Otto Demus, Byzantine art and the spatial icon

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When attention began to turn toward the new or second Vienna school, it is understandable that there was a more inclusive approach to which theorists belonged.[1] Thus, Fritz Novotny's work on Cézanne was included in Christopher Wood's *Vienna School Reader*, even though he had been a product of Stzrygowski's Institute and not (the descendant of) Alois Riegl's.[2] Later, it was questioned to what degree he ought to be counted in this group.[3] The same issue faces another student of Stzrygowsky: Otto Demus.

In the following, I will follow Wood in a qualified way to show how Demus' characteristic approach to Byzantine art emerged indeed from typical issues descending from the work of Riegl. Due to thaws between the two institutes, Demus' teaching with Hans Sedlmayr, and his socialisation with Viennese-trained art historians in London during the Second World War, one can see that Demus had become thoroughly 'Viennese' in his outlook well before he returned to Vienna and in 1963 to occupy a chair.

As I will argue, this makes Demus' work fit quite well with the second Viennese school of Hans Sedlmayr and Otto Pächt and to an extant Johannes Wilde, to the degree that his work is focused on an understanding of the work of art or monument as a functional whole. Parts and their relationship are understood, or in the case of a lost work, intuited by way of reconstruction. Also, technical knowledge is used to judge initial states of objects so that the universal working of perception will be accurate based on these same givens.

I propose to explain Demus' methodology through his most famous contribution: an exegesis of the structure and function of Byzantine mosaics. I will

[2] Fritz Novotny, 'Passages from *Cézanne and the End of Scientific Perspective'*, in Christopher Wood (ed.), *The Vienna School Reader: Politics and Art Historical Method in the 1930s*, New York, 2000, 379-433; excerpted from Fritz Novotny, *Cézanne und das Ende der wissenschaftlichen Perspektive*, Vienna, 1938.
[3] Agnes Blaha, 'Fritz Novotny and the New Vienna School of Art History – An Ambiguous Relationship', *Journal of Art Historiography*, 1, 2009, 1-13, www.arthistoriography.files.wordpress.com/2011/02/media_139126_en.pdf, and further, *Der Wiener Kunsthistoriker Fritz Novotny und die wissenschaftliche Rezeption Paul Cézannes*, Ph.D. dissertation, University of Vienna, 2009.

show that his approach, which has been linked to Riegl in a casual way, can be aligned much more vigorously. After reviewing Demus' career, and his interpretation of Byzantine mosaic decoration, I will pass on to an extension of his ideas in the Latin West, where I will demonstrate unexpected site-specific elements that have not been noticed in the literature. Not only does this strengthen Demus' place within a 'Viennese' genealogy, there is much latent material in Demus, Wilde and their students that allow one to chart the movement from 'participant' to 'beholder,' giving new insights into the rise of western illusionism. Joining Demus to the Vienna School also aligns two powerful explanatory systems.

Toward *Byzantine Mosaic Decoration*

Demus, like Wilde, wrote methodologically sophisticated history but was not himself like Pächt or Sedlmayr a theorist. He does not even seem to have been as reflective in his reading as was Wilde. His primary 'theoretical' reflection on Byzantine mosaics is contained in *Byzantine Mosaic Decoration*.[4] The work is unique in Demus' oeuvre because if one turns to the contemporary book, *The Mosaics of Norman Sicily*, and later works, one finds a largely traditional monograph focused on physical condition, attribution and iconography.[5]

Part of the difficulty of tracing Demus' theoretical interests is compounded by the fact that while Demus trained in Vienna, he was not in Schlosser's Institute, the home of Dvořák and Riegl. Demus indicates in his *curriculum vitae* of 1927 that he had heard Schlosser's lectures.[6] Of course, one can argue that he would have been quite aware of what was going on there, but this cannot explain his eventual theoretical position, especially since Schlosser was the weakest follower of Riegl compared to Dvořák and Sedlmayr. Indeed, one can note that during the preparation of *Kunstwissenschaftliche Forschungen*, neither Novotny nor Demus was asked to contribute to the journal.[7] Nevertheless, although he was Strzygowski's student and the two institutes were relatively discrete, it is quite easy to link many

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[4] Otto Demus, *Byzantine Mosaic Decoration: Aspects of Monumental Art in Byzantium*, London, 1948; 'The Methods of the Byzantine Artist', *The Mint*, 64–77.

[5] Otto Demus, *The Mosaics of Norman Sicily*, London, 1949.

[6] It can be seen at the University of Vienna's website: https://www.univie.ac.at/geschichtegesichtet/o_demus.html. Professors listed include Strzygowski, Glück and Diez. In prehistory, Mehghin, and in Philosophy, Reiniger, (Moritz) Schlick, (Karl) Bühler and Svoboda.

[7] The issue of ideas passing between the two institutes is also treated by Agnes Blaha in her discussion of Otto Pächt's apparent influence on Fritz Novotny, 'Fritz Novotny and the New Vienna School of Art History'.

of Demus' guiding themes to an approach derived from Riegl and issues of spectatorship.[8]

Demus noted that *Byzantine Mosaic Decoration* 'was first conceived in Greece, Sicily, and Venice in the twenties and thirties.'[9] Therefore, its main system was a dawning point that emerged against the backdrop of a number of influences. Demus took his dissertation in 1927 under Strzygowski with the topic, *Die Mosaiken von S. Marco in Venedig, 1100-1300*.[10] There is little evidence of Demus' intuition of the mid-Byzantine decorative system there, or in his contribution to the book published with Ernst Diez (1878-1961) in 1931, *Byzantine Mosaics in Greece, Hosios Lucas and Daphni*.[11] Diez was a Strzygowski student of the previous generation, then in America (at Bryn Mawr College), but later back in Austria. The book had a predictably strong comparative focus appropriate to Diez's preparation with Asian art. While Riegl is mentioned, both by Diez and Demus in their respective authored sections, there is no deep reflection on spatial issues, and the Greek mosaics are discussed from the traditional point of view of style and iconography.

It appears that there was a thaw between the two Institutes once Strzygowski retired in 1933. For in 1935 we see that Demus was in contact with Karl Maria Swoboda and examining Dvořák's *Nachlass*, which he studied for opinions on San Marco and Byzantine art to prepare the published edition of his dissertation of the same name, *Die Mosaiken von S. Marco in Venedig, 1100-1300*.[12] The next year he joined the central Vienna office of the Monuments service and began an affiliation with the University of Vienna again. To teach, he had to prepare a Habilitationschrift, and the result was Demus' *Die Mosaiken von San Marko*.[13]

In that early work, *Die Mosaiken von San Marko*, there is one very tantalising bit of evidence of theoretical reflection, a citation of the art theorist Gustaf Britsch, who is interesting in that he would come to be regarded as a pioneer in the psychology of art by Rudolf Arnheim. Shortly after that, Demus taught alongside Sedlmayr at the University of Vienna after serving in the provincial monuments service from 1930-1936. At this time, as has been demonstrated, Sedlmayr had been drifting away from his early experience, but Demus would have been able to see in

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[8] This connection is tentatively made by Robert Nelson, 'To Say and to See: Ekphrasis and Vision in Byzantium', in R. Nelson, ed., *Visuality Before and Beyond the Renaissance: Seeing as Others Saw*, New York, 2000, 157-58.

[9] Demus, *Byzantine Mosaic Decoration*, xiii.

[10] See the *Beuerteilung* at the University of Vienna's website: https://www.univie.ac.at/geschichtegesichtet/o_demus.html

[11] Ernst Diez and Otto Demus, *Byzantine Mosaics in Greece, Hosios Lucas and Daphni*, Cambridge, 1931.

[12] Otto Demus, *Die Mosaiken von San Marko in Venedig, 1100-1300*, Vienna, 1935, 13, citing Gustaf Britsch, *Theorie der bildenden Kunst*, Munich, 1928.

