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Paths to Reality: Remarks on Glaziers' Workshop Practices in Cracow, c.1380–1440

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Wege zur Realität: Bemerkungen zur Werkstattpraxis der Glasmalerei in Krakau, c.1380–1440 – Zusammenfassung

Robert Suckale analysierte das Verhältnis der Glasmalerei zu anderen bildenden Künsten um 1300 und beschrieb den Malstil, der auf einem starken Farbkontrast und der dominierenden Rolle der Kontur basiert, als „Glasstil". Er machte auch auf die führende, stilistisch kreative Rolle der Glasmalerei aufmerksam. Suckale brachte die These vor, dass die Kunstwende zwischen 1320 und 1330 nördlich der Alpen infolge eines aus Italien stammenden Impulses spätestens Mitte des 14. Jahrhunderts zu einer Veränderung der bestehenden Beziehungen zwischen den Künsten führte, wodurch die Glasmalerei ihre Position vor der Tafelmalerei verlor. Von da an war es die Tafelmalerei, die Stillösungen festlegte. Die von Suckale gestellte These ist vielleicht eine Vereinfachung, Tatsache ist jedoch, dass die Schöpfer von Glasmalereien in dieser Zeit der enormen Herausforderung gegenüberstanden, gemäß den Tendenzen aus dem Süden Bildräume realitätsnäher zu erschaffen.

Die mitteleuropäische Glasmalerei ist ein gutes Beispiel für dieses Phänomen. In der Malerei der Wende vom 14. zum 15. Jahrhundert wurde eine weiche Modellierung eingesetzt, die in der Glasmalerei nach neuen technischen Lösungen suchen ließ. Die Frage lautet nun, welche und woher entlehnte Lösungen die Glasmaler aufgegriffen haben, um die Hell-Dunkel-Malerei in der Glasmalerei umsetzen zu können. Die Temperamalerei war in dieser Hinsicht kein gutes Vorbild. Weitaus geeignetere Strategien lieferten die sich damals stark entwickelnden Zeichentechniken und das neue und immer leistungsfähigere Medium der Grafik. Ich möchte die Beziehungen zwischen diesen Kunstgattungen am Beispiel der Kunst der Hauptstadt des Königreichs Polen betrachten. In Krakau wurden Glasmaler zusammen mit Malern, Holzschnitzern und Vergoldern zu einer Zunft zusammengeschlossen. Ihre Rolle in der lokalen Umwelt zeigt sich darin, dass in der ersten Hälfte des 15. Jahrhunderts häufig Glasmaler die Zunft leiteten. Es sollte auch angemerkt werden, dass die meisten Werke in Kleinpolen Glasmalereien und nicht Tafelbilder waren, was auch durch die Vielzahl an Werkstätten und die Vielfalt der Beziehungen, die sie mit anderen Regionen Mitteleuropas verbanden, belegt wird.

Paths to Reality: Remarks on the Glaziers' Workshops Practice in Cracow, c.1380–1440 – Summary

In his analysis of the relationship between stained glass and other forms of the visual arts around 1300, Robert Suckale termed the style of painting of that period, characterised by contrasting colours and the dominant position of contour, as 'Glasstil' ('Stained-glass style'), thus emphasising the leading and style-forming role of stained glass at that time. He also advanced a hypothesis that the transformations taking place in art north of the Alps, beginning around 1320–1330 and prompted by impulses coming from Italy, had led – by the mid-14th century – to a change in the existing relationship between various arts. As a result, stained glass lost its dominant position to panel painting, and it was the latter art that had been setting the tone of stylistic solutions ever since. Notwithstanding the fact that Suckale's thesis may be an oversimplification, there is no denying that in the above-mentioned period stained-glass makers had to face an enormous challenge of a tendency to realistically depict the world, brought from the south. Central European stained glass is particularly well suited for exemplifyng the above phenomenon. Painting of the end of the 14th and the beginning of the 15th century used soft modelling whose translation into the stained-glass medium was a challenge that required resorting to new solutions. What solutions, with regard to the stained-glass technique, did the glaziers use to satisfy the need to translate the tonal qualities of the new painting into stained-glass, and where did these solutions derive from? Tempera panel painting was hardly a suitable model in this respect. Far more appropriate strategies were provided by the drawing techniques that were then vigorously developing, and the new and ever more powerful graphic medium. I take a closer look at these relationships, taking as an example the art of the capital of the Polish Kingdom. In Cracow, glaziers, along with painters, wood carvers and gilders belonged to one craftsmen's guild, and the role they played in the city's artistic milieu is attested by the fact that in the first half of the 15th century glaziers often held the senior offices in the guilds. It must be noted as well that it was in stained glass, and not in panel painting, that more numerous works were produced in Lesser Poland, leaving a testimony to the multiplicity of workshops active there and the variety of relationships they maintained with other regions in Central Europe.

Paths to Reality: Remarks on Glaziers' Workshop Practice in Cracow, c.1380–1440

In his analysis of the relationship between stained glass and other forms of the visual arts around 1300, Robert Suckale termed the style of painting of that period, characterised by contrasting colours and the dominant position of contour, as "Glasstil" ("Stained-Glass Style"), thus emphasising the leading and style-forming role of stained glass at that time.[1] He also advanced a hypothesis that the transformations taking place in art north of the Alps, beginning around 1320–1330 and prompted by impulses coming from Italy, had led – by the mid-14th century – to a change in the existing relationship between various arts. As a result, stained glass lost its dominant position to panel painting, and it was the latter art that had been setting the tone of stylistic solutions ever since. Notwithstanding the fact that Suckale's thesis may be an oversimplification, there is no denying that in the above-mentioned period stained-glass makers had to face an enormous challenge in the tendency to realistically depict the world, brought from the south.

