

BRUNELLESCHI'S PERSPECTIVE PANELS. RUPTURE AND CONTINUITY IN THE HISTORY OF THE IMAGE

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Eighty years ago, in 1927, Erwin Panofsky published his seminal article '*Die Perspektive als symbolische Form*'.¹ To create a new basis for the evaluation of perspective, Panofsky not merely focused on the linear perspective of the Renaissance, but distinguished fundamentally different concepts of perspective representation and placed them in a historical order from ancient to early-modern times. By interpreting the various modes of perspective according to Ernst Cassirer's concept of 'symbolic forms', he went beyond the description of a mere technical development and implicitly related perspective to more fundamental cultural and epistemological problems. In this way, Panofsky put the question of the deeper historical relevance of perspective on the agenda.

Although many scholars have since criticised or corrected certain details in Panofsky's account, the historicity of perspective and its various modes has never been questioned. Whether linear perspective is regarded only as an extraordinarily successful convention² or as a technique of representation that is especially comparable to human visual perception, there seems to be no doubt that the perspective construction established in the Renaissance should be characterised as a particular historical phenomenon. Consequently, Filippo Brunelleschi's panels, which are believed to be the first demonstrations of the representation of linear perspective,³ and Leon Battista Alberti's

¹ Erwin Panofsky, 'Die Perspektive als symbolische Form', *Vorträge der Bibliothek Warburg* 1924/25 (Leipzig, 1927), 258–330; Panofsky, *Perspective as Symbolic Form*, trans. Christopher S. Wood (New York, 1991).

² Hans Belting has recently emphasised the assumption that central perspective should be regarded as a culturally determined phenomenon; see Hans Belting, 'Zwei Sehkulturen. Die arabische Wissenschaft und die Bildperspektive der Renaissance', in *Die Künste im Dialog der Kulturen. Europa und seine muslimischen Nachbarn*, ed. Christoph Wulf, Jacques Poulain and Fathi Triki (Berlin, 2007), 100–15.

³ The exact date of origin of Brunelleschi's panels is not documented. The suggested dates range from c.1401 to c.1425; see, for example, Corrado Verra, *Dispositivo Brunelleschi 1420* (Crema, 1978), 58 (considering an early execution of the panels),

De pictura, regarded as the first written description of the construction of perspective, have often been described as crucial events in the history of art, and also in the emergence of the modern concept of science. Moreover, epistemological paradigms and basic ideas of modern philosophy were linked to perspective. Gottfried Boehm, for instance, has analysed how the notion of perspectivity, a concept that he regarded as constitutive of the philosophical thinking in early-modern times, is related to perspective representation in Renaissance art.⁴ Similarly, Hubert Damisch has argued that there was a connection between the 'origin' of perspective—especially the 'invention' of the vanishing point—and the concept of subjectivity,⁵ an approach that has recently been developed and modified by Jean-Louis Deotte and Gérard Wajcman.⁶

But what did the introduction and the rise of linear perspective representation mean to the concept of the image? Do Brunelleschi's demonstrations and Alberti's theory mark a major discontinuity in the history of the image? In the fifteenth century, Filippo Brunelleschi's demonstrations of perspective representation were regarded as something entirely new. Filarete seems to have been the first to credit

or Alessandro Parronchi, 'Le due tavole prospettiche del Brunelleschi', in his *Studi su la dolce prospettiva* (Milan, 1964), 226–95, 242–3 (arguing for a later date). Giuliano Tanturli has argued that the characterisation of Brunelleschi as 'perspettivo' in a letter which Domenico da Prato wrote in 1413 could suggest that the panels were created before 1413: see Giuliano Tanturli, 'Rapporti del Brunelleschi con gli ambienti letterari fiorentini', in *Filippo Brunelleschi. La sua opera e il suo tempo*, ed. Guglielmo De Angelis d'Ossat et al. (Florence, 1980), vol. 1, 125–44, 125.

⁴ Gottfried Boehm, *Studien zur Perspektivität. Philosophie und Kunst in der frühen Neuzeit* (Heidelberg, 1969).

⁵ Hubert Damisch, *L'origine de la perspective. Édition revue et corrigée* (Paris, 1993); Damisch, *The Origin of Perspective*, trans. John Goodman (Cambridge, MA, 1994). Damisch's consideration of the origin of perspective is carefully discussed in Christopher Wood, Review of *The Origin of Perspective* by Hubert Damisch, *The Art Bulletin* 77/4 (1995): 677–82; Margaret Iversen, 'Orthodox and Anamorphic Perspectives', *Oxford Art Journal* 18/2 (1995): 81–4; and Whitney Davis, 'Virtually Straight', *Art History* 19/2 (1996): 434–44; see also Keith Broadfoot, 'Perspective Yet Again. Damisch with Lacan', *Oxford Art Journal* 25/1 (2002): 71–96; and Margaret Iversen, 'The Discourse of Perspective in the Twentieth Century: Panofsky, Damisch, Lacan', *Oxford Art Journal* 28/2 (2005): 191–202.

⁶ Jean-Louis Déotte, *L'époque de l'appareil perspectif. Brunelleschi, Machiavel, Descartes* (Paris, 2001); Gérard Wajcman, *Fenêtre. Chroniques du regard et de l'intime* (Lagrasse, 2004).

Brunelleschi as the inventor of linear perspective,⁷ while Brunelleschi's biographer, probably Antonio di Tuccio Manetti,⁸ not only emphasised his invention, but also its relevance to painting: 'He propounded and realized what painters today call perspective [...]. He originated the rule that is essential to whatever has been accomplished since his time in this area.'⁹ Nevertheless, it should not be taken for granted that Brunelleschi's perspective demonstrations can be regarded as a project which mainly concerns the notion of the image. A closer examination of Manetti's description of the panels shall help clarify their relevance to the history of the image, especially in the quattrocento.

