalogue, Montélimar, Musée de la miniature, May, 17–October, 10, 2006 (Montélimar: Musée de la miniature, 2006), 4–7.

⁵⁶ Fine Arts Museums of San Francisco, acc. no. 1978.2.12, <https://art.famsf.org/louis-nicolas-or-henri-joseph-van-blarenberghe/landscape-churchyard-1978212>, accessed June 23, 2021.

⁵⁷ San Francisco, Fine Arts Museums, acc. no. 1978.2.11, <https://art.famsf.org/louis-nicolas-or-henri-joseph-van-blarenberghe/landscape-two-fishermen-1978211>, accessed June 23, 2021.

⁵⁸ A similar colour scheme and similarly painted detail one can find also in a landscape attributed to Louis-Nicolas' son, Henri-Joseph van Blarenberghe, *Woodland landscape with bathers at the river*, gouache, parchment, <https://www.artcurial.com/en/lot-attribue-henri-joseph-van-blarenberghe-lille-1741-1826-paysage-boise-le-long-dune-riviere-avec#pop-in-active>, accessed June 23, 2021.

the horizon, the mountain ridge, the architecture, the nature with human figures in a staffage and the silhouettes of trees flanking the composition. Also the painter's brushwork seems similar.

Due to its composition and colouring also miniature 418, the *Landscape with trees and two figures*, can be referred to Blarenberghe's work. It uses a similar setup, although a thorough analysis allows to notice certain schematics in shaping the forms, typical of making serial repetitions or replicating original works. The Blarenberghes however, both the father and the son, particularly while using gouache, cultivated the rule of precision and minuteness, that make a distinguishing feature of miniatures as such⁵⁹. A comparison of the results of technological examination of palettes for miniatures 414 and 418 confirms their considerable proximity, hence one is entitled to suppose that they had been painted in the same atelier. Nevertheless, it has to be added that the latter features some technological shortcomings in a form of characteristic wrinkles and cracks of the rosy layer of low clouds stretching directly above the mountain ridge, that prove evidently poorer capabilities of the author of that miniature.

Another name that should be recalled in the case of the iconography of miniature 414, is that of Abraham Rademaker (1677–1735) and an attributed to him *Mountain landscape with a waterfall, a river and a wooden bridge*⁶⁰ in a private collection, also painted on parchment. The colour scheme and subtlety of modelling the forms particularly evident in a silhouette of the tree in the middle, unmistakably bring to mind the discussed Kraków miniature. The impression is still enhanced by the similarity of technological and technical solutions (the use of gouache on parchment, the mode of building forms and applying colour).

The motif of entwined trees that appears in the next miniature of that group, MNK III-min-415, being a traditional one and quite common, appeared in the Netherlandish art already in 16th and 17th centuries⁶¹, among others in the milieu of Pieter Brueghel I (1525–1569), in the works of Master

⁵⁹ *Minutness*; see Colding, *Aspects*, 144.

⁶⁰ Attributed to Abraham Rademaker, *Mountain landscape with a waterfall, a river and a wooden bridge* (Sotheby's in Amsterdam, 2005-11-16, no. 197), <https://rkd.nl/explore/images/114559>, accessed June 21, 2022.

⁶¹ Manfred Sellink, "The Dating of Pieter Bruegel's Landscape Drawings Reconsidered and a New Discovery," *Master Drawings* 51, no. 3 (South Netherlandish & Flemish Drawings, part II) (2013): 316.

of Small Landscapes⁶², in etchings by Hans Bol (1534–1593) and Paul Bril (1554–1626) in the collection of the National Museum in Kraków⁶³, and later in paintings by Anthonie Jansz van der Croos (1606–1662/63)⁶⁴. The same motif was also employed by the mentioned above Johann Martin Däubler, active in late 18th century, who also painted on parchment⁶⁵.

And finally, miniature 417, depicting a horseman speeding in a gale, picks up a theme of landscape with dynamically moving trees and cloudy skies, present in the Netherlands' art most often in context of a storm⁶⁶, frequently in compositions executed in graphic techniques (fig. 10). The paint layer of that miniature is applied very vigorously. Observation under magnification reveals almost expressionist colour juxtapositions (fig. 11). The form, however, is modelled rather clumsily, which can be the best observed on the examples of the mountain ridge and the figures of the equestrian and his mount.

The discussed group of four miniatures brings also to one's mind associations with the landscape tradition of the 1st quarter of 17th century – e.g. with small drawings by Gerrit van Horst (after Jan Brueghel, dat. 1601–1629)⁶⁷ and

⁶² Master of Small Landscapes or Pieter Brueghel I, *Men playing the goose-stick game in a meadow before a city*, ca. 1559, private collection (Devonshire Collection, Chatsworth House, no. 842B), <https://rkd.nl/explore/images/103848>, accessed October 10, 2021.

⁶³ MNK III-ryc.-52701/22, MNK III-ryc.-52701/9. Similar pairs of such trees are repeated in at least several landscape miniatures by Hans Bol held in private collections, see for example: <https://rkd.nl/en/explore/images/57462>; *Elegant hunting party before the Abbey of Rouge-Cloître, near Brussels*, <https://rkd.nl/explore/images/280348>; *Peasant wedding*, <https://rkd.nl/explore/images/277843>; *A fantastic view of Antwerp*, <https://rkd.nl/explore/images/117133>; accessed April 9, 2022.

⁶⁴ Anthonie Jansz. van der Croos, e.g. *Figures on a path, Middelburg in the distance*, private collection, <https://rkd.nl/explore/images/274644>, accessed February 10, 2022.

⁶⁵ *Landscape with a view of a village and figures* (Sotheby's Parke Bernet in Munich, 1983-11-03, no. 52), <https://rkd.nl/nl/explore/images/290950>, accessed June 21, 2022.

⁶⁶ Other, relatively infrequent representations of that theme, see Maerten Fransz van der Hulst, *Stormy landscape with a rider*, private collection (Palais Galliera in Paris, no. 24), <https://rkd.nl/en/explore/images/103608>, accessed April 9, 2022; Stefano della Bella, *The sky*, Rijksmuseum in Amsterdam, acc. no. RP-P-OB-35.034, <http://hdl.handle.net/10934/RM0001.COLLECT.77315>, accessed October 10, 2021; an anonymous Netherlandish artist, *Hilly landscape with figures, in a storm*, National Galleries of Scotland in Edinburgh, acc. no. RSA 401, <https://rkd.nl/en/explore/images/11071>, accessed April 9, 2022; attributed to Johannes Glauber, *Wooded landscape with travellers near a brook, in a storm*, private collection (Christie's in London, no. 386), <https://rkd.nl/en/explore/images/115831>, accessed April 9, 2022.

⁶⁷ E.g. Gerrit van Horst, *Landscape with a large tree in the middle and a watermill on the left*, Herzog Anton Ulrich-Museum in Braunschweig, no. Z483, https://ku-ni.de/isil_DE-MUS-026819_3671, accessed October 10, 2021.

Anthonie van Croos⁶⁸ (1606–1662) (fig. 12a, b), made on parchment. Subtly modelled form, sensitive line and enhancing the illusion of space by modulating the line are – beside the similar motif – shared features of all those works. Also, a landscape by Gillis Claesz de Hondecoeter (1575–1638)⁶⁹, although painted in oil technique, with its subtle brushwork and the way some of the details are painted (like the cottages in the background) brings to one's mind strong resemblance to miniature 420 (fig. 13a, b).

Analyses of composition of paint layers do not deny the possibility of common workshop provenance of the four discussed items. The most evident are analogies of colour schemes employed in similar formal contexts. It seems however, that miniature 420 definitely stands out among them with its sensitive drawing and modelling, subtlety of bringing out the form and also, which is visible already at first glance, its refinement of colour range. The latter is even more significant in the light of the fact, that this exquisite colour scheme had been achieved using a palette similar to the three other miniatures. This miniature is also distinguished by different approach to texture, which is strongly – for such a small scale of picture – accentuated (fig. 9).