[13] Aurenhammer, 'Hans Sedlmayr', 167.

person one version of *Strukturforschung*.[14] Appropriately, at this time Demus and Novotny have reviews that appear in the final number of the *Kritische Berichte*.[15] Agnes Blaha pointed out how Novotny was influenced in his work on Cézanne by the surface-depth account of space that Pächt provided in his paper on 'Gestaltungsprinzipien.' It is tempting that Demus was similarly influenced by Pächt, however, in his work on Michael Pacher and the idea of the Tyrolian altar-shrine as a 'vollräumliches Gebilde.'[16] The synthesis of Byzantine mosaic decoration then becomes a kind of Byzantine *Gestaltungsprinzipien*.

It is clear from correspondence with Fritz Novotny and others that Demus was scheming to leave Austria with its annexation to Germany in 1938. Although Christian, he deeply abhorred the Nazis. Contrary to some accounts, Demus did work into the post-*Anschluss* era for the Federal Monuments Office, forced to help confiscate the property of Jews to the state.[17] However, he left the country in 1939. Under the ruse of visiting the Byzantine conference in Sicily in 1939, Demus emigrated and moved to London, where he worked within the Warburg Library, lecturing at the Courtauld. In some senses, he is the opposite of Sedlmayr because while both were gentiles, Demus definitively washed his hands of Nazism while Sedlmayr collaborated.

In London, Demus met or was reacquainted with a young Ernst Gombrich, Ernst Kris, Otto Kurz, Otto Pächt, Ludwig Münz, Johannes Wilde, of the Vienna School, not to mention William Heckscher of a traditional Warburg origin, etc.[18] In the spring of 1940, many German men living as resident aliens in Great Britain were placed in a camp in Canada, and there 'the first draft [of *Byzantine Mosaic Decoration*] was jotted down.'[19] Most interesting for this first draft is Demus' documented internment with Wilde.[20] Wilde – who would make his mark noticing the unities in decorative programs in the Sistine Chapel and elsewhere – clearly shared a view of

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[14] Sabine Arend, 'Studien zur deutschen kunsthistorischen 'ostforschung' im Nationalsozialismus', Ph.D, dissertation, Humboldt University, Berlin, 2010, p. 81.

[15] See Otto Demus, review of Victor Lasareff: *The Mosaics of Cefalù*, *Kritische Berichte*, 1937; Fritz Novotny, review of Gerstle Mack, *Paul Cézanne*, *Kritische Berichte*, 1937.

[16] Otto Pächt, 'Die historische Aufgabe Michael Pachers', *Kunstwissenschaftliche Forschungen*, 1, 1931, 95-132.

[17] See Jonathan Petropoulos, 'Declaration and Expert Report', https://artstolenfromfritzgrunbaum.files.wordpress.com/2008/03/dbm-005862-5966-petropoulos-expert-report-03-25-20082.pdf; consulted February 5, 2015.

[18] Dorothea McEwan, *Fritz Saxl: Eine Biographie. Aby Warburgs Bibliothekar und erster Direktor des Londoner Warburg Institutes*, Vienna, 2012, 185.

[19] Demus, *Byzantine Mosaic Decoration*, 13.

[20] Thomas Rosenmeyer, 'Am I a Comparist'? *Building a Profession: Autobiographical Perspectives on the Beginnings of Comparative Literature in the United States*, eds. Lionel Gossman and Mihai Spariosu, Albany, 1994, p. 52; Helmust Koenigsberger, 'Fragments of an Unwritten Biography', in Peter Alter, eds., *Out of the Third Reich: Refugee Historians in Postwar Britain*, London, 1998, 106.

synoptic decoration with Demus. In particular, Demus shared his ideas on optical correction in Byzantine mosaic decoration with Wilde, who exchanged his knowledge of the evidence of the survival of such tactics in Venetian Renaissance painting, and indeed Demus notes drawings by the Venetian painter, Sebastiano del Piombo, that show corrections for proper viewing in a cupola, brought to his attention by Wilde.[21]

What is obvious is that by 1945, when Demus sat down in London to finalise *Byzantine Mosaic Decoration* shortly before his return to Vienna, he hardly obtained some new – perhaps Anglo-Saxon – perspective connected to his emigration. In Vienna during his student days, then as an instructor and then with the Viennese exiles in London and internment, he was absorbing a structuralist point of view. To someone aware of Wilde's emerging work on Michelangelo (and Sedlmayr's discussions of Borromini and Pächt's of Pacher, or the Schools of late Gothic painting), it is clear that Demus is responding to the same idea of context-dependence, a sense of the whole in which he sees the artist responding.

However, there is a historical difference that can be discerned by studying the platform that Demus develops in *Byzantine Mosaic Decoration*. First, it is worth reflecting on what especially Otto Pächt (and John White) brought to the study of late-Gothic painting. They were uniquely able, on Riegl's precedent, to understand the art in a non-anachronistic way, avoiding any retrospective fallacy. Riegl had argued that Byzantine art was a necessary weigh-station (*Durchgangsphase*) on the way to modernity. What would it mean to take a late medieval point of view, with its emphasis on pictorial surface pattern (rather than the so-called Albertian window), and move it even earlier? This would require moving back from linear to proto-perspective to a kind of what Demus would call *negative* or *preventive* perspective, using optical corrections. This is Demus' answer to the long-standing question over 'inverted' perspective.[22] What all of these approaches have in common is the belief that these early forms of art can induce depth without consistent geometry.[23]

Demus took for granted the immanence theory, according to which divinity resides in the Byzantine image.[24] Even if many scholars have questioned whether

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[21] Demus, *Byzantine Mosaic Decoration*, 33.

[22] For the scholarly tradition on 'inverted' perspective at the time that Demus was writing, see Clemena Antonova, *Space, Time and Presence in the Icon: Seeing with the Eyes of God*, Farnham, 2010.

[23] David Topper and W. Simpson, 'Depth Perception in Linear and Inverse Perspective Pictures', *Perception*, 10, 1981, 305-12; Rudolf Arnheim, 'Inverted Perspective and the Axiom of Realism'; J. B. Deregowski, D. M. Parker, M. Massironi, 'The perception of spatial structure with oblique viewing: an explanation for Byzantine perspective'? *Perception*, 23, 1994, 5-13.

[24] This seems to be a lingering heritage of Stzrygowski, who associated the east with magic. More recent work generally argues that the icon was a kind of sign, which signified divinity

there is magical emanation from the prototype to the image, the crucial element for Demus was that these elements bear similarity. The situation that the Byzantine viewer is faced with, is maintaining an unbroken relationship with the cult image. As Demus showed, the artists were quite sophisticated in responding to this feature – another element of Viennese theorising. They used optical or empirical means to 'correct' images. In the words of Alberto Perez-Gomez and Louise Pelletier, 'undistorted presence had ontological priority over any sort of distorted appearance, regardless of medium or diverse artistic objectives.'[25]

The type of optical correction investigated by Demus is a form of empirical perspective no different from the *skenographia* or *scaenographia* used in antiquity from Philon (3rd c. BCE), to Vitruvius (1st c. BCE) and Proclus (5th c. CE) to make high-up sculptures, stage scenery and architectural elements appear correct from a distance.[26] For Proclus, *scaenografia* is 'showing how objects can be represented by images that will not seem disproportionate or shapeless when seen at a distance or on an elevation.'[27] In a Byzantine context, after the iconoclastic controversy, a predominantly sculptural discourse was shifted to painting and mosaic. There is no record of this practice; however, an echo of this discourse is given in John Tzetzes, 12th century text recounting the sculptural competition of Pheidias and Alkamenes (well over a millennium after the fact!), where he notes Pheidias' successful optical corrections, which on the ground looked grotesque but when seen upon an elevated column were perfect.[28] One of Demus' examples is the twelfth-century apse mosaic in Torcello Cathedral (Fig. 1).[29] All the figures appear the same from the nave of the

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rather than inhering within it; Charles Barber, 'From Transformation to Desire: Art and Worship after Byzantine Iconoclasm', *Art Bulletin*, 75, 1993, 7-16.