Brunelleschi's Iconoclastic Perspective

As Brunelleschi's panels did not survive, modern research predominantly consists of interpretations of Manetti's account, sometimes supplemented by commentaries on the brief reports by Filarete and Giorgio Vasari.¹⁰ Manetti's text contains astonishing details, but yet also lacks basic information on the methods used by Brunelleschi. Manetti claims that his hero 'originated the rule' of perspective, but gives no explanation to help the reader understand the method. Instead, Manetti carefully describes the circumstances that Brunelleschi defined for the demonstration of his panels.

The first perspective demonstration—'*una tavoletta di circha mezo braccio quadro*', which probably means a 'small panel about half a braccio square'¹¹—showed the Florentine Baptistery as it appeared when

⁷ Filarete, *Trattato di architettura*, XXIII; *Filarete's Treatise on Architecture, Being the Treatise by Antonio di Piero Averlino, Known as Filarete*, ed. John R. Spencer, 2 vols. (New Haven, 1965), vol. 1, 304–5, vol. 2, fol. 178r–179r.

⁸ On Manetti's probable authorship and the evidence for dating the text in the 1480s, see Antonio di Tuccio Manetti, *The Life of Brunelleschi*, ed. and trans. Howard Saalman and Catherine Enggass (University Park, 1970), 10–20.

⁹ A. di Tuccio Manetti, *The Life of Brunelleschi*, 42. See also Cristoforo Landino, *Commento sopra la comedia di Danthe Alighieri*, ed. Paolo Procaccioli (Rome, 2001), vol. 1, 241–2.

¹⁰ See Filarete, *Trattato di architettura*, vol. 2, fol. 178r–179r; and Giorgio Vasari, *Le Vite de' più eccellenti architetti, pittori, et scultori italiani da Cimabue, insino a' tempi nostri* [1550] (Torino, 1991), vol. 1, 279–80.

¹¹ It is still a matter of debate whether '*circha mezo braccio quadro*' should be regarded as the size of one side of the panel or as the size of the entire surface; see, for example, Renzo Beltrame, 'Gli esperimenti prospettici del Brunelleschi', *Atti della Accademia Nazionale dei Lincei. Rendiconti. Classe di Scienze morali, storiche e*

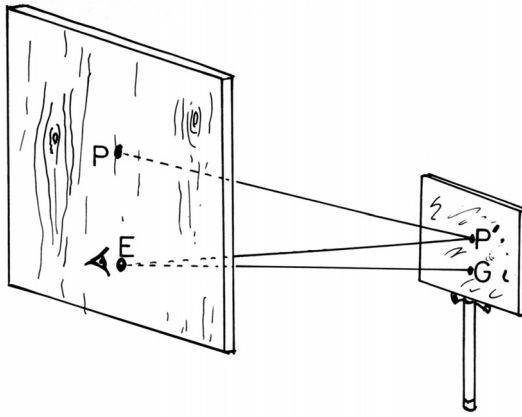


3. The Baptistery San Giovanni, Florence. Copyright © Johannes Grave.

viewed from inside the central portal of the cathedral of S. Maria del Fiore (Fig. 3).¹² Manetti makes special mention of the square and the buildings which were represented on the panel and thereby indicates the approximate viewing angle used by Brunelleschi. In two unusual

filologiche, 8th ser., 28 (1973): 417–68, esp. 428; Martin Kemp, 'Science, Non-Science and Nonsense: The Interpretation of Brunelleschi's Perspective', *Art History* 1 (1978): 134–61; Giovanni Degl'Innocenti, 'Il dimensionamento della tavoletta del primo esperimento prospettico Brunelleschiano', in *Filippo Brunelleschi. La sua opera e il suo tempo*, 2 vols., ed. Guglielmo De Angelis d'Ossat et al. (Florence, 1980), vol. 2, 561–70; and H. Damisch, *The Origin of Perspective*, 101–2.

¹² For references concerning the importance of the Florentine Baptistery and the tradition of its depiction, see Ernst H. Gombrich, 'From the Revival of Letters to the Reform of the Arts. Niccolò Niccoli and Filippo Brunelleschi', in *Essays in the History of Art Presented to Rudolf Wittkower*, ed. Douglas Fraser et al. (London, 1967), 71–82.



4. Brunelleschi's peep-hole and mirror system for viewing his perspective demonstration of the Florentine Baptistery. Reconstruction by Martin Kemp (1990), © Yale University Press.

arrangements, Brunelleschi took precautions against potential failures in the illusionistic representation of the Baptistery. According to Manetti, Brunelleschi 'placed burnished silver where the sky had to be represented...so that the real air and atmosphere were reflected in it, and thus the clouds seen in the silver are carried along by the wind as it blows.'¹³ Furthermore, Brunelleschi made some sophisticated arrangements for the demonstration of the panel (Fig. 4) because the effect of the perspective representation was highly dependent on where the viewer was standing in relation to the panel. Manetti reports that:

he made a hole in the painted panel at that point in the temple of San Giovanni which is directly opposite the eye of anyone positioned inside the central portal of Santa Maria del Fiore...The hole was as tiny as a lentil bean on the painted side and it widened conically like a woman's straw hat to about the circumference of a ducat, or a bit more, on the reverse side. Whoever wanted to look at it was required to place his eye on the reverse side where the hole was large, and while bringing the hole up to his eye with one hand, to hold a flat mirror with the other hand in such a way that the painting would be reflected in it.¹⁴

¹³ A. di Tuccio Manetti, *The Life of Brunelleschi*, 44.

