Sacred Shadows:

A Study of Light, Vision, and Intention within Catholic Architecture

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Abstract/ Résumé

Constructs of light and vision directly reflect the physical and metaphysical beliefs of a specific time and place. Every culture has developed its own ways of explaining the enigma of light as embodied experience and vision as a mode of human perception. These changing understandings heavily influence the place of light within architecture as a bearer of meaning and intention.

Within Catholic art and architecture, light consistently points to the potential presence of the Divine within a fully corporeal world, and it holds a unique significance in unfolding profound spatial experiences. However, the history of the changing role of light within architecture has been largely overlooked. Through analyses of three significant sacred spaces—the Gothic Sainte-Chapelle, the Barroco *Transparente* in Toledo, and the Modern Chapelle Notre-Dame-du-Haute—this text seeks to unravel the changing architectural implications of light in response to shifting views of the corporeity of the Divine and the nature of human perception within Western philosophical and theological discourses.

Les croyances physiques et métaphysiques d'une époque et d'un lieu spécifique sont directement reflétées par les construits qui ont trait à la lumière et au regard. Toute culture ayant développée ses propres explications quant à l'énigme de la lumière en tant qu'expérience incarnée et du regard comme mode de perception propre à l'humain, ces conceptions changeantes influencent fortement l'espace qu'occupe la lumière, porteuse de sens et d'intentionnalité, en architecture.

Au sein de l'art et de l'architecture catholique, la lumière révèle invariablement la présence potentielle du Divin dans un monde pleinement corporel, revêtant ainsi un sens particulier dans la création de profondes expériences spatiales. L'histoire des rôles changeant qu'a joué la lumière en architecture a toutefois été largement négligée. Au moyen de l'analyse de trois espaces sacrés significatifs, c'est-à-dire la Sainte-Chapelle gothique, le *Transparente* baroque de Toledo et la Chapelle Notre-Dame-du-Haut moderne ; le présent texte tente de retracer les lignes de l'évolution des implications architecturales de la lumière, au gré des différentes perceptions de la corporéité divine et de la nature du regard humain dans la pensée philosophique et théologique occidentale.

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The Cultural Dimension of Light

Introduction

An understanding of light and darkness—night and day—is integral to our perception of space. Physicist and historian of science Arthur Zajonc writes that, "…the characteristics of a culture are mirrored in the image of light it has crafted."[1] Notions of light vary significantly in their manifestations, both physical and metaphysical, within different cultures at different points in history. Within Catholic traditions light consistently points to the presence of the Divine within the corporeal world, mirroring debates regarding the relationship between matter and spirit. At an architectural level, the interplay of light and shadow provides a potent source of intentionality and meaning. Within the context of Catholic architecture, profound spatial experiences often center on the potential for a bodily encounter with light.

In a contemporary Western context, the physical nature and metaphysical significance of light remain uncertain. In tracing the discourse on the relationship between light and vision within the Western tradition, a split occurs between the experiential understanding of light as material and vision as a form of actuality. The disparity between the perception and experience of light, I will argue, begins during the third century in the early Christian Era in response to efforts aimed at understanding how embodied humans might come to know—or even understand—the presence of a wholly transcendent God. This critical question establishes normative means within Western culture for discussing and conceptualizing the nature of experience, particularly in regard to light, which maintains a persistent connection to the presence of the Divine in the world.

Architecture, as an art form, maintains a critical role in framing and re-orienting human action through an embodied intensification of the real. As designers, we

[1] Arthur Zajonc, *Catching the Light: the Entwined History of Light and the Mind* (New York: Bantam Books, 1993) 8. Zajonc teaches physics at Amherst College, and his research focuses on the relationship between the sciences, the humanities, and meditation. He has written extensively on Goethe, whose unique melding of art and science has clearly been a strong influence.

carefully and diligently craft spatial-temporal experiences—moments in time with distinct moods, atmospheres, and places within the broader spectrum of human culture—that will ultimately condense into the lived metaphor of a built work. Juhani Pallasmaa writes, "Meaningful architecture strengthens our awareness of reality, or rather the enigma of reality, and of the human condition. A touching experience of architecture is always an experience of wonder."[2]

The history of light as an active component within the revelation of architectural meanings and intention has not yet been fully or adequately considered. This deficit makes it problematic to question what the spiritual significance of light might be within a highly secular contemporary society. Written with the understanding that the ethical role of the architect consists, in part, of imagining how we might occupy the world differently and more meaningfully and that light plays a pivotal role in the revelation of these meanings, this text aims to explore the changing role of light as a source of architectural intention in response to shifting views of the corporeity of the Divine and the nature of human perception within Western philosophical and theological discourses.

This study does not seek to determine or define the nature of light itself—a task we are not likely to see accomplished.[3] Rather, it examines the discussion of light and the constructs of experience and perception conveyed by this discussion.[4] The language and attitude applied to the subject of light shift many times throughout the course of Western history, and these shifts reveal much about the context of knowledge and understanding of lived space at disparate moments in time. My analysis attempts to trace two trajectories, alternately diverging and converging, in the discourse on light stemming from Greek texts—light as material, rising from readings of Plato, and vision as transparent actuality, drawn from the Aristotelian tradition. These trajectories align closely with light's symbolic role in the doctrine of the Roman Catholic Church, exerting substantial influence on conceptions of light at a broader level. Therefore, a more thorough investigation of

[2] Juhani Pallasmaa, *The Embodied Image: Imagination and Imagery in Architecture* (West Sussex: John Wiley and Sons, 2011) 99.

[3] Or one we will see accomplished so many times by so many different sets of eyes.

[4] My analysis of the discourse on light draws largely from two histories written from two distinct point of view: Arthur Zajonc's *Catching the Light: the Entwined History of Light and the* Mind and David Park's *The Fire Within the* Eye. I have already introduced Zajonc (see no. 3). Park, a professor of physics at Williams College, maintains a much stronger adherence to linear chronology than Zajonc and provides a biographic background for each figure mentioned. Nothing is omitted. His approach, although rich and insightful, is simply more empirical than Zajonc's sojourn, which becomes a biography of light itself rather than a recounting of the scientific exploits surrounding it and reveals its spiritual possibilities for conveying meaning. With Zajonc, we never leave light.

the underlying intentionality present within a set of Catholic structures will provide a supporting framework for this study.