In the second half of the 14th century, Prague was Europe's undisputed centre in which these models were assimilated, and the *Reichstil*, which emerged at the court of the Emperor Charles IV, became an attractive model followed by other artistic centres, including Cracow, a capital of the reborn Polish Kingdom. It was from Bohemia, ruled by the Luxembourgian dynasty, that a tendency to represent stocky, sturdily built figures, and fabrics with thick, softly flowing folds spread and took over. Obtaining such a soft, flowing modelling in the stained-glass technique was quite a challenge. What solutions – in terms of workshop practice – did glaziers active in Lesser Poland invent in order to satisfy the need to transpose the forms of tonal modelling in the new style of painting into stained glass? When did this problem become of importance for them? And what other media could have offered them a useful means of solving this problem?

Among the earliest examples of the reception of the Bohemian *Reichstil* in Lesser Poland are stained-glass schemes with scenes from the Old and New Testament executed for two windows in St Mary's Church in Cracow before 1365. The style of the Master of the Old and New Testament Cycle clearly reveals its roots in the so-called "Soft Style" (German *weicher Stil*) of the period around 1360 and an openness to Franco-Flemish influence brought into this art by the successive court painters to Charles IV in the late 1350s and 1360s.[2] The workshop active in Cracow "quoted" the types of figures, arrangement of drapery and facial features characteristic of artworks executed in the orbit of Master Theodoric active in Prague. At the same time, however, the workshop continued the tradition of calligraphic stained-glass style from before the mid-14th century, which was characterized by a complete lack of interest in tonal modelling, the forms having been built up exclusively by means of a fairly thick, confident and hardly varying line. The selective reception of the Prague panel painting models is an interesting example, and not only with respect to the local area, since the workshop active in Cracow, a capital of the Polish Kingdom, was among the first workshops known in Central Europe to have adopted the *Reichstil* from Bohemia for stained-glass-making.

Although the few stained-glass panels from the two last decades of the 14th century that survive in Lesser Poland were manufactured in different workshops, independently from one another, all of them are characterised by the same way of translating the panel painting-derived light-and-shade modelling into the linear language of stained-glass art: the shading was achieved by dense cross-hatching which clearly dominated the modelling executed using halftones, applied to the obverse or on both sides of the glass panel. A stained-glass panel representing St Stanislaus (in the Diocesan Museum in Kielce), from around 1385–1395, may serve as an example of how the stylistic formula existing in Lesser Poland since the 1360s was enhanced in this way (fig. 1).[3]

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[1] Robert SUCKALE, "Glasmalerei im Kontext der Bildkünste um 1300", in *Himmelslicht. Europäische Glasmalerei im Jahrhundert des Kölner Dombaus (1248-1349)* (Exhibition catalogue, Schnütgen-Museum der Stadt Köln, Cologne, 1998), Cologne, 1998, pp. 73-77.
Due to space constraints, the footnotes in this text had to be limited to basic references.
[2] On the art of the Master see Lech KALINOWSKI, Helena MAŁKIEWICZÓWNA, Dobrosława HORZELA, *Die mittelalterlichen Glasmalereien in der Stadtpfarrkirche Mariä Himmelfahrt in Krakau*, Univeristas, Cracow, 2018 (CVMA Polen, I,1), pp. 234-248.
[3] Dobrosława HORZELA, *Cud światła. Średniowieczne witraże w Polsce* (Exhibition catalogue, Muzeum Narodowe w Krakowie, Kraków 2000), Muzeum Narodowe w Krakowie, Cracow, 2020, p. 142, cat. no. 19 (by D. Horzela), fig. on p. 143.

Fig. 1. St Stanislaus, from the parish church in Szaniec, Diocesan Museum in Kielce. Photo: Daniel Podosek/CV Poland.

Originally executed for the then-wooden church at Szaniec, the St Stanislaus panel was later installed in a new masonry church, with the obverse facing the exterior, thanks to which the treatment of the reverse of the glass has been well preserved, including the wash and the paint layer, with the hatching visible mainly as a relieving of the glass paint. The thick lines marking the saint's facial features, the figure's stocky proportions and its characteristic outline – distinctly broadened below the waist by the widely laid out folds on the edges of the chasuble, and narrowing at the bottom – are characteristics that may be considered a distant echo of the *Reichstil* of the Charles IV period, in its version known in Cracow from the art of the Master of the Old and New Testament Cycle in the city's St Mary's Church.[4] What is particularly well distinguishable, however, are novelties in the modelling: the working-up of forms by means of dense cross- and parallel hatching combined with soft washes applied in broad brushstrokes, in places scratched out on the reverse of the glass panel. The hollows of the folds have been marked by strong cross-hatching, resulting in the forms of deep, teardrop-shaped depressions, sometimes referred to as the "thumb-print motif" (Hung. *hüvelyknyom*).[5] The same device was used by the glazier who executed a panel representing Christ the Man of Sorrows (now: sIV 8b) for the eastern window in Corpus Christi Church in the district of Kazimierz in Cracow, before 1387 (the date of the consecration of the choir).[6] Also here the initial appearance of the drawn image can be judged by the relieving rather than its surviving portions. Yet another version of cross-hatching was used by the workshop of the Master of the Marian Cycle, who executed stained-glass panels for two windows (nV, nVI) in St Mary's Church in Cracow

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[4] See, for instance, the *Creation of Angels*, nII,5(9)b, Kalinowski, Małkiewiczówna, Horzela 2018, pp. 326-328, Fig. 43, Tabl. 10.