¹⁴ Ibid. (the translation has been slightly modified).

Manetti concludes that these arrangements were necessary to ensure that 'the spectator felt he saw the actual scene when he looked at the painting'.¹⁵

The second panel showed the Florentine Piazza della Signoria from a position that offered a view of both façades of the Palazzo Vecchio.¹⁶ In this case, Brunelleschi did not drill a hole or employ a mirror, since the necessary distance between panel and mirror would have been too great to be handled by the spectator. Instead of affixing burnished silver to the upper part of the panel, Brunelleschi now decided to 'cut away the panel in the area above the buildings represented'.¹⁷ In this way, the real sky could serve as the background for the painted view.

A synopsis of the scholarly debate on Brunelleschi's panels could show that attempts to reconstruct the appearance of the panels and the methods used by Brunelleschi are, at best, plausible. However, there are simply too many parameters that are only vaguely defined or totally unknown to reconstruct the panels accurately. The size of the panel and the mirror, the viewing distance and the viewing angle, as well as the shape and position of the viewing hole cannot be determined exactly.¹⁸ Nevertheless, at least one widespread opinion can be disproved. As Brunelleschi resorted to a mirror for the first demonstration, Decio Gioseffi, Rudolf Arnheim and Samuel Y. Edgerton have suggested that the method of obtaining the perspective effect involved the use of a mirror.¹⁹ Whereas Gioseffi and Arnheim proposed that Brunelleschi could have painted the Baptistery immediately on a mir-

¹⁵ A. di Tuccio Manetti, *The Life of Brunelleschi*, 44.

¹⁶ Considerations on the viewpoint chosen by Brunelleschi can be found in Marvin Trachtenberg, 'What Brunelleschi Saw: Monument and Site at the Palazzo Vecchio in Florence', *Journal of the Society of Architectural Historians* 47/1 (1988): 14–44, esp. 42–3; see also John White, *The Birth and Rebirth of Pictorial Space* (London, 1957), 117–20.

¹⁷ A. di Tuccio Manetti, *The Life of Brunelleschi*, 46.

¹⁸ See the helpful overview given by M. Kemp, 'Science, Non-Science and Non-sense'; also Martin Kemp, *The Science of Art: Optical Themes in Western Art from Brunelleschi to Seurat* (New Haven, 1990), 344–5; and Stefano Boraso, *Brunelleschi 1420. Il paradigma prospettico di Filippo di ser Brunellesco: Il 'caso' delle tavole sperimentali ottico-prospettiche* (Padua, 1999).

¹⁹ Decio Gioseffi, 'Perspectiva artificialis. Per la storia della prospettiva. Spigolature e Appunti' [1957], in *Scritti di Decio Gioseffi sulla prospettiva* (Udine, 1994), 15–163, esp. 86–97; Rudolf Arnheim, 'Brunelleschi's Peepshow', *Zeitschrift für Kunstgeschichte* 41 (1978): 57–60; Samuel Y. Edgerton, 'Brunelleschi's First Perspective Picture', *Arte Lombarda* 18/38–9 (1973): 172–95; Samuel Y. Edgerton, *The Renaissance Rediscovery of Linear Perspective* (New York, 1975).

ror, Edgerton argued that a mirror would have been placed beside the panel during the process of painting. In both cases, Brunelleschi's device of the hole and the mirror would have served merely to compensate for the inversion of the representation which he had caused by using the mirror in the first place. However, this explanation contradicts not only Manetti's report that Brunelleschi used the hole and the mirror to ensure that the viewer and the panel were at the right distance, but also ignores the fact that the second panel did not operate with any mirror at all.²⁰ Thus, Gioseffi, Arnheim and Edgerton would have to assume that Brunelleschi used a different method to design the perspective of each panel.²¹ Moreover, Gioseffi's and Arnheim's assumption cannot be reconciled with Manetti's remark that Brunelleschi put the burnished silver on the picture (*'messo d'ariento brunito'*), which would have been absurd if a mirror already served as the panel.²² Confirming Manetti, we can conclude that the mirror was not employed to correct any undesirable effects caused by using another mirror during the making of the panel,²³ but was intended to control the process of perception by ensuring the right distance between the viewer's eye and the panel.²⁴

With this conclusion in mind, it is clear that Brunelleschi's method required either some knowledge of geometry and mathematics or a certain skill in measuring buildings. Manetti's account does not enable us to reconstruct the procedure used by Brunelleschi exactly, and only

²⁰ It is quite unlikely that Brunelleschi painted the Piazza della Signoria on a mirror and then cut away the upper part, following the sophisticated outline of the represented buildings. Manetti emphasises that the second panel was considerably larger than the first one. Therefore it would have been difficult, if not impossible to get a sufficiently large planar mirror.

²¹ In fact, Arnheim and Edgerton did not propose any explanation of the methods used for the construction of the second panel. Gioseffi obviously recognized the problem and, therefore, claimed that the second panel was the result of a totally different, geometrical method. D. Gioseffi, 'Perspectiva artificialis', 90–1.

²² Not to speak of the technical difficulty of drilling a conical hole into a mirror.

²³ See also Kim H. Veltman, Review of *The Renaissance Rediscovery of Linear Perspective* by Samuel Y. Edgerton, *The Art Bulletin* 59/2 (1977): 281–2.