The dual chapels of the Sainte-Chapelle in Paris, constructed in the thirteenth century under a Neo-platonic view of light, provide an unparalleled example of the symbolic significance granted to darkness and stained glass within Gothic architecture. The *Transparente* at the Cathedral of Toledo, constructed in the eighteenth century and reflecting an Aristotelian model of perception, is the first of Barroco Spain's *transparente* structures whose primary aim seems to go beyond mere theatricality to facilitate the completion of the Eucharistic ritual through an act of seeing in which light constitutes the physical presence of the Divine. Finally, Le Corbusier's Chapelle Notre-Dame-du-Haut brings us back to the convergence of light and vision in the twentieth century, granting light a certain subjectivity of its own while using it to reveal the symbolic pure form. The first of his built religious works, it provides the testing-ground and framework for ideas that would later crystallize in the convent of Sainte Marie de la Tourette and provides direct insight into the influence of conversations with Marie-Alain Couturier on Le Corbusier's work.

The projects are explored in a narrative format from the point of view of a visitor in the period of its completion. However, the narratives do not aim to imply a system of universal experience drawing from my encounters with the projects in the twenty-first century. Rather, each of these analyses draws from contemporaneous evidence in art, science, and philosophy in order to convey a way of seeing light that is distinctive of a specific time and place, and my own personal experiences are expressed through the accompanying photographs. Countless artists, scientists, theologians, and philosophers have devoted their lives to unraveling the mysteries of light and vision. Here we will unpack a small but comprehensive selection of different ways of seeing in an effort to give shape to the broader Western histories of light and vision and their architectural implications.

The Power of Seeing: Light as Vision

Many mythic and oral cultures equate light with vision. Within ancient Greek culture, experience and perception fell within a uniform system. Before Origen's dualistic split of the senses in the third century, it was simply not possible to think that light might exist beyond vision or that vision could occur in the absence of light. Zajonc notes that in Egyptian mythology the sun and moon were believed to be the eyes of the god, Ra. Sunlight emanated from his eyes and illuminated the inhabited world. Rather than tangible substance, light "was felt to be the power of seeing. To see was

to illumine."[5] Vision, as an act, produced the light of the world. Generally, mythic cultures do not grant light autonomy as an object. Instead, it implies a state of being or a property existing in the world for the sole purpose of granting sight and understanding to the soul through the eyes.

In *Timaeus*, written around 360 B.C.E., Plato writes extensively on the relationship between light and vision from a Greek perspective. He builds upon the notion of the atom presented by Democritus and earlier philosophers, but he conceives of these atoms as rational forms.[6] Considering light as a material substance proves critical to Plato's understanding of vision. He opens the dialogue of *Timaeus* by differentiating "*that which always is* and has no becoming" from "*that which becomes* but never is."[7] He reasons that if something is perceptible to us through the senses, then by necessity it has become—it leaves the universal realm of forms to exist within the physical world. Since light, as a material, is visually perceptible, it has come to be through the movements of the divine craftsman.[8]

Plato goes on to discuss the elements that comprise his mythic universe with fire, which has many forms and opens itself to a wide range of senses, being the tangible actuality of light. The gods create eyes, the first organs, to be of a density and texture that will *only* allow the light of vision to pass through them. There exists a fire buried deep inside the eye that is of the same nature as the fire present within the world, and vision occurs when this internal fire projects through the eyes to mix with the external fire, creating a connection between viewer and object that is carried back to the soul.[9] Plato asserts that the ability to observe the heavens and derive order and meaning from their constancy is the primary reason for the existence of vision.[10] So, while light *does* exist as a corporeal substance, the fire of light within the world is not distinguished from the fire of sight within the eye or the fire that causes heat.

[5] Zajonc, (1993) 40.

[6] David Park, *The Fire Within the Eye* (Princeton: Princeton University Press, 1997) 90. In sections 1.2-1.3, Park provides a detailed description of the rise of the atom in the early thoughts of Leucippus, Empedocles, Democritus, and Epicurus.

[7] Plato, *Timaeus*, trans. By Donald J. Zeyl (Cambridge: Hackett Publishing Company, 2000) 13.

[8] This is a critical distinction from Neo-platonic cosmologies, which are often rooted in the view that light essentially created the universe. This divorces light, the primordial substance, from human vision and will be discussed in "Symbol and Substance." For Plato, to think of light and vision as two separate concepts would not yet have been possible. Park notes that *Timaeus* had a profound effect on philosophy within the Christian era largely because Plato's notion of the Demiurge (divine craftsman) fit so well with Christian doctrine. It was easily adapted to fit the story of creation in Genesis, and so we see portions of his ideas recurring even into the present. Park, *The Fire Within the Eye* (1997) 39.

[9] Plato, *Timaeus*, (2000) 33. This process is also summarized well by both Zajonc, (1993) 21, and Park, (1997) 39.

[10] "As my account has it, our sight has indeed proved to be a source of supreme benefit to us in that none of our present statements about the universe could ever have been made if we had never seen any stars, sun, or heaven," Plato, (2000) 35.

Thus, although light constitutes a physical presence in Plato's metaphysics, it is not an autonomous substance. Rather, it is a vehicle for perceiving the external world and communicating its order to the soul. The concepts of light and vision meld inextricably—neither can exist alone.

Aristotle, c.a. 384-322 B.C.E., provides a different outlook on the nature of light. For him, it is the condition by which things are visible—"the actualization of the potentially transparent."[11] David Park explains this view by citing Aristotle's ideas concerning quality and change, outlined most clearly in Book 1 of *Natural Science* and *The Metaphysics.* For Aristotle, *becoming* requires a subject of compound form—capable of possessing both potentiality and actuality. "Where the becoming is of something other than a concrete substance—a quantity, for example, or a quality, or a relation, or a moment of time, or a being located—a subject is evidently presupposed and this will be a substance."[12] Aristotle's understanding of "coming to be," in this regard, differs from that put forward in *Timaeus*. According to Plato, anything perceptible has necessarily come to be, whereas in Aristotle the qualification exists in the subject's *concreteness*. In *De Anima*, Aristotle posits that color, not light, is the thing that is perceptible, and it covers the surface of visible objects— a potency or quality of things that becomes visible only through the actualization of the potentially transparent. In this regard, transparency—light—is the actuality, and darkness is its preceding potentiality. He argues, "… light is neither fire nor any kind whatsoever of body nor an efflux from any kind of body—it is the presence of fire or something resembling fire in what is transparent."[13] Transparency is linked to color, a primary quality of an object, and so any change in transparency simply represents that object achieving actuality.[14]

"[Light] is certainly not a body, for two bodies cannot be present in the same place. The opposite of light is darkness; darkness is the absence from what is transparent of the corresponding positive state above characterized; clearly, therefore, light is just the presence of that."[15] The encompassing presence of a

[11] Zajonc, (1993) 78. While the phenomena of light and vision are still interwoven in Aristotle's explanation, light is treated as a property of things that are visible rather than as a substance in itself. In Chapter 4.5 of *The Fire Within the Eye*, Park differentiates between Neoplatonic and Aristotelian understandings of light as substance and form (100). However, Zajonc's description of Aristotelian light as an *actualization* seems closer to the discussion of the transparent (78).