[25] Alberto Perez-Gomez and Louise Pelletier, *Architectural Representation and the Perspective Hinge*, Cambridge, 2000, 102.

[26] Demus, *Byzantine Mosaic Decoration*, 43; c.f. Erwin Panofsky, *Perspective as Symbolic Form*, 97-100; Robert Munman, 'Optical Corrections in the Sculpture of Donatello', *Transactions of the American Philosophical Society*, 75, 1985, 3-4; Lothar Haselberger, 'Old Issues, New Research, Latest Discoveries', in Lothar Hasselberger, ed., *Appearance and Essence: Refinements of Classical Architecture – Curvature*, Philadelphia, 1993, 1-68; J. J. Pollitt, *The Ancient View of Art: Criticism, History, and Terminology*, New Haven, 1974, 236-240; Perez-Gomez and Pelletier, *Architectural Representation and the Perspective Hinge*, 97-105.

[27] Proclus, *A Commentary on the First Book of Euclid's Elements*, tr. by G. Morrow, Princeton, 1970, I.12, p. 33.

[28] John Tzetzes, *Historiarum Variarum Chiliades*; cited in Joseph Rykwert, *The Dancing Column: On Order in Architecture*, Cambridge, 1996, 222-224. Robert Ousterhout has kindly confirmed for me that the technical term from Greek antiquity for optical correction, *alexemata*, is not found in Byzantine criticism.

[29] For other examples, see *Washing of Feet*, Hosios Loukas, Katholikon, 11th century (Demus, *Byzantine Mosaic Decoration*, 32) and *Pantokrator*, Monreale, after 1180, (Demus, *Byzantine Mosaic Decoration*, 65).

church, but when examined from within the apse itself it can be seen that the lateral figures are extremely wide to subtend the same visual angle from the nave.
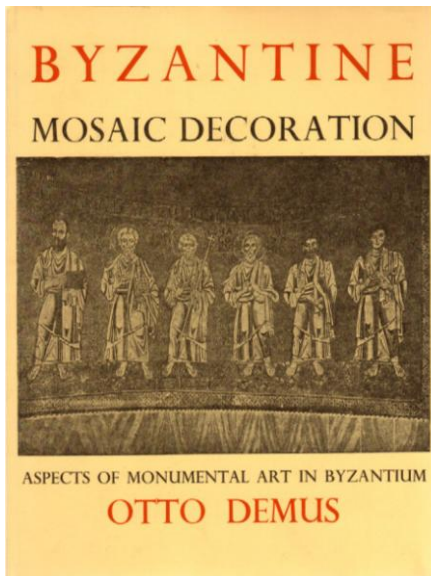
Figure 1 Apostles, 12th century, Cathedral, Torcello (from dust cover of Otto Demus, 1948)
Fig. 2 Annunciation, c. 1000, Church of Dormition, Daphni (photo: Ktiv, from Wikimedia Commons)

This observation serves Demus' larger conclusion about mosaic decoration is that figures occupy real, not illusionistic, space. They are 'spatial icons' (*Raum-Ikonen*), 'icons in space.'[30] They address the viewer as if appearing in the apse dome and can interact from pendentive to pendentive. There is no space within the picture; the church itself is a kind of 'picture space' (*Bildraum*). Demus' example here is the *Annunciation* scene from Daphne (Fig. 2). There, the announcing angel Gabriel speaks across physical space to the next pendentive to the Virgin Mary. This emphasis on presence reflects Byzantine theology, but it also satisfied a naïve approach to picturing, according to which the image is manipulated to improve its spatial efficacy.

Demus contrasts the western artist with the Byzantine artist:

The western artist…subjected his figures to the laws of perspective…He created an illusion of space whereas the Byzantine artist aimed at eliminating the optical accidents of space. Western practice leads to a picture of reality, Byzantine practice to preserving the reality of the image.[31]

[30] To my knowledge, Demus does not use the German terms *Raum-Ikonen* (or *Bildraum*, below). These are Hans Belting's renderings probably confirmed in discussion with Demus himself. However, I cite them to return them to their German language context.
[31] Demus, 'Methods of the Byzantine Artist'.

But it must be recognised that a particular task creates this kind of special space. One first must desire to keep the depicted objects and personages life-sized, with human presence, for them to remain ecologically salient. Then, it is relatively easy for the artists to imagine how to preventatively alter the figures to preserve their presence. The figures, we might say, are 'unbounded,' and this is the primary difference between these mural figures and those panel paintings and miniatures that Pächt (and White) studied.[32]

How has Demus' thesis fared? Demus peppers his text with numerous illustrations, but other examples have been observed and noted by other scholars. For example, of spatial icons, one can note the Life of Peter (mid 12th century) in the Cappella Palatina, Palermo, or later the Last Judgment in the Chora Paraklession (1321 CE).[33] In Palermo, saints occupy space across architectural units, and in the Chora, the whole interior becomes a grand symphony of activity. Of optical correction, one can note the Crucifixion in the Tokali kilise (10th century), where the arms of the crucifixion are manipulated to appear correct against the curvature of the vault.[34]

This system, to repeat, operates on direct lines of sight that are *not pictorialized*. Figures speak to figures. Figures are stretched or curved to appear straight. This is all possible with the empirical observer. It is not geometry of the drafting table but *ad hoc*, of sight lines *in situ*.[35] Many subsequent authors have further stressed the transitive relationship between mosaics and viewers, light, colour, sound, and the bodily communication with the image. For example, Liz James drew attention to light and colour, saturation and the way in which interior ambience could overwhelm the senses.[36] Bissera Pentcheva accepted Demus' ideas but wished to extend them into touch and kissing, stressing the performative notion of icon and church-ensemble activation.[37] Finally, Alexei Lidov specifically describes the 'spatial icon' – outlined with no reference to Demus - with his theory of *heirotopy*, the baptism of holy space with the combination of image, liturgical accoutrement, and the liturgy itself.[38]

[32] Puttfarken, *Discovery of Pictorial Composition*; Verstegen, *Cognitive Iconology*.

[33]Robert Ousterhout, 'Collaboration and Innovation in the Arts of Byzantine Constantinople', *Byzantine and Modern Greek Studies*, 21, 1997, 93-112.

[34] Ann Wharton Epstein, *Tokali Kilise: Tenth-Century Metropolitan Art in Byzantine Cappadocia*, Washington, 1986, 24.

[35] See the discussion of underpainting designs before setting the tesserae in Liz James, 'Working Practices', *Mosaics in the Medieval World: From Late Antiquity to the Fifteenth Century*, Cambridge, 2017.

[36] Liz James, *Light and Colour in Byzantine Art*, Oxford, 1996.

[37] Bissera Pentcheva, *The Sensual Icon*, University Park, 2010.

[38] Alexei Lidov, *Hierotopy: Spatial Icons and Image-Paradigms in Byzantine Culture*, Moscow, 2009.

Beyond *Byzantine Mosaic Decoration*?