[5] The term was coined, with reference to sculpture, by Antal Kampis, *A középkori magyar faszobrászat történetének vázlata 1450-ig*, Biro R. T. Ny., Budapest, 1932, p. 53.

[6] For general account of the stained-glass windows in Corpus Christi Church, see Adam S. Labuda, Krystyna Secomska (ed.), *Malarstwo gotyckie w Polsce*, Wydawnictwo DiG, Warsaw, 2004 (Dzieje Sztuki Polskiej II, 3), vol. 2, pp. 129-131 (by H. Małkiewiczówna).

around 1390–1400.[7] Shading on pieces of light-coloured glass – of which the faces of figures were made – were executed by means of applying wash on the obverse, and lights were achieved by means of relieving, while a third element of tonal modelling has the form of fine hatched lines. The ridges of fabrics were painted using lines of varying thickness, and the inner surfaces and indentations of the drapery folds are marked by parallel or cross-hatching. This layer of hatching is relieved in places: the paint was removed using a very fine tool down to the surface of glass, leaving a dense network of modulated tones. A characteristic feature of this technique is that the hatching extends across the contour of the ridges of folds, which results in the hatched lines becoming in places autonomous forms, no longer shaping the drapery, but rather decorating or even supressing it. This is also how hatching was employed in a stained-glass panel representing St Mary Magdalene from the Dominican church in Cracow (c.1400, National Museum in Cracow). In it, strong hatching fills in the hollows of the drapery folds, extending, however, beyond the contour line marking their edges.[8] The thick lines of the hatching are in this case all the more puzzling since the pattern in the background of the panel has been relieved in a most exquisite manner, suggesting either a deliberate choice of two differing conventions, or an execution by two different glass painters.

In her classic paper, *Die Glasmalerei. Entwicklung – Technik – Eigenart* [Stained-glass: its development, technology and specificity], Eva Frodl-Kraft singled out the technique of hatching as the most important among, as she has put it, "special devices" serving to assimilate a stained-glass composition to the new conventions of representing reality. She considered the use of hatching a result of a fascination of stained-glass makers with the woodcut and related the origins of its employment on a glass support to the early 15th century, when woodcut prints had come into circulation.[9] Yet, the suggestion of Frodl-Kraft does not find substantiation in the facts, as it was not until the second half of the 15th century that hatching started to be used in woodcut production as a method of modelling,[10] much later than it appeared in stained glass, where it had already been employed before the arrival of the woodcut.

In Prague, the apparently earliest occurrence of cross-hatching used for the modelling of drapery folds, can be seen in the image of St Paul, one of a few charcoal drawings with white highlights in the Holy Cross Chapel at Karlštejn Castle, dated to about 1360 and ascribed to Nicholas Wurmser and/or Master Theodoric. The purpose of these drawings is unknown. They may have been used as presentation drawings for the patron or were intended as underdrawings for some (never executed) compositions.[11] The latter function seems to be less likely, considering the fact that underdrawings for paintings actually executed by Master Theodoric are reduced to the main outlines only.[12] Recently conducted technological research has demonstrated that underdrawings used by Central-European panel painters of the second half of the

[7] Kalinowski, Małkiewiczówna, Horzela 2018, pp. 248-259, 323-326, 442-444, Figs. 41, 42, 124, 125.

[8] For more on this stained-glass panel, see Dobrosława Horzela, "Opus punctile and Stained Glass around 1400", *Umění*, 62, 2017, No. 3, pp. 226-243, fig. 2.

[9] Eva Frodl-Kraft, *Die Glasmalerei. Entwicklung – Technik – Eigenart*, Schroll, Vienna – Munich, 1970, p. 49.

[10] See *Origins of European Printmaking. Fifteenth-Century Woodcuts and Their Public* (Exhibition catalogue, National Gallery of Art, Washington, 2005; Germanisches Nationalmuseum, Nuremberg, 2005-2006), Yale University Press, Washington, 2005; Achim Reitner, *Einblattholzschnitte des 15. Jahrhunderts. Bestand der Staatlichen Graphischen Sammlung München* (Exhibition catalogue, Staatliche Graphische Sammlung, Munich, Pinakothek der Moderne, 2019), Deutscher Kunstverlag, Berlin – Munich, 2019.