On the other hand, artists' technology, that can be observed on XRF maps in the way the pigments are distributed, decisively indicates the common authorship of miniatures 414 and 420. The application of a thick layer of priming containing lead white restricted to upper parts of both miniatures, clearly visible also on macro-photographs, almost the same palette and characteristic scattering of form in lower parts, in the foreground, additionally accentuated by a specific brushwork that creates kind of dry-brush effects, are important arguments in the discussion. Some doubts arose after discovering the use of much darker contour defining the outlines of figures and buildings in miniature 420, that in miniature 414 is almost non-existent, melted with the hues of the background.

Some of the common features of the artists' palette used in the discussed group of four miniatures are the absence of azurite and an abundant use of smalt. Prussian blue, that determines dating of all four miniatures to 18th century, has been used for painting all intense blue details, like people's garments or the mountain range. It has also been identified in the green of

⁶⁸ Anthonis van Croos, *Landscape with trees and a farm*, private collection (Sotheby's in Amsterdam, 1993-11-17, no. 25), <https://rkd.nl/explore/images/239955>, accessed October 10, 2021.

⁶⁹ Gillis Claesz de Hondecoeter, *The country road*, Rijksmuseum in Amsterdam, acc. no. SK-A-1502, <https://www.rijksmuseum.nl/en/collection/SK-A-1502>, accessed October 10, 2021.

the trees' foliage, where it has been applied together with arsenic pigments, mostly an amorphous arsenic sulphide, but also orpiment and pararealgar (fig. 14).

While orpiment and realgar and a product of its degradation – pararealgar are well known pigments of mineral origin, in recent years another pigment has been identified, the so-called amorphous arsenic sulphide ($\text{g-As}_{40}\text{S}_{60}$). Its characteristic feature is the lack of crystalline structure, that is why in the English literature it is often referred to as arsenic glass (ang. *As-glass*)⁷⁰. According to the sources the synthesis of that pigment, in the so-called dry process has been known since 15th century and consisted on sublimation of orpiment, arsenic, arsenic oxide or pararealgar with possible addition of sulphur. The reason for substituting the natural pigments with synthetic „arsenic glass” is so far unknown. One of the possible motivations could have been obtaining the right hue, which in the case of “glass” can range from pale yellow to orange. Perhaps it was also important to purify the pigment or the decisive argument was that of stability, since the amorphous arsenic sulphide is the most stable form of that compound.

Raman spectroscopy is the best non-invasive analytical technique allowing to identify arsenic pigments because of an intense and very characteristic signal of each of the variations of the pigment. The analysis of Raman spectra allows to establish that in the case of the discussed miniatures most probably a sublimated pararealgar was used. Probably because of its different hue also orpiment was used. Additionally, to bring up the green of trees, some copper pigments were used, that failed to be precisely identifiable. In the case of miniature 417 it is most probably a derivative of copper chloride(II)⁷¹, the presence of which is visible as the distribution of copper and chlorine on the XRF maps (fig. 15). Examples of XRF maps of two selected miniatures of this

⁷⁰ Annelies van Loon et al., “Artificial Orpiment, a New Pigment in Rembrandt’s Palette,” *Heritage Science* 5, no. 26 (2017): 26–39, DOI: 10.1186/s40494-017-0138-1; Marc Vermeulen et al., “Study of Dry and Wet-Process Amorphous Arsenic Sulfides: Synthesis, Raman Reference Spectra, and Identification in Historical Art Materials,” *Journal of Raman Spectroscopy* 50, no. 3 (2018): 396–406, DOI: 10.1002/jrs.5534; Marc Vermeulen et al., “Identification by Raman Spectroscopy of Pararealgar as a Starting Material in the Synthesis of Amorphous Arsenic Sulfide Pigments,” *Dyes and Pigments* 149 (2018): 290–297, DOI: 10.1016/j.dyepig.2017.10.009.

⁷¹ Alessia Coccato et al., “Raman Spectroscopy of Green Minerals and Reaction Products with an Application in Cultural Heritage Research,” *Journal of Raman Spectroscopy* 47, no. 12 (2016): 1429–1443, DOI: 10.1002/jrs.4956; Estaugh et al., *Pigment Compendium*; M. M. Naumova and S. A. Pisareva, “A Note on the Use of Blue and Green Copper Compounds in Paintings,” *Studies in Conservation* 35, no. 2 (1994): 4, 277–283, DOI: 10.1179/sic.1994.39.4.277.

group (fig. 15) present the distribution of copper (Cu) and chlorine (Cl) as well as cobalt (Co), that respectively indicate the presence of copper pigment and smalt.

An important aspect of the analyses is the observation of the paintings' reverses, which in the case of the discussed artefacts seems particularly significant. In the case of miniatures: 414 and 418 as well as 417 and 420, they are of a very similar character⁷²: the first ones, bearing marks of imprints and staining of similar multi-coloured layers, the second ones, slightly less evident as to the shared identity, painted with brown colour, with sketched silhouettes of trees in the case of 417. Although that similarity, in the face of differences is bringing out the form, may only indicate a shared atelier, not the same hand.

Miniatures 416, *Fields*, 419, *A wanderer*, 421, *An invalid*. In the set of fourteen discussed miniatures one can single out another group of three items: MNK III-min-416, MNK III-min-419 and MNK III-min-421 (fig. 16), with their main motif (the road)⁷³. The compositions with wanderers walking among the trees, set against the backdrop of distant hills and faintly outlined bulks of buildings, are dominated by intensely blue skies spread widely over the better part of their surface. Stylistic and workshop features, and even the character of damage indicate their shared authorship.

In all three miniatures one can observe a group of two people appearing in the middle distance (fig. 17). Interweaved in diverse contexts they have no meaning for the narrative. Such groups were placed in a middle distance probably just to accentuate the impression of depth and space. Similar group has been found in an Antwerp picture by Pieter Brueghel II (1565–1638)⁷⁴

⁷² The miniatures 412 and 423 in turn, had been lined (most probably later) with the same paper, on the others (except 424 on 425) there are visible traces of former mounts in form of remnants of glue and fragments of papers, as well as cracked layers of priming. Already in the MNK, probably in the inter-war period, the miniatures were fitted with pink paper labels with printed numbers: 412 – 1191, 413 – 1192, 414 – 1193, 415 – 1194, 416 – 1195, 417 – 1196, 418 – 1199, 419 – 1197, 420 – 1200, 421 – 1201, 422 – 1202, 423 – 1198, 424 – 1203, being the numbers of the so called New Catalogue. The same numbers have been added in a red ink in the the manuscript of W. Łuszczkiewicz MNK catalogue.

⁷³ The motif of a road had a particular position on the Netherlands' painting, compare Julie Berger Hohstrasser, "Inroads to Seventeenth-Century Dutch Landscape Painting," *Nederlands Kunsthistorisch Jaarboek (NKJ) / Netherlands Yearbook for History of Art* 48 (1997) (*Natuur en landschap in der Nederlandse kunst 1500–1850*): 197, 213–215.

⁷⁴ *Als het kalf verdronken is dempt men de put*, of the cycle of *Proverbs*, private collection (Christie's, New York, 19988-05022, no. 7), <https://rkd.nl/explore/images/47086>, accessed December 10, 2021. Another application of that motif one can find in a drawing by Nicholaes

and in its prototype in Mayer van den Bergh Museum in Antwerp, as well as in a painting by David Teniers the Younger (in the foreground)⁷⁵. Two people, of whom one seems to show the other the way, are – although in a different form – depicted also in a landscape by Gillis Claesz de Hondcoeter, discussed earlier⁷⁶. Similar „duos” can be seen also in a far distance in miniatures 420 and 423.

