Stereoscopic Architectural Photography and Merleau-Ponty's Phenomenology

Fotografía arquitectónica estereoscópica y la fenomenología de Merleau-Ponty

DOUGLAS M. KLAHR

Abstract

Stereoscopic photography utilizes dual camera lenses that are placed at approximately the interocular distance of human beings in order to replicate the slight difference between what each eye sees and therefore the effect of parallax. The pair of images that results is then viewed through a stereoscope. By adjusting the device, the user eventually sees the two photographs merge into a single one that has receding planes of depth, often producing a vivid illusion of intense depth. Stereoscopy was used by photographers throughout the second half of the Nineteenth Century to document every building that was deemed to be culturally significant by the European and American photographers who pioneered the medium, starting with its introduction to the general public at the Crystal Palace in London in 1851. By the early 1900s, consumers in Europe and America could purchase from major firms stereoscopic libraries of buildings from around the world. Stereoscopic photography brought together the emotional, technical and informed acts of looking, especially with regard to architecture. In this essay, the focus in upon the first of those acts, wherein the phenomenal and spatial dimensions of viewing are examined. Images of architecture are used to argue that the medium not only was a manifestation of Maurice Merleau-Ponty's phenomenology of perception, but also validated the philosophy. After an analysis of how stereoscopic photography and Merleau-Ponty's philosophy intersect, seven stereographs of architectural and urban subjects are discussed as examples, with the spatial boundaries of architecture and cities argued as especially adept in highlighting connections between the medium and the philosophy. In particular, the notion of Fundierung relationships, the heart of Merleau-Ponty phenomenology, is shown to closely align with the stereoscopic viewing experience describing layers of dependency.

Keywords

Stereoscopy, photography, architecture, Merleau-Ponty, Fundierung, cities

Resumen

La fotografía estereoscópica utiliza lentes de cámara dobles que se colocan aproximadamente a la distancia interocular de los seres humanos con el fin de reproducir la ligera diferencia entre lo que cada ojo ve y por lo tanto el efecto del paralaje. El par de imágenes resultantes se ven a través de un estereoscopio. Ajustando el dispositivo, el usuario ve eventualmente las dos fotografías fusionadas en una sola que muestra planos de profundidad que se alejan, produciendo a menudo una ilusión vívida de intensa profundidad. La estereoscopia fue utilizada por los fotógrafos a lo largo de la segunda mitad del siglo XIX para documentar cualquier edificio considerado culturalmente significativo por los fotógrafos europeos y estadounidenses pioneros en el medio, a partir de su presentación al gran público en el Crystal Palace de Londres en 1851. A principios de 1900, los consumidores en Europa y América podían comprar a las grandes firmas bibliotecas estereoscópicas de edificios de todo el mundo. La fotografía estereoscópica captó miradas emotivas, técnicas y destacadas, especialmente con respecto a la arquitectura. Este ensayo se centra en el primero de esos actos, examinándose las dimensiones fenomenológicas y espaciales de la visión. Las imágenes de arquitectura se utilizan para argumentar que el medio no fue sólo una manifestación de la fenomenología de la percepción de Maurice Merleau-Ponty, sino que también validó la filosofía. Tras analizar cómo se cruzan la fotografía estereoscópica y la filosofía de Merleau-Ponty, se analizan como ejemplos siete estereografías de temas arquitectónicos y urbanos, con los límites espaciales de la arquitectura y las ciudades argumentadas como especialmente aptas para destacar las conexiones entre el medio y la filosofía. En particular, se muestra que la noción de relaciones Fundierung, el corazón de la fenomenología de Merleau-Ponty, se alinea estrechamente con la experiencia de la visión estereoscópica que describe capas de dependencia.

Palabras clave

Estereoscopía, fotografía, arquitectura, Merleau-Ponty, Fundierung, ciudades

Douglas Klahr is the Associate Dean of the College of Architecture, Planning and Public Affairs at the University of Texas at Arlington. Born in Manhattan, he received his Ph.D. in architectural history from Brown University. He has presented papers at conferences in London, Paris, Rome, Berlin, Lisbon, Helsinki, Washington and other cities. Publications include: "Traveling via Rome through the Stereoscope: Reality, Memory and Virtual Travel," *Architectural Histories 13* (June 2016); "Nazi Stereoscopic Photobooks of Vienna and Prague: Geopolitical Propaganda Collides with a Distinctive Visual Medium," in *Paper Cities: Urban Portraits in Photographic Books*, Leuven University Press, 2016; "Stereoscopic Photography Encounters the Staircase: Traversing Thresholds, Borders and Passages," *Archimaera* 5 (July 2013); "The Radically Subversive Narrative of Stereoscopic Photography," *Kunsttexte.de Bild/Wissen/Technik* (April 2013). klahr@uta.edu

[Fig. 1] A Holmes stereoscope with a stereograph. Collection of the author.

The Stereoscopic Viewing Experience

Stereoscopic photography offered an interweaving of phenomenological and spatial narratives that superseded any other visual medium until the advent of virtual reality, its successor. This plurality of narratives was especially noticeable when architecture and cities were documented stereoscopically due to the well-defined spatial boundaries that they presented. In this essay, I will argue that the fluid interweaving of these two types of narratives is an embodiment of Maurice Merleau-Ponty's philosophy of phenomenology, and that stereoscopic photography, which remains the basis for all virtual reality, was uniquely qualified as a medium to embody Merleau-Ponty's philosophy. Seven examples will successively build these arguments: the Crystal Palace in London, the Königsplatz and Alte Hof in Munich, the Bridge of Sighs in Venice, Alexanderplatz in Berlin, and the Tuileries and Hôtel de Ville in Paris.[1]

The raison d'être of stereoscopic photography was to produce an intense sensation of depth, and the viewing process radically differed from that of flat photography. The process began with the kinesthetic demands of a hand-held stereoscope and became profoundly corporeal, involving hands, face, and eyes, with the viewer required to merge two slightly different images into one [Fig. 1]. One first inserted one's face into the curved 'hood' of the stereoscope and then adjusted the distance of the stereograph from the apparatus's dual lenses until the images came into focus. The next step was to merge the two images into one to obtain the sensation of depth, accomplishing this through a series of neuromuscular adjustments.

Stereoscopy produces a series of receding planes of depth, yet the effect is ephemeral: although all the planes in a well-produced stereograph are in focus in the flat dual photographs, the viewer cannot focus upon them *all* at the same moment when viewed through a stereoscope. One's gaze therefore shifts not only from object to object, but from plane to plane, as Rosalind Krauss observes: "The actual readjustment of the eyes from plane to plane within the stereoscopic field is the representation by one part of the body of what another part of the body, the feet, would do in passing through real space".[2] This process, the narrative of viewing a stereograph, therefore is *composed anew by each viewer with each viewing*, resulting in an exceptionally fluid temporality, one that exceeds that of flat photography and even the pre-determined, l i n e a r, a n d s e q u e n t i a l temporality of cinematic images. As Mary Jane Appel observed in a thesis about stereoscopy, the image is "a reality synthesized rather than depicted".[3] Perceiving a depiction – whether static in flat photography or moving in cinema – different from a viewer synthesizing the images, and this aspect of active, intentional synthesis will play a major role in the discussion that follows.

An excellent example of a stereograph's receding planes of depth is seen in Figure 2, an image taken of the Crystal Palace in London after it was relocated from its original 1851 location to Sydenham. As with most of the stereographs in this paper, only one of the two images is shown to save space. This image then was repeated twice more, going from left to right to produce a triple image using Photoshop. The leftmost image is the original view, whereas one plane in the middle image has been tinted. The

1. The terms *stereograph* and *stereoview* are used interchangeably by scholars, whereas *stereoview* is more commonly used by collectors. Both terms refer to stereoscopic photographs in any of the four media that were used: glass, tissue paper, photographic paper/cardboard, and a certain small percentage of Daguerreotypes. The term *stereocard* specifically refers to images printed on cardboard.
2. Rosalind Krauss, "Photography's Discursive Spaces: Landscape/View", *Art Journal* vol. 42 no. 4 (Winter 1982): 314.
3. Mary Jane Appel, "Re-Imagining the World: The Historical Implications of the Stereograph" (master's thesis, University of New Mexico Albuquerque, 1995), 48.

[Fig. 2] The Crystal Palace in Sydenham, Charles-Marie Ferrier, photographer, 1854. Collection of the author. Tinting by the author.

right image demonstrates through tinting some of the receding planes of depth, keeping in mind that there is no predetermined sequence of how a viewer's gaze would move from plane to plane and subject to subject.