If Demus' account of Middle Byzantine mosaic decoration has been happily
assimilated into the discipline, if enriched with more sense-modalities and richer
ideas of communion, this does not mean he has not had his detractors. Indeed, the
attention to extra-visual factors is itself an implicit criticism.[39] As an example,
Demus' usage of Italian examples has been challenged, because he too easily
assumed that such works were made by Greek craftsmen and therefore inherently
'Byzantine' in some way.[40] Demus' inability to keep up with the times might fall
under what Robert Nelson calls Demus' 'modernist concern for form.'[41]

In addition to this potential blindness to provinces, other laments one might
wish to express with Demus have to do with recent emphases on the way in which
Byzantine and Italian Byzantine-style decoration was evolving in directions
traditionally ascribed to western art. For example, Hans Bloemsma shows how the
very mosaics discussed by Demus in his beloved San Marco already display an
emphasis on affective spirituality.[42] Similarly, Bloemsma shows how already in
Byzantine art, there was a movement occurring from the idea of an icon as 'sign' to a
narrative as 'symbol.' Thomas Dale seconds this with the idea that these scenes
move away from the 'spatial icon' toward an icon in space, that is, a traditional
western notion of pictorial space.[43]

It is certainly true that Demus did not outline exhaustively the way in which
Byzantinizing practices in Italy merged with the art of the emerging naturalism.
Nevertheless, Demus wrote extensively on Byzantine art in Italy and Latin
Romanesque painting. He saw Romanesque mural painting as fundamentally
different from Byzantine painting and charted how the middle Byzantine system he
had outlined was ossified and lost its optical basis, only to receive some resurgence

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[39]For similar view expressed today, see Charles Barber, *Figure and Likeness: On the Limits of
Representation in Byzantine Iconoclasm*, Princeton, 2002; Glenn Peers, *Sacred Shock: Framing
Visual Experience in Byzantium*, University Park, 2004; Rico Franses, 'When all that is Gold
Does Not Glitter: on the Strange History of Looking at Byzantine Art', in Antony Eastmond
and Liz James, eds, *Icon and Word. The Power of Images in Byzantium*, Farnham, 2003, 13–24.
[40] Antony Eastmond, 'The Limits of Byzantine Art', in Liz James (ed.), *A Companion to
Byzantium*, Chichester, 2010, 318.
[41] Nelson, 'To Say and to See: Ekphrasis and Vision in Byzantium'.
[42] Hans Bloemsma, 'Venetian Crossroads. East and West and the Origins of Modernity in
Twelfth-Century Mosaics in San Marco', *Journal of Intercultural Studies*, 31, 2010, 299-312;
'Byzantine Art and Early Italian Painting', in *Byzantine Art and Renaissance Europe*, eds. A.
Lymberopoulou and R. Duits, London, 2013, 37-60.
[43] Thomas Dale, 'From 'Icons in Space' to Space in Icons: Pictorial Models for Public and
Private Ritual in the Thirteenth-century mosaics of San Marco in Venice', in *Hierotopy. The
Creation of Sacred Space in Byzantium and Medieval Russia*, ed. Alexei Lidov, Moscow, 2006, 1-
18.

(for instance in the Karii Djamii) in the Paleologan era.[44] If Byzantine corrections had arisen due to curved surfaces, Romanesque painting, instead, follows the axial nature of the cruciform church to 'suit the rhythm of walking.'[45]

This leads us to wonder about Demus and Pächt working together at the University of Vienna after 1963. Did they informally theorise the transition from Byzantine practice to western medieval practice? Recall that Pächt had emphasised the pattern requirement of late Medieval painting in spite of its putative new illusionistic function. The works functioned as flat surface patterns before they became records of images in depth. It is easy to hypothesise what one Otto might have said to the other Otto: empirical adjustments to figures in spaces never really disappeared; in smaller works, this empirical perspective gave way to more rule-based geometrical procedures, but it is in murals that we should expect to see strict continuity.

Indeed, usually, when Demus cited an Italian example of Byzantine mosaic decoration, he cited it for its demonstration of either the spatial icon or negative perspective. [46] Recall that his discussions with Wilde suggested that optically corrective workshop techniques survived into the Renaissance in Italy. *Scaenagrafia* had existed since antiquity and continues today with any form of building where a viewer cannot move to obtain a clearer view of an artistic object. Sight lines are extremely simple features found in urban design when one seeks to make an element of a city visible in another space. Recalling the citation that Demus makes of Wilde's observations on Venetian dome painting, we can understand quite easily that the problem of the negative perspective never really goes away.

To follow Otto Pächt's example, if the surface-pattern aspect of a painting *never* loses its relevance, we might follow Demus and also say that in murals, the *real presence* of the depicted forms never loses its relevance. This means that instead of looking at the morphing of Byzantinizing practice into a Giottesque practice, we should seek out the older formal operations in the newer art, alongside those that are newer. However, although Demus' overall approach of a transitive image has been followed by many people, his spatial mandate has not. In the remaining part of the paper, I propose to do this with a perhaps unexpected source, but one that shows how exactly corrective practices persisted in Italy in the thirteenth and fourteenth centuries. This involves moving from the 'spatial icon' of centralised Byzantine churches to similar effects in the predominantly basilical churches of the Latin west.

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[44] Otto Demus, 'The Imprint of the System on Later Art', *Byzantine Mosaic Decoration*; *Romanesque Mural Painting*, New York, 1970, 132: 'The slight asymmetry and the axial orientation of Greek domical compositions are replaced by a strict geometrical scheme, resulting, not in a 'spatial icon', but in an architectural structure built of figures'.

[45] Demus, *Romanesque Mural Painting*, 13.

[46] Thomas Dale, *Relics, Prayer, and Politics in Medieval Venetia*, Princeton, 1997, 65.

Fortunately, Johannes Wilde, and his student John White, made some fundamental observations on the Upper Church of Assisi and *dugento* and *trecento* painting, in general, that might reflect some of Demus' ideas (or, better, a shared approach). Demus' system of mosaic decoration is predicated on the assumption of the church as an 'all-embracing optical unity,' and improved visibility of figures from privileged points of view. Wilde's insights were gained by thinking of the Great Council Hall of Florence or the Sistine Chapel in the Vatican as perceptual wholes.[47] We know from John White's work that Wilde lectured on San Francesco in Assisi, lectures that were never published. In those lectures, the basic point of which White adopted for his account of the church's layout, is that the program in Assisi be seen from a single viewing position for each of the entire bays and individual scenes.[48] The two are both sensitive to the observer.

To bring the boundary of eastern and western practice under closer scrutiny, and also suggest hidden continuities between them, I want to examine more closely the Upper Church of San Francesco in Assisi.[49] For the topic we are investigating, the famous question of the paternity of the frescoes – Giotto or not – is irrelevant.[50] What is essential is the aesthetic principles at work. Dominique Raynaud has recently written, 'these frescoes…await an interpretation able to reconcile empirical evidence with conceptual minimalism.'[51] In fact, since White we have not answered the fundamental question: what was the purpose of the Master of the Legend of St. Francis' space? In the same way that his buildings do not explain Brunelleschi's perspective – the 'self-isolating solidity' and 'portrait quality of the buildings'[52] are not fundamentally different from the supposed panels of the Baptistery – so too we

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[47]   Johannes Wilde, 'The Hall of the Great Council of Florence', *Journal of the Warburg and Courtauld Institutes*, 7, 1944, 65–81; 'The Decoration of the Sistine Chapel', *Proceedings of the British Academy*, 1958, 61-81; c.f. Ian Verstegen, 'John White's and John Shearman's Viennese Art Historical Method', *Journal of Art Historiography*, 1, 2009, 1-IV/1, 15 pages. [https://arthistoriography.files.wordpress.com/2011/02/media_139132_en.pdf]

[48]   John White, *Art and Architecture in Italy*, 58-59. On Assisi, see John White, *The Birth and Rebirth of Pictorial Space*, London, 1967, p. 40, n. 37.

[49] For the basic bibliography on Assisi, see Millard Meiss, *The Painting of the Life of St. Francis in Assisi*, New York, 1962; Hans Belting, *Die Oberkirche von San Francesco in Assist*, Berlin, 1977; Bruno Zanardi, Federico Zeri and Chiara Frugoni, *Il cantiere di Giotto: Le Storie di San Francesco ad Assisi*, Skira, 1996.

[50] For discussions of Giotto's authorship of the Assisi frescoes, see Alastair Smart, *The Assisi problem and the art of Giotto, a study of the Legend of St. Francis in the Upper Church of San Francesco, Assisi*, Oxford, 1971.