The theory of a shared authorship of those miniatures is supported by the results of technological examination and both XRF and RS analyses, that report corresponding palettes. The miniatures are primed with thick layers of lead white, characterised by their opaque, dry surface. The layers of paint and priming are lean. Poor adhesion between the paint layer and the priming featuring in all three miniatures results in extensive delamination and flaking. Brittle layers detach and crumble off in the form of tiny, irregular flakes (fig. 18). The surface of miniatures is widely spread with azurite, down to the low line of the horizon. The remaining surface is covered with earth pigments, applied from the bottom of the composition. The two zones are connected by a strip of a distant line of backdrop painted with mixtures of various proportions of azurite, lead white and black, sometimes complemented with arsenic pigments (fig. 19). Apart from the characteristic presence of arsenic pigments in the paint layer, significant is the absence of Prussian blue. In that group no other blue pigment was detected. The use of vermilion has not been confirmed, an iron pigment – hematite – has been used instead. Additionally, lead pigments were found: litharge and massicot. Unlike in the others, in the lower part of miniature 421 another copper pigment was found, probably a derivative of copper chloride(II). An interesting aspect of the research was the identification of gypsum with anhydrite⁷⁷ in miniatures 416, 419 and 421, probably an admixture to some unidentified pigment. The reason for the presence of gypsum in those areas is not clear, it may suggest

Berchem transformed in an engraving by Johannes Gronsveld, *Shapherds and hunters in an Italian landscape*, Teylers Museum in Haarlem, acc. no. KG 06112, <https://www.teylersmuseum.nl/nl/collectie/kunst/kg-06112-herders-en-jagers-in-italiaans-landschap>, accessed December 10, 2021.

⁷⁵ *Peasants conversing*, Dulwich Picture Gallery, acc. no. DPG76, <https://www.dulwichpicturegallery.org.uk/explore-the-collection/051-100/peasants-conversing/>, accessed June 13, 2022.

⁷⁶ See footnote no. 38. The figures are in the foreground and are very detailed.

⁷⁷ Identified by Raman spectroscopy in green colours found in the foliage.

the use of some mass-produced pigment⁷⁸. In each of the three miniatures appear also arsenic pigments, mostly arsenic glass and pararealgar, although in miniature 421 also orpiment has been detected.

It seems, that stylistic arguments could allow to add to that group of three miniatures also the item no 418 mentioned earlier, but it is definitely ruled out of that group by the presence in its paint layer of not only Prussian blue, but also of vermilion and smalt.

Miniature 422, *Watering cattle*. In terms of the contents of the artist's palette, miniature 422 has much in common with the three works discussed above. Pigments detected in this miniature include azurite, hematite and litharge as well as arsenic glass and pararealgar. Unlike in those three, in miniature 422 vermilion was used. One has to mention, that in some areas the paints were spread very thinly, with the effect of dry-brush technique, which is visible on the XRF maps⁷⁹.

This miniature employs a motif of watering cattle, very popular in the Netherlands' art⁸⁰, set in the context of a winding river and a distant mountain ridge. The composition is flanked by architectural motifs combined with groups of trees. The theme of watering cattle or driving cattle can be found, among others, in drawings by Nicholaes Berchem (1621/22–1683)⁸¹ and Willem Romeyn (1624–1695)⁸². The group of animals depicted in the foreground

⁷⁸ Eastaugh et al., *Pigment Compendium*, e.g. the entries: *Brunswick green*, *Neuwied green*, *Lime blue*.

⁷⁹ XRF mapping of Ca, Fe and Pb. Not presented in the paper.

⁸⁰ For instance: Nicholaes Berchem, *Mountain landscape with two women and cattle*, Teylers Museum in Haarlem, acc. no. Q 014,8, <https://www.teylersmuseum.nl/nl/collectie/kunst/q-014-berglandschap>; Nicholaes Berchem, *Shepherd and shepherdess on a donkey and cattle crossing a ford*, private collection (Christie's in Paris, no. 27), <https://rkd.nl/explore/images/108736>; Nicholaes Berchem, *Shepherds with cattle crossing a stream*, Graphische Sammlung / Städelschen Kunstinstitut in Frankfurt/M, acc. no. 3834, <https://rkd.nl/explore/images/61728>; Karel la Figure after Nicholaes Berchem, *Italian rocky landscape with shepherds and cattle by a river*, private collection (Sotheby's in Amsterdam, no. 128), <https://rkd.nl/explore/images/34070>; Nicholaes Berchem, *Shepherds with cattle near the water*, Wallace Collection in London, acc. no. P183, <https://rkd.nl/nl/explore/images/231150>; Nicholaes Berchem, *Italian landscape with shepherds and cattle*, private collection (Sotheby's in London, no. 35), <https://rkd.nl/nl/explore/images/102466>; Hendrick ten Oever, *Southern landscape with shepherdess on horseback with cattle and sheep*, private collection (Ham Kunstauktionen, Van Keulen, no. 1040), <https://rkd.nl/explore/images/195253>; accessed December 10, 2021.

⁸¹ Very often there are groups of animals crossing the water.

⁸² E.g. Willem Romeyn, *Southern landscape with cattle in the storm*, private collection (Veiling[en] Sotheby's in Amsterdam), <https://rkd.nl/explore/images/104379>, accessed April 9, 2021.

of miniature 422 bears strong resemblance to the cattle in Berchem's drawings (fig. 20), collected in Teylers Museum in Haarlem, where the artist was born. The approaching long-horned animal, standing sideways with its head turned towards the viewer and its tail twisted forwards⁸³ is almost quoted in the miniature 422.

Miniature 423, *The landscape* is a landscape with a staffage: a pair with child resting in the nature. The composition is closed on both sides with silhouettes of trees and the distant perspective of the left side conceals two more human figures and mountain ranges in the far backdrop, of an amazingly delicate, as if only suggested forms.

In terms of technology, this item, and only this one, is characterized by a smooth, almost glassy surface, probably resulting from the presence of very well ground lead white that appears on the surface in the form of a semi-transparent layer⁸⁴. It is covered in specific, regular network of finely distributed cracks. The cracks seem to penetrate all layers and reach the priming (fig. 21a–b), although the paint layer is very well bound with the priming and shows no signs of spontaneous delamination. A considerably rich colour scheme on a small surface and fragmentation of colour patches is revealed under magnification (fig. 21c). In miniature 423 the smallest number of pigments were identified (except in 412), which proves, that this miniature painter was quite skillful in using colour.

*

The situation of extensive fragmentation of colour presented on the above example is not an isolated one. Within the discussed group of fourteen miniatures one can make a kind of summary of the solutions employed, to define the form. The first one is the mentioned „fragmentation of colour” that consisted on using a multitude of colours and extensive differentiation of hues on a small surface. This is well visible in miniatures 422 and 423 when

⁸³ Actually in one case it is a cow and in the other a bull. Another example is an engraving by Romeyn de Hooghe (1645–1708) after N. Berchem's *Shepherd and a herd at the stesm*, Teylers Museum in Haarlem, acc. no. KG 06741, <https://www.teylersmuseum.nl/nl/collectie/kunst/kg-06741-herder-en-kudde-bij-een-beek>, accessed January 13, 2022.

⁸⁴ Such execution is confirmed both by a lead distribution on the XRF map, and by the areas of damaged white layer, revealing the priming tinted with Prussian blue. In that miniature lead white is present both in the priming and in the thin surface layer.

observed under magnification, while in the case of miniature 417, this is developed to an almost expressionist scale (fig. 11, 21c).