²⁴ This conclusion implies that Brunelleschi should have been aware of the inversion caused by the mirror he planned to use for the demonstration right from the beginning. Either he anticipated this inversion (for example, by copying preparatory drawings the other way around) or put up with an inversion that—due to the Baptistery's symmetry—would only be visible at the margins of the representation. Alessandro Parronchi proposed a construction method (based on plans) that would have implied an inversion without using a mirror; see A. Parronchi, 'Le due tavole prospettiche'.

vaguely indicates the decisive parameters.²⁵ In my opinion, there is no way to determine conclusively whether Brunelleschi constructed his perspective views geometrically using ground plans and elevations,²⁶ specific technical devices, such as an astrolabe,²⁷ a method he specially devised, based on a knowledge of medieval optics,²⁸ or—most likely—by applying his surveying skills.²⁹ However, Manetti makes it quite plain that the crucial parameters—the viewing angle and distance, the form of the hole, the size of the panel and the position of the spectator—were all clearly interrelated. It seems that at the core of Brunelleschi's demonstrations was a concept of rational and geometrically controlled representation. He consciously limited the rep-

²⁵ Dominique Raynaud has drawn an even more radical conclusion: 'les conditions décrites par Manetti impliquent l'impossibilité physique de reproduire le tableau.' Dominique Raynaud, 'L'émergence de l'espace perspectif: Effets de croyance et de connaissance', in *Les espaces de l'homme. Symposium annuel du Collège de France*, ed. Alain Berthoz and Roland Recht (Paris, 2005), 333–54, here 336.

²⁶ For this assumption (which can be traced back to Giorgio Vasari) and its variations see, for example, Richard Krautheimer, *Lorenzo Ghiberti* (Princeton, 1970), 234–40; Piero Sanpaulesi, *Brunelleschi* (Milan, 1962), 41–53; Robert Klein, 'Pomponius Gauricus on Perspective', *The Art Bulletin* 43/3 (1961): 211–30, esp. 223–5; Eugenio Battisti, *Filippo Brunelleschi* (Milan, 1976), 102–13, 358–60; Luigi Vagnetti, 'La posizione di Filippo Brunelleschi nell'invenzione della prospettiva lineare. Precisazioni ed aggiornamenti', in *Filippo Brunelleschi. La sua opera e il suo tempo*, ed. Guglielmo De Angelis d'Ossat et al. (Florence, 1980), vol. 1, 279–306; Maren Holst-Jürgensen, 'Technik und Philosophie in Brunelleschis perspektivisch konstruierten Bildern', *Architectura* 18/1 (1988), 49–58; Leonhard Schmeiser, *Die Erfindung der Zentralperspektive und die Entstehung der neuzeitlichen Wissenschaft* (Munich, 2002), 24–39; and David Summers, *Vision, Reflection, and Desire in Western Painting* (Chapel Hill, 2007), 64.

²⁷ See R. Beltrame, 'Gli esperimenti prospettici'; see also Marco Jaff, 'From the Vault of the Heavens. A Hypothesis Regarding Filippo Brunelleschi's Invention of Linear Perspective and the Costruzione Legittima', *Nexus Network Journal* 5/1 (2003): 49–63. Shigeru Tsuji proposed that Brunelleschi had used a device comparable to the camera obscura; see Shigeru Tsuji, 'Brunelleschi and the Camera Obscura. The Discovery of Pictorial Perspective', *Art History* 13/3 (1990): 276–92; see also the letters by James Lawson and Tsuji in *Art History* 14/3 (1991): 455–8. Tsuji's quite improbable assumption does not propose any explanation concerning Brunelleschi's second panel.

²⁸ See A. Parronchi, 'Le due tavole prospettiche'.

²⁹ See M. Kemp, 'Science, Non-Science and Nonsense' and M. Kemp, *The Science of Art*, 345. Kemp's reasonable supposition that Brunelleschi relied on skills of surveying was elaborated by Jehane R. Kuhn, 'Measured Appearances. Documentation and Design in Early Perspective Drawing', *Journal of the Warburg and Courtauld Institutes* 53 (1990): 114–32; Frank Büttner, 'Rationalisierung der Mimesis. Anfänge der konstruierten Perspektive bei Brunelleschi und Alberti', in *Mimesis und Simulation*, ed. Andreas Kablitz and Gerhard Neumann (Freiburg i. Br., 1998), 55–87. Volker Hoffmann related the geometrical challenges of the perspective panels to similar problems of the construction of the dome of S. Maria del Fiore; see Volker Hoffmann, 'Filippo Brunelleschi: Kuppelbau und Perspektive', in *Saggi in onore di Renato Bonelli*, ed. Corrado Bozzoni, Giovanni Carbonara and Gabriella Villetti (Rome, 1992), vol. 1, 317–26.

resentation to objects that were totally measurable and characterised by geometrical patterns.³⁰ Manetti emphasises this when he writes that Brunelleschi invented the 'rule' essential for 'that science which, in effect, consists of setting down properly and rationally the reductions and enlargements of near and distant objects as perceived by the eye of man.'³¹ He repeatedly stresses that Brunelleschi worked on this problem 'rationally' and by employing a 'rule'.

As Hubert Damisch has pointed out, the concentration on objects that could be handled geometrically implies a strong limitation of perspective representation. Brunelleschi's panels only depicted architectural settings: he did not include human beings, mobile objects or the sky—with its moving clouds—in his paintings.³² This specificity of the panels raises the question to what extent they can be related to the concept of the image that was current at that time.

As far as we know, no picture of that era is comparable to Brunelleschi's extraordinary panels. Susanne Lang has tried to explain the panels' having been restricted to the representation of architectural settings by interpreting them as Vitruvian stage sets.³³ However, this thesis is not only inconsistent with the history of stage design, but also ignores many details of Manetti's account. Why should Brunelleschi have painted the relatively small panels, and why should he have designed the sophisticated viewing arrangements for the first panel if both pictures were merely intended as preparation for the construction of stage sets? Manetti reports that Brunelleschi painted the panel 'with such care and delicacy and with such great precision in the black and white colours of the marble that no miniaturist could have done it better.'³⁴ This extensive work would have been out of place if the panel only served as a *modello* for a stage design.