[51] Dominique Raynaud, *Studies on Binocular Vision: Optics, Vision, and Perspective from the Thirteenth to the Seventeenth Centuries (New Studies in the History and. Philosophy of Science and Technology)*, Cham, Switzerland, 2016, 194.

[52]   White, *Art and Architecture in Italy*, 144.

must figure out what *is not different* in these forms.[53] Brunelleschi's interests led to perspective, just as the Master of the Legend of St. Francis led to Giotto's proto-perspective, but what was latent that only appears to be progressive?

As I will argue, it is the empirical perspectival desire to modify forms for clarity. This is ultimately Byzantine and survived in various schools – Roman, Pisan, Venetian – that fed the visual forms of the Master of St. Francis. By the late thirteenth century, we have to take account of a cultural divergence between Latin West and Byzantine east that was occurring throughout the Dugento. This divergence concerns the diffusion of Arab optical texts,[54] especially at the papal court and Franciscan schools, and the rise of methods of practical geometry.[55] Christopher Lakey has joined optical science to in-situ optical adjustment to dugento and trecento monument.[56] However, where Lakey sees a calculation in a modern sense, I would urge an empirical adjustment, further stressing also similarities to current Byzantine practice.

The most compelling account of early perspective knowledge is provided by Reynaud, who has convincingly argued that the first systems of proto-perspective introduced in Italy are binocular, reflecting Arab optical science. Rather than a steady progress, he finds a bricolage of methods introduced, perhaps the most startling being the accurate diminution in the coffering of the scene of the Recovery of the Wounded Man of Lerida in Assisi.[57] This correct geometric form was grafted on the ceiling, with no sense of a complete perspective scene. Thus, in the late thirteenth century, there was indeed a new comfort with geometry and a renewed observation of the world, but no consistent sense as to how this would be applied in painting.

[53] Jehane Kuhn, 'Measured Appearances: Documentation and Design in Early Perspective Drawing', *Journal of the Warburg and Courtauld Institutes*, 53, 1990, 114-132.
[54] Graziella Federici Vescovini, 'Contributo per la storia della fortuna di Alhazen in Italia. Il volgarizzamento del ms. vat. 4595 e il 'Commentario Terzo' del Ghiberti', *Rinascimento*, 5, 1965, 17-49; Dominique Raynaud, *L'hypothese D'Oxford: Essai Sur Les Origines De La Perspective*, Paris, 1998; Frank Büttner, *Giotto und die Ursprünge der neuzeitlichen Bildauffassung*, Darmstadt, 2013.
[55] For practical geometry in Italy, see Annalisa Simi, 'Celerimensura e strumenti in manoscritti dei secoli XIII–XV', in *Itinera mathematica. Studi in onore di Gino Arrighi per il suo 90º compleanno*, edited by R. Franci, P. Pagli and L. Toti Rigatelli, Siena, 1996, 71-122; Francesca Cecchini, 'Artisti, committenti e perspectiva in Italia alla fine del duecento', in *La Prospettiva. Fondamenti teorici ed esperienze figurative dall'antichità al mondo moderno*, edited by R. Sinisgalli, Fiesole, 1998, 56-74; ''Le misure secondo l'apparenza'. Ottica e illusionismo nella cultura del duecento: tracce figurative e testimonanzie letterarie', *Micrologus*, 4, 1998, 167-185.
[56] Christopher Lakey, 'From Place to Space: *Raumkästen* and the Moving Spectator in Medieval Italian Art', in *The Public in the Picture / Das Publikum im Bild*, eds. Beate Fricke and Urte Krass, Zürich, 2015, 113-136.
[57] Raynaud, *Studies on Binocular Vision*.

To look at these frescoes afresh, I will also be drawing on the work of sympathetic formally minded art historians like Robert Oertel (1907-1981), Wolfgang Schöne (1910-1989), and Martin Gosebruch (1919-1992), all students of Hans Jantzen, an art historian admired by both Sedlmayr and Pächt for his formal approach as well as a theorist who, like Panofsky, was intensely interested in the problems of seeing.[58] Indeed, a genealogy of Jantzen, Schöne, and his student Thomas Puttfarken has contributed decisively to the topic of utmost importance to this paper, 'oblique viewing' (*Schrägsicht*), which is closely related to *scaenographia*.[59] If we think of optical correction as largely defining 'perspective' in the Dugento and Trecento, we are closer to Euclid's intuitive angle axioms than the Arab geometries that would feed later developments in artificial perspective.

When did artists come to conceive of their liturgical spaces as unified? Of course, we have already seen that this is a relative question. There is another tradition of research connected to Giotto's Arena Chapel that also propounds that the space was designed in a unified fashion.[60] We have a right to be suspicious of arguments for aesthetic unity with the church – for usually, such concerns turn out to be anachronistic. Indeed, White is so extremely persistent in this theme that it would be easy to dismiss his writing as mere 'modernism.' For example, hopeful attempts to date unified altarpiece programs early have failed, at the same time that archaeological discoveries of pre-Tridentine ecclesiastical layouts has revealed that

[58] Hans Jantzen, *Über den gotischen Kirchenraum und andere Aufsätze*, Berlin, 1951; Robert Oertel, 'Wandmalerei und Zeichnung in Italien. Die Anfange der Entwurfszeichnung und ihre monumentalen Vorstufen', *Mitteilungen des Kunsthistorischen Institutes in Florenz*, 5, 1940, 217-314; R. Oertel, 'Wende der Giotto-Forschung', *Zeitschrift furKunstgeschichte*, 11, 1943/44; W. Schöne, 'Studien zur Oberkirche von Assisi', *Festschrift Kurt Bauch*, Munich, 1957; c.f. *Über das Licht in der Malerei*, Berlin, 1954, pp. 32-36, 256-65. Sedlmayr, now no longer in his structuralist phase, highly praised Schöne: H. Sedlmayr, 'Über Farbe, Licht und Dunkel. Bemerkungen zu: Wolfgang Schöne, 'Über das Licht in der Malerei', *Hefte des Kunsthistorischen Seminars der Universität München*, 5, 1959, 29-51; Martin Gosebruch, *Giotto und die Entwicklung des neuzeitlichen Kunstbewusstweins*, Cologne, 1962; c.f., Christian-Adolf Isermeyer, *Rahmengliederung und Bildfolge in der Wandmalerei bei Giotto und den Florentiner Malern des 14 Jahrhunderts*, Ph.D. diss., Göttingen, 1937.
[59] Jantzen, *Das niederländische Architekturbild*; Wolfgang Schöne, 'Zur Bedeutung der Schrägsicht für die Deckenmaleri des Barock', in *Festschrift für Kurt Badt*, ed. Martin Gosebruch, Berlin, 1961, 144-172; Puttfarken, *Masstabsfragen: Über die Unterschiede zwischen grossen und kleinen Bildern*, Ph.D. diss., Hamburg, 1971; *The Discovery of Pictorial Composition*: *Theories of Visual Order in Painting, 1400-1800*, New Haven, 2000. Importantly, the gestalt psychologist Johannes von Allesch, who had been so important to Sedlmayr and Pächt, positively reviewed Schöne's book: *Göttingische Gelehrte Anzeigen*, 210, 1956, 180-206.
[60] On Padua, see Oertel, 'Wende der Giotto-Forschung', 16ff; Isermeyer, *Rahmengliederung und Bildfolge*, 10ff.

many spaces were discrete and isolated choir screens into gender and lay divisions.[61]

Similarly, Puttfarken has shown the bias toward treating pre-modern frescoes as easel pictures. Thus, Giotto became in some of the works I have already cited the 'founding father of the European picture and its inherent order.'[62] Puttfarken corrects that the figures therein were related to individually (not too distantly from Demus' spatial icon), with no sense of modern pictorial composition. But surely to understand a bias toward the *tableau* is not to deny the perception of pattern altogether. Indeed, the Arena Chapel is not a perfect case because judging the whole and individual pictures is hard to separate, and Puttfarken accepts any approach that sees the unity of the Arena Chapel. Also, there is something uncannily *tableau*-like in the individual scenes of the Arena chapel, which White recognised. Therefore, in spite of a warning toward modernist bias, it is permissible to proceed, not to deny perception, but as a welcome opportunity to historicize it.