[11] Jiři Fajt (ed.), *Magister Theodoricus. Dvorní malíř císaře Karla IV. Umělecká výzdoba posvátných prostor hradu Karlštejna* (Exhibition catalogue, Klášter Sv. Anežky České v Praze, 1997), Národní galerie v Praze, Prague, 1997, fig. on p. 561; see Věra Frömlová, "The exceptional nature of the painting of Magister Theodoricus", in Jiři Fajt (ed.), *Court Chapels of the High and Late Middle Ages and their Artistic Decoration*, Národní galerie v Praze, Prague, 2003, pp. 299-302, 490-492; Radana Hamsíková, Magister Theodoricus and Medieval Drawings, in Fajt 2003, pp. 293-298, 488-490; Maria Theisen, "Das Wiener Musterbuch", in Maria Theisen, Eberhard König, *Kunsthistorischer Kommentar zum Faksimile des Wiener Musterbuches*, Müller & Schindler, Madrid, 2012, p. 20; Jiři Fajt, "Charles IV: Toward a New Imperial Style", in Barbara Drake, Jiri Fajt (ed.), *Prague. The Crown of Bohemia 1347-1437* (Exhibition catalogue, The Metropolitan Museum of Art, New York, 2005-2006), Yale University Press, New Heaven – London, 2005, p. 13; Jiři Fajt, *Nürnberg als Kunstzentrum des Heiligen Römischen Reichs: höfische und städtische Malerei in der Zeit Kaiser Karls IV., 1346-1378*, Deutscher Kunstverlag, Berlin – Munich, 2019, p. 270, fig. 290

[12] See the illustrations in Fajt 1997 and discussion in Helena Dáňová, Štěpánka Chlumská (ed.), *Očím skryté: Průzkum podkreseb na deskových malbách 14-16. století ze sbírek Národní galerie v Praze*, Národní galerie v Praze, Prague, 2017, pp. 84-85. See also: Technologia artis 3 (avu.cz), https://technologiaartis.avu.cz/a_3malba-drevo-theo.html [accessed 4 January 2021].

14th c. did not include tonal modelling executed by means of hatching. It was not until around 1410–1420 that underdrawings with hatching started to slowly acquire popularity in this function (the Virgin of Svojšín and the Virgin of Vyšší Brod, both in the National Gallery in Prague, are among early examples).[13] Underdrawings revealed in the course of technological research on earlier Bohemian panel paintings suggest they would have been of rather limited use for the stained-glass maker.[14] A good case in point is an unfinished painting of *The Virgin with Sts Bartholomew and Margaret* (c.1390, National Heritage Institute, Regional Office in České Budějovice, on long-term loan to the Aleš South Bohemian Gallery in Hluboká nad Vltavou), executed in the orbit of the Master of the Třeboň Altarpiece, in which the underdrawing is limited to only the essential outlines, without taking account of the highlights and shadows.[15] The manner in which the St Paul drawing in the Holy Cross Chapel was executed – exceptional at the time – might have been an attractive option, of potential use also for glaziers. It is particularly interesting to note in this context that hatching appears as well (even though to a limited extent) in a stained-glass *Crucifixion* panel from the same castle, also dated to around 1360.[16] Notwithstanding the controversial hypothesis of Jiří Fajt, who believes Nicholas Wurmser to have been a stained-glass designer, the use of modelling by means of cross-hatching attests to the fact that ideas related to drawing conventions circulated among painters working in different media.[17]

The drawings in the Holy Cross Chapel should rather be understood as exceptionally large models, comparable not to auxiliary underdrawings, but to independent drawings executed on paper or parchment, which were becoming ever more popular at the end of the 14th century. And these drawings – as far as technical devices in terms of modelling such as hatching were concerned – were rooted in the contemporary technique of miniature painting which, with regard to the specific process of tempera painting on parchment, also had developed its own convention of building up the spatial form, quite different from the one employed in panel painting, since it was based on a network of hatched lines. The hatching used by glass painters was rather a transposition of the contemporary techniques of miniature painting and drawing.

Such a transmission chain of technical devices was identified with regard to Nuremberg stained glass by Hartmut Scholz. He has noted that a type of drawing using short, dense strokes, encountered for the first time in the orbit of miniatures commissioned by bishop John of Neumarkt (Jan ze Středy), especially in his *Liber viaticus* (Library of the National Museum, Prague, dign. XIII A 12), dated to 1363–1364, or 1361–1364, was the source of technical devices used in a group of drawings executed in pen and black ink on paper, usually associated with Prague or Nuremberg, and dated by him to the 1380s (Germanisches Nationalmuseum, Nuremberg, inv. no. Kapsel 559, Hz 38).[18] As indicated by Scholz, these drawings,

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[13] See DÁŇOVÁ, CHLUMSKÁ 2017; Małgorzata NOWALIŃSKA, *O sztuce kopiowania. Studia inspirowane badaniami powtarzalności przedstawień Hodegetrii Krakowskich 1400-1550/On the Art of Copying. Studies Inspired by Research on the Repeatability of Cracovian Hodegetria 1400-1550*, Wydawnictwo Akademii Sztuk Pięknych im. Jana Matejki, Cracow, 2019, pp. 280-281; RADANA Hamsíková, *Magister Theodoricus and Medieval Drawings*, in FAJT 2003, p. 297, fig. 283.

[14] A wealth of information on this topic can be found especially in: DÁŇOVÁ, CHLUMSKÁ 2017 and NOWALIŃSKA 2019.

[15] Jan ROYT, *The Master of the Třeboň Altarpiece*, Karolinum Press, Prague, 2014, pp. 183-186, fig. 69.

[16] František MATOUŠ, *Mittelalterliche Glasmalerei in der Tschechoslowakei* (CVMA Tschechoslowakei), Academia, Prague, 1975, pp. 40-44. Figs. 17-19; FAJT 2019, p. 418, fig. 472.

[17] FAJT 2019, p. 422. A well-known example of a sketchbook used by a glazing workshop is the Pepysian Sketchbook, on which see JAMES 1924-1925, R. ROSEWELL, "The Pepysian Sketchbook", *Vidimus*, 54, http://vidimus.org /issues/issue-54/feature/ [accessed 11 January 2018]; see also MARKS 1993, pp. 31-33; R. Marks, "Window Glass", in BLAIR, RAMSAY 2001, pp. 265-294.