Instead of hastily integrating Brunelleschi's panels into the history of painting, it would seem more reasonable to stress their singularity. In

³⁰ For detailed information on Brunelleschi's alleged mathematical skills, see Piero Sanpaulesi, 'Ipotesi sulle conoscenze matematiche, statiche e meccaniche dell Brunelleschi', *Belle Arti* 2 (1951): 25–54.

³¹ A. di Tuccio Manetti, *The Life of Brunelleschi*, 42.

³² See Giulio Carlo Argan, *Brunelleschi* (Milan, 1955), 18; Hubert Damisch, *Théorie du nuage. Pour une histoire de la peinture* (Paris, 1972), 166–71; and Damisch, *The Origin of Perspective*, 93–4.

³³ Susanne Lang, 'Brunelleschi's Panels', in *La prospettiva rinascimentale. Codificazioni e trasgressioni*, ed. Marisa Dalai Emiliani (Florence, 1980), vol. 1, 63–72.

³⁴ A. di Tuccio Manetti, *The Life of Brunelleschi*, 42.

many respects, both perspective demonstrations departed fundamentally from the concept of the image current in the early quattrocento. Being fully measurable and geometrically controllable, Brunelleschi's representations of the Baptistery and the Piazza della Signoria were unlike any previous pictures. In common with his architectural projects, his interest in perspective seems to have concentrated on the categories of *commensuratio* and *proportio*.³⁵

Only the strict limitation of the pictorial representation to measurable objects enabled Brunelleschi to obtain a nearly perfect illusionistic effect. If we trust Manetti's account, a central aim of the perspective demonstrations was to adjust the image totally to the setting so that the spectator could take the image of the Baptistery for the appearance of the real building. In the first demonstration, the effect was intensified by the use of a mirror which helped obscure the materiality of the panel and the painting. Viewed in the mirror, the perspective of the Baptistery did not appear as painted; the image was virtually split off from the panel. These singular characteristics of Brunelleschi's perspectives—the limitation to measurable objects and the use of a mirror—radically strengthened the illusionistic power of the image and, at the same time, caused a sort of immanent iconoclasm.³⁶ The iconicity of the image, which distinguishes the image from the represented object, was now hardly perceivable. In other words, by becoming fully transparent, the image lost its opacity,³⁷ its capacity to refer to its own material status.

The illusionism of Brunelleschi's perspective implied that the pictorially represented space and the real surroundings in which the panels were handled were no longer clearly distinguishable. In the case of the Baptistery and the Piazza della Signoria, the structural correspondence of represented and real space did not cause any problems. But what if totally different locations, rooms and settings should be depicted? The

³⁵ See Giulio Carlo Argan 'The Architecture of Brunelleschi and the Origins of Perspective Theory in the Fifteenth Century', *Journal of the Warburg and Courtauld Institutes* 9 (1946): 96–121; Rudolf Wittkower, 'Brunelleschi and 'Proportion in Perspective'', *Journal of the Warburg and Courtauld Institutes* 16 (1953): 275–91; and Miklós Boskovits, 'Quello ch'è dipintori oggi dicono prospettiva'. Contributions to Fifteenth Century Italian Art History. Part I, *Acta Historiae Artium Academiae Scientiarum Hungaricae* 8 (1962): 241–60.

³⁶ See G. Boehm, *Studien zur Perspektivität*, 19, 28–32.

³⁷ Louis Marin has developed his concept of the opacity of the picture in various contexts; see, for example, Louis Marin, *Opacité de la peinture. Essais sur la représentation au Quattrocento* (Paris, 1989); and idem, *De l'entretien* (Paris, 1997), esp. 59–73.

most important function of images in the quattrocento, the representation of scenes from salvific history, of saints and God, required clear distinctions between the represented space and the space of the viewer. However, in the case of Brunelleschi's concept of perspective representation, it was neither intended nor possible to show categorically different spaces or to represent incommensurable phenomena which did not comply with the logic of the here and now. We therefore have to ask whether perspective representation inevitably implied a profound secularisation of the previously religious image.

Framing Brunelleschi's Perspective

The characteristics and effects of Brunelleschi's panels should by no means rashly be regarded as the paradigm of a new concept of the image. There are good reasons to question the assumption that the art of painting in the early-modern period tended towards the ideal of an illusionistic picture that is characterised by total transparency.³⁸ Of course, Manetti and Alberti praised the power of images to make depicted things appear as objects in real life.³⁹ Yet these comments do not necessarily imply that such illusionistic effects were intended in the vast majority of paintings.

Nicholas of Cusa's *Idiota de mente* suggests that a certain degree of anti-illusionistic opacity could be considered as indispensable for pictures.⁴⁰ In this dialogue, the layman makes a remarkable distinction between the *imago viva* and the *imago mortua*, the vital and the dead image—a distinction that can be related to fundamental problems of illusionistic paintings. While the *imago mortua* reproduces the represented object in nearly every respect, the *imago viva* distinguishes itself by a lower degree of illusionism, but becomes more and more similar. This idea shows striking similarities to recent theories of the image

³⁸ For an elaborated concept of a progress towards illusionism, see Ernst H. Gombrich, *Art and Illusion. A Study in the Psychology of Pictorial Representation* (New York, 1960).

³⁹ See Leon Battista Alberti, *Vita. Lateinisch-deutsch*, ed. Christine Tauber (Frankfurt/Main, 2004), 52.