Subsequent technical and liturgical studies have only confirmed the fruitfulness of conceiving the Upper Church of San Francesco as unified. Because the church functioned as a papal basilica, there was to be no visual obstruction of the apse with its papal throne. Even if there was some separation in other Franciscan churches – as is clear from the Upper Church's frescoes themselves (the *Crib at Greccio* prominently shows a rood screen, well over head height and obstructive of frescoes) the unsuitability of a large altarpiece on the high altar where the pope could officiate even removed this visual obstacle.[63] It is safe to say, then, that both from the point of view of archaeological and liturgical evidence the intuition given by the paintings is correct: the designers intended to give a unified prospect to the frescoes.[64]

[61] Jacqueline Jung, 'Beyond the Barrier: The Unifying Role of the Choir Screen in Gothic Churches', *Art Bulletin*, 82, 2000, 622-57, and 'Seeing through Screens'.

[62] Puttfarken, *Discovery of Pictorial Composition*. For an allied indictment of such pictorialization inspired by Arnheim (one of Puttfarken's modernists), see Robert Sowers, 'Pictorializing the Visual Arts', *Rethinking the Forms of Visual Expression*, Berkeley and Los Angeles, 1990, 73-90.

[63] Donal Cooper, 'Franciscan Choir Enclosures and the Function of Double-Sided Altarpieces in Pre-Tridentine Umbria', *Journal of the Warburg and Courtauld Institutes*, 64, 2001, 1-54; c.f. Janetta Benton, 'Perspective and the Spectator's Pattern of Circulation in Assisi and Padua', *Artibus et Historiae*, 19, 1989, 37-52, esp. 37-38.

[64] The most sustained analysis by Ursula Arendt (*Der Franziskuszyklus in der Oberkirche von San Francesco in Assisi. Überlegungen zur Abfolge der Szenen*, PhD dissertation, University of Vienna, 2008) posits a rood beam, to support a crucifix, but not a screen. She uses the traces of the beam in the first and last frescoes to aid in the dating of the series.

The Upper Church of San Francesco, Assisi

Part, and perhaps a crucial part, of White's conclusions were derived from the perspective of the corbel frieze around actual half columns in two scenes. What I want to suggest is that successive interpretations, which have paid such close attention to the corbelling above the scenes, has in one way advanced the discussion but in another held it back (Fig. 3). A slavish geometric (and not merely space-producing) point of view is the culprit. The work of White consistently separates the question of geometry from space. Indeed, it is only by forgetting about the Alberti-like elements of the frescoes that one has any hope of discovering deeper space-producing tactics.

Figure 3 Master of the Legend of St. Francis, Bay 2, scenes 4-6, San Francesco, Assisi (image source: Web Gallery of Art; image in the public domain)

An examination of the writings of Janetta Benton and Samuel Edgerton will show why. Benton echoes White, writing that, 'The division of the bays using bundles of actual engaged columns further encourages the spectator to view each bay separately.'[65] After having shown that the choir perspectives lead the viewer around, and the dual Crucifixion scenes (without corbelling) cause the viewer to pause before being led to the Life of Francis. In the midst of this sensitive analysis, she concludes that 'The perspective within the scenes is not used systematically to link the scenes to one another or to the framing architecture.'[66] Hence, White's sensitive analysis of space is lost.

[65] Benton, 'Perspective and the Spectator's Pattern of Circulation in Assisi and Padua', 41.
[66] Benton, 'Perspective and the Spectator's Pattern of Circulation in Assisi and Padua', 42.

Similarly, Edgerton confidently states that there is no relation between the cornice illusions and the scenes below. Departing from Benton, he presumes that whereas the modillion is the first 'convergent perspective system' since antiquity, the impressively 'precociousness illusionism' is still divorced from any larger spatial context. He affirms that the perspective 'in every one is still naïve; that is, lacking in any uniform geometric system and promiscuously mixing he divergent and convergent schemata…none of the illusionary objects in any scene relates to the central viewpoint implied by the convergent modillions and dentils of the surrounding border.'[67] Turning briefly to the light, Edgerton furthermore affirms that, 'there seems to have been no correlation between the centric focus decided upon by our master for his border in each bay and the perspectives chosen for the separate scenes of *The Life of St. Francis.*'[68]

Although Edgerton hedges some of his statements, I believe his portrayal of the convergent modillion and divergent scenic spaces is anachronistic and improperly regards the converging space of the modillions from a retrospective, Albertian point of view. Indeed, when discussing the same motif, as precocious as it is, White stresses how the method continued to be used by Piero della Francesca and Mantegna not, however, because the artist in Assisi had gotten it right but 'because it is both simple and sufficient.'[69]

One important element of his theory, to which I will return, is the idea that the painters were discovering facts about how to arrange the scenes as they went along. The vanishing axis in the first bay is not centred, but in bays painted later, the axis is centred. Edgerton suggests that these modillions were painted in a different order because the opposite bay has a similar (though less pronounced) eccentricity. This point will be useful later in my argument. For now, Edgerton's idea that the 'master of the modillion' discovered pictorial space as he was working, places a bit too much-punctuated evolution in a narrow chronological span. The idea of a sharp break between Cimabue and what followed undermines the continuing search after expanding spatial means.[70] Of course, the emphasis on continuity and gradualism is a strong legacy of Riegl.

Surely Edgerton has underestimated the painter of the Legend. White not only noticed the striking geometry of the corbel course but also that 'the action and the formal structure of the flanking scenes, exert strong centralizing pressures.'[71] Although much of his analysis shows a rhythmic alternation of closed and open

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[67] Edgerton, 'Geometrization of Pictorial Space', 69.

[68] Importantly, Edgerton does not cite Schöne.

[69] White, *The Birth and Rebirth of Pictorial Space*, p. 40.

[70] As Judith Field remarks of the slightly later, apparently 'correct' pavements in the Lorenzetti's works, 'in the case of pre-Brunelleschian *pavimenti* we are, moreover, dealing not with heavyweight mathematicians, but with craftsmen happy to follow established rules of thumb'; *The Invention of Infinity: Mathematics and Art in the Renaissance*, 1997, 40.

[71] White, *Art and Architecture in Italy*, 140.

spaces, both adjacently and cross-aisle, White insists that, 'the details of the painted architecture in each bay recede in parallel toward its centre, which becomes a central focal point.'[72] As an example, we may look at the second bay, and scenes six through eight, showing the *St. Francis before the Crucifix*, *St. Francis Repudiating his Father* and the *Dream of Innocent III* (Fig. 3). The central scenes feature architectural and figural symmetry. The outside scenes have a 'visual equipoise.' The ruined church of San Damiano on the left and the Lateran Basilica on the right visually rhyme, and each have a matching red band which runs 'to the centre at identical angles to the lower border.'[73] In short, 'these three very different narratives were intended to be seen as part of one united, balanced pattern, emphasized by the perspective unity of the architectural framework.'

Given Edgerton's choice between converging and divergent perspective, there is little opportunity to appreciate these effects. But they certainly relate to a centralised viewer. Although Edgerton shows how the lower modillion borders are 'corrected' even in the first bay where they are most off centre above, and this therefore proscribed where the viewer ought to stand, he does not accept the corollary that other cues ought to contribute to a unified spatial percept. I shall return to these scenes below and sketch out an expanded reading of their spatial effect on the viewer.