Perhaps the most famous quote in the history of stereoscopy – written by Oliver Wendell Holmes in 1859 – best captures the intimate viewer-object essence of the medium. Holmes wrote: "The first effect of looking at a good photograph through the stereoscope is a surprise such as no painting ever produced. The mind feels its way into the very depths of the picture. The scraggy branches of a tree in the foreground run out at us as if they would scratch our eyes out."[4] Holmes was describing the reciprocal reaching out by both viewer and subject, underscoring the centrality of depth in the experience. Jib Fowles identified another aspect of reciprocity 125 years after Holmes' observation, noting that stereoscopy "granted its viewers a form of omnipotence. Holding a stereograph card first by hand and then in the stereoscope, they could in a most elemental way possess it. It was totally under their control…The stereograph scene visually rewarded inquisitive viewers at the same time that it deferred to them."[5] Fowles' words reinforce that the stereoscopic viewing experience was a process that began with tactile involvement of the viewer, progressed to kinesthetic involvement and finally to visual involvement.

Oliver Wendel Holmes' words about a branch notwithstanding, architecture and urban environments offered stereoscopic photographers subjects that often maximized the illusion of depth to a degree that views of nature did not. There was a simple reason for this: the orthogonal massing of most buildings provided ready-made diagonal elements when photographed, akin to those found in perspectival renderings, and these diagonal elements led the viewer's gaze past the foreground and into the mid-ground and background of the image. In contrast, distant views of landscapes – or even cities – generally provided less intense illusions of depth unless some natural or human-made diagonal element in the foreground was located, such as road or a fence. In an essay about stereographs, Andrew L. Mendelson and Carolyn Kitch observed that "most of the photographs provided information at various levels, moving away from the viewer (foreground, midground and background). For both landscapes and cityscapes, there was use of foreground framing to lead the viewer into the frame as well as the use of directional vectors to build depth, such as roads…"[6]

4. Oliver Wendell Holmes, "The Stereoscope and the Stereography", *The Atlantic Monthly* vol. 3, no. 2 (1859): 148. In 1861, Holmes invented the so-called Holmes stereoscope, which made viewing easier and more economical for users than prior models of the 1840s and 1850s. Holmes, a great enthusiast of stereoscopy, deliberately did not patent his design, which became the most popular model in the history of stereoscopy.
5. Jib Fowles, "Stereography and the Standardization of Vision," *Journal of American Culture*, vol. 17, no. 2 (June 1994): 91.
6. Andrew L. Mendelson and Carolyn Kitch, "Creating a Photographic Record of World War I: 'Real History' and Recuperative Memory in Stereography", *Journalism History* Vol. 37, No. 3 (Fall 2011): 145.

[Fig. 3] Front covers of *Rome through the Stereoscope* and the book's separate map section. Underwood & Underwood, publishers, 1902. Collection of the author.
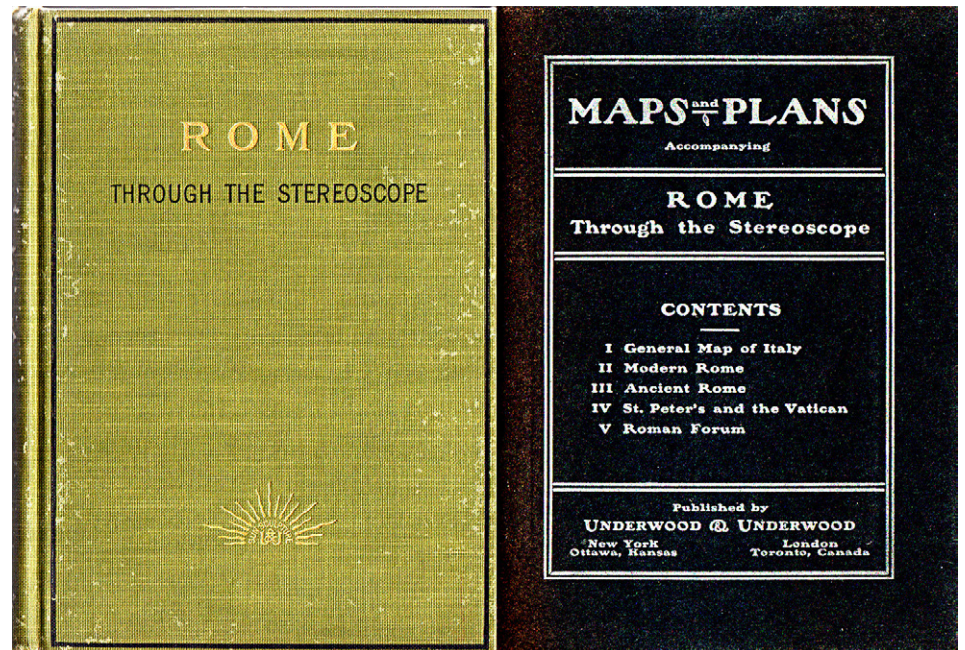
Architecture therefore provided stereoscopic photographers with subjects ideally suited to express the raison d'être of the medium. The definitive work about stereographs, William Darrah's 1977 study, made note of the prominent role that architectural subjects played in the medium:

A large proportion of the stereo views produced between 1854 and 1880 were essentially architectural. Specifically or incidentally, cathedrals, palaces, public buildings and monuments were depicted in great detail. The full range of religious, royal and administrative buildings is available in stereo. Every notable structure in the world in existence between 1850 and 1930 has been stereographed. This sweeping generalization is literally true….Construction methods, from simple carpentering to the modern skyscraper, are thoroughly documented. One can also find many views illustrating the use of native building materials as well of brick, cement and concrete.[7]

Lest a reader assume that only major public buildings were the subjects of stereoscopic photographers, Darrah notes that "towns prided themselves over their factories and company houses." He then continues: "As such they were enthusiastically stereographed….There are views of hundreds of iron works, furniture factories, shoe factories, nitroglycerine plants, carriage shops recording with great fidelity how products were manufactured."[8] By the end of the Nineteenth Century, major American firms such as Underwood & Underwood had stereoscopically documented every building and structure deemed to be culturally important to American and European audiences. So-called "armchair" travel became a reality, with customers able to purchase not only sets of images of individual cities and nations, but even a "global" edition of 1,500 images – largely of buildings – that took them around the globe. By 1902, Underwood & Underwood was publishing sixteen different sets that included detailed guidebooks, maps, and stereographs. The firm's set of Rome included 5 maps and 46 stereographs [Fig. 3].[9] The company, along with its rival Keystone, redefined visual knowledge, as Judith Babbitts notes:

In defining visual knowledge, the companies shifted the focus from the photograph – the thing seen – to the viewer and the act of seeing. Throughout history, they argued, viewers of art had been only passive observers. Stereographs were different, however, because they transformed viewers by vicariously transporting them to distant places, and just as real travelers moved through space – to look and be looked at – viewers' vantage points changed to those within the scene itself. By peering through a stereoscope, viewers would be introduced to a new field of vision and become a participant in a vast new world, a world no longer bound by actual face-to-face contact. Stereographs would reshape what it was to know and perceive reality.[10]

7. William C. Darrah, *The World of Stereographs* (Nashville: Land Yacht Press, 1977), 146.
8. Ibid., 172.
9. See Douglas Klahr, "Traveling via *Rome through the Stereoscope*: Reality, Memory and Virtual Travel", *Architectural Histories* Vol. 13, No. 4 (June 2016): 1–14, DOI: http://dx.doi.org/10.5334/ah.185 for a detailed analysis of the 1902 Underwood & Underwood Rome set.
10. Judith Babbitts, "Stereographs and the Construction of a Visual Culture in the United States" in *Memory Bytes: History, Technology and Digital Culture* (Durham: Duke University Press, 2004), 131.

[Fig. 4] Heinrich Hoffmann, *Munich, The Capital of the Movement*, Raumbild-Verlag Otto Schönstein, 1937. Collection of the author.

The buildings and city views that were deemed to be culturally significant by these firms constituted the most comprehensive, standardized, and widely disseminated body of photography at the time. Stereoscopic photography preceded the American-European postcard boom of the early 1900s, and the variety of media used to produce stereographs made them affordable for every income bracket. During stereoscopy's first decade, the 1850s, media ranged from paper stock to glass to Daguerreotypes. In the 1860s, double-layered tissue stereographs, largely a French specialty, made their appearance. Throughout the following decades, the wide variety of paper stock used to print stereographs remained the most popular medium, using materials from high-quality photographic paper to cheap stereoscopic postcards.

After six decades of popularity, stereoscopic photography began to decline in the 1910s for a variety of reasons that are outside the scope of this paper to address. However the medium – and the notion of a book that stereoscopically documented a city – reemerged in the 1930s when Adolf Hitler's personal photographer, Heinrich Hoffmann, produced a series of lavish books. Hoffmann purchased control of Germany's major stereoscopic photography publisher in 1937 and launched a series of books that celebrated cities that were geopolitically important to the regime: Munich, Nuremberg, Vienna, Prague, and others. Moreover, Hoffmann pioneered a new book form: instead of having a text and then a series of stereographs boxed independently, Hoffmann utilized small-scale stereographs that were inserted into 10 cm-thick covers of his linen-bound volumes, along with a folding stereoscope. Although the photographic quality could not equal that of what Underwood & Underwood had produced three decades earlier, Hoffmann's book about Munich still offers some lessons pertinent to this paper [Fig. 4].