⁴⁰ Nikolaus von Kues, *Idiota de mente. Der Laie über den Geist*, ed. Renate Steiger (Hamburg, 1995), 112; see also Thomas Leinkauf, *Nicolaus Cusanus. Eine Einführung* (Münster, 2006), 208–10.

that emphasise the constitutive indeterminacy of the image.⁴¹ What might seem to be a regrettable lack of resemblance at first actually enables the viewer to participate actively in the process of perception. By stimulating the viewer, a 'vital image' has the power to become more and more similar to the thing that was used as the model for the representation. A 'dead image', on the other hand, cannot produce such an effect. Cusanus' concept of the *imago viva* is part of a much more complex theological argument concerning man's likeness to God and, especially, the capacity of the human mind. Nevertheless it is fair to assume that the idea of the 'vital image' is more than merely a metaphor. As the layman explicitly refers to a painter and his self-portrait, his argument against total illusionism is not necessarily limited to an abstract theological or philosophical context.

Louis Marin, Daniel Arasse and Georges Didi-Huberman, among others, have pointed out that the majority of pictures in the fifteenth century had to avoid perfect illusionism, since the saints and religious scenes depicted had to be clearly distinguishable from the viewer's here and now.⁴² It is no accident that Daniel Arasse based his history of perspective representation in the fifteenth century on depictions of the Annunciation.⁴³ Hardly any other iconographic theme can so clearly illustrate that the application of perspective had to be carried out very cautiously. Painters were faced with the challenge of depicting the encounter between the angel and Mary *not* as a mere earthly occurrence, since it was regarded as the moment of God's incarnation, which contemporary theologians described as the becoming measurable of the incommensurable.⁴⁴ Perspective was by no means an improved method of depicting such subjects. Rather, the rise of perspective made it more difficult to satisfy the functions of images in the fifteenth century.

⁴¹ Gottfried Boehm describes indeterminacy ('*Unbestimmtheit*') as a fundamental quality that characterizes the image in general; see Gottfried Boehm, 'Unbestimmtheit. Zur Logik des Bildes', in Gottfried Boehm, *Wie Bilder Sinn erzeugen. Die Macht des Zeigens* (Berlin, 2007), 199–212.

⁴² See L. Marin, *Opacité de la peinture*; and Georges Didi-Huberman, *Fra Angelico. Dissemblance et figuration* (Paris, 1990).

⁴³ Daniel Arasse, *L'annonciation italienne. Une histoire de perspective* (Paris, 1999).

⁴⁴ Bernardino da Siena, 'Sermo III. In nativitate Domini. De triplici Christi natiuitate', in *S. Bernardini Senensis opera omnia*, ed. Collegium S. Bonaventurae (Quaracchi, 1959), vol. 7, 31–49, esp. 38.

Paradoxically, the exceptional character of Brunelleschi's panels could enable painters to reconcile linear perspective with a concept of the image that adheres to a fundamental pictorial opacity. The particular circumstances of Brunelleschi's perspective demonstrations did not take into consideration some crucial questions which later painters had to address as soon as they wanted to apply linear perspective to their pictures. Firstly, his panels were obviously not framed; frames would have made it more difficult to obtain the illusionistic effect. Secondly, they did not have a fixed location in front of a wall or on a table, but had to be handled by the viewer. Thirdly, at least in the case of the first panel which was reflected in a mirror, the image was virtually detached and free from its material carrier. Fourthly, again in the case of the first panel, the viewer had to move the picture in order to adjust the distance between his eye, the panel and the mirror. Performing this procedure, he could experience the basic rule of perspectivity, that is, the rule that perspective depends on the correct viewing position if distortion is to be avoided. However, as only one arrangement of eye, panel and mirror guaranteed the correct perspective, the viewer had no alternative but to find the one and only correct distance. The process of perception was intended to result in a predetermined end.

Applying Brunelleschi's linear perspective to conventional pictures, therefore, necessarily implied framing the perspective representation, integrating it into a specific architectural setting (in most cases, a wall), defining its relationship to the material carrier of the painting and permitting the viewer to participate more actively and freely in the process of perception. All these steps inevitably made the pictorial representation more complex. The confrontation between the architecture depicted in perspective and the picture's specific architectural setting made it possible to restrict the illusionistic effects of perspective. Fixed to a wall, the picture would not have necessarily been taken to be an 'open window' (*finestra aperta*).⁴⁵

While Alberti's concept of the 'open window' defines a clear and rational relationship between the image, its frame and its surroundings,

⁴⁵ L. B. Alberti, *De pictura*, I, 19; Leon Battista Alberti. *On Painting and Sculpture. The Latin Texts of De Pictura and De Statua Edited with Translations, Introduction and Notes*, ed. Cecil Grayson (London, 1972), 55. On the concept of the '*finestra aperta*' see James Elkins, *The Poetics of Perspective* (Ithaca, 1994), 46–52; Wajcman, *Fenêtre*, 51–120; and Anne Friedberg, *The Virtual Window. From Alberti to Microsoft* (Cambridge, MA, 2006), 26–42.