Another solution is application of painting matter in a flat way and using a „basic“ colour, that serves defining whole forms, with only its value modified by adding white or diluting (sometimes enriched with an additional, slightly modified hue, e.g. in the highlights. This second solution is the most evident in the case of miniatures: 412, 413, 416, 418, 419, 421 (fig. 22). Miniatures 414 and 420 escape that scheme, since they seem to combine both tendencies and in some areas use fragmentation of forms rather than colour.

One can notice, that in miniatures 414, 416, 418, 419 and 422 is repeated a motif of mountains, depicted against a rose-tinted skies and illuminated by the rays of the setting sun⁸⁵.

As it has been demonstrated, in that group there are miniatures entirely different in terms of the pigments used (tab. 1), which suggest a shared motif⁸⁶ rather than the same hand. Similar mountain views and colour schemes appear also in the works by Louis-Nicolas van Blarenberghe⁸⁷ (fig. 23).

⁸⁵ A similar motif can be seen in the miniature 417, although it is – like the whole – treated in an entirely different way.

⁸⁶ A similar approach to the motif of mountains can be encountered also in works by other artists, for instance by Herman van Swanevelt (*Landscape with St Benedict*, Museum Prado in Madrid, acc. no. 1786, *Landscape with St Joseph*, Fitzwilliam Museum in Cambridge, acc. no. 55, *Landscape with shepherds and a ruin of the Minerva temple*, Dorotheum in Vienna, acc. no. 706), and by his many followers, also in an oil painting from the Royal Baths collection in Warsaw by earlier referred to Willem van Bemmél, *Mountain landscape with trees on the left (Landscape at the sunrise)*, no. ŁKr 955.

⁸⁷ Those would be: the mentioned landscapes with two fishermen and with a cemetery, then *A mountainous, wooded river landscape with a figure on horseback on a path*, <http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/a-mountainous-wooded-river-landscape-with-aa-A94b917DIPR15cZ7UNGcxA2>, or *A rider and a peasant in a vast river landscape*, http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/cavalier-et-pay-san-dans-un-vaste-paysage-fluvial-bb96hNdLM8ZfG0mWB_21aw2; *A landscape*, 1774, <http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/animated-landscape-mgl95z2RnG-mwyEQfSdpudQ2>; *Two peasants on a country road*, http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/deux-paysans-sur-un-chemin-de-campagne-1cVOK9MA-VfNQG11I_hzjA2; *A vast landscape with grape pickers by a vineyard*, 1739, <http://www.artnet.com/artists/louis-nicolas-van-blarenberghe/weite-landschaft-mit-winzern-bei-der-weinlese-Df3Po9R-kOMK75YmmcYTnXw2>; Jacques-Guillaume van Blarenberghe, *Four landscape depicting the four seasons*, ca. 1735–1745, Rijksmuseum in Amsterdam, acc. no. SK-A-4249, <https://www.rijksmuseum.nl/nl/collectie/SK-A-4249>; Willem van Bemmél, *A mountainous landscape with horseman on a track at sunset*, http://www.artnet.com/artists/willem-van-bemmel/a-mountainous-landscape-with-horseman-on-a-track-E3R6ryPMxT-x0tdn_R11mw2, accessed June 22, 2022.

Miniature 424, *The Arch of Septimius Severus in Rome*. This is the only miniature with a leading architectonic motif in the set of Kraków miniatures. It depicts the Arch of Septimius Severus with fragments of other edifices of Forum Romanum. In the foreground one can see an abandoned cart and behind it – tiny human figures scattered over an open space as well as an elegant, two-horse carriage. The miniature is singled out by its simplified, sparse way of building form and very reduced, also in terms of distribution over the surface, use of colour. The author of that work felt more comfortable with architectural forms than with nature or human figures of the staffage, that seem rather schematic, simplified. Also his colour management does not suggest high skill, despite the use of considerably large – in comparison with other miniatures – number of pigments. Despite small colour accents, including the use of gold mentioned earlier, the whole makes an almost monochromatic impression, as if it was an engraving tinted with watercolour.

The theme of architecture, of Rome and Paris among others, is not alien to the Netherlands' tradition. It had been taken up, among others, by Lieven Cruyl (1634–1720) in his pen drawings on round, parchment supports⁸⁸. Anyway, a sketch of the Arch of Septimius Severus, because that is the one depicted in miniature 424, can be found much earlier – already in drawings by Matthijs Bril (1550–1583) in the Louvre collection⁸⁹ as well as by Jan Brueghel

⁸⁸ Lieven Cruyl had left behind numerous testimonies of his travels to Italy and France: *The Quirinal in Rome*, washed pen drawing on parchment, ø 107 mm, Staatliche Graphische Sammlung in Munich, acc. no. 1943:19, <https://rkd.nl/explore/images/121052>, accessed December 12, 2020; *The Colosseum and the Arch of Constantine in Rome*, washed pen drawing on parchment, ø 108 mm, Staatliche Graphische Sammlung in Munich, acc. no. 1943:18, <https://rkd.nl/explore/images/121051>, accessed December 12, 2020; *The Temple of Sybil in Tivoli*, private collection (Christie's, Amsterdam, 1998-11-09, no. 105), <https://rkd.nl/explore/images/22913>, accessed December 12, 2020, and several others.

⁸⁹ Matthijs Bril the Younger, *View of the Arch of Septimius Severus in Rome*, Musée du Louvre in Paris, acc. no. 20.955, <https://collections.louvre.fr/en/ark:/53355/cl020105541>, accessed December 12, 2020. An almost identical drawing from the milieu of Guiliam van Nieulandt (I) can be found in collection of the Staatliche Museen Preussischer Kulturbesitz in Berlin, acc. no. Z 3920, <https://rkd.nl/explore/images/16350>, accessed December 13, 2020. Then, in a private collection is also an oil painting by Guiliam van Nieulandt (I), *Landscape with the Adoration of the Magi with Roman antiquities*, depicting the same arch in a very similar aspect, see <https://rkd.nl/explore/images/122828>, accessed December 13, 2020. The collection of the Metropolitan Museum of Art in New York comprises also an engraving by Israel Silvestre, *The Arch of Septimius Severus in Forum Romanum*, acc. no. 17.50.19-32, <https://www.metmuseum.org/art/collection/search/649208>, accessed December 15, 2020.

the Elder (1568–1625) in the Devonshire collection⁹⁰. The latter is signed and dated to 1594. Unmistakably, although not directly, it is referred to on an engraving by Giuseppe Vasi, that was dated to the years 1747–1761⁹¹ (fig. 24). This is the one that undoubtedly was an archetype of the Kraków miniature 424 (its considerable formal simplification suggests, that it has been based on some engraved or drawn model)⁹². Dating the work to the last quarter of the 18th century (*terminus post quem* in the context of the engraving by Vasi) corresponds with the presence of Prussian blue in the paint layer. However, it is hard to find other technological or iconographical analogies. Architectural motifs in such an approach have been extremely rarely included in the iconography of miniature landscapes – particularly the ones on parchment, hence it is not easy to find an artist responsible for the Kraków’s interpretation of Vasi’s engraving.

Summary

The conducted comparative stylistic analyses and examination of materials and techniques of the miniatures allowed to single out groups of shared workshop provenance within the whole set of miniatures. Some of them have been dated anew on the basis of analyses of the pigments used. A group that can be regarded as coherent in terms of authorship is that of miniatures 416, 419 and 421. Then, the miniatures that – due to the presence of a dating pigment had to be completed after the year 1710, are the ones numbered 412, 413, 415, 417, 418, 414, 420, 423 and 424. In the case of miniatures 412 and 424 it was possible to identify their artistic archetypes, that also brought information as to their dating. The authors of some of the miniatures had been undoubtedly under considerable influence of the Blarenberghe family. It is, however, not feasible to verify the extent of that influence, the more so because the employed motifs and colour schemes were popular.