In Figure 4, stereograph 40 of 100 included in the book is shown. Two of Nazi Germany's most politically significant structures are shown. In the foreground is the so-called "Eternal Watch", where the sarcophagi of eight Nazi "martyrs" were on display within a simplified, open-ceilinged "Greek" temple-like structure. In the background is the "Brown House", which was built to serve as the Nazi party's headquarters in Munich, the city in which the
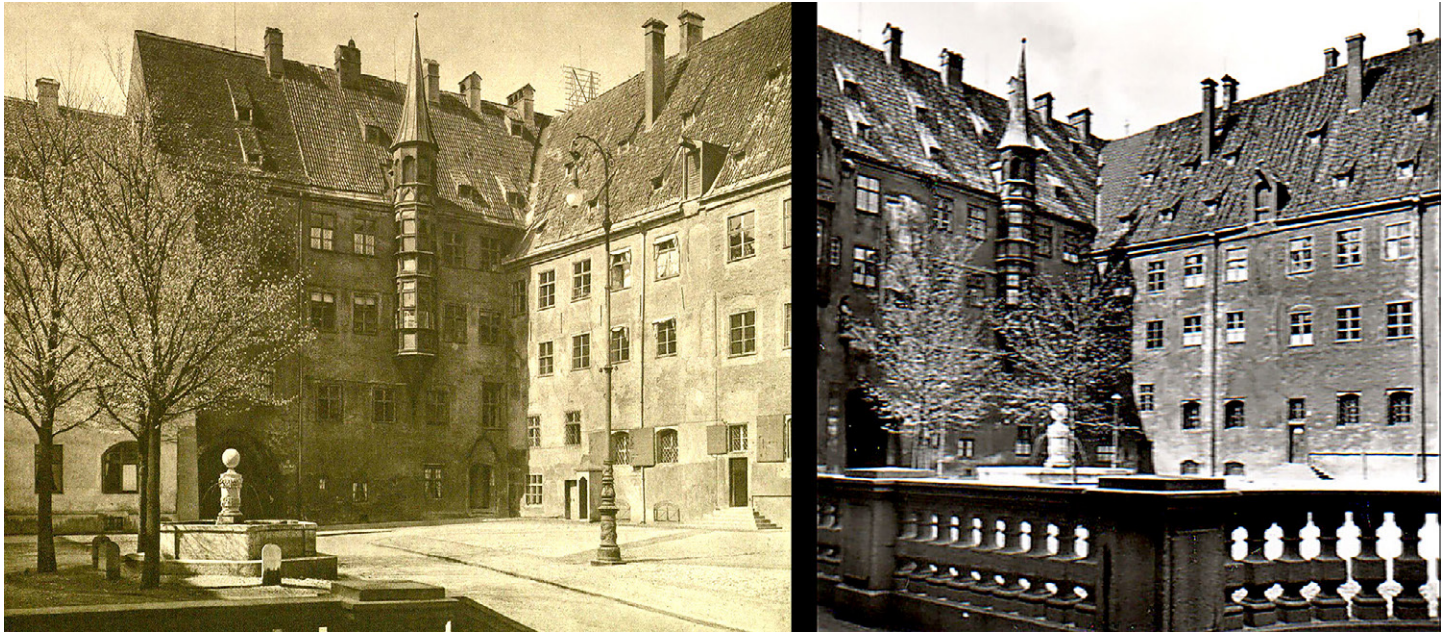
[Fig. 5] Two views of Munich's Old Court. Left: *Ansichten von München*, ca. 1900. Right: *München. Die Hauptstadt der Bewegung*, 1937. Both: collection of the author.

party itself was established. The composition of powerful diagonal elements complements the political potency of the architectural subjects. As whenever this author writes or lectures about stereoscopic photography, it is difficult to express to a reader or audience member how intense the sensation of depth can be in an image such as this one. The only way to experience the image is to use a stereoscope.

A comparison between a flat photo and a stereoscopic photo of the same building not only will elucidate the differences between the two media, but also will underscore why the most prominent photographer in the Third Reich elected to revive stereoscopy for his premier publications. Both scenes are of Munich's famous Old Courtyard, a symbol of political power, taken almost four decades apart [Fig. 5]. The flat photo is from a photographic view book circa 1900, whereas the stereoscopic view is from Heinrich Hoffmann's 1937 book. Hoffmann realized that even though the perpendicular alignment of two of the building's wings provided crucial diagonal elements in the background, if additional diagonal elements in the foreground came into the image, the impression of depth would be increased. He therefore stepped backward from where the earlier photographer had stood atop a raised terrace that was framed by a stone balustrade: whereas only a sliver of the balustrade is seen in the left image, the perpendicular meeting of two balustrade sections provided Hoffmann with diagonal elements in the foreground. Two complementary right angles result: the *external* right angle of the balustrade segments and the *internal* right angle of the palace wings. In

[Fig. 6] *Stereobook: U.S. Occupied Zone of Germany*, Raumbild-Werkstätte, Munich, 1946. Collection of the author.

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one final measure of expertise, Hoffmann recognized that the composition would gain in receding planes if the vertices of these two right angles were not aligned: the vertex of the external right angle therefore is slightly to the right of the internal right angle's vertex.

When viewed through a stereoscope, Heinrich Hoffmann's 1937 image offers an immersive visual experience. The image is crisp and sharp through all the receding planes, starting with water stains on the stone of the balustrade near its vertex. As one gazes past this element, the sense of depth and drop in elevation is palpable due to the snow on the ground, which also lightly covers the tree branches in mid-ground. Three jets of water shoot out from the fountain, their streams of water illuminated by sunlight, and this is framed by the dark background of the palace walls. Finally, a dusting of snow can be seen on the roof and turret. The viewer has been drawn into this scene yet, as explained earlier, has complete freedom to experience the range of subjects and their corresponding planes of depth in any order: what has been described is merely one possible sequence.

In November 1946, the stereoscopic publishing house that Heinrich Hoffmann had purchased in 1937 published *Stereobook: U.S. Occupied Zone of Germany* [Fig. 6]. Thirty-six prewar stereographs were used in this collection, ostensibly to show American armed service personnel what the U.S. zone looked like before the war. The interface between architecture and stereoscopic photography remained potent.

For those American armed services personnel who purchased the 1946 book, the contrast between what they viewed three-dimensionally via the folding stereoscope and the ruined architectural landscape that confronted them must have been memorable, to say the least. Of the thirty-six views, twenty-one were of buildings or cityscapes photographed close enough to have offered this vivid contrast between intact prewar and ruined postwar structures. The same firm that had manufactured Heinrich Hoffmann's lavish books for the Third Reich now produced the modest 1946 book under a new company name, in a new location, and under new ownership. What remained constant was the stereoscopic viewing experience that had emerged almost a century earlier. The 1946 viewer still had to make ocular adjustments to merge the dual images into one and still had to navigate between receding planes of depth that could not all remain in focus at the same time. The experience was still resolutely individualistic, precluding views that could be shared simultaneously and the discourse between viewers that might have occurred. It is time to now explore the connections between this distinctive visual experience and Maurice Merleau-Ponty's philosophy of phenomenology.

Merleau-Ponty's Phenomenology of Perception and Stereoscopy

The stereoscopic viewing experience delineated an almost literal manifestation of Maurice Merleau-Ponty's phenomenology of perception. Once what Merleau-Ponty meant by "perception" is examined, this article will study four stereographs to demonstrate not only how they manifest the phenomenology of perception, but also why stereoscopic views of architecture produced particularly vivid manifestations. From the outset, it should be acknowledged

that some scholars might view such a *literal* manifestation with suspicion as being simplistic in comparison to a more *abstract* one. However, I push back against this sort of reaction noting that such an atavistic, Pavlovian response is itself simplistic: *literality does not necessarily disqualify an argument*. In a sense, this corresponds to a central point made by Douglas Low in his 2016 study *In Defense of Phenomenology: Merleau-Ponty's Philosophy*. Low takes aim at Merleau-Ponty's critics by championing clarity over obtuseness and obfuscation, and his words are worth citing at length:

> As embodied, conscious subjects engaged with the typical structures and patterns of the world, and not with essences or 'essential structures', which are projections of abstract thought, if we wish to successfully adapt to the world together, we must continually adjust our behavior and interpretive systems to allow us to do so, and to do with the greatest clarity, precision, and ease. It is the theories that do this better than others that we should accept. Theories that do not do this very well should be rejected. Throughout this text I will attempt to situate Merleau-Ponty's theory against that of other theories in order to show that his theory has greater explanatory value in the sense just mentioned.[11]

In a study about Merleau-Ponty's philosophy, Eric Matthews observed that human experience is always that which is experienced by *particular* human beings, and that each of us engages "with the world in the course of *living in* it, rather than *theorizing about* it. We must get back to that lived experience… Phenomenology, from this point of view, consists in getting back to bedrock, to direct human experience…" Several pages later, Matthews succinctly summarized the matter, noting that "all experience is *someone's* experience, that 'how things appear' means 'how they appear to *a particular subject*'. A description of phenomena, that is, of how things appear, must thus necessarily be a description of *subjective experience*."[12] This is the phenomenology of perception according to Merleau-Ponty, and at first, it sounds as though it is a totally subjective and therefore inner experience. However, Matthews and other scholars of Merleau-Ponty point out that it is a *combination* of the subjective and objective. It is subjective with regard being someone's particular experience but objective since that someone is perceiving a world that exists independent and external of that person.