5. Filippino Lippi, *St. Philip Driving the Dragon from the Temple of Hieropolis*, c.1493–95. Florence, S. Maria Novella, Cappella Strozzi.
© Bencini / Alinari Archives, Florence.

many quattrocento paintings are full of irritatingly shifting relationships between the fictitious architecture and the real surroundings. By causing confusion, they reveal an important subversive potential of perspective. In some cases, framing structures seem to become part of the pictorial representation and thereby disturb the strict distinction of image, frame and the surrounding (Fig. 5). For instance, Filippino Lippi's frescoes in the Strozzi Chapel in S. Maria Novella (Florence)⁴⁶

⁴⁶ See Russell J. Sale, *Filippino Lippi's Strozzi Chapel in Santa Maria Novella* (New York, 1979); and Patrizia Zambrano and Jonathan Katz Nelson, *Filippino Lippi* (Milan, 2004), 513–55 and 584–8. I am preparing a detailed study which shall analyse the use

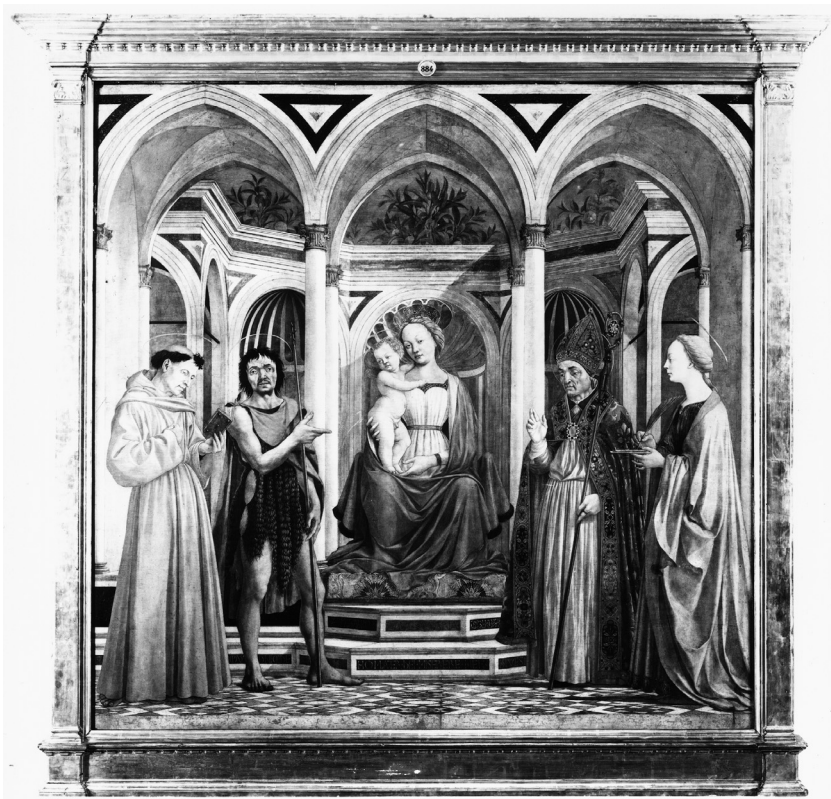
are framed by a painted architectural structure that consists of pilasters, a frieze and a Gothic arch. The pilasters, however, are partly concealed by figures that belong to the represented scene. Therefore, the frame intrudes into the image, or rather the image disturbs the frame that should guarantee the integrity of the pictorial field. Moreover, the framing architecture causes contradictory effects. While the pilasters suggest that they frame an opening, the frieze turns out to be a moulding which requires a supporting wall. What first seems to be a window-like opening appears as a flat, painted surface. Lippi did not conceive this strategy to strengthen the illusionistic effect of his frescoes, but to subvert the ostensibly unambiguous, clearly comprehensible relationship between the frame and the represented scene. As a result, the viewer comes to the realisation that he cannot gain full control over the constellation of frame and image.

In many paintings, the representation of architecture in perspective is used to cause significant alternating effects. In his *S. Lucia Altarpiece* (Fig. 6), Domenico Veneziano demonstrates an exemplary application of perspective construction. The architecture of the arcade and the polygon behind it, as well as the sophisticated floor pattern indicate that Domenico attached great importance to an exact perspective construction.⁴⁷ Nevertheless, the depicted space is not totally controllable in terms of geometry. As the arcade ends where the upper section of the frame begins, the viewer is obliged to localise the arcade in the front plane of the pictorial space, although the perspective construction hints at a position far further back. A similar shifting can be observed with respect to the position of Mary's throne. In these cases, the localisation of the figures and architectural structures varies depending on which pictorial element the viewer relates to them.

Even depictions limited only to architectural settings show what it meant to design pictorial representations in perspective that should be framed and integrated into a specific context. The three famous panels with perspective views of 'ideal cities', which belong to the museum collections in Urbino, Baltimore and Berlin, seem quite

of architectural elements in Lippi's Strozzi frescoes as a demonstration of 'parergonal aesthetics'.

⁴⁷ See Hellmut Wohl, *The Paintings of Domenico Veneziano, c.1410–1461. A Study in Florentine Art of the Early Renaissance* (Oxford, 1980), 32–63; Luciano Bellosi, ed., *Una scuola per Piero. Luce, colore e prospettiva nella formazione fiorentina di Piero della Francesca* (Venezia, 1992), 94–9.



6. Domenico Veneziano, *Madonna with Saints* (*Pala di S. Lucia*), c.1445–47. Florence, Galleria degli Uffizi. © Soprintendenza Speciale per il Polo Museale Fiorentino.

similar to Brunelleschi's panels at first glance (Fig. 7).⁴⁸ However, on closer inspection, it is apparent that the painters had to do more than merely apply Brunelleschi's method, especially in the Berlin painting. The panel not only opens a perspective view of a street leading to a

⁴⁸ The attribution, date of origin and interpretation of the three panels in Urbino, Baltimore and Berlin are still being debated; for an overview of the various approaches, see Alessandro Conti, 'Le prospettive urbinati. Tentativo di un bilancio ed abbozzo di una bibliografia', *Annali della scuola normale superiore di Pisa. Classe di lettere e filosofia*, 3rd ser. 6/4 (1976): 1193–234; H. Damisch, *The Origin of Perspective*, 169–375; Richard Krautheimer, 'The Panels in Urbino, Baltimore, and Berlin Reconsidered', in *Italian Renaissance Architecture from Brunelleschi to Michelangelo*, ed. Henry A. Millon (London, 1996), 233–57; and Gabriele Morolli, 'La vittoria postuma. Una città niente affatto 'ideale'', in *L'uomo del Rinascimento. Leon Battista Alberti e le arti a Firenze tra ragione e bellezza* (Firenze, 2006), 393–9.