[12] Aristotle, *Natural Science* in *Aristotle*, trans. by Philip Wheelwright (New York: Odyssey Press, 1951) 12.

[13] Aristotle, *De Anima*, trans. by Ronald Polansky (New York: Cambridge University Press, 2007).

[14] Park, (1997) 41. Park illustrates this with the example of a peach ripening. The peach possesses potentiality, and by ripening it is achieving actuality of its compound form.

[15] Aristotle, *De Anima* (2007).

material transparent medium dictates that light itself cannot be bodied. Likewise, Aristotle's theory of vision assumes that "vision proceeds in straight lines, and there is a visual ray that has something to do with it."[16] Again, this leads him to reason that light itself cannot be a substance— we know that lines of vision can cross each other, and, since light is vision, if light were also substance the rays would inevitably collide with one another.[17] However, as with Plato, vision and light— transparency in this case— cannot exist independently.

To illustrate this union in an architectural context, Marco Frascari speaks of Venice as having "a technological *mythos* where stones change themselves in light through architecture, and architecture exists because of light."[18] He elaborates on the potential of architecture to entrap light and make it manifest to the senses—reflecting in white stone faces or fading into an immense shadow. In Frascari's description, we can perceive architecture because of light, but light also exists only in that we are able to see it embedded in stone (figure 1).[19] This interconnection between light and

Figure 1. Late afternoon sun over Piazza San Marco, Venice. Photograph by the author.

architecture parallels mythic views concerning the link between light and vision. It is not possible to conceive of one without also considering the other—mind and body are a single entity bound into the act of seeing. Nonetheless, while Plato's writing leads to continued thought about the nature of light and corporeal experience at the beginning of the Christian era, Aristotle's physics and metaphysics, translated into Latin in the twelfth century, give rise to discussions of vision as an active form of perception.[20] We will now study how this division between experience and perception manifests architecturally.

[16] Park, (1997) 41.
[17] Ibid, 42.
[18] Marco Frascari, "The *Lume Materiale* in the Architecture of Venice," *Perspecta 24* (1988) 137.
[19] It should be noted, however, that Frascari's language resonates most clearly with Medieval views of light as extrasensory substance as outlined in "Symbol and Substance." He notes that the stones of Venice beckon to be touched and "if they are refused, they will touch you through their light," alluding to the experience of light as extending beyond the realm of mere vision. "The Lume Materiale" (1988) 141. He is mentioned here only to illustrate the entwined nature of light and vision in earlier periods.
[20] Park asserts throughout Chapter 4 that this delay in the incorporation of Aristotle's philosophy is a result of the time it took for his texts to be uncovered and translated, (1997). While Boethius translated much of Aristotle's *Logics* from Greek to Latin at the beginning of the 4th century CE, his primary works addressing light and vision—particularly *De Anima*—were not available to Latin scholars until the 12th century. This provides some insight on the fusion of Platonic and Aristotelian notions of light in the Middle Ages.

Symbol and Substance: the Body of Light

Sainte-Chapelle, Paris, 1239-1248 C.E.

Zajonc asserts, "We have imagined space to be many things, and that act of imagination has had implications for our image of light. Endow space with divinity and light is godlike; discover its shape and light is geometrical; fill it with matter and light is substantial."[1] The real difficulty in speaking of light and in conceiving of it in terms of architectural or embodied experience lies in its substantial immateriality. We cannot touch it, and yet we *feel* its presence. The language of the Platonic texts seems to justify its necessary corporeity. From the rise of the Christian Era in the Latin West through the seventeenth century this manifests in the metaphoric association of light with the Divine as a bodied symbol. This outlook changes subtly in the eighteenth century, and the body of light assumes a mechanized physical ontology, which is stripped from it in the nineteenth-century with the theory of relativity. Finally, in the twentieth-century light regains its corporeity in the realm of sensuous experience, a recovery that will be discussed later through Le Corbusier's chapel at Ronchamp.

In *Timaeus*, Plato writes, "Now that which comes to be must have bodily form, and be both visible and tangible, but nothing could ever become visible apart from fire, nor tangible without something solid, nor solid without earth. That is why, as he began to put the body of the universe together, the god came to make it out of fire and earth."[2] This distinction that things which *come to be* necessarily possess bodily form characterizes Platonic readings of light. Like perceives like—the fire within the eye mingles with the fire of the world, resulting in human vision. We are corporeal beings, experiencing the world through our bodies, and so the world itself and the perceptible things within it, including light, must also be corporeal. Of course, Christian scholars in the Latin West face the task of reconciling embodied experience with knowledge of the

[1] Zajonc, (1993) 97. Throughout this section, we will trace the shifting view of light through all these images. It is critical to note, however, that the commonality between the disparate views lies in the autonomy given to light as a discrete substance.

[2] Plato, (Cambridge: Hackett Publishing Company, 2000) 17.

Divine. They must ask, "How can bodily humans know and be one with a transcendent God who is wholly beyond the realm of matter and body?"[3] Such questions posed major problems to the structure of a world-view in which the divine was considered to be wholly supersensible and beyond the influence of human agency. Calcidius translates and provides a commentary of *Timaeus* around 321 C.E. This remains the only Platonic text available in Latin until the twelfth century, and as such it establishes a way of thinking about sensory experience that influences Christian scholasticism and mysticism throughout the Middle Ages, particularly in regard to Christ and the fusion of the human and Divine resulting from his Incarnation.

Language of Light in the Middle Ages

Sensory language enters the theological discourse in an effort to reconcile human experience with the supersensible nature of God. However, it takes two distinct forms—both centered on the Incarnation of Christ. Behind the usage of sensory language lie "theological views about our bond with God and how we realize it—concepts about the structure of the human person, of Christ, of the Trinity."[4] In the Dualist tradition following Origen, we realize our relationship with God through the spiritual senses, set apart from the bodily senses when Christ sanctifies the Logos by becoming man.[5] The interpretation relevant to a Platonic understanding of the senses poses the opposite view, building on the notion that we may achieve an immediate and embodied relationship with God. This view circulates especially among the Franciscans and operates on the belief that, by becoming flesh, Christ unified the body and soul, enabling a direct experience of the Divine. The connection is not relegated exclusively to the Logos. The sixth-century writings of Pseudo-Dionysius provide a means of discussing light in this manner.