⁹⁰ Jan Brueghel (I), after M. Bril, *The Arch of Septimius Severus in Rome*, pen drawing on paper, Devonshire Collection, Chatsworth House, acc. no. 846, <https://rkd.nl/explore/images/112980>, accessed December 13, 2020. Other aspects of the same location are also depicted by Hieronymus Cock, Etienne Dupérac, Giacomo Lauro, Piranesi. Many of them can be found in collection of the Rijksmuseum in Amsterdam.

⁹¹ Or 1752, see James T. Tice and James G. Harper, *Giuseppe Vasi's Rome. Lasting Impressions from the Age of Grand Tour* (Eugene: University of Oregon Press, 2011), cat. no. 30.

⁹² Giuseppe Vasi (1747–1761), *The Arch of Septimius Severus and the Temple of Saturn*, Rijksmuseum in Amsterdam, acc. no. RP-P-1907-2367, after his own drawing.

Stylistic and technological features that one can be tempted to call „shared ones” not always correspond with the results of instrumental analyses of the artists’ palettes and techniques. That is why one cannot be certain as to a consistent authorship of the items grouped together. Moreover, characteristic pigments are present in various miniatures irrespectively or even contrary to the similarity of visual or technological features. And so, the presence of e.g. ultramarine, litharge, massicot and goethite defies all analyses. It stands to reason that, because of the evolution of workshops, the employed methods and materials, neither their presence nor absence can confirm or deny shared authorship, but that only makes another complication for determining the attribution.

Due to the lack of access to the results of technological research of similar works that show visual similarities and are in other collections, and because of a variable level of detail in descriptions published in catalogues, one frequently stumbles over information gaps concerning the technique or materials used (even the support). Thus, it is difficult to compare workshop features or palettes of the works discussed here with other works of that time. Moreover, very often objects on parchment, exhibiting certain analogies to the Kraków works, are in private collections and there is no access to their photographic documentation and – the more so – their direct analysis, that would be of particular value in the context of their style, artists’ technique and technology is impossible⁹⁵.

Reliable conclusions can be presented only by summarising comparisons that remain beyond suppositions or subjective interpretations. They can only refer to the results of analytical research and to the studies of the employed motifs and compositional solutions, but only partly, since the – more often than not – based on common patterns, do not allow to properly identify either the artist or the atelier.

Also establishing the original purpose and function of the discussed miniatures is difficult. According to one of the hypotheses, the original purpose of the miniatures could have been related to the existence of a casket

⁹⁵ An additional complication constitutes – in multiple cases dubious and unverifiable – information on technique of the making provided in catalogues. Mistakes in distinguishing for instance between a primed (so called prepared) paper and parchment often do not result from the lack of knowledge of artists’ techniques and materials, but from the real inability to identify the primed support without conduction detailed analyses. In some cases (e.g. auction catalogues) the kind of support is entirely ignored. Compare Colding, *Aspects*, 100.

or a piece of furniture, e.g. a cabinet or a frame in which they had all been displayed together. This could have been a so called *art cabinet*⁹⁴, where curious collectables were gathered. Such cabinets used to be richly decorated with marquetry, inlay, the *pietra dura* technique but also with the use of small paintings executed in various techniques⁹⁵. In late 17th century evolved also a fashion for framing and exhibiting miniatures together⁹⁶. In such cases they used to be connected, either by technique, theme or style. Another possibility is painting small, round landscape compositions dedicated for elegant articles of everyday use, such as for instance snuff boxes. In such a case, similar dimensions do not have to indicate that the miniatures belonged to one set, but only that they had been standardised to a dimension suitable for use in artistic handicraft. Those highly fashionable and popular since early 17th century accessories used to be produced by – among others – the Blarenbergh family⁹⁷.

It should be emphasized, that the discussed set of miniatures certainly does not make a group homogenous in terms of time or style or authorship. The analysis of a complete problem matter of the Kraków miniatures exceeds the limits of the present study. Only the issues the most important for argumentation have been discussed, some others have been just indicated, and some had to be entirely left out. Pictorial sources and analogies presented in this paper determine contexts or circles of artistic or workshop influence, pointing to shared, popular motifs. Using that base to try to determine any definite attribution would have been an inadequate procedure. Nevertheless,

⁹⁴ Kunstkabinett (Cabinet of curiosities), e.g. Augsburg Art Cabinet, Gustavianum, Uppsala, <https://decorativeartstrust.org/wp-content/uploads/2017/05/Augsburg-Art-Cabinet-Museum-Gustavianum.jpg>, accessed August 3, 2021.

⁹⁵ Those could have been oil paintings on wooden panels or on copper, sometimes paintings on parchment, textiles or mosaics. In the collection of the Museum of King Jan III in Wilanów is a replica of a Roman cabinet from the atelier of Giacopo Heman, with paintings executed in gouache on parchment: https://www.wilanow-palac.pl/rekonstrukcja_kabinetu_krola_jana_iii.html, accessed May 15, 2021. The original piece is owned by Capuchin Fathers in Kraków.

⁹⁶ Maria Michałowska-Barłóg, *Miniatury. Katalog zbiorów Muzeum Narodowego w Poznaniu*, vol. 2 (Poznań: Muzeum Narodowe, 1995), 80, cat. no. 74.

⁹⁷ Similar in size snuff boxes are in collections of – among others – the Louvre: Louis-Nicolas van Blarenbergh: *Dancing on the castle's lawns*, snuff box, acc. no. RF 3453, Recto; <https://collections.louvre.fr/en/ark:/53355/cl020015674>, *La main chaude*, snuff box, acc. no. RF 3464, Recto; <https://collections.louvre.fr/en/ark:/53355/cl020015685>, *A feast by a windmill*, snuff box, acc. no. 3452, Recto; <https://collections.louvre.fr/en/ark:/53355/cl020015673>, *The view of Pont-Rouge from the de Grève square in Paris*, snuff box, acc. no. RF 3463, Recto, <https://collections.louvre.fr/en/ark:/53355/cl020015684>; accessed June 21, 2022.

the authors hope, that publication of the present analyses shall make a contribution to furthering the research, and that they would be complemented by more analogies and perhaps also by – still unknown (unpublished) – results of technological analyses, that would in a longer perspective allow to make further attempts to attribution.

Technical notes

Raman spectroscopy. Micro-Raman analyses were carried out using a multi-channel bench Renishaw InVia spectrometer (Renishaw, Wotton-under-Edge, UK) coupled with a Peltier-cooled CCD detector and a Leica DMLM confocal microscope. Excitation was provided by the 785-nm diode laser line with an optimized laser power of about 25 mW to maximize the possible signal while avoiding damaging the object. The applied microscope objective was L50×/0.5. The appropriate positioning of the samples was carried out by automatically moving the measuring table.

Macro-XRF. Two-dimensional macro-XRF scans of the painting were carried out using an M6 Jetstream spectrometer (Bruker, DE). The instrument consists of a measuring head containing a Rh-target X-ray tube and X-Flash® silicon drift detector (SDD) mounted on an XY-motorized stage. The pixel size of the elemental maps, determined by the step size, was set to 200 μm, with the beam spot size of 200 μm. The voltage and current of the X-ray tube were set to 50 kV and 600 μA, respectively. The acquisition time was 10 ms/pixel.