This emphasis upon an individual's particular experience is manifested in a literal manner when viewing a stereograph through a stereoscope, for as previously explained, this is a resolutely *individualistic* experience. To reiterate, because a viewer must make ocular and kinesthetic adjustments in order to fuse the two images into one, this process of synthesis occurs anew each time and cannot be shared with anyone else. Therefore, simultaneous discourse about an image is precluded: in contrast to flat photography and cinema, a viewer cannot point to an object in the image and exclaim to someone else "Look at that!" The private, individualistic quintessence of the experience is compounded by the complex narratives that the viewer constructs. The temporal aspect of image fusing and narratives likewise play a role, which I shall discuss later. However at this point, we must return to Merleau-Ponty.

The perceiver or subject therefore is of paramount importance, which John Bannan reiterated in his study of Merleau-Ponty: "In a world of complete objects – the objectivist world – there would be nothing to solicit consciousness in one direction rather than another. But if we refer to our *experience* of attention, we find that it establishes figures on what had previously been background."[13] In other words, it is our consciousness of an object that

11. Douglas Low, *In Defense of Phenomenology: Merleau-Ponty's Philosophy* (London: Transaction Publishers, 2016), viii.

12. Eric Matthews, *Merleau-Ponty: A Guide for the Perplexed* (London: Continuum, 2006), 16, 20-21.

13. John Bannan, *The Philosophy of Merleau-Ponty* (New York: Harcourt, Brace & World, 1967), 60.

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alerts us to its presence. Eric Matthews offers another way of expressing what Bannan wrote, terming it *the intentionality of consciousness*, and it is this intentionality that undergirds Merleau-Ponty's philosophy. Matthews notes that consciousness *must* be intentional, observing that "consciousness cannot be considered separately from its intentional objects – that we cannot, for instance, think without thinking *about* something, something which is not part of our consciousness."[14] His statement is elegant in its forthright and down-to-earth language, describing with finesse the relationship between someone's consciousness and objects.

Intentionality is the sine qua non of the stereoscopic viewing experience, starting with the selection of view, handling of the stereoscope, and focusing one's eyes until the dual images merge into a single one. It is a radically different visual experience than most others, requiring *a continually conscious effort* on the part of a viewer. Persons who have used stereoscopes extensively know that sometimes, when fatigue sets in, no matter how hard a viewer attempts to merge the images, they remain resolutely separate. The intentional objects to which Eric Matthews refers are exponentially increased in a stereoscopic experience on account of the kinesthetic and tactile factors. For instance, if one stands outside and looks at a garden, the intentional objects aside from the view itself might be the feel of sunlight on one's skin, the softness of the grass beneath one's feet, the sound of a bird chirping, and the scent of jasmine wafting on a soft breeze. Little effort is needed to discern all these sensations. If one then picks up a stereoscope to view a photo of the same garden through the device, the kinesthetic, tactile, and ocular adjustments needed to successfully view a stereograph come into play as well. This situation admittedly may seem somewhat nonsensical: why would someone elect to do this? Nevertheless, the point is made.

Returning to Eric Matthew's statement regarding our inability to think without thinking *about* something, this is a nuanced argument regarding Merleau-Ponty's philosophy. Matthews provides further clarity: while empiricists in their objectivist stance are concerned with the theory of knowledge and our cognitive relation to things, these are "dependent upon a more primitive kind of involvement with them…. Living in the world comes first, knowing about it comes later…. Perception is not *knowledge* about the world, but the mode of access to the world on which knowledge must be based."[15] Therefore, *what* we perceive is determined by *how* we perceive, and since we perceive through our bodily senses, to obfuscate this literality by questing for something more abstract bespeaks of intellectual pretentiousness. It is not surprising that critics of Merleau-Ponty attempted to impugn that his notion of phenomenology prevents one from perceiving something in its absoluteness. Douglas Low offered a deft rebuttal to this:

The avenues of human bodily perception do not screen us from the object. They are, rather, the means by which nature reveals itself, and we would not have a better idea of the world without the human body, for without it nature has no other way to manifest itself to us. We perceive the world with the greatest clarity and adaptability that we can achieve, an achievement that is accomplished by the aware, lived-through body.[16]

Having delineated the outline of Merleau-Ponty's phenomenology of perception, it is necessary to discuss three aspects and align them to the stereoscopic viewing experience: Merleau-Ponty's model of corporeal or bodily

14. Matthews, *Merleau-Ponty*, 11.
15. Ibid., 22, 25.
16. Low, *In Defense of Phenomenology*, 7.

synthesis, how this interfaces with the temporal dimension of how we perceive, and the resultant *Fundierung* relationship. Corporeal synthesis examines how, through our bodily senses, information is received and then synthesized to make sense to us. John Bannan observed that Merleau-Ponty spoke "of the movement from double vision to focused vision in the fixing of an object by sight…the double vision that precedes focusing is sensed as disequilibrium and that this disequilibrium is in, turn anticipation of the act that will restore equilibrium."[17] This shifting from disequilibrium to equilibrium regarding binocular vision seems so obvious, but in our daily lives, the shift occurs *so rapidly and frequently* that we often are unaware of its occurrence.

However, when one views a stereograph through a stereoscope, this temporal aspect of disequilibrium-to-equilibrium is *elongated and amplified*: the process requires manual adjustment of the stereoscope, and until the dual images fuse into one, our sense of disequilibrium and discomfort is heightened. Moreover, any sense of equilibrium is fleeting, for unlike getting into focus an object viewed in flat photography – or in reality, for that matter – the receding planes of depth within a stereograph prevent one from seeing them all in focus simultaneously. The stereoscopic viewing experience therefore can be described as a two-phase process. The first phase is one of disequilibrium-to-equilibrium as the dual images merge into one. The second phase is a never-ending cycle of disequilibrium-to-equilibrium-to-disequilibrium in which total resolution is impossible as one shifts one's focus from plane to plane.

The narrative of a stereoscopic viewing experience therefore changes with each viewing session: a viewer not only shifts one's gaze from object to object, but also from plane to plane. In certain tissue paper stereographs, as I shall discuss, an additional narrative dimension is present: shifting the scene between black/white and color by simply turning one's head to change the angle of light striking the stereograph. What emerges from all of these factors is what might be termed *the dominating presence of the present*: unlike viewing flat photography, viewing a stereograph requires constant attention, focus, and adjustment by the viewer, so the present moment is heightened. One can relax, gaze at a flat photograph, and let one's mind wander, as one can at the cinema, but the ocular demands of viewing a stereoscope preclude this, as do the tactile and kinesthetic components of the experience. One always feels the stereoscope on one's face and hands, and one often is moving a knob or one's head to alter the view. There is an intense awareness of the present, and this aligns with an observation that Douglas Low made regarding Merleau-Ponty's philosophy of the phenomenology of perception.

The present is thus here privileged for two reasons: (1) because our experience is centered in it, because it is closest to us in our experience, even as it fans out toward the past and the future, and even though it thus overlaps with the past and the future, and (2) because being and consciousness coincide with it.[18]

The *Fundierung* Relationship and Stereoscopy

This brings us to the issue of a *Fundierung* relationship. In an essay, Gian-Carlo Rota offered Ludwig Wittgenstein's example of reading as a process and a function, differentiating the terms *text* from *content*. Rota writes:

17. Bannan, *The Philosophy of Merleau-Ponty*, 92.
18. Low, *In Defense of Phenomenology*, 17.

"I have learned the *content* of the *text* by reading the text….My learning the content *depends* on the text and on the process of reading, but 'learning the content' is not a *process*, taking place at a specific where and when….The distinctness of text and content is undeniable."[19] The text – the object that one reads – is termed a *facticity*, whereas learning the content is a *function*. It is the relationship between a facticity and a function that comprises a *Fundierung* relationship. Rota elaborates:

But in fact, the content, not the text, is responsible for all my further *dealings with the world*, for determining my course of action. True, my learning the content of the text *depends* upon the process of reading the text. Nonetheless, my further dealings with the world will be determined by the content, and not by the text…. We have come face-to-face with a fundamental problem: the problem of understanding what is to be meant by *dependency* of the content of what I read upon the text that I read. This kind of dependency is called *Fundierung*.[20]

Rota then proceeds to deftly defuse any argument that since the content 'really' depends upon the physical existence of the text, all one's further dealings with the world 'really' depend upon the text itself. Most relevant to my argument is the example of a *Fundierung* relationship that he offers between seeing and viewing, using the instance of a triangle drawn on a blackboard. He writes:

The drawing *founds* the view of the triangle. The misunderstanding arises out of a misuse of the word 'see': normally I view the triangle *through* a drawing 'of it'. I cannot 'see' anything unless I view. I view the triangle through its drawings, because *all* viewing is *through*, because all viewing is founded upon (and thus distinct from and not reducible to) facticities, whether I view a content through a text, a pen through its material components, or a teacher through a person.[21]

Rota is using the verb "found" not in the usual sense of locating something, but rather in the sense of *establishing the foundation for something*. In a stereoscopic viewing experience, the physical stereograph is the facticity, whereas the content that a viewer gleans from it is the function. The question is what role the stereoscope plays. On the one hand, it clearly seems to be a facticity, akin to what Rota states about the facticities of playing a game of bridge, namely, that the material compositions of the cards is irrelevant.[22] He also states in the same paragraph that such facticities are "unobtrusive", yet a stereoscope is never completely unobtrusive to its user. Viewing an image through a stereoscope has tactile and kinesthetic components *that never recede from the viewer's awareness*. Furthermore, unlike reading a text, a viewer cannot merge stereoscopy's dual images into one without the use of a stereoscope. So the device also seems to be an inseparable part of learning the content, which in this case would be gaining that stereoscopic experience of planes of receding depth. So is the stereoscope both facticity and function?

Although Rota did not discuss stereoscopy, in the conclusion of his essay, he ruminates upon the *layering* of *Fundierung* relationships: "The facticity in one *Fundierung*-relation may be the function of a 'lower' *Fundierung*-relation."[23] The stereoscope itself there might be the facticity of being able to initially view the dual images as dual images, but then might segue to become the function of learning the content of the images. The stereoscopic viewing experience therefore can be described as a layering of *Fundierung*

19. Gian-Carlo Rota, "Fundierung as a Logical Concept", *The Monist*, vol. 72, no. 1 (January 1989):71.
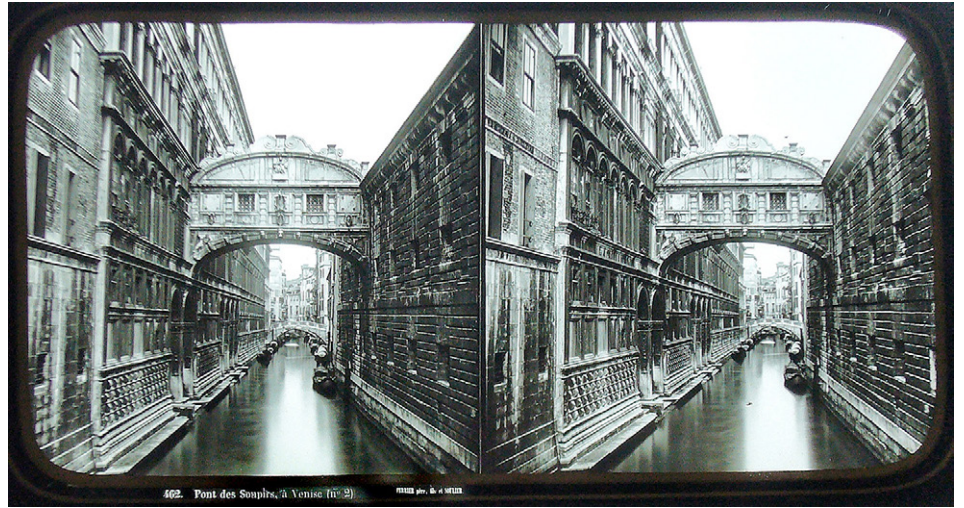20. Ibid.: 72.
21. Ibid.: 74-75.
22. Ibid.: 77.
23. Ibid.: 76.

[Fig. 7] Bridge of Sighs, Venice, Ferrier et Soulier, ca. 1860. Collection of the author.

relationships, with the stereoscope occupying dual identities of facticity and function. This duality will be underscored when two examples of tissue paper stereographs are discussed.

As Douglas Low writes, "Merleau-Ponty speaks of our perceptual relation to the world as a *Fundierung* relationship, a relationship in which terms reciprocally influence one another."[24] The duality of the stereoscope within the viewing experience is an example of this. It bears repeating that the tactile and kinesthetic components of the experience cannot be separated from the ocular ones, and this introduces further factors of reciprocity and dependency. One grasps the wooden handle with one hand and then feels the hood of the stereoscope press on one's face as it restricts one's peripheral vision. The other hand pinches the small metal device that releases the image holder so that one can slide it along the wooden track until it is positioned at the optimum distance for one's viewing. These tactile and kinesthetic components would seem to be both facticities and functions: they enable one to establish one's view, in the same way that the drawing on the blackboard enabled one to view the triangle. Yet they also are necessary to reveal the content, which returns us to the raison d'être of the experience: a vivid, haptic sensation of intense depth.

Although she was not writing about stereoscopy, the centrality of depth was noted by Daniela Bertol in an essay about visual perception:

Of the three physical dimensions of space – width, height and depth – depth is the most 'subjective,' because it is related more to the way our visual perception works than to the physical reality of the objects of our perception. The French philosopher Maurice Merleau-Ponty defines depth as 'the most existential of all dimensions' since 'it is not impressed upon the object itself, it quite clearly belongs to the perspective and not to things'.[25]

It would seem, therefore, that the stereoscopic viewing experience is a forthright manifestation of Merleau-Ponty's phenomenology of perception when the centrality of depth and its *Fundierung* relationships are taken into account. As stated at the start of this essay, some will regard the literality of this example as simplistic, but underlying that reaction is perhaps also a discomfort with Merleau-Ponty's philosophy, especially the components of the *Fundierung* relationship. Gian-Carlo Rota identified an anxiety among critics of Merleau-Ponty: "Western philosophy, haunted as it is by a *reductionist anxiety*, has refused to face up to the consequences of taking *Fundierung*

24. Low, *In Defense of Phenomenology*, 8.
25. Daniela Bertol, " 'Architecture of Images': An Investigation of Architectural Representations and the Visual Perception of Three-Dimensional Space", *Leonardo* vol. 29, no. 2 (1996): 88.

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Arquitectura, mirada y cultura visual
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DOUGLAS M. KLAHR

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de Merleau-Ponty

seriously. The history of philosophy is riddled with attempts, some of the extremely subtle, to reduce *Fundierung*-relations to 'something else' that will satisfy our demands for a certification of *existence.*"[26]

Rota continued his analysis of Merleau-Ponty's critics by noting that within phenomenology, "functions neither 'exist' nor 'do not exist', but are *founded*," concluding that this is the only kind of "existence" that makes any sense. In a sense, we thus are in a realm of ambiguity with regard to *Fundierung* relationships, and this relates to the ambiguity of the stereoscopic viewing experience: the former defined by functions that are founded by facticities, and the latter defined by layered *Fundierung* relationships. Once again, the notion of intentionality comes to the fore: functions are founded or established. Since all this terminology might strike the reader as highly theoretical, it is worthwhile to recall that ultimately we are attempting to describe something that is extremely direct and real: viewing a stereograph through a stereoscope.

Relaying the experience of this act remains difficult precisely because it is an individualistic viewing experience. One might discuss the discuss the act of viewing a range of settings from nineteenth-century panoramas to flat photography to cinema, but regardless of the medium, one always had the opportunity to reinforce the discussion via the simultaneous group viewing experience. Stereoscopy precludes this, isolating and forcing each individual to expend effort: no amount of discussion or encouragement can lead a viewer to a successful stereoscopic viewing experience, namely, the intense impression of depth. Nevertheless, in the next section of this essay, attempts will be made to impart a notion of what viewing four stereographs is like.

Four Exemplary Stereographs: Venice, Berlin and Paris

The first stereograph is Ferrier et Soulier's 1860 image of Venice's Bridge of Sighs over the Rio del Palazzo, a prime example by the medium's most famous firm that produced high-quality glass stereographs [Fig. 7]. Due to the narrowness of the site, if offered stereoscopic photographers an ideal location that emphasized depth. The medium of glass produced stereographs of unequalled clarity, and when viewed in a stereoscope, the sensation of depth in this stereograph is intense, leading the eye further and further into the distance until the canal makes a slight left turn and disappears from view. The wealth of architectural details along the two sides offers an exceptional opportunity to visualize each receding plane of depth.

Ferrier et Soulier's stereograph also provides us with an excellent example of the dual narratives that I briefly mentioned at the beginning of this essay: moving not only from plane to plane, but also from object to object. Within the first few planes closest to the viewer, the array of narrative directions is clear: each thin plane not only has specific architectural details upon which one can focus in any manner, but one also can shift from side to side across the canal. If we imagine placing a dot upon each successive point of focus and then connecting those dots, a web of complex narratives would emerge. Likewise, if one used Photoshop to tint successive planes of depth as was done in the view of the Crystal Palace, the plethora of planes would become apparent. Interfacing with these planes is a wealth of different sur-

faces and textures in the Venetian view: the grime-covered stone along the sides versus the gleaming stone along the bridge, the stillness of the water matched by the blankness of the sky.