[18] Hartmut SCHOLZ, *Die mittelalterlichen Glasmalereien in Nürnberg: Sebalder Stadtseite* (CVMA Deutschland, X, 2), Berlin, 2013, p. 37, 97, see also: Hartmut SCHOLZ, *Die mittelalterlichen Glasmalereien in Mittelfranken und Nürnberg extra muros*, Deutscher Verlag für Kunstwissenschaft, Berlin, 2002 (CVMA Deutschland, X,1), p. 230; Hartmut SCHOLZ, "Prag oder Nürnberg? Die Luxemburger Fensterstiftungen in Nürnberg und Franken und die Frage ihrer künstlerischen Verortung", in *Kunst als Herrschaftsinstrument: Böhmen und das Heilige Römische Reich unter den Luxemburgern im europäischen Kontext*, ed. Jiří FAJT, Andrea LANGER, Deutscher Kunstverlag, Berlin – Munich, 2009, pp. 221-233;. On the *Liber viaticus* manuscript see Pavel BRODSKÝ *et al.* (ed.), *Liber viaticus Jana ze Středy. Zmenšená reprodukce a komentářový svazek. Vydání první*, Academia, National Museum, Prague, 2016. / Jiří FAJT dated the same drawings to 1360-1370(?) inscribing them to Sebald Weischröter. In his opinion Weinschröter was also stained-glass designer, see: FAJT 2019, esp. pp. 432-443, cat. Nr. 3 (with full bibliographic references), figs.479, 481,487, on stained-glass designs: pp. 457-495.

executed using a laborious procedure – with short, densely applied strokes resulting in soft modelling – may have been intended as models (*Musterblatt*) and produced within the orbit of a stained-glass workshop which executed glazing in the parish church of Hersbruck around 1370/1380. The type of drawing represented by this workshop became an important component of a very distinct style of the Nuremberg stained glass of the following decades, that was modified – mostly simplified – over time.

No drawings dating from the end of the 14th c. have survived in Lesser Poland, which thwarts any attempts at reconstructing such a transmission chain here. It may be assumed, however, that the type of prominent cross-hatching, characteristic of local stained-glass production, arrived here also by means of illuminations of Bohemian, or possibly Silesian, origin. The earliest artwork known in Lesser Poland to have been executed using cross-hatching is in an illuminated gradual (*Graduale de temporis et de sanctis*, National Library in Warsaw, MS 12722 V), dated to around 1390, commissioned by Mścisław (Mstislav), who was abbot of the Benedictine monastery in Tyniec near Cracow from 1386 to 1410.[19] The style of its main illuminator, called the Master of St Gregory, has been associated in the literature with the art of Silesian scriptoria, and it is assumed that it was from there that he had come to Tyniec, bringing along artistic devices developed in the orbit of the Prague Master of the *Willehalm* Romance (*Genesis* Master), an artist in the service of Wenceslas IV.[20] The oldest miniatures in the Prague *Willehalm* romance date from around 1387, and their style is believed to stem from the slightly earlier South-German manuscripts such as the unfinished *Gereimte Weltchronik* from around 1380 (Munich, Bayerische Staatsbibliothek, Cgm 7377) whose illustrations, mostly rendered only as drawings, are executed using modelling achieved by means of dense cross-hatching.[21]

The way of rendering light and shadow discussed here appeared in stained glass produced in various artistic centres influenced by the Bohemian *Reichstil*. Among those located closest to Prague was Wrocław. It was there that a stained-glass panel with the *Crucifixion*, known from a photograph and lithograph, formerly in Ozorowice (Ger. Sponsberg), dated to around 1370, was most likely executed.[22] Among more distant towns was Cracow, but this convention was employed in places as remote from the main centres of medieval stained-glass production in Central Europe as Chełmno (Ger. Kulm), with its stained glass from the 1380s exhibiting distinct Bohemian influences including strong cross-hatching.[23] An exaggerated version of this type of modelling, in which the rendering of figures verged almost on the caricatural, can be found, in turn, in stained-glass windows at Neuhaus in Carinthia, close to the Slovenian border, and at Seiz.[24] One can only wonder whether the forms of modelling used in those panels, which share evident stylistic influences of Bohemian art, are a result of transposition of drawn models of the type known from the Brunswick Sketchbook from around 1380–1390[25] or of other, simplified designs.[26]

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[19] Barbara MIODOŃSKA, *Małopolskie malarstwo książkowe 1320-1540*, Wydawnictwo Naukowe PWN, Warsaw, 1993, p. 125-126, Figs. 1, 2, 26, Tabl. II; *Malarstwo gotyckie w Polsce* 2004, vol. 1, p. 426, vol. 2, pp. 400-401, vol. 3, Fig. 987-989. The entire manuscript is available online at https://polona.pl/item/graduale-de-tempore-et-de-sanctis, MjA3NTg3NDk/484/#index [accessed 10 January 2018].

[20] On the Bohemian illuminator see Josef KRÁSA, *Rukopisy Vaclava IV*, Odeon, Prague, 1971, pp. 50-54, 114-130; Jiří FAJT, Barbara DRAKE BOEHM (eds), *Karel IV. Císař z Boží Milosti. Kultura a umění zavlády Lucemborků 1310-1437*, Academia, Praha 2006, pp. 489-490, nr 161 (G. Schmidt).