7. Unknown Master, *Ideal City*, c.1470. Berlin, Gemäldegalerie. Photo: Jörg P. Anders.
© Bildarchiv Preussischer Kulturbesitz, Berlin, 2007.

harbour, but also depicts a part of the panelling which should probably be integrated into a *lettuccio*, a firmly fixed sofa or bench. Strictly speaking, the painting consists of two different images—the depiction of the wooden panelling and a picture inserted into this framework. The relationship between these two images becomes even more complex when the viewer focuses his attention on the colonnade in the foreground of the perspective view. As it is part of the perspective construction, nobody would doubt that this particular building belongs to the represented harbour street. However, it fits into the frame in such a way that the columns of the colonnade seem to support the upper section of the frame. As a result, the colonnade opens up the pictorial space within the image and, at the same time, divides the flat surface of the picture into three equal parts. Consequently, this forces the viewer to perceive the panel in two conflicting ways. The painting not only causes a confrontation between the fictitious space and a pictorial composition related to the flat surface, but also establishes a depth that differs from the illusionistic depth of the perspective view. Viewing the picture from an angle reveals that the painting has the shape of a flat box; in the strict sense, it cannot be called a panel. From this angle, we see that the material support of the depiction plays a crucial role in the process of perception and was not meant to be ignored. In contrast to Brunelleschi, the painter did not aim for an iconoclastic illusionism that would lead the viewer to believe he or she was standing in front of an actual scene instead of a flat, painted surface.

The panel in Berlin, the frescoes by Lippi and the altarpiece by Domenico Veneziano all display a common strategy in creating a tension between the image and architectural structures. They show that the representation of architecture in Italian quattrocento paintings did not merely serve to implement perspective construction, but could act as an operator that stimulated sophisticated and inconclusive processes of perception. The shifting relationships between image, frame and architectural surroundings ensure that the viewer cannot attain a clear view of the painting which could explain everything unequivocally and rationally. The uncertainty of perception disturbs the transparency of the perspective representation and, to a certain extent, makes the picture opaque. The interaction between transparency and opacity is critical in establishing a tension between the perspective view and the perception of the panel's flat surface. When applied in this way, perspective does little to help clarify the pictorial representation: it actually makes it more complex. In this case, every element in the image can be seen in two fundamentally different ways: at the two-dimensional level, things

can be tangential to each other that are strictly separated within the illusionistically-depicted pictorial space.

This sophisticated application of perspective allowed fifteenth-century painters to remain consistent with the traditional, religious concept of the image. By counterbalancing the illusionism of perspective, they could obtain effects of presence without having to apply the logic of the here and now to sacred scenes. Obviously, the figures in Lippi's fresco and in Domenico Veneziano's altarpiece seem almost tangible and physically present. However, the careful use of architecture as an operator in the image ensures that the image and its surroundings are categorically distinguished from one another. In this way, the representation of architecture in perspective can offer a glimpse of the incommensurable, although the perspective construction itself fundamentally depends on the measurability of the represented objects.

A Rupture, Not a Discontinuity

Considering these strategies for dealing with perspective, how should we define the historical relevance of Brunelleschi's demonstrations? We would be misconstruing this historical event if we regarded it as a decisive step toward a fundamentally new, modern concept of the image. In my opinion, it is doubtful that the history of the image is strictly teleological at all. In fact, the implementation of perspective in paintings of the fifteenth century can be seen as a break that led to an important modification of pictorial strategies that, nevertheless, served almost the same purposes as before.

In a conversation with Yve-Alain Bois, Denis Hollier and Rosalind Krauss, Hubert Damisch described the relationship between the representational art of early-modern times and the abstract art of the twentieth century as a break:

there is a rupture, but at the same time there must be a '*relève*'—an *Aufhebung* in the Hegelian sense. So there is a rupture, something new which manifests itself, but was already present in that will to language which was in Renaissance painting.⁴⁹

Analogous to Damisch's assessment of modern art, Brunelleschi's perspective demonstrations can be regarded as a 'rupture' that opened up

⁴⁹ Yve-Alain Bois, Denis Hollier and Rosalind Krauss, 'A conversation with Hubert Damisch', *October* 85 (1998): 3–17, here 14.

new approaches to satisfy much older functions and concepts of the image.⁵⁰ Perspective construction was by no means applied to transfer pictorial representation 'from heaven to earth'. In fact, it helped refine the fragile balance that enabled experiences of presence while representing the incommensurable without fully assimilating it to the measurable.

With his two perspective panels, Brunelleschi did not establish a totally new paradigm of the image. However, his demonstrations proved to be a challenge to a concept of the image that was shaped by religious functions. Painters in later generations demonstrated that the implementation of perspective did not necessarily lead to total illusionism. Rather, they used linear perspective to make their pictures more complex and sophisticated. In this way, they discovered a subversive potential of perspective that Brunelleschi had probably not recognised.

⁵⁰ A similar argument can be found in Daniel Arasse, 'Perspective régulière: Rupture historique?', in *Ruptures. De la discontinuité dans la vie artistique*, ed. Jean Galard (Paris, 2002), 58–71.