In his *Divine Names*, Pseudo-Dionysius proposes super-luminous darkness as a way of speaking about God in the negative to circumscribe His transcendence while simultaneously emphasizing the unknowability of Divine things, effectively reconciling fifth-century Neo-platonic texts with Catholic doctrine. He writes, "Given that the Good transcends everything, as indeed it does, its nature, unconfined by form, is the creator of all form. In nonbeing it is really an excess of being."[6] By this,

[3] Gordon Rudy, *Mystical Language of Sensation in the Later Middle Ages* (New York: Routledge, 2002) i. Rudy provides a thorough discussion of the role of sensory language, uniquely and especially focused on touch and taste, in Middle Age writing.

[4] Rudy, (2002) 5.

[5] The concept of spiritual senses is initially posited by Origen and will be discussed in the section on vision.

[6] Pseudo-Dionysius, *Pseudo-Dionysius: the Complete Works*, trans. by Colm Luibheid and

Pseudo-Dionysius means that our inability to fully perceive the Good—interpreted by Christian scholars as God—results from its supersensibility rather than its lack of existence. Thus, God is not Himself perceptible or conceptual, and we must come to know Him through symbols.[7] In the Neo-platonic sense, light is sensuous not for its own sake but for its ability to allow you to leave your senses behind and participate in a more inward experience of true sight and knowledge.[8] However, through Pseudo-Dionysius it becomes a symbol of the extrasensory divine substance—light—that cannot be fully understood through human vision.

Robert Grosseteste pushes this concept even further. He begins lecturing on theology at the Franciscan monastery outside Oxford in 1230 C.E., and here he brings Pseudo-Dionysius' ideas into the thirteenth century through his own cosmology of light, *De Luce*. While he uses a distinctly Aristotelian terminology to discuss light as form, the words do not carry quite the same meaning in their new context. The notion of matter as presented in *Timaeus* embeds itself within Western thinking long before Aristotle's works dealing with light as transparent form distinct from material are translated in the twelfth century. For this reason, the separation between Platonic and Aristotelian texts is not yet fully present within the Middle Ages.[9] In fact, the Church views Aristotle's philosophy as more closely aligned with Christian doctrine in its treatment of the soul, and Grosseteste utilizes this language partly to avoid the conflict surrounding Neo-platonic ideas. In the Bible, Jesus proclaims, "I am the light of the world," and so naturally Grosseteste looks to light for answers when crafting his cosmology.[10] In *De Luce*, he provides an account of the creation of the universe from a single chain of light events. Light serves as the perceptible symbol of the Good, as referenced by Pseudo-Dionysius. Grosseteste's writing is characterized by the treatment of light as a substance with a discrete body—an attribute necessary for it to be a true manifestation of God's presence.[11] He reasons, "The first

Paul Rorem (New York: Paulist Press, 1987) 4.3, 73.

[7] "We use whatever appropriate symbols we can for the things of God. With these anaologies we are raised upward toward the truth of the mind's vision, a truth which is simple and one." *Divine Names* (New York: Paulist Press, 1987) 1.4, 53.

[8] Lecture by Alberto Perez-Gomez at McGill University, September 29, 2011.

[9] The real differentiation between matter and form takes place toward the end of the 15th century. Prior to this distinction, the presence of form requires the simultaneous presence of material. It leads to what almost constitutes a misreading of Aristotle's discussion of vision and the soul in the 12th century before scholars are able to fully grasp its meaning. The use of Aristotelian language circumvents the pagan and mystic associations linked to Platonic and Neo-Platonic ideas by the Catholic Church.

[10] John 8:12 as found in Park (1997) 103.

[11] Park asserts that Grosseteste's aim was to fill in the ambiguities of Biblical Creation by fitting it to Aristotelian principles, (1997) 99. However, this seems to ignore the implication within the text that light is a *substance* rather than an *actuality of the potentially transparent*, and it is

corporeal form which some call corporeity is in my opinion light […] Therefore light is not a form subsequent to corporeity, but it is corporeity itself."[12] Grosseteste describes the spread of light inward to form all the spheres of the universe. He notes, however, that the experience of the initial light of creation, called *lux*, is reduced as its purity is diminished with each successive sphere.[13] Within the text, Grosseteste uses two distinct terms for light— *lux* and *lumen*.[14] *Lux* refers to the original light—the first corporeal form— while *lumen* refers to perceptible light as it appears in lower spheres. This presents the initial form of *lux* as supersensible within the human range of perception.

The embodied experience of sensual encounters with the Divine deals with an architectural intention coming up from these texts, but it is not a direct transcription. Rather, the language seeks only to describe how man *might* relate to the Divine and provides a source for meaning and intentionality. *Rhetorical synaesthesia* within the texts serves as a metaphoric device to bring readers close to the otherwise distant and incomprehensible nature of spiritual sensation—vision that becomes more than vision.[15] I will argue that the understanding of light presented in *De Luce* plays a critical role in architectural intention in the Middle Ages. Cathedrals needed to embody divine luminance in a physical way, taking the light within them beyond its natural properties and becoming a symbol of human participation in the super-luminosity of God's presence. Particularly within Gothic architecture, building is not simply envelope. It is matter and space translated into sensory experience. In this way, the materials imply the presence of something beyond the sensible world. Stone and stained glass become media for capturing light and shadow and transmuting them into tangible substance, removed from the mere sunlight of vision (figure 2). Massive walls are made weightless, lifted not only by the light streaming through vaults and stained glass, but also by the lustrous glow that seems to emanate from within the stones

at odds with both my own reading of *De Luce* and Clare Riedl's notations within her translation. She points out that, while the terminology is Aristotelian, the ideas are quite distinct in that "matter is not pure potency but possesses in its own right a certain minimal reality." Grosseteste, *De Luce* (Milwaukee: Marquette University Press, 1942) 3. Grosseteste is adamant in his definition of light as "the first form created in first matter," (1942) 11. Zajonc agrees, stating that "Grosseteste's *De Luce* is the only comparable work of scientific cosmogony between the time of Plato's *Timaeus* and the eighteenth century," Zajonc, (1993) 53.

[12] Robert Grosseteste, *De Luce* trans. Clare Riedl, (Milwaukee: Marquette University Press, 1942) 10. This statement calls to mind James Turrell's assertion that "light is not so much a revealing as it is itself the revelation."

[13] Ibid.16.

[14] Riedl suggests that "*lux* is light in its source, whereas *lumen* is reflected or radiated light," Grosseteste, (1942) 5. The distinction between *lux* and *lumen* by medieval scholars is also mentioned in Zajonc, (1993) 98.