[21] KRASA 1971, pp. 129; on artists in the service of Wenceslas IV see: Josef KRÁSA, *České iluminované rukopisy 13./16. století*, Odeon, Prague, 1990, pp. 144-178.

[22] KALINOWSKI, MAŁKIEWICZÓWNA, HORZELA 2018, p. 239, fig. 173.

[23] Dobrosława HORZELA, "Made of Gold, Made of Glass. Remarks on the Migration of Ornamental Forms Between Stained Glass and Goldsmiths' Art in the Late Middle Ages", *Revista de História da Arte – Serie W: The Art of Ornament. Senses, archetypes, shapes and functions*, IHA/FCSH/NOVA, 8, 2019, pp. 109-112, fig. 1.

[24] Walter Frodl considered the stained-glass panels at Neuhaus to have been executed by a Slovenian workshop (Walter FRODL, *Glasmalerei in Kärnten 1150-1500*, Leon, Klagenfurt, 1950, p. 50); their technical affinity with the panels at Seiz, a fact that conclusively locates their origin in the area of Styria and Carinthia, has been noticed only fairly recently: Ernst BACHER, Günther BUCHINGER, Elisabeth OBERHAIDACHER-HERZIG, Christina WAIS-WOLF, *Die mittelalterlichen Glasgemälde in Salzburg, Tirol und Vorarlberg*, Böhlau, Vienna, Cologne and Weimar, 2007 (CVMA, Österreich, IV), pp. 11-12; for Seiz see also: Ernst BACHER, Günther BUCHINGER, Elisabeth OBERHAIDACHER-HERZIG, Christina WAIS-WOLF, *Die mittelalterlichen Glasgemälde in Niederösterreich: Krenstetten bis Zwettl (ohne Sammlungen)* (CVMA, Österreich, V,1), Böhlau, Vienna, Cologne and Weimar, 2015, pp. 141-142.

[25] See, in particular, Maria DEITERS, "Flötz-Barby-Magdeburg-Prag. Zur Kunst des Magdeburgischen Raumes im späten 14. Jahrhundert", in *Künstlerische Wechselwirkungen in Mitteleuropa*, ed. Jiři FAJT, Markus HÖRSCH, Thorbecke, Ostfildern, 2006 (Studia Jagellonica Lipsiensia, 1), pp. 135-140, fig. 66-76.

Indeed, in the case of drawings on parchment and paper, the effect achieved by means of hatching is substantially different, depending on the tool used. A pen drawing results in a distinctive network of criss-crossing, with fairly thick lines of various density. It is this very technique that has determined the stylistic expression of compositions in the Brunswick Sketchbook. This collection of drawings influenced by Bohemian art (disregarding the controversy about its place of execution, whether Prague or Magdeburg) – next to the panels of the Třeboň Altarpiece – constitutes the closest comparative material for the Marian Cycle panels in St Mary's Church in Cracow, whose dating to around 1390–1400 is based not only on a comparative analysis but – which is all the more important with regard to works of art from around 1400, notoriously difficult to date – is corroborated by indirect documentary evidence concerning the remo-delling of windows in which the panels were installed.[27]

Fig. 2. Noli me tangere, Corpus Christi Church, sIV (14c).
Photo: Daniel Podosek and Paweł Karaszkiewicz/CV Poland.

The popularity of cross-hatching in the stained glass of Lesser Poland was short-lived. As early as in the work of the Red Workshop, employed around 1414 in the glazing of the choir windows of Corpus Christi Church, and of the Black Workshop, operating there slightly later (around 1420–1430), this type of modelling already played a secondary and supplementary role.[28] The style of the Red Workshop, which gives the impression of being linear from a distance, is based in fact on a combination of lines marking the ridges of drapery folds or determining facial features, with halftones abundantly used on the obverse and washes applied on the reverse (fig. 2). Within the garments, glass sheets were often entirely covered with glass paint from which lighter areas were relieved to achieve subtle tonal transitions; in other places this layer was removed by means of brushing, which resulted in a subtle blurring of contour. Within the heads, this technique enabled glass painters to achieve strong light effects, especially in the hair, where relieving was made using a very fine tool (fig. 3).

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[26] The topographically remote stained-glass schemes at Chełmno and Neuhaus seem to stem from the same Bohemian source, nowadays difficult to identify, unless we take into account the stained glass at Hersbruck, executed by a Prague workshop according to Hartmut Scholz; see SCHOLZ, "Prag oder Nürnberg…, pp. 221-233.
[27] See KALINOWSKI, MAŁKIEWICZÓWNA, HORZELA 2018, pp. 258-259.
[28] For more on the Red Workshop see Dobrosława HORZELA, "Witraże w kościele Bożego Ciała na Kazimierzu – fundacja jagiellońska?", *Biuletyn Historii Sztuki*, 81, 2019, no. 1, pp. 29-62.