The emptiness of the canal, devoid of vehicles and persons, permits the viewer to concentrate upon the succession of architectural planes, and this brings to mind a quote about a different iconic urban scene: New York's famous avenue of luxury apartment buildings and hotels, Park Avenue. In 1963, the American architectural historian Vincent Scully published an essay entitled "The Death of the Street", focusing upon the pre-World War II masonry-clad buildings along the avenue that were being replaced in the 1950s by glass-sheathed Modernist buildings. His observations provide an interesting context in which to view Ferrier et Soulier's view of Venice, providing an oblique point of entrée into the stereograph's materiality of glass. Scully noted that the long axis of Park Avenue "always had a kind of philosophy in accord with the scale of the city and its automobile traffic." He continued:

Like a river, it can move with that philosophy because it was contained by banks or, like a rapids, by walls. These were formed by the buildings which defined both sides. Perhaps no one of them was overly distinguished itself, but they all had two things in common: they were built side-by-side in one plane, most of them contiguous, and they had solid, opaque, facades, pierced by windows but sustaining the barrier plane… Therefore they were true walls for the street; they defined and directed its flow. At the same time they were all fairly weighty and static, with a certain plastic depth and variety of scale, creating appropriate points of subsidiary focus on the river's banks.[27]

Scully's metaphor of the street as a river and its buildings as riverbanks acknowledged the containing quality of masonry-clad buildings that glass-sheathed buildings lacked on account of glass's two salient qualities: reflectivity and transparency. By 1963, the reflectivity and transparency of Modernist glass buildings along Park Avenue offered dematerialized facades that no longer could sustain "the barrier plane". Likewise, the lack of plastic depth in glass facades stands in stark contrast to the wealth of textural depth and detail that the avenue's older buildings of brick and stone facades offered. If one now pivots back toward a real body of water, the Rio del Palazzo, one can see how apt Scully's words were, prompting what might be termed a negative appreciation for what not in the view: glass-sheathed structures. In other words, appreciation deepens for the stone buildings' "points of subsidiary focus on the river's banks", leading one back to the stereoscopic viewing experience and the freedom of narrative that it offers.

The absence of glass in the Venice stereograph however does not mean the absence of glass in the viewing experience, for in addition to the dual glass lenses of the stereoscope, there is the materiality of the glass stereograph. Not only is the viewer peering through two layers of glass, but light also passes through the stereograph toward the viewer, in contrast to the paper stereoview that will next be examined. One might argue that this view of Venice of an iconic urban vista is atypical of the stereoscopic viewing experience, selected for the features noted above. To counter this, let us go to the diametric opposite: a view by an unknown photographer of a prosaic and decidedly non-iconic street scene in Berlin produced on stereoscopy's most humble medium, cardboard.
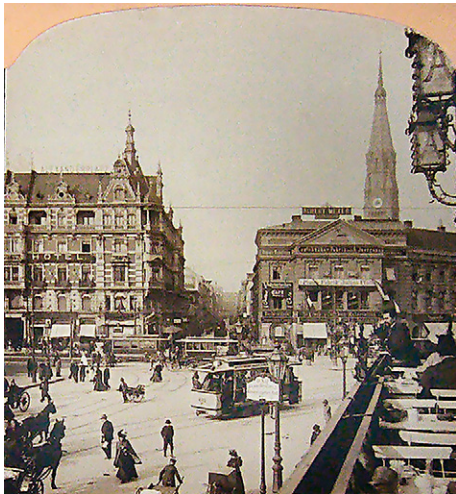
Among Berlin's numerous squares, Alexanderplatz ca. 1900 was not known for any structures of architectural, political, or cultural high status. Rather, it

27. Vincent Scully, "The Death of the Street", *Perspecta*, Vol. 8 (1963): 91.

[Fig. 8] Alexanderplatz, Berlin, ca. 1900.
Photographer unknown. Collection of the
author.

was one of the city's major transit hubs, with entrances to rail, subway, tram and bus systems. The most prominent buildings that directly flanked this space were the Alexanderplatz station and the Hotel Grand Alexanderplatz: the latter is visible in the left half of Figure 8. In order to save space, I show only one of the dual images of this stereograph, and this will apply to the final two stereographs in this essay. The photographer was standing on the second-level open terrace of the Alexanderplatz branch of Aschinger's, a chain of popularly priced restaurants that catered to the middle class. On the far right is a seated couple, and to the left of them, a man leans over the railing to observe the street scene below.

Talented stereoscopic photographers of the nineteenth century often positioned themselves so that a diagonal element would lead a viewer's eyes from the foreground to the mid-ground of the scene. In this view, the railing of the restaurant's terrace serves this function, as does the tram passing behind the lamppost. When viewed in a stereoscopic, a plethora of narratives equal to that found in the Venice view occurs. There are diagonal elements in the foreground and mid-ground, rich architectural textures in the background, a view down a street toward the far distance in the center of the image, and the diagonal entrance of a street into Alexanderplatz on the far right. Unlike the view in Venice, there are people and vehicles present, implying a sense of movement and urban life that differs radically from the mirror-like stillness of the Venice canal. There is nothing iconic *architecturally* in the Berlin scene, yet for Berliners of the period, the Aschinger "A" that emblazons two lamps in the upper right corner signaled something that was *culturally* iconic. The spatial narratives are rich in both stereographs, as are the temporal ones regarding shifting one's focus from plane to plane and from object to object.

It is difficult to detect in the photograph the wealth of textures and materials that comes to life when a stereoscope is used. For example, in the bottom right corner, there is a basket of rolls on the second table from the bottom that is partial shadow. The same angle of shadow can be seen the back of the seat closest to the viewer, producing a diagonal element whose ephemeral existence – it is a shadow, after all – is due to the thick railing upon which the gentleman in the rear is leaning. There is an intense feeling of having truly captured a moment when the scene is viewed through a stereoscope: the shadow feels different than when one views one of the dual
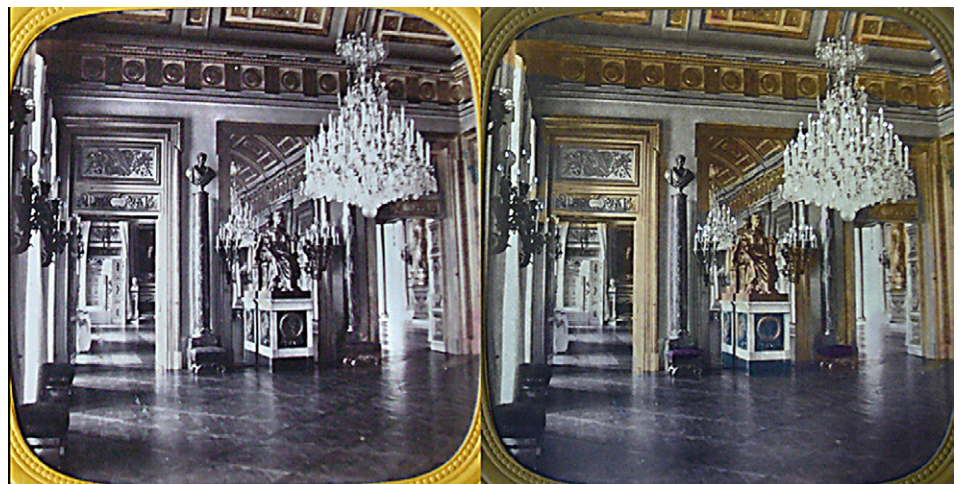
[Fig. 9] Statue et Salon de la Paix, Tuileries
Palais, Paris, G.A.F, ca. 1860. Collection of
the author.

images as though it were a flat photo. Can a shadow or its counterpart, light, impart a sensation of depth that is more intense than merely the intellectual acknowledgement that a shadow exists in a plane? When viewed through a stereoscope, the answer is "yes". This most prosaic of Berlin street scenes therefore embodies the richness of the stereoscopic viewing experience, a worthy foil to Ferrier et Soulier's view of Venice that was far more noble in terms of status and material. Yet the Berlin and Venice scenes share a common factor of limitation: a viewer can neither change the scenes from black-and-white to color nor make illumination appear and disappear. The final two stereographs in this essay offer these possibilities, and they present the ne plus ultra of the stereoscopic viewing experience.

Figure 9, a tissue stereograph by the French firm G.A.F. of the Salon et Statue de la Paix in the Tuileries from the 1860s introduces us to two additional layers of narratives: the ability to shift between black-and-white – in reality, grayscale – and color, and the ability to simulate the process of illuminating a space or building. These were only possible in some tissue stereographs, largely a French specialty of the 1860s. After printing the black-and-white dual photographs on the front surface of the first layer of tissue paper, colors were then hand-applied to *one* the dual images on the rear side of this layer. The skill of the artisans varied quite widely with regard to saturation and precise placement of the colors. Less skilled workers often used over-saturated colors and did not apply them with preciseness, giving the scene an unnatural appearance. The most skilled technicians applied colors that when viewed either in daylight or gaslight imparted a sense of naturalness to the scene, devoid of over-saturation.