[15] Rudy, *(*2002) 14.

themselves.[16] Materials are selected not for their monetary value but for their capacity to capture light. Stained glass, marble, and gemstones "gather light and were thought to preserve it."[17] Thus, the embodied experience of God appears in the metaphoric association of light with the Divine as a bodied symbol existing congruously with the supersensible realm of the soul. This belief is essential to understanding the sensual experience of Gothic architecture as a participatory act contingent upon both the supremacy and corporeity of Divine things. We will now explore the architectural manifestation of this Neo-Platonic light through Sainte-Chapelle, a chapel constructed in Paris between 1239 and 1248 C.E.

Out of Darkness: Ste-Chapelle's Divine Light

"The most excellent colors of the pictures, the precious gilding of the images, the beautiful transparence of the ruddy windows on all sides […] bestow such a hyperbolic beauty on that house of prayer that, in going into it below, one understandably believes oneself, as if rapt to heaven, to enter one of the best chambers of Paradise," Jean de Jandun writes of Sainte-Chapelle in his *Tractatus de Laudibus Paribus*.[18] The royal chapel was commissioned by King Louis IX to house his newly acquired collection of Passion relics, including the Crown of Thorns and a piece of the True Cross. In the Middle Ages, relics of the Passion held special significance as the only remaining physical evidence of Christ's Incarnation.[19] King Louis desired to express this significance through the architecture of the court chapel's shrine that [he] wished to render infinitely precious and which seems unreal, set free from matter, composed merely of the glow and brilliancy of its vast stained glass windows."[20] The chapel itself is often compared to a reliquary. Pope Innocent IV describes it with the phrase *opere superante materiam*—the workmanship surpassing the material—a phrase more often applied to intricate metalwork and jewelry.[21] However, in building the shrine for his Passion relics, Louis also sought to create a new Temple of Solomon in Paris.[22]

[16] Park discusses the importance of replacing stone with stained glass, as noted in the writings of Abbot Suger of St. Denis, the completion of which "opened the era of Gothic Architecture" in 1144. Park, (1997) 94.

[17] Park, (1997) 95 and Perez-Gomez, lecture at McGill University, September 29, 2011.

[18] Jean de Jandun, *Tractatus de Laudibus Paribus* (1323).

[19] Daniel H. Weiss, "Architectural Symbolism and the Decoration of the Ste.-Chapelle," *The Art Bulletin*, vol. 77, no. 2 (June, 1995) 315.

[20] Wanda Rabaud, *The Sainte-Chapelle* (Paris: Ed. Albert Morance, 19--) 22.

[21] Weiss, (1995) 308.

[22] This plays heavily into the iconography and interior architecture of the baldachin. For a detailed and insightful analysis, please see Weiss.

Figure 2. The stained glass in Ste-Chapelle's upper chapel captures light and transforms it into a thick, luminous substance. Photograph by the author.

Figure 3. The dark lower chapel of Ste-Chapelle. Photograph courtesy of Steve Turski.

Sainte-Chapelle contains two chapels stacked vertically—a typical arrangement in Medieval pilgrimage churches. The lower chapel, used by members of the parish community, is dedicated to the Holy Virgin (figure 3). It remains shrouded in a luminous darkness, swirling with specks of light brought in through clerestory openings to dance across deep gilded vaults. The royal chapel above, on the other hand, dedicated to the Holy Crown and the Holy Cross, immerses its occupants in a radiant world of colored light filtering through walls almost entirely dematerialized by illuminated glass (figure 2). The juxtaposition of the chapels for the Virgin and the Passion references the fusion of the human and the Divine made possible through the Incarnation. The relationship between shadow and light—human and Divine, life and death—serves to strengthen this metaphor, bringing it closer to the realm of embodied experience. This motif permeates all aspects of the chapel's program and iconography. Scenes of martyrdom depicted on the quatrefoils in the arcatures stress the connection between bodily death and coming into the Divine, while the stained glass in the upper chapel chronologically links the kingdom of Solomon, the Passion, and King Louis obtaining the sacred relics, effectively establishing a continuity between Jerusalem and the Capetians. Louis completed work on Sainte-Chapelle just before setting out on his Crusade, a war which would aim to make this connection a reality.[23] By placing Sainte-Chapelle within its literary and cultural contexts, particularly its connections to the writing of Robert Grosseteste and the Abbey of St. Denis, before conducting an examination of the procession through both chapels and the finely articulated transitions between darkness and light as experienced distinctly by members of the court and parish, we will identify the possible underlying spiritual and symbolic intention present in the staging of light within these spaces.

[23] Weiss, (1995) 308.

Parisian Context: the Abbey of St. Denis

During Louis IX's reign, there were three symbolically significant Capetian churches—Reims, the coronation church, St. Denis, the site for royal burials, and Sainte-Chapelle, the royal chapel. As such, the Abbey Church of St. Denis shares a close history with Sainte-Chapelle. They were so close, in fact, that during Sainte-Chapelle's construction, in addition to several other critical moments, the Passion relics were sent to St. Denis for safekeeping. In the twelfth-century, Abbot Suger of St. Denis was the close friend and advisor to two Capetian monarchs preceding Louis IX—Louis VI and Louis VII—and his lasting influence seems apparent in the architectural strategies implemented later at Sainte-Chapelle.

At this time, Pseudo-Dionysius was widely thought to be St. Denys, the convert of St. Paul. His Parisian shrine was an important religious site, and he was honored by the monks of St. Denis and the Capetian kings as a direct link to their Apostolic lineage.[24] In his renovations to the abbey of St. Denis, Suger focuses heavily on the relationship between light, stone, and decoration, using Dionysian texts to justify his symbolic approach to light.[25] It comes as no great surprise that the monks of the abbey were members of the Franciscan order, one of whom—John Sarrazin—actually wrote a commentary on Pseudo-Dionysius' *Celestial Hierarchy*, demonstrating the extent of his influence on the theological discourse in Paris in the twelfth and thirteenth centuries.[26]

As previously mentioned, Sainte-Chapelle consists of two unequal stories with the upper chapel being accessible from the level of the royal apartments and the lower chapel occupying the level of the ground floor of the Palais. This division into two levels was typical of Medieval pilgrimage churches. The tombs of treasurers and canons were situated in the lower chapel. This separation of human remains in the lower chapel and Divine relics in the upper chapel fits into the symbolism of the Incarnation and the programmatic shift from darkness to light. As a pilgrimage site, St. Denis functioned in a similar fashion. Pilgrims entered by descending into the crypt, a subterranean version of Sainte-Chapelle's lower chapel. They resurfaced at the transept, rising from the relative darkness of the crypt into a direct view of one of the large rose windows, startlingly

[24] R.W. Southern, *Robert Grosseteste: the Growth of an English Mind in Medieval Europe* (Oxford: Clarendon Press, 1986) 200-201.