   Both this impressive treatment and the use of silver stain, which was not introduced in Lesser Poland until as late as around 1400, immensely enhanced the tonal scale in ways hitherto unknown in the area. The immediate source of the devices used were workshops operating in Styria: one led by Master John (*pictor Johannes*), who in 1406 was paid for stained glass for the Holy Cross Chapel in the Benedictine Abbey at Rein (currently in the Hessisches Landesmuseum, Darmstadt),[29] and his wider orbit, from which, in my opinion, the Red Workshop, brought to Lesser Poland to execute commissions of the royal court of Ladislaus Jagiełło, stems. The use of halftones counterbalancing the contour was adopted slightly later by the Black Workshop, operating in Corpus Christi Church, though its output can barely be analysed now because of the almost entirely damaged paint layer in the stained glass. There is no evidence that any of these two glazing workshops active in Kazimierz used drawn models, but it is symptomatic that glass painters had adopted the above devices at the very same period that techniques yielding similar effects started to be used in independent drawings produced in the circle of Bohemian and Austrian art. Drawings in the so-called Vienna Model Book from around 1410–1412 were executed in a technique that Cennino Cennini called *terra verde* or *verdaccio*, known in Central Europe from the Prague manuscript recording the travels of Sir John Mandeville (British Library, London, Ms. Add. 24189),[30] whose miniatures were produced in a similar way. The drawing was executed on green-tinted prepared support by means of silverpoint, an instrument whose physical qualities allow one to achieve hatching only with short and very fine lines, in dense concentration. Of particular importance for the final effect are strong white highlights obtained by means of a thin-hair brush, giving an impression of vibrant, strong lights. The result is similar to the one achieved in glass painting with relieving lines in a wash or by painting trace lineson glass, in both cases using a very fine tool.

Fig. 3. Descent into hell (detail),
Corpus Christi Church, sIV (14a).
Photo: Daniel Podosek/CV Poland.

Fig. 4. Coronation of the Virgin (detail, during the conservation),
from the Dominican church in Cracow,
Museum of the Polish Dominicans in Cracow.
Photo: Daniel Podosek/CV Poland.

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[29] Ernst BACHER, "Gotische Glasmalerei in Steiermark", in *Gotik in der Steiermark* (exhibition catalogue, Stift St Lambrecht, 1978), Kulturreferat der Steiermärkischen Landesregierung, Graz, 1978, p. 153; Ernst BACHER, *Die mittelalterlichen Glasgemälde in der Steiermark, 1. Teil: Graz und Strassengel*, Vienna, Cologne and Graz, Böhlau, 1979 (CVMA Österreich, III), pp. XLI, 86-88.

[30] THEISEN 2012, pp. 8-11; see Jan Klípa, "The Migration of Artists – Transfer of Ideas. The So-Called Ambras Model Book and the Question of 'Influence' in Central European Art Around 1400", in Marjeta CIGLENEČKI, Polona VIDMAR (ed.), *Art and Architecture around 1400: Global and Regional Perspectives / Umetnost okrog 1400: globalni in regionalni pogledi*, Faculty of Arts of the University of Maribor, Maribor, 2012, pp. 271-280.

The method of applying halftones to particular portions of the compositions in order to achieve spatial modelling, in turn, could have been easily adopted from the partially washed drawings of the type that appeared in Vienna along with the manuscript of *Concordantia Caritatis* by Ulrich von Lilienfeld (Zentral-bibliothek der Piaristen, Budapest, MS. CX 2: 27) from 1413, and gained popularity in the second and third decade of the 15th century.[31] There are numerous arguments attesting to the fact that artists active in Lesser Poland (goldsmiths, panel painters and glass painters)[32] employed formal and iconographic devices they knew from drawings executed within the artistic orbit of Vienna. It may therefore be hypothesised that they also drew ideas about modelling from these drawings. However, the type of modelling discussed above, in which a key role is played by halftones, is slightly flawed by the fact that it is poorly visible on dark-coloured glass and works much better when used on light-coloured glass. Perhaps it was the very reason why white glass was chosen for the entire figural part of a panel with the Virgin and Child, formerly in the church at Iwkowa (currently in the Diocesan Museum, Tarnów) from around 1410–1420.[33]

The Master of the Dominican Marian Cycle, who worked for the Cracow Dominican church and friary in the 1430s and 1440s, undoubtedly trained in the workshop involved in the glazing of Corpus Christi Church in Cracow's Kazimierz, but very likely was also well-versed in the art of Vienna (e.g. the Tamsweg stained glass manufactured by the Vienna workshops), and was one of the Central European glass painters who drew practical conclusions from the work of their predecessors about the relationship between halftone modelling and the colouring of glass panes.[34] The use of light-coloured glass – not only white, but also of flashed glass in golden, pale blue and amethyst-blue colours – in stained glass produced by this workshop for the Cracow Dominican church and friary in the 1430s and 1440s, which in parts required a nuanced modelling of areas such as drapery folds, enabled glass painters to achieve the intended painterly effect. At the same time, stained glass executed by this workshop is characterised by a broad colour range, with glass in deep green, ruby, sapphire blue and purple hues covering large areas of panels, especially in the backgrounds. As far as the paint layer is concerned, it is striking that lines have been limited to the minimum; glass paint was applied using a very fine brush and the modelling of faces was done by means of a repeated use of a pattern determining the arrangement of highlights and shadows, softened by brushing (fig. 4).

The role of light-coloured glass, increasing in Central Europe since the 1430s, has been associated in the scholarship with the growing attention paid by the patrons and users of churches to altar retables, considered the main components of the church furnishings. The gilt wings and shrines of winged altar-pieces required relatively strong light to make them shine,[35] a circumstance that indeed could have influenced the change of attitude towards the lighting of churches and may have resulted in predilection for glazing composed of light-coloured glass.[36] Yet, what seems equally important is the consequence of such a choice for the visibility of the tonal modelling, at that time already considered a feature of prime concern in stained-glass making.