Oblique perspective, an extension of Demus' negative perspective

By returning to White's analysis, we can reconsider the complexity of the space-making strategies of the Master of the Legend of St. Francis. While we have shown that Edgerton or any other overly simplistic and perspectively-oriented author cannot be correct, the elements that White outlined, balance, contrapuntal organisation, presume a viewer but are not themselves concessions to the space of the viewer in a strict sense.

A key to the transitional nature of the frescoes can be seen in the *Vision of the Thrones*, in the third bay, and probably only the eighth scene to be painted (Fig. 4). As White emphasises, the presentation of altar on the bottom and thrones on the top are seen frontally, facing opposite directions, the discrepancy being used to set off the thrones as a *vision*. The perspective of the altar, however, is reversed and diminishes toward the viewer. Unexpectedly, it plays out a fundamentally Byzantine function of site-specific correction of the kind Demus described, as the surface of the altar table suddenly appears parallel (and no longer inverted) from the central bay (Fig. 5).[74] As we have seen, this is the basic strategy of Byzantine art,

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[72] White, *Art and Architecture in Italy*, 137.

[73] White, *Art and Architecture in Italy*, 138.

[74] Jan Deregowski discovered that oblique non-parallel lines can appear parallel and suggested this could be one source of Byzantine 'inverted' perspective. When compared to

to make elements present to a worshipper and remove site-specific distortions (particularly in the apsidal dome). We shall see this sense of correction appear in further Assisi frescoes. What is significant now is that, although it appears with reversed perspective here, its effect is unexpectedly space-producing in the normal wedge-shaped forms used in the majority of frescoes.
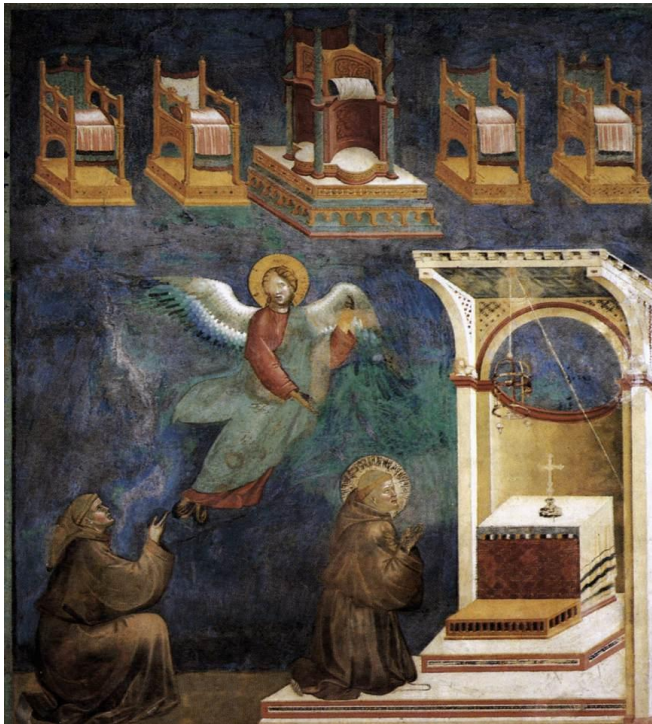

Figure 4 (left) Master of the Legend of St. Francis, *Vision of the Thrones*, Assisi (image source: Web Gallery of Art; image in the public domain)
Figure 5 (right) Master of the Legend of St. Francis, *Vision of the Thrones*, Assisi, from a computer screen at an angle so that the altar top becomes a parallelopipedon (photo: author)

Another early example, the *Dream of Innocent III* (Fig. 6), again in the right-hand position of the (second) bay, the pope is shown sleeping in an open box, whose front face is again parallel to the picture plane. Now, orthogonals recede back from the corner, providing an extremely robust illusion. For as soon as this line approximates the normal geometry of walls seen from the side, it appears to be a wall transverse to the viewer. In other words, from the centre of the bay, it is easy to regard this painted wall as a real wall oriented at 90 degrees from the painted wall surface.

Demus' discussion of the goals of Byzantine art, it leads us to search for other site-specific examples where a viewpoint might correct the geometry.

Figure 6, *Dream of Innocent III*, Assisi
(image source: Web Gallery of Art; image
in the public domain)

Taken together, these two examples show in different ways the desire to use empirical perspective to remediate the view from the anchored viewer's position.[75] But I want to suggest that this seemingly revolutionary impulse is quite old and in the case of the *Vision of the Thrones* indistinguishable from Byzantine practice. Yet the effect is new in the *Dream of Innocent III*, and in a number of other frescoes, such that the combination of the Byzantine style of optical correction combined with the new observation of reality and use of radical angles to create space, creates a new-old kind of image, which has not been seen before.

One of the ways in which White's fine 'conceptual minimalism' blocks an effective bridge between Byzantine and Renaissance perspective can be seen in his attitude to so-called inverted perspective. Calling it a 'mythical monster,' he argues that it is an unnecessary theoretical apparatus because its results can be explained by the use of hieratic scale. In stating that there is 'variations in figure scale are neither dependent on any spatial relationship within the composition nor upon the relationship of the scene as a whole to the observer,' we can see that our analysis of the *Vision of the Thrones* already questions this.[76] More precisely, when continuing with the notion of space in the fourteenth century, White misses what has been called here an essentially Byzantine 'scenographic' function – the optical preservation of the form.

Interestingly, White's discussion touches on Gaddi's Baroncelli chapel and the Northerners, Giusto, Altichiero and Avanzo. While he stresses the 'onlooker's inclusion in the event' in Altichiero's work, he sees this as essentially forward-

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[75] For the use of empirical perspective in architecture, see Marvin Trachtenburg, *The Dominion of the Eye: Urbanism, Art, and Power in Early Modern Florence*, Cambridge, 1997.
[76] White, *The Birth and Rebirth of Pictorial Space*, 103.

looking.[77] What is important to note is that these are very large frescoes. As Wilde confirmed with Demus, all frescoes to a degree partake in this enveloping function and so to compare Altichiero to Masaccio is correct. But on the other hand, when compared to one of those smallish altarpieces of the *quattrocento* that incorporates perspective with mathematically graduated spatial recession, we can see that the motivation is quite different. Not unlike a Byzantine artist, Gaddi or Altichiero *improve* the image, which is made clearer for someone occupying the central traffic pattern.

This kind of improvement is certainly found in Assisi too. And while the lines of influence to Assisi generally point from Rome and Cavallini, and not Venice (where this practice may have lived on), it will become clear that such concerns were not unknown to the Master of the Legend of St. Francis. I have talked about 'bounded' and 'unbounded' forms, but another way to understand the detachment of the figures from the wall surface is that rather than being seen as through a window, as in fifteenth-century perspective, the figures *protrude*. Indeed, Schöne notes how the architectural enframing of the scenes of the Lower Church in Assisi seem to protrude through the use of 'positional light' (*Standortlicht*).[78] The Cimabue and the Master of the Legend of St. Francis both rely on powerfully protruding forms such that we can, ironically (yet in a spirit close to White's writings), state that *trompe l'oeil* is primitive in motivation. The medieval impetus is geared toward radical presencing.

Another way to bring further specificity to this discussion is to note that Demus' paradigm of optical correction is a form of mild anamorphosis. Anamorphosis is defined as an optical device that involves manipulated stimuli that appear in a different guise form a privileged viewpoint. Traditional perspective, instead, uses plane that is contrariwise suggestive of a space further back. We need not insist that the apostles that we see in Torcello cathedral are 'protruding,' to see that oblique illusions as found in Assisi have more in common with Torcello than traditional perspective.

For an example, already discussed briefly by Schöne's student Puttfarken, we may turn to the Peruzzi chapel, painted by Giotto and his workshop from c. 1326-1330.[79] It has been noted that it provides a 'corrected' view for an oblique viewer in the main transept area at the threshold of the chapel. Puttfarken writes, 'What is happening here can best be described as a slight heightening of the sense of continuity between viewer and the scene viewed, which endows the figures in the painting with an enhanced sense of presence, accompanied by a corresponding

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[77] White, *The Birth and Rebirth of Pictorial Space*, 109.