Translated by Joanna M. Arszyńska

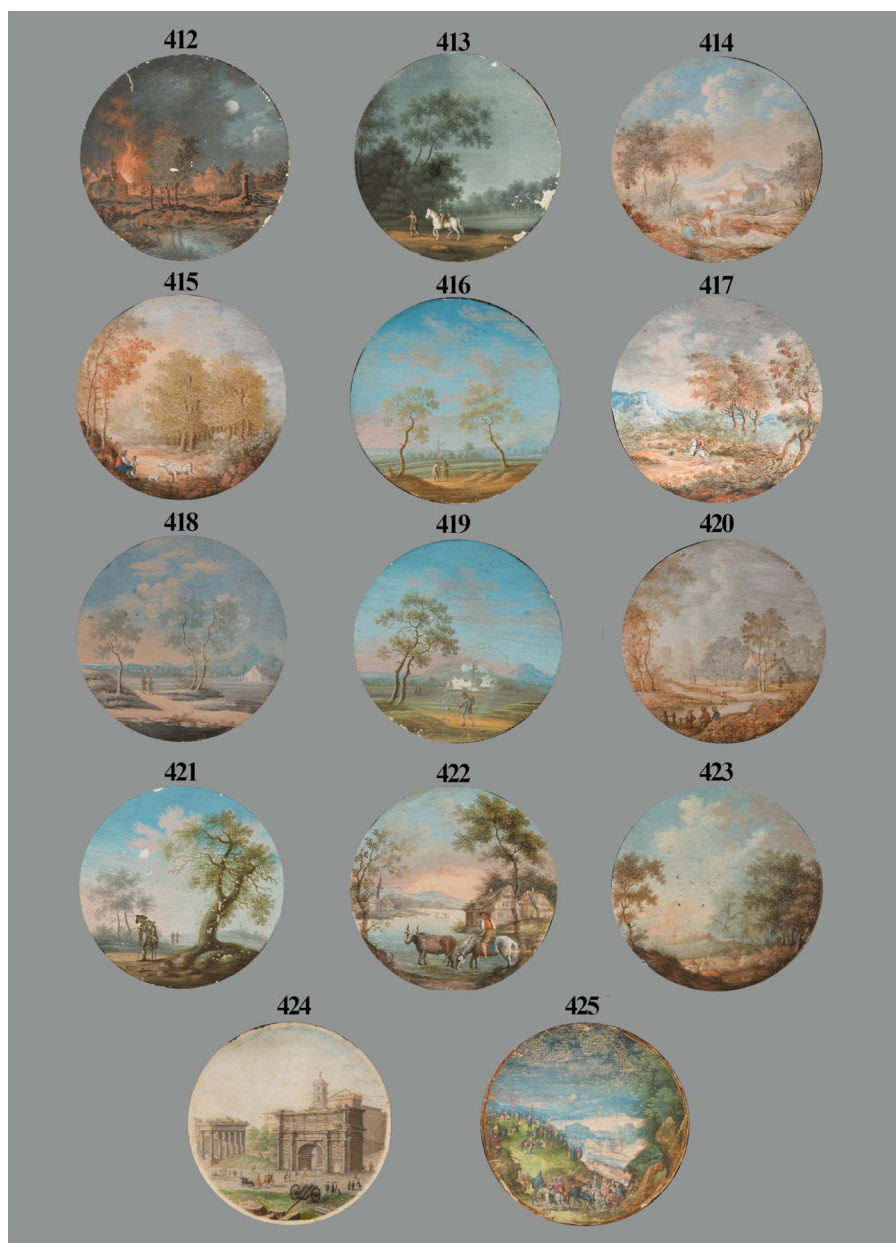


Fig. 1. The fourteen miniatures donated by Konstanty Schmidt-Ciążyński to the National Museum in Kraków, acc. no. MNK III-min-412-425. Photo: M. Obarzanowski



Fig. 2. Rijksmuseum in Amsterdam, acc. no. RP-T-1949-4, B. R. Dietzsch, Ch. L. Agricola, *Fire in a village*. Fragment. Photo: Rijksmuseum Amsterdam, public domain, <http://hdl.handle.net/10934/RM0001.COLLECT.21510>



Fig. 3. National Museum in Kraków, the miniature MNK III-min-412. Photo: M. Obarzanowski



Fig. 4. National Museum in Kraków, the miniature MNK III-min-412. Stages of major modifications to the composition by B. R. Dietzsch and Ch. L. Agricola: a – selecting the fragment and changing the shape of composition, b – shifting the group of threes from the side to the middle, c – adding the Moon and the surface of the water. Analysis by the authors



Fig. 5. National Museum in Kraków, the miniature MNK III-min-413: a, b – details. Photo: Z. Maniakowska-Jazownik
 Different intensity of shadows of the wanderer (a) and the horse (b), photographs in magnification, far left one in the raking light



Fig. 6. National Museum in Kraków, the miniature MNK III-min-413: a – wrinkled paint layer, b – cracks. Photo: Z. Maniakowska-Jazownik

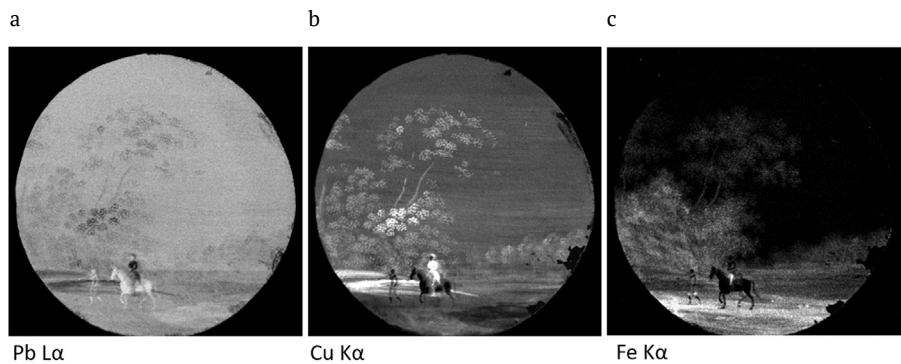


Fig. 7. National Museum in Kraków, the miniature MNK III-min-413, XRF map revealing the distribution of the following chemical elements: a – lead (Pb), b – copper (Cu), c – Fe (iron)

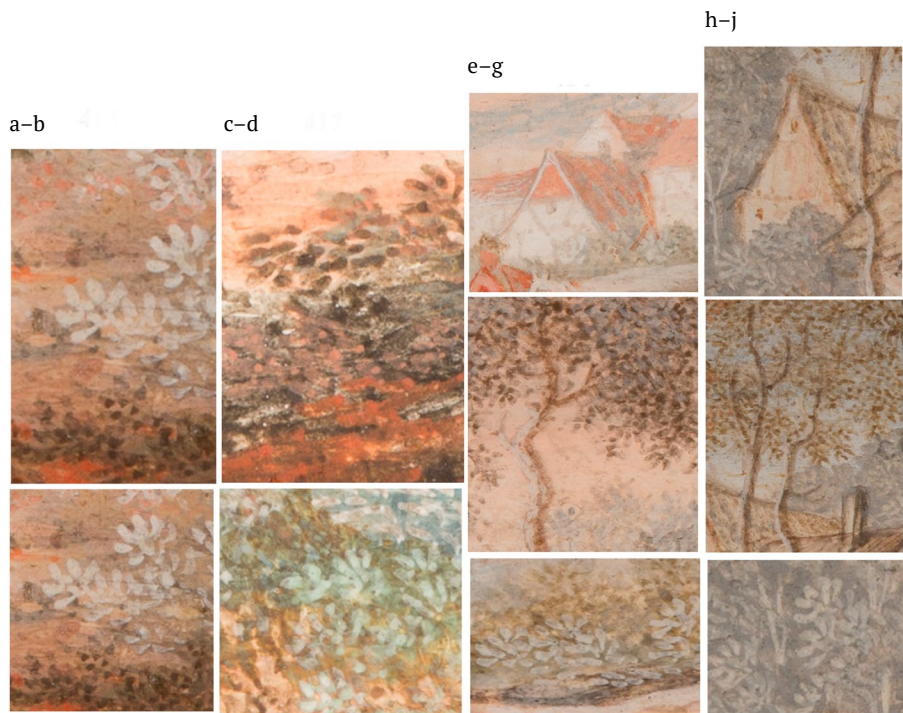


Fig. 8. National Museum in Kraków, miniatures, details. Evident formal and chromatic analogies: a, b – MNK III-min-415, c-d – MNK III-min-417, e-g – MNK III-min-414, h-j – MNK III-min-420. Photo: M. Obarzanowski