The striving for a realistic representation of the world, which started to emerge in the art of Central Europe in the 1430s, was a result of two simultaneous processes, one of which involved the development of elements already present in the local tradition of art around 1400 and the other that encompassed a

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[31] Anna Boreczky, "Vienna: 1413. The Workshop of the Budapest Concordantiae Caritatis", in Ciglenečki, Vidmar 2012, pp. 281-291; Jörg Oberhaidacher, *Die Wiener Tafelmalerei der Gotik um 1400*, Böhlau, Vienna, 2012, pp. 27-56.

[32] For more on this see CVMA, Polen, vol. I,2 (forthcoming).

[33] Horzela 2020, p. 162, no. 30 (D. Horzela), fig. on p. 163.

[34] Dobrosława Horzela, "Piętnastowieczny witrażowy cykl maryjny i jego miejsce w wystroju kościoła Dominikanów w Krakowie", in M. Jakubek-Raczkowska, J. Raczkowski (ed.), *Claritas et consonantia. Funkcje, formy i znaczenia w sztuce średniowiecza. Księga poświęcona pamięci Kingi Szczepkowskiej-Naliwajek w dziesiątą rocznicę śmierci*, Wydział Sztuk Pięknych Uniwersytetu Mikołaja Kopernika, Toruń and Warsaw, 2017, pp. 149-174; Horzela 2020, pp. 168-181, nos. 34-39 (D. Horzela), 40-41 (D. Horzela, E. Bernady), figs.

[35] Elisabeth Oberhaidacher-Herzig, "Glasmalerei: Besonderheiten – Auftraggeber – Werkstätten", in *Geschichte der bildenden Kunst in Österreich*, vol. 2: *Gotik*, ed. Günter Bruchen, Prestel Verlag, Munich, London and New York, 2000, p. 415.

[36] See Philippe Lorentz, "Peindre sur la lumière: le vitrail à la fin du Moyen Âge", in Michel Herold and Véronique David (ed.), *Vitrail Vᵉ–XXIᵉ siècle*, Éditions du patrimoine, Centre des monuments nationaux, Paris, 2014, pp. 119-123, and Brigitte Kurmann-Schwarz, Angela Schiffhauser, "Bildmodelle in der Glasmalerei des 12. und 13. Jahrhunderts. Vom vollfarbige zum teilfarbig verglasten Fenster", *Das Mittelalter*, 15, 2010, pp. 114-133 (for the relationship between stained glass and the altarpiece, see especially p. 117).

reception of Franco-Flemish art, both in the version termed in the scholarship as "pre-Eyckian realism" and one that Erwin Panofsky once called *ars nova*.[37] The intertwining and criss-crossing of these processes resulted in artworks that were often intrinsically contradictory, combining idealism, evident in the overall composition of figures, with painstakingly reproduced details. This kind of realism was not entirely a consequence of embracing (usually indirectly) the novelties from Netherlandish art but, above all, it grew out of the possibilities already inherent in the local forms of the Beautiful Style, a feat accomplished by artists who started their independent careers around 1430–1435.[38] Several years ago Hartmut Scholz compellingly demonstrated the tension between the continuation of the local tradition and the "avant-garde" impulses, so pronounced in the art of this generation of artists, on the example of stained-glass windows in the Besserer Chapel at Ulm Minster (1430/31), by analysing a number of relationships between these progressive stained-glass panels and earlier production of the glass painters working in the town.[39] These differing strategies were present also in the stained-glass production of Lesser Poland, and also here the work of glass painters active in the 1430s and 1440s was based on devices which had come into local circulation at the end of the 14th and the beginning of the 15th century, when the technique of stained-glass making, described many centuries earlier in the treatise *De diversis artibus*, was swiftly and efficiently adapted to the needs of the new style of representing reality in painting. For glass painters, however, the use of preliminary drawing in panel painting was not a valid model of transposing the tonal modelling achieved using tempera paints; instead, this role was fulfilled by independent drawing whose significance was not restricted to merely providing compositional and iconographic formulas.

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[37] Erwin PANOFSKY, *Early Netherlandish Painting. Its Origins and Character*, Harvard Univ. Press, Cambridge, Mass., 1966 (4th edn.), vol. 1, p. 151.

[38] For more on this generation of artists see Stephan KEMPERDICK, "La première géneration", in Till-Holger BORCHERT, *De van Eyck à Dürer. Les primitifs flamands & l'Europe Centrale 1430-1530* (exhibition catalogue, Groeningemuseum, Bruges, 2010-2011), Belser, Stuttgart, 2010, pp. 55-81; see also Robert SUCKALE, "Das Znaimer Retabel: zur künstlerischen Herkunft des Bildschnitzers", *Österreichische Zeitschrift für Kunst und Denkmalpflege*, 42, 1988, p. 6; *Późnogotycka rzeźba drewniana w Małopolsce około 1440-1477*, Societas Vistulana, Cracow, 2012 (Studia do dziejów sztuki średniowiecznej w Polsce, 1, ed. Marek Walczak), pp. 13-36, esp. 25-26.

[39] Hartmut SCHOLZ, "Tradition und Avantgarde: die Farbverglasung der Besserer-Kapelle als Arbeit einer Ulmer 'Werkstatt-Kooperative'", in Rüdiger Becksmann (ed.), *Bildprogramme, Auftraggeber, Werkstätten*, Deutscher Verlag für Kunstwissenschaft, Berlin, 1992, pp. 93-152.