The second layer of tissue paper was left blank if no simulacrum of illumination was needed. If illumination was desired, this layer was pricked by hand to mimic either points of light or, in the case of tiny slits, to impart subtle glints on either glass objects or gold leafed surfaces. Thus, each layer of tissue paper played role in producing the range of effects possible in this type of stereograph. Production of a top-quality example therefore required a sharply focused, correctly exposed photograph and appropriate saturation and placement of color on the first layer, with precise placement of pin pricks and/or slits on the second.

[Fig. 10] Enlarged detail of Fig. 9.

Figure 9 is a superb example of the craft. Both processes – the degree of color and illumination – are entirely in control of the viewer and merely depend upon the angle of light with regard to the stereoscope. One can begin at any stage in these two additional narratives and vary the speed of change and reverse directions as one desired, resulting in an *exceptionally fluid temporality.* One accomplishes this by merely turning one's head while positioned in the hood of the stereoscope. By contrast, cinema, a medium long lauded by scholars, lacks such fluidity: its sequence of images is predetermined, therefore fixing its narrative, and its direction and speed of projection can only be clumsily adjusted not by a viewer, but rather by a distant projectionist. Yet paradoxically, using a stereoscope seems to be considered less "natural" by many scholars than sitting in a cinema to view a film, even though contemporary scholars such as Friedrich Kittler take note of the cumbersome requirements of cinema.

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de Merleau-Ponty

In his study *Optical Media*, Kittler observed that "film distinguishes itself from photography in that the sender's finished product – the film in reels – is entirely useless if a projector with precisely the same specifications is not available on the receiver side. The purchaser of a photograph does not himself need a camera, but the purchaser of a film needs a projection room and a projection device".[28] By this time in his study, Kittler had examined the *camera obscura*, the *laterna magica*, and flat photography, and was beginning his analysis of film. He then segued to television and computers, but nowhere did he examine stereoscopy: a curious omission that underscores how resistant scholars continue be with regard to studying or even acknowledging this medium with its exceptionally fluid temporality.

Figure 9 illustrates the end-points of the grayscale/unilluminated, color/illuminated permutations of this stereograph. The left side features the left image in its grayscale/unilluminated state, whereas the right side features the left image in its color/illuminated state. These two instances have been placed side-by-side using Photoshop: in real life, of course, the stereograph's dual images would be synchronized in terms of how they shift along these two continua. It is worth noting two instances of detailed coloration in Figure 9 before looking at Figure 10 visible through the dual doorways that flank the central mirror in the scene. Through the left doorway, the colorist has taken care to denote the face within the portrait in the next room, and visible through the right doorway is the colorist's tinting of a statue that also is in the next room. This adjoining space was the Salle des Maréchaux, and a fragment of the painting glimpsed through the left doorway was "Napoleon in his Study at the Tuileries", by Jacques Louis David.[29]

One of the challenges of writing about tissue stereographs is that it is difficult to photograph them without a slight degree of blurriness resulting from the use of a light box and overhead light to obtain the image. Figure 10, a portion of Figure 9 enlarged, demonstrates this slight degree of blurriness yet also the superb coloring and pinpricking of the tissue paper. Not only is the chandelier carefully pinpricked, but so is its reflection to the left of it in the mirror, which merges with the lights of the left candelabrum. Hues of gold, silver and copper define the moldings, ceiling, walls and statue. The mirror that dominates the bottom left of the image reflects a part of the ceiling's curved coffers not visible in the foreground of the entire scene, letting the viewer see what is out of view behind. This is not unusual except that this is not a flat but rather a stereoscopic photograph, meaning that an intense impression of depth *as reflected in the mirror* is experienced by the viewer.

The implications of this are profound, for this sensation of depth is two dimensions removed from the material reality of the viewer: a layer of glass (the mirror) reflects a scene through another layer of glass (the stereoscope's lenses). What results are multiple layers of *Fundierung* relationships. The stereoscope acts as a facticity, enabling the viewer to merge dual images, and also as a function, enabling the viewer to learn the content of the images. Yet once the viewer is "inside" that image, the mirror acts as facticity, for without it the viewer would not see what was behind the photographer, namely, the curved coffers of the ceiling. The mirror, however, also acts as a function, enabling the viewer to comprehend the three-dimensionality of the coffers through the sensation of depth. In essence, one layer of a *Fund-*

28. Friedrich Kittler, *Optical Media*, Anthony Enns, translator (Cambridge: Polity Press, 2010), 146.

29. David created two originals of this painting in 1812. The first original was for a wealthy Scot, Alexander, Marquis of Douglas, while the second original remained in the artist's atelier until 1860, when it was purchased by the Ministère de la Maison de l'Empereur for the Salle des Maréchaux. http://www.napoleon. org/en/essential_napoleon/key_painting/files/ tuil_stud_david.asp
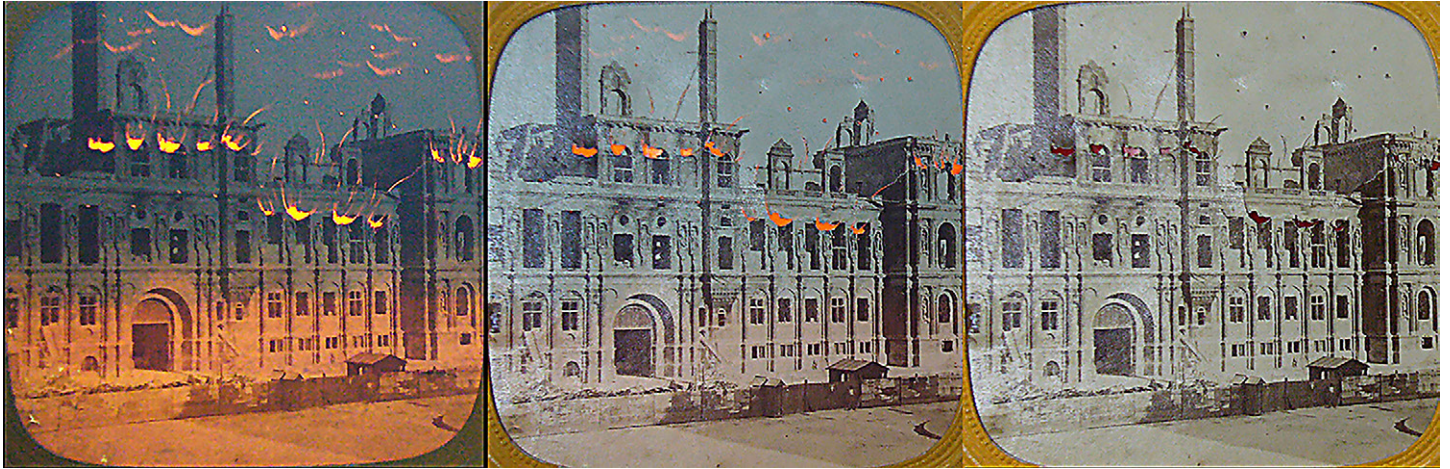
[Fig. 11] The Burning of the Hôtel de Ville, Paris, photographer unknown, ca. 1871. Collection of the author.

ierung relationship is contained within another in what might be described as a vertical manner.

Yet there is also what might be termed a horizontal layer of another *Fundierung* relationship: the movement of the viewer that changes the scene along a continuum of grayscale to color and the associated levels of illumination, which are absent in grayscale and emerge as color saturation increases. If one holds a color tissue stereograph in one's hand *without a stereoscope* and rotates one's body, as one's hand moves in this horizontal arc, the scene shifts along this continuum. Akin to the stereoscope enabling the viewer to merge dual images, the viewer's movement enables the grayscale-color continuum to be experienced. The movement also acts as a function, enabling the viewer to learn the content of the scene – the ceiling is gilded, for instance – but only partially: the three-dimensionality of those coffers will not be experienced until the scene is viewed through a stereoscope. Therefore there seems to exist a collection of partial functions that are dependent upon facticities: the partial function of comprehending the three-dimensionality of the colored, gilded coffers is dependent upon facticity of the stereoscope.

Different permutations and diagrams of this web of facticities and functions can be constructed, but the major point is how well the stereoscopic experience corresponds to the quintessence of *Fundierung* relationships, which in turn reside within Maurice Merleau-Ponty's phenomenology of perception. In colored and perforated tissue stereographs, four modes of narrative intersect: plane-to-plane, object-to-object, grayscale-to-color, and unilluminated-to-illuminated. The skill and finesse that produced the Tuileries view undoubtedly adds to the intensity of the experience, but so do the cruder capabilities that produced the final stereograph in this essay: a dramatic scene of the burning of Paris' Hôtel de Ville on 24 May 1871 [Fig. 11].