Fig. 9. National Museum in Kraków, the miniature MNK-III-min-420, detail in the raking light.
Photo: Z. Maniakowska-Jazownik

a



b



c



Fig. 10. Juxtaposition of composition analogies: a – Rijksmuseum, Amsterdam, Stefano della Bella, *Two horsemen riding against the wind*, photo: Rijksmuseum Amsterdam, public domain, <https://www.rijksmuseum.nl/nl/collectie/RP-P-OB-35.109>, b – Rijksmuseum, Amsterdam, Stefano della Bella, *The Air*, photo: Rijksmuseum Amsterdam, public domain, <http://hdl.handle.net/10934/RM0001.COLLECT.77315>, c – National Museum in Kraków, the miniature MNK III-min-417, photo: M. Obarzanowski

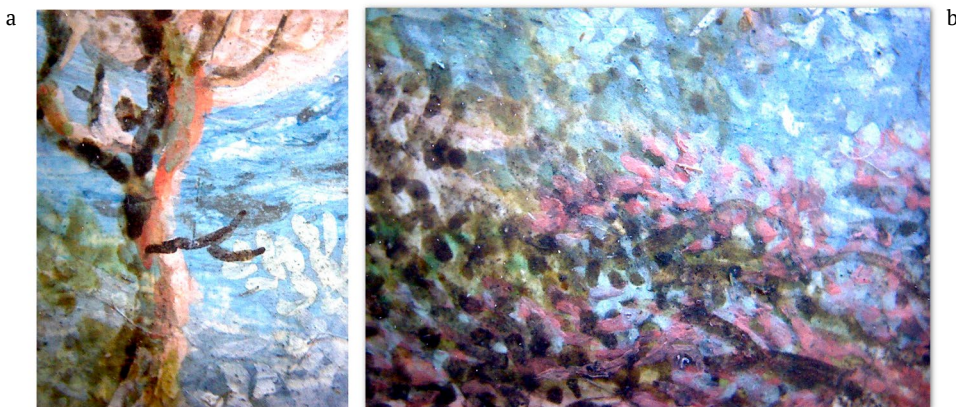


Fig. 11. National Museum in Kraków, the miniature MNK III-min-417: a – dynamic brushstrokes in the paint layer, b – “expressionists” chromatic contrasts. Photo: Z. Maniakowska-Jazownik



Fig. 12. The motif of a mill: a – Herzog Anton Ulrich-Museum, Braunschweig, Gerrit van Horst, *Landscape with a large tree in the middle and a water mill on the left*, photo: Herzog Anton Ulrich-Museum Braunschweig, public domain, https://ku-ni.de/isil_DE-MUS-026819_3671, b – private collection, Anthonie van Croos, *Landscape with trees and a farm*, photo: RKD – Netherlands Institute for Art History, RKDimages, <https://rkd.nl/explore/images/239955>



Fig. 13. Juxtaposition of composition analogies: a – Rijksmuseum, Amsterdam, Gillis de Hondcoeter, *Landscape*, detail, photo: Rijksmuseum Amsterdam, public domain, <https://www.rijksmuseum.nl/en/collection/SK-A-1502>, b – National Museum in Kraków, the miniature MNK III-min-420, detail, photo: M. Obarzanowski

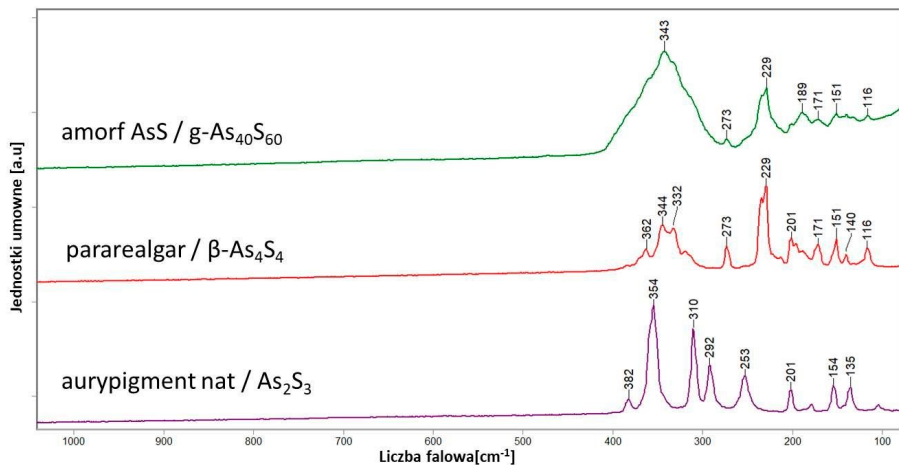


Fig. 14. National Museum in Kraków, the miniature MNK III-min-415. Raman spectra of arsenic pigments

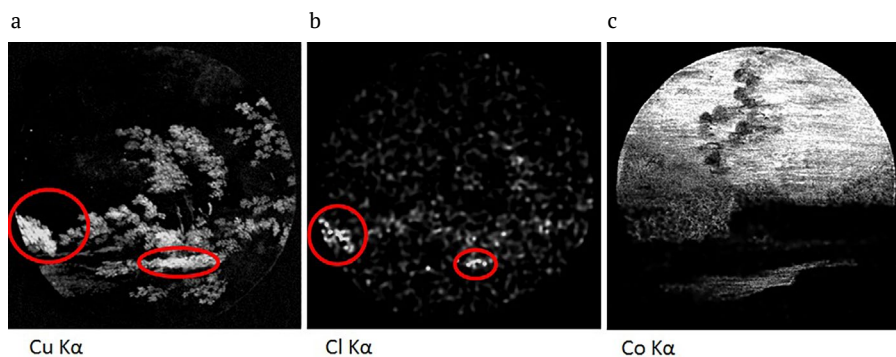


Fig. 15. National Museum in Kraków, the miniatures, distribution maps of: a – copper (Cu), b – chlorine (Cl) demonstrating the presence of green pigment based on copper chloride (II) in the miniature 417, c – cobalt (Co) in the miniature 420 (the presence of smalt)



Fig. 16. National Museum in Kraków, the miniatures, juxtaposition of formal analogies: a – the miniature MNK-III-min-416, b – the miniature MNK-III-min-419, c – the miniature MNK-III-min-421. Photo: M. Obarzanowski



Fig. 17. National Museum in Kraków, the miniatures, details – from the left: a – National Museum in Kraków, MNK-III-min-416, b – National Museum in Kraków, MNK-III-min-419, c – National Museum in Kraków, MNK-III-min-421; d, e – details of paintings by Brueghel and Berchem; f, g – details of miniatures MNK-III-min-420 and MNK-III-min-423. Photo: M. Obarzanowski