[25] See Abbot Suger, *Abbot Suger on the Abbey Church of St. Denis and Its Art Treasures,* 2nd edition, trans. by Erwin Panofsky (Princeton: Princeton University Press, 1979).

[26] Leclercq, in Pseudo-Dionysius (1987) 27. It is even thought that Robert Grosseteste may have begun his theological studies in Paris from 1209-1214. See John Hendrix, *Architecture as Cosmology: Lincoln Cathedral and English Gothic Architecture* (New York: Peter Lang, 2011) 118.

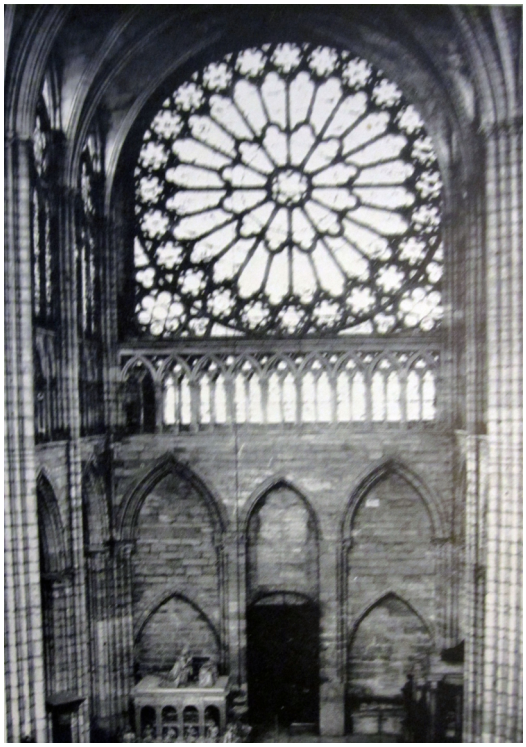
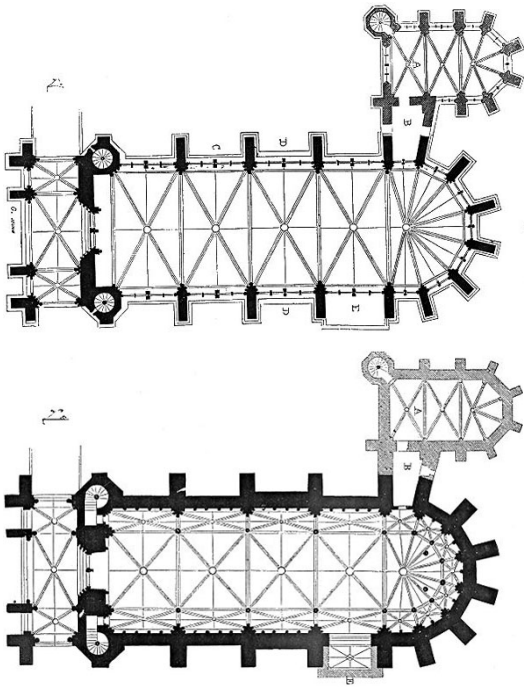


Figure 4. Rose window in the north transept of St. Denis. Image from Branner, (1965) plate 45.



Figures 5 and 6. Plans of Ste-Chapelle's upper and lower chapels. Images from the online collection of the Cluny Museum. http://www.sculpturesmedievales-cluny.fr

bright in contrast (figure 4). This carefully orchestrated transition from darkness back up into light draws on the Dionysian concept of super-luminous darkness as a means of describing and encountering the Divine, and it reappears in the pilgrimage route through Sainte-Chapelle.

Experiential Program of Ste-Chapelle[27]

In keeping with its organizational hierarchy and iconography linking the Capetian Dynasty back to Solomon, members of the royal court and pilgrims traveled distinct routes through Sainte-Chapelle. These trajectories, we may argue, relate to the directness of the Divine relationship inherent to each group's status as defined in Pseudo-Dionysius' *Ecclesiastical Hierarchy*. A pilgrim arriving to witness the Passion relics enters into the lower chapel through the courtyard (figure 7). Stepping from the bright sunlight into the coolness of the crypt, he finds himself wrapped in darkness—as far removed as possible from Grosseteste's Divine *lux*. The ambulatory is narrow, punctuated by low buttresses, gilt and carved. As he walks slowly over the

[27] The descriptions in this section draw from accounts of Sainte-Chapelle as it existd in the thirteenth century. The account of the royal ceremonies, in particular, references Peter Kováč, "Notes on the description of the Sainte-Chapelle in Paris from 1378," in *Court chapels of the high and late middle ages and their artistic decoration* ed. Jiří Fajt, proceedings from the international symposium (Prague: National Gallery, 2003) 413-418.

tombs of long-dead religious men, his eyes begin to adjust to the darkness, and he notices the dim scattered flecks of colored light creeping in through clerestory glass (figure 8). The intricate geometries of the low vaults above his head refract and rarefy the incoming luminance, casting shadows that dance across each other—revealing and concealing the subtle tracery of decoration covering every surface, vibrant golds, reds, and deep blues inlaid with glass that are "apprehended rather than perceived."[28] The Virgin's chapel houses a darkness pregnant with light—super-luminous in the truest sense of the word.[29] Every surface pulses with embedded *lumen*. Even the frescoes at the apse, painted on wax, begin to glow from within as the pilgrim grows accustomed to the dimness of the space.

Having circumambulated the chapel, he enters an even darker darkness as he ascends the small spiral stair to the royal chapel—wide enough for no more than one body to pass.[30] When he reaches the top, he steps out into a world of colored light filtered through endless walls of glass (figures 9 and 10). The sudden contrast makes the jeweled light even more dazzling and radiant—full bodily immersion in geometric, colored *lumen*, glinting off every surface and transforming the very nature of his skin until it seems to ripple as he moves

Figure 7. Entry into the chapel of the Holy Virgin. Photograph by the author.

Figure 8. Interior of the lower chapel. Photograph by the author.

[28] Rabaud, (19--) 25. Considering the chapel in this way recalls the important role of bodily experience posited by the Franciscans rather than the purely internal perception of Origen's spiritual senses.

[29] "I pray we could come to this darkness so far above light!" Pseudo-Dionysius, *Mystical Theology* 2.1 (1987).

[30] The large ceremonial stair connecting the courtyard to the upper chapel was not added until the reign of Louis XII in the sixteenth century. Weiss, (1995) 309.

Figure 9. Interior view of the upper chapel. Photograph by the author.