[78] Schöne, 'Studien zur Oberkirche von Assisi'.

[79] Puttfarken, *The Discovery of Pictorial Composition*. The *Ascension of St. John* is also mentioned briefly by Elkins in this regard but somewhat misleadingly in this regard in a discussion of centers of projection, which I am arguing the artists were not aware of.

reduction in the visual effect of the bounded surface.'[80] This notion of presence is not far from Demus'.

Puttfarken derived his ideas from Wolfgang Schöne, who instead investigated ceiling frescoes. Already aware of the idea of 'perspective Schrägsicht' in Netherlandish church interiors from his teacher Jantzen, Schöne went out of the picture into real space to understand the oblique viewer (and not viewpoint). The result was an important reflection on ceiling painting, 'Zur Bedeutung der Schrägsicht.' Schöne's results, in turn, were expanded by his student Puttfarken in his dissertation and other works, particularly on Titian's *Pesaro Madonna*.[81] Subsequent research by Julian Gardner and John Shearman has emphasised physical barriers like chancel gates or presbytery steps, which spurred the development of a 'threshold instinct' among painters.[82]

The psychological basis of oblique forms, just as overhead forms as found in Byzantine vaults, lies in anamorphosis, seeing a percept because of spatial manipulation.[83] Recently, the subject has come to the attention of perceptual psychologists, and the phenomenon can be appreciated for an extremely wide-spread and important issue for perceiving art work, and in Deregowski's hands even suggesting a basis for Byzantine inverted perspective.[84] The power of the illusion in *The Feast of Herod* in the Peruzzi Chapel is given by the receding orthogonals appearing now transverse (orthogonal) to the viewer from outside the chapel (Fig. 7).[85] Looking at the oblique image, one can see that the receding orthogonals of the canopy are roughly parallel to the true transversal lines of the stained glass window.

[80] Puttfarken, *Discovery of Pictorial Composition*, 84.

[81] Schöne, 'Zur Bedeutung der Schrägsicht'; Puttfarken, *Massstabsfragen*; 'Tizians Pesaro-Madonna: Maßstab und Bildwirkung', c.f. Arnheim, *The Power of the Center*, Berkeley and Los Angeles, 1988.

[82] Julian Gardner, 'The Decoration of the Baroncelli Chapel in Sta Croce', *Zeitschrift für Kunstgeschichte*, 34, 1971, 89-113; Shearman, *Only Connect*; c.f., Ernst Kitzinger, 'The Threshold of the Holy Shrine: Observations on the Floor Mosaics at Antioch and Bethlehem', in *Kyriakon. Festschrift Johannes Quasten*, P. Granfield and J. A. Jungman, eds., vol. 2, Aschendorff, Muenster, Westfalen, 1970.

[83] Rudolf Arnheim, 'Perception of perspective pictorial space from different viewing points', *Leonardo*, 10, 1977, 283-288; Kim Veltman, 'Perspective, Anamorphosis and Vision', *Marburger Jahrbuch für Kunstwissenschaft*, 21, 1986, 93-117.

[84] Deregowski et al, 'The Perception of Spatial Structure'; Ian Verstegen, *Cognitive Iconology: When and How Psychology Explains Images*, New York, 2014.

[85] Puttfarken, *Discovery of Pictorial Composition*; Jules Lubbock, *Storytelling in Christian Art from Giotto to Donatello*, New Haven, 2006, 141-142.

Figure 7 Giotto, Peruzzi chapel, c. 1320, Santa Croce, Florence (photo: Sailko, from Wikimedia Commons)

These observations allow us to see a pattern following Giotto. Some other painters in the *trecento* used similar effects, including immediately in a Florentine context the Pulci chapel in Santa Croce painted by Bernardo Daddi (1328-1330),[86] and the Baroncelli chapel decorated by Taddeo Gaddi (late 1330s).[87] Each uses the by-now reliable cue of an orthogonal emerging from the corner of the fresco and creating a strong sensation of depth. The effect is taken to virtuosic heights by Gaddi with the seemingly awkwardly depicted temple in the *Presentation* of the Baroncelli chapel, which looks perfect for someone standing just outside of the chapel.

From here, such effects are taken up in Guariento's choir (c. 1360s) in the Eremitani, Padua (Fig. 8), and especially Altichiero's Cappella di San Giorgio, c. 1360s, Padua (Fig. 9).[88] Whereas Guariento had sought to enhance the visibility of the chapel in the two flanking laterals in the manner of Giotto in the Peruzzi chapel, Altichiero had four corners for a centrally placed viewer to deal with. And he responded with extremely compelling illusions. These are pre-perspectival, and I think it is misleading to imagine them as too-closely related to it. Instead, what needs to be stressed is the presencing of the scene for the viewer.

A surprising bit of evidence comes from the observations of Michael Kohnen.[89] He has convincingly shown the derivation of Giotto's famous *coretti* in the Arena Chapel (Fig. 10) from observation of real chapels and more specifically the just-cited Pulci chapel in the sister Franciscan church of Santa Croce (of course, before Daddi's decoration was added). If Giotto was studying closely the

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[86] On the chapel, see Michael Kohnen, 'Die coretti der Arena-Kapelle zu Padua und die ornamentale Wanddekoration um 1300', *Mitteilungen des Kunsthistorischen Institutes in Florenz*, 48, 2004, 417-423; on the perspective, see briefly Elkins, *Poetry of Perspective*.
[87] On the chapel, see Gardner, 'The Decoration of the Baroncelli Chapel in Sta Croce'.
[88] On Guariento, see Gian Lorenzo Mellini, ed., *Altichiero e Jacopo Avanzi*, Milan, 1965; on Altichiero, see Francesca Flores d'Arcais, *Guariento*, Venice, 1965.
[89] Kohnen, 'Die coretti der Arena-Kapelle zu Padua'.

appearance of a chapel askance, he could take into account flat decoration on the wall for a purposeful improvement of such an image seen from the same angle.

Figure 8 (left), Guariento d'Arpo, *Vestition of St. Augustine*, c. 1360-65, Chiesa dei Eremitani (SS Giacomo e Filippo), Padua (photo: the author)
Figure 9 (right), Altichiero, *Death of St. Lucy*, 1379-84, Chapel of San Giorgio, Padua (photo: the author)

Fig. 10 Giotto, so-called *coretti*, Arena Chapel, Padua (image source: Web Gallery of Art; image in the public domain)

Indeed, we can look to the fresco of *Christ before the Doctors* in Padua for such a precocious acknowledgement of the spectator.[90] The Scrovegni chapel is six registers long down the nave. This fresco appears on the left; thus for a centralised viewer standing at the centre, the left wall is opened up so as to accommodate an off-center viewer. This brings us back to Assisi. New ideas were circulating, and a

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[90] See briefly Elkins, *Poetry of Perspective*.

slow 'divergence' with eastern practice was taking place. I have instead emphasised continuities to work in a Viennese manner, free of anachronism. Oblique views in trecento frescoes are not fundamentally new, but refinements of old techniques of visualization.

Otto Demus shared with his Viennese compatriots an intense sensitivity to the synchronic composition of works of art. His genius lay in expanding the field of analysis from the painting (Pächt) or building (Sedlmayr) to seeing one variety of mural decoration – the Byzantine – as cast upon the canvas of the whole church. He discovered this formative principle (*Gestaltungsprinzip*) by cultivating a sensitivity to the historical tradition under study. By looking laterally at Demus from the point of view of other Vienna School writers, we can anticipate certain connections between others' treatments of medieval art and to revisit the question of the relationship between eastern (Byzantine) and western practice in exciting new ways.

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