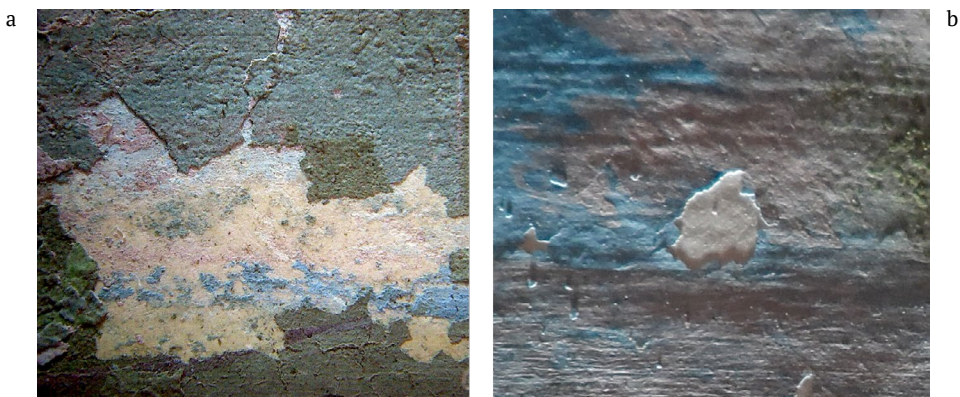


Fig. 18. National Museum in Kraków, the miniatures, juxtaposition of texture: a – the surface of miniature MNK III-min-419 in the diffused light, b – the surface of miniature MNK III-min-421 in the raking light. Photo: Z. Maniakowska-Jazownik
Visible injuries and irregularities of the surface of miniatures

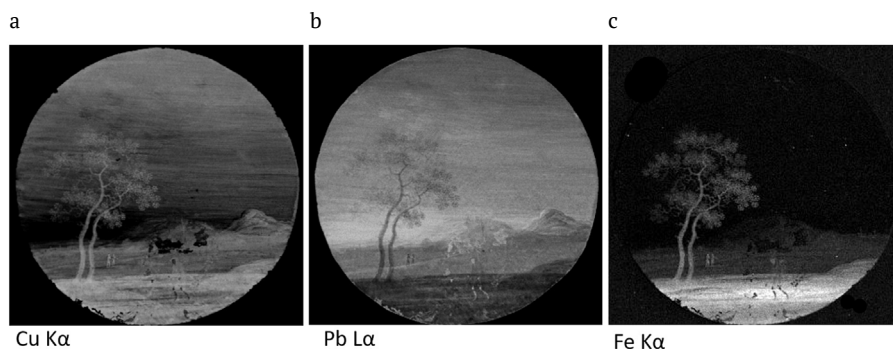


Fig. 19. National Museum in Kraków, the miniature MNK III-min-419, maps of distribution of chemical elements: a – copper (Cu) on the whole surface of the miniature, with visible injuries of the azurite paint layer, b – lead (Pb) indicating the presence of lead white, c – iron (Fe) demonstrating the distribution of iron pigments



Fig. 20. Juxtaposition of composition analogies: a – National Museum in Kraków, MNK III-min-422, detail, photo: M. Obarzanowski, b – Teylers Museum, Haarlem, Nicolaes P. Berchem, *Mountain landscape with two women and cattle*, photo: <https://www.teylersmuseum.nl/nl/collectie/kunst/q-014-berglandschap>, c – Teylers Museum, Haarlem, Nicolaes Berchem, *The drinking cow*, photo: <https://www.teylersmuseum.nl/nl/collectie/kunst/kg-04422-de-drinkende-koe> (mirror image along the vertical axis); d – Teylers Museum, Haarlem, Danckerts Danker after Nicolaes Berchem, *Landscape with shepherds*, photo: <https://www.teylersmuseum.nl/nl/collectie/kunst/kg-03317-landschap-met-herders> (mirror image along the vertical axis); e – Teylers Museum, Haarlem, Nicolaes Berchem, *Two oxen and a sheep at a brook*, photo: <https://www.teylersmuseum.nl/nl/collectie/kunst/kg-05203-twee-ossen-en-een-schaap-bij-een-beek> (mirror image along the vertical axis)

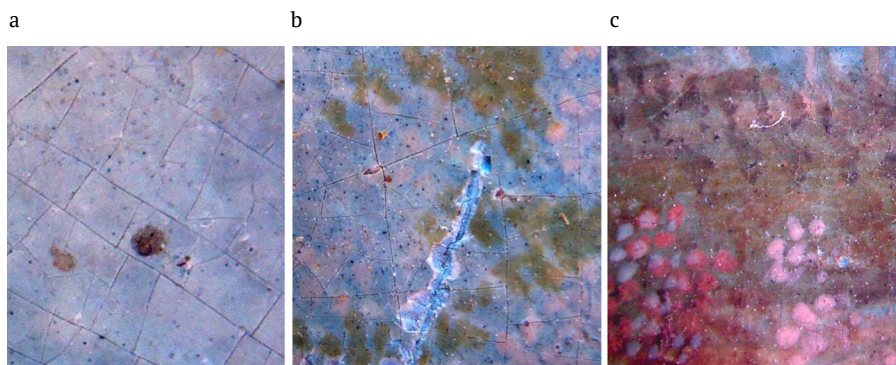


Fig. 21. National Museum in Kraków, the miniature MNK-III-min-423, surface: a – craquelure, b – deeper injuries of the paint layer, revealing the layer of underpainting, c – considerable differentiation visible in magnification. Photo: Z. Maniakowska-Jazownik

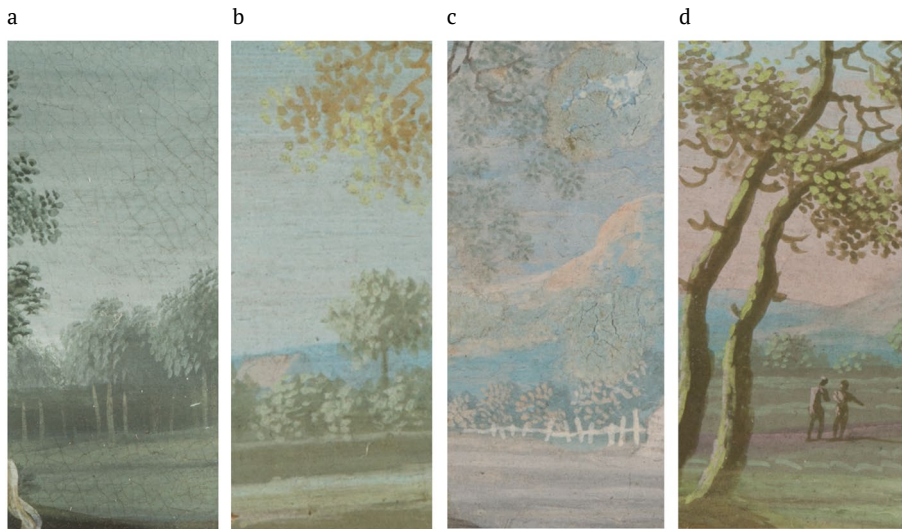


Fig. 22. National Museum in Kraków, miniatures, juxtaposition of composition analogies: a – MNK-III-min-413, b – MNK-III-min-416, c – MNK-III-min-418, d – MNK-III-min-419. Photo: M. Obarzanowski



Fig. 23. Juxtaposition of composition and chromatic analogies: a – privat collection, Louis-Nicolas van Blarenberghe, *Animated landscape*, detail, photo: Baron Ribeyre & associés, <https://www.baronribeyre.com/en/lot/113839/14969122-louisnicolas-van-blarenberghe>, b – privat collection, Louis-Nicolas van Blarenberghe, *A horseman an a peasant in a vast river landscape*, miniature on parchment, detail, photo: https://www.artnet.com/artists/louis-nicolas-van-blarenberghe/cavalier-et-paysan-dans-un-vaste-paysage-fluvial-bb96hNdLM8ZfG0mWB_21aw2, c – National Museum in Kraków, the miniature MNK III-min-422, detail, photo: M. Obarzanowski, d – National Museum in Kraków, the miniature MNK III-min-418, detail, photo: M. Obarzanowski

a



b



Fig. 24. Juxtaposition of composition analogies: a – Rijksmuseum in Amsterdam, Giuseppe Vasi, *The Arch of Septimius Severus*, 1757, photo: Rijksmuseum Amsterdam, public domain, <http://hdl.handle.net/10934/RM0001.COLLECT.186879>, b – National Museum in Kraków, the miniature MNK III-min-424, photo: M. Obarzanowski

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