Figure 10. Stained light reflecting off the tile floor of the upper chapel. Photograph by the author.

toward the shimmering throne of the *Grande Chasse*.[31]

The chapel is a single nave with no side aisles to shelter darkness, its unitary simplicity supported by the complex buttressing below (plate 8). Here, in the presence of the Holy Crown and Holy Cross, there is only a deep light wrapped around reddened glass shadows. Stained glass was believed to diffuse incorporeal *lux* into the material realm as *lumen*, perceived through its color and geometry.[32] After praying before the Divine relics of the Incarnation, the pilgrim turns back to the entry. The façade above the porch at the upper chapel "is occupied by a great rose window fitting exactly into the square space," (figure 11).[33] He makes the Sign of the Cross before walking back through the thick light and descending into the shadow of the stair once more.

King Louis IX, canonized as a saint in 1297, sits much closer to God in the *Ecclesiastical Hierarchy*—especially by virtue of his continuity with the Old Testament Kingdom of Jerusalem. The *touché aux ectouelles* and consecration with celestial chrism upon coronation alone empowered the French kings with a claim to Divine appointment.[34] He does not require immersion in the super-luminous darkness of the lower chapel to prepare his body for a more direct experience with the Divine symbol, and he proceeds directly from the Palais into the upper chapel where he is adorned in the colored light radiating through delicate iron

[31] For more information on the interior architecture of the baldachin, see Weiss, (1995).

[32] See Hendrix, (2011) chapter 4.
[33] Rabaud, (19--) 19.
[34] Robert Branner, *Saint Louis and the Court Style in Gothic Architecture* (London: A. Zwemmer Ltd, 1965) 3.

tracery and glass, his presence and the splendor of his gilded robes amplified by the rays of transubstantiated lumen falling across his body as he traverses the chapel through the crowd gathered to witness the Mass and kneels before the precious Passion relics. Louis rises up the steps of the tribune until he is standing before the door at the back of the *Grande Chasse*, elevated to the level of the windows themselves and enrobed in an even more vibrant display of illumination. He prays, touching each relic directly before "turn[ing] the open chasse towards the Chapel and let[ting] it be guarded by the bishops of Beauvais and Paris."[35] He descends the steps to sit for the Mass, and at the end he rises again to turn and lock the Chasse before proceeding out of the chapel. He exits back onto the exterior portico, allowing him a full view of the unmediated sunlight outside before he re-enters the Palais.

From Incarnated Architecture to the Decline of the Body

So, we see the manifestation of ideas presented by Pseudo-Dionysius and Robert Grosseteste in the sequence of atmospheres contained within Sainte-Chapelle. The precision and subtlety of the shifts from dark to light to radiant and back again appears as an intentional programmatic element within the architecture of the chapel. The hieratic

Figure 11. Rose window in the upper chapel. Photograph by the author.

experience designed through the combination of stained glass and interior surface draws on reflected visible light as a symbol of the supersensible nature of the Divine. Visitors to Sainte-Chapelle move from a dispersed, dark, super-luminous experience in the lower chapel into a wholly immersive and direct engagement with light in the upper chapel—a transition from multiplicity to unity in a wholly Dionysian sense. The ascent into the upper chapel becomes a participatory act of unveiling that which is concealed but always present—the Divine light of Christ embedded within the darkness beyond light encased in the chapel to the Holy Virgin. The French King, as the new Solomon, begins this procession much closer to the

[35] Kovac, (2003).

Divine and achieves a more direct form of contact in touching the relics.

In this, the Franciscan teaching that the Incarnation justifies the possibility of an embodied relationship with God becomes architecturally significant. Ideas embedded within the sensory language of Grosseteste and Pseudo-Dionysius transfer into an intentionality giving rise to meaning within the chapel's built form. The bodily experience of light, made possible by Christ's descent to earth as both fully God and fully human, provides a symbol of the presence of the Divine in the world. This comes up directly from Pseudo-Dionysius' understanding of the role of the symbol and Grosseteste's view of light.

Identifying the ways in which Sainte-Chapelle's symbolic program comes up from these texts allows us to unravel its potential meanings until the chapel becomes more than just a reliquary "turned outside-in," as it is often described.[36] It is crucial *how* the light enters the space, through stained glass, and gets continually refracted, reflected, and multiplied across the delicately ornamented surfaces within the chapel itself. The interior of the sacred space becomes a continuation of Grosseteste's inward multiplication of the spheres, bringing lux as lumen into the human range of experience. It is a way of bringing what is distant and unknowable close enough to be perceptible—a ritual that both affirms and denies our ability to exist alongside the transcendence of a Divine God. Through his sacred chapel, St. Louis found a way of bringing people out of darkness and into the thick light of God's presence.

This understanding of light as a corporeal trace of the Divine persists until the seventeenth century when Cartesian dualism once again splits the senses, mind from body.[37] While light retains its physicality, the spiritual mysticism surrounding it slowly begins to fade as the inner vision of the mind and an invisible, spiritual light take precedence. It is, however, still an important subject of scientific inquiry and curiosity. Galileo Galilei is one of the first to provide a scientific argument for light as a body composed of "truly indivisible atoms."[38] He enters the scene in 1611 with the theatrical unveiling of a box containing a lump of *spongia solis*, or barium sulfide, before the Royal Society of London. Zajonc and Park each carefully point out that the truly

[36] Branner, (1965).

[37] We should recall the dualism brought about by Origen's differentiation between the spiritual and bodily senses. For a detailed history of this, see Rudy, (2002) chapter 2.

[38] Zajonc, (1993) 79. Curiously, Park writes that "[h]e does not say like Democritus that light consists of atoms… but Galileo adds words we should remember, that light pertains to the world of atoms," Park, (1997) 148. While the literal definition of light as a body composed of atoms is in debate here, it is critical that the literature does agree on Galileo's regard for light as "immaterial substance," Park, (1997) 148.

mystifying element in this was that both the stone itself and the light produced were cold.[39] In *Light Years*, popular science writer Brian Clegg notes of the demonstration, "Quite what was happening was a mystery, but it led Galileo to think that there was a relationship between the production of light and dividing material into its component atoms," an idea which the young scientist explores further in his text on comets and light, *The Assayer*.[40] In Platonic discourse, the element fire composes corporeal light, linking it to the tactile experience of heat, and yet here was a light source emanating from cold rock.[41] As in the Gothic cathedrals, light becomes embodied mass trapped within stone. However, in Galileo's demonstration it breaks away from the metaphysical associations of the Middle Ages, becoming corporeal in a purely physical sense. No longer strictly supersensory, although not yet completely free of its ties to the spiritual realm, light exists as autonomous material ready to be tested and measured through scientific experimentation.