In Figure 11, I have arranged three gradations of the color/grayscale and illuminated/unilluminated continua in a left-to-right sequence to suggest one potential narrative. One begins when the mob sets the building afire in the night. As the day dawns, the flames decrease in intensity and the ruinous state of the building begins to become evident. In the third panel, the fire is over and the ruins are clearly visible. Although the "flames" were somewhat crudely punched out and colored segments of tissue paper, the scene is

powerful: notice how suggestions of a sky also in flames are visible in the far left panel, adding to the drama of the scene.

The burning and destruction of Paris's town hall was a deeply traumatic event for those who were not Communards, for it struck at the heart – literally and metaphorically – of Paris's civic and municipal identity. Reliving this event through a medium that offered vivid sensations of depth must have been an intense experience for some, especially since it offered no "escape": although the temporal sequence of the event could be reversed, going from the next morning back to the night of the fire, the reality of the ruined structure could not be undone. Two notions emerge. The first is futility, in the sense that the viewer is "trapped" in this cycle of destruction: although the dual continua of grayscale/color and illuminated/unilluminated exist, there is no way to reverse or restore the scene to a pre-ruinous state. One's helplessness to change the situation implies that abrogation of responsibility carries no logical or moral weight. Yet responsibility, the second notion to emerge in this stereograph, does exist, for every time the viewer moves to change the view, the act of destruction – the fire – reappears. The viewer therefore recreates and relives the act of destruction, and this introduces a context of sadism or masochism, depending upon whether was a Communard supporter or opponent, respectively.

Assigning notions of futility and responsibility to a stereograph, as well as the contexts of sadism and masochism, might appear to be overwrought and grandiose. Yet imagine if a contemporary tissue stereograph of the destruction of New York's World Trade Center on 11 September 2001 had been produced, including the image of a person jumping from that complex to one's death. It is quite possible that these two notions and two contexts would be as sharply felt by contemporary viewers as those experienced by Parisian viewers of the 1870s. Once again, it bears repeating that there is no satisfactory written explanation of the stereoscopic viewing experience and the intense sensation of depth and "being there" that it provides.

There is one further aspect of colored tissue stereographs: the element of chance. When a viewer places one of these stereographs into a stereoscope, the angle of light will determine where along the continuum of grayscale/color the image first appears. One therefore never knows at what point one is entering this continuum. The issue is not whether the stereograph is colored, but rather whether it is a colored tissue stereograph. Colored glass, paper and Daguerreotype stereographs were produced, but only the medium of tissue paper permitted the grayscale/color continuum to exist. Furthermore, if a tissue stereograph has pinpricks and/or slits to simulate illumination, an additional element of chance emerges regarding that initial viewing. If we now take that element of chance and insert it into viewing the destruction of the Hôtel de Ville, the notion of futility acquires an added dimension: the viewer is powerless to determine when in the sequence of events one would initially see the image. This returns us to the layers of dependency that describe *Fundierung* relationships and therefore the literal alignment of the stereoscopic viewing experience with Maurice Merleau-Ponty's philosophy of phenomenology.

Concluding remarks

This essay has attempted to demonstrate how a medium, dismissed by many scholars of the twentieth and twenty-first centuries as little more than a bourgeois parlor gimmick, offers a startlingly literal manifestation of Merleau-Ponty's philosophy of phenomenology. The essay therefore needed to shift focus back and forth between these two subjects as the strands of the argument came together. This duality continues in this concluding portion by examining the remarks of four scholars about the stereoscopic viewing experience and then closing with a final observation about phenomenology.

The extremely wide popularity of stereoscopic photography during the second half of the Nineteen Century already has been discussed, but a single sentence by Shirley Wadja in a 1992 book chapter perhaps summarizes the phenomenon best: "The three-dimensionality afforded by the magnifying stereoscope offered what was widely believed to be the truest representation of reality."[30] To twenty-first sensibilities, such a belief regarding how reality was visually represented probably strikes one as being naïve, but Wadja's words reflect how well stereoscopic photography fit into the nineteenth-century desire in European and American societies to document everything scientifically. Moreover, this desire was grounded in a belief that everything not only *could* be documented and categorized, but also that explanations of everything would be discovered as science continued to develop.

In a 1962 essay, Julian Hochberg explained why stereoscopy differed from other visual experiences. In doing so, Hochberg made a valuable distinction between the surface of a picture and what he termed the "scene". He wrote:

Regardless of how realistically a *trompe l'oeil* painter reproduces his scene, no matter how high the fidelity of a photograph, neither the painting nor the photograph can be mistaken for the scene itself if the plane of the picture is effectively *localized* over its entire surface…Thus, everyone knows that the use of a stereoscope to introduce binocular disparity appropriate to the *objects* in the scene rather than to the *surface* of the picture will provide an impression of 'relief' or plasticity; that is, one sees the scene, not the picture.[31]

Hochberg pinpointed one reason why stereoscopy was so different from other visual media. Stereoscopy is an outlier among visual media because of its images' inherent instability: since the receding planes of depth cannot be in focus simultaneously, objects are neither localized over a surface nor fixed in focus within the scene. It also demands more intentionality from a viewer than do paintings or flat photographs: its immersive experience is the result of a viewer starting with the kinesthetic demands of the stereoscope and progressing through the stages of merging the dual images into one. Within such an active endeavor, where then does the stereoscopic viewing experience reside?

The impression of great depth *seems* real but is not, for a two-dimensional stereograph remains two-dimensional. Yet there exists an image of intense three-dimensionality in the present moment. It is not something that the viewer imagined or hallucinated, for even though the viewer cannot simultaneously share the *precise configuration of planes that are in focus* with someone else, two people equipped with individual stereoscopes looking at identical stereographs will be able to comment upon the sensation of depth that each one experiences. So there is something real and of the moment yet does not exist in three-dimensional reality. The question is how

30. Shirley Wadja, "A Room with a Viewer: The Parlor Stereoscope, Comic Stereographs, and the Psychic Role of Play in Victorian America." In *Hard at Play: Leisure in America, 1840–1940*, Grover, K, ed. (Amherst: University of Massachusetts Press, 1992), 114.

31. Julian Hochberg, "The Psychophysics of Pictorial Perception", *Audio Visual Communication Review*, Vol. 10, No. 5 (1962): 39.

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to describe or categorize this netherworld, and in a 2010 essay, Pauline Stakelon offered a possible answer to this question. Whereas Julian Hochberg identified how stereoscopy was different from painting and photography, Stakelon narrows the focus to the realm of other nineteenth-century optical devices, demarcating the stereoscope as distinctive even within this group of its contemporaneous competitors. She writes:

The illusion created by the stereoscope is quite different than the illusions created by other optical devices. Rather than arranging objects in a three-dimensional space or moving a scene past the spectator's eyes, the stereoscope relies on the viewing subjects themselves to create the illusion. The biological fact of binocular vision is what makes the stereoscope possible. What the viewer sees is an image that does not exist in outside reality, but rather internally.[32]

This internal existence is the quintessence of the stereoscopic viewing experience: it is real, but it does not exist within the realm of physical reality. Yet still unanswered is where the experience *does* reside. Jean Clair probably summarized it best, nothing that the synthesis or merging of stereoscopy's dual images "will *take place* in a space that is really and purely visual."[33] This purely visual space, a reality of the moment that cannot be detected, observed or measured by any person or instrument external to the viewer, is the antithesis to any empiricist philosophy of perception. However, it aligns closely with Maurice Merleau-Ponty's philosophy of phenomenology. Eric Matthews succinctly explains the essence of phenomenology: "It is not concerned with what the world is objectively like, which would need empirical data provided by observation and experiment, but with what the objects that we believe ourselves to experience in the world *mean to us*." Matthews continues, noting "it is not introspective. Consciousness, if it is intentional, cannot be studied separately from its objects, which are outside us."[34] The prolonged and conscious intentionality required to have a successful stereoscopic viewing experience imbues the objects within a scene with meaning to the viewer, for their three-dimensional visualization occurs only through efforts that merged the dual images into one.

A subset of the objects about which Eric Matthews remarked is the collection of buildings and cities that human beings have created, and the largely orthogonal massing of these structures and urban landscapes produced exceptionally intense stereoscopic viewing experiences. In turn, the massive collection of architectural images created by stereoscopic publishing houses from the 1850s through the Third Reich has left a legacy of a medium that offers a literal manifestation of the philosophy of phenomenology. It is the interface between these three strands – stereoscopy, architecture and phenomenology – that this essay has attempted to elucidate.

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32. Pauline Stakelon, "Travel Through the Stereoscope: Movement and Narrative in Topological Stereoview Collections of Europe", *Media History* Vol. 16, No. 4 (2010), p. 408.

33. Jean Clair, "Opticeries", October, Vol. 5, Photography (Summer, 1978), p. 108.

34. Matthews, *Merleau-Ponty*, p. 8.

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