This shifting view toward the material objectification and manipulation of light, along with experimentation in optics conducted by Johannes Kepler and Rene Descartes, opens the way for Sir Isaac Newton.[42] Around 1670 he uses a prism to break a ray of sunlight down into its constituent parts, postulating in 1704's *Opticks* that these parts may even be composed of smaller *corpuscules*, or particles, of varied size corresponding to different colors.[43] Color becomes a physical quality intrinsic to the body of light rather than a latent potentiality embodied by objects and later actualized.[44] For Newton, to conceive of breaking a ray of light down into smaller pieces necessitated its corporeity. Light possessed an ontological body, and it would take two centuries, a major shift in the perceived capacity of human agency brought about with Newtonian science, and Einstein's theory of relativity to fully convince the scientific world of anything to the contrary. Relativity effectively strips light of its physicality. Its nature is unimportant since its operation as wave or particle depends entirely on the context of a given experiment. With the

[39] Zajonc, (1993) 80 and Park, (1997) 148.

[40] Brian Clegg, *Light Years* (New York: Macmillan Press, 2008) 61. Clegg's text focuses even more heavily on the scientific story of light than Park's. However, here it is especially useful in rectifying the discontinuity between Park and Zajonc's accounts of Galileo's definition.

[41] "First, then, let us see what we mean when we call fire *hot*. Let's look at it this way: We notice how fire acts on our bodies by dividing and cutting them. We are all well aware that the experience is a sharp one […] It is this substance, more than any other, that divides our bodies throughout and cuts them up into small pieces, thereby giving us the property that we now naturally call *hot*," Plato, (2000) 54-55.

[42] Zajonc, (1993) 83 and Park, (1997) 198.

[43] Zajonc, (1993) 83-85.

[44] Park points out that Newton could have easily arrived at the conclusion that "color is a quality light receives from the prism," (1997) 201. This would have been an Aristotelian way of conceptualizing color and is in fact picked up by Descartes.

theory of electromagnetism, light loses its scientific claims to ontology.[45]

[45] For further exploration of the split imposed by the electromagnetic theory of light, see Jonathan Crary's *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (Cambridge: MIT Press, 1990). Although I agree with Crary about the impact of electromagnetism on the ontology of light within the physical sciences, I have argued that the initial divergence of light and vision occurs much earlier than this, with the dualism of the Early Christian Era.

Shadows and Mind: The Actuality of Seeing

Cathedral of Toledo: *Transparente*, 1729-1732 C.E.

When the experience of light gains autonomy as a phenomenon at the beginning of the Christian Era, vision is also isolated as an act of perception. While the Platonic tradition typically gives primacy to light as a substance, Aristotelian thinkers tend to focus on the role of vision. "Light is as it were the proper colour of what is transparent, and exists whenever the potentially transparent is excited to actuality by the influence of fire or something resembling the 'uppermost body.'"[1] Aristotle's language of potentiality and actuality establishes the primacy of perception in realizing the qualities of a concrete substance immersed in transparency. In the Early Christian Era following Origen, vision stands apart from bodily experience because of our physical inability to engage in an embodied relationship with an unknowable God. However, such a view holds credibility only when human agency, of which vision is an active component, remains subordinate to divine will.

In the third century, Origen develops the idea of the spiritual senses to reconcile his exegesis with anthropomorphic Biblical language seeming to refer to an embodied God. In a dualistic interpretation, he denies the possible corporeity of God through symbols, the technique used by Pseudo-Dionysius in addressing the same issue, positing instead that humans possess both bodily and spiritual senses. A Platonic thinker, he argues that we may only come to know the incorporeal and spiritual things of God by way of our spiritual senses, interpreting references to sight in the Bible as references to the internal sight of the mind.[2] This stems from Platonic notions of like perceiving like—only the spirit can perceive spiritual things. Twelfth and thirteenth-century scholars "are not very interested in the exegetical roots of the idea of the spiritual senses, but assume it is a concept that has to do with knowledge and the structure of the soul," reinterpreting it in terms of Aristotle's psychology and tying

[1] Aristotle, *De Anima*, trans. by Ronald Polansky (New York: Cambridge University Press, 2007).

[2] For a more detailed analysis of Origen's work, see Rudy, (2002) Chapter 2.

the spiritual senses explicitly to the Logos.[3] This Middle Age re-appropriation of Origen's spiritual senses into an Aristotelian framework leads to their previously outlined disparity with the writings of Pseudo-Dionysius and Robert Grosseteste. St. Augustine and others who favor the Aristotelian adaptation focus on the belief that the corporeal senses actually lead away from God. In the Middle Ages, religion holds its position at the foreground. Inner sight, as a result, becomes a more significant source of knowing than embodied sight, which cannot approach the fullness of supersensory divine truths.

Albert the Great, 1200-1280 C.E., develops a theory of vision in this tradition in which "[a] sense organ becomes connected with the faculties, communication takes place, then species arrive in the brain and are processed by the five internal senses of the soul."[4] We see that, while bodily vision and light are necessary to transmit spiritual light to the soul, it is the internal perception that ultimately culminates in the experience of sight within the mind's eye. Thomas Aquinas, a student of Albert, postulates the various reasons that light cannot be a substance. Thus, vision and perception take primacy over the action of light in determining experience. "If light is a quality, an important conclusion follows: an accidental quality cannot do anything…"[5] It is only from a basis in the Aristotelian understanding of light as transparent actuality that men are able to conceive of vision as an independent and largely internal process.[6] However, spirituality is not absent from these models. The soul is crucial and allows the revelation of Divine truth within the mind of the beholder. What is at stake remains the nature of a human relationship with God.

The thirteenth through fifteenth centuries hold great interest and advancement in techniques for perspective drawing among architects and artists, with some links to concurrent optical studies. Scholars often identify this period with the objectification and mechanization of the visual process, however, "[w]e must emphasize that while *perspectiva naturalis* sought to clarify human vision, it was concerned not with representation but with understanding the modes of God's presence…"[7] Sight still clung to the realm of the spiritual senses. The ability to consider vision in a purely mechanical sense does not exist until

[3] Rudy, (2002) 39. In *Origen Against Plato*, Mark J. Edwards actually goes so far as to argue that Origen himself tends toward an Aristotelian philosophy (Ashgate, 2002).
[4] Park, (1997) 115.
[5] Ibid. 117.
[6] Spirituality is not absent from these models. The soul is critical and allows the revelation of Divine truth within the mind of the beholder. What is at stake remains the nature of a human relationship with God.
[7] Alberto Perez-Gomez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge: MIT Press, 1997) 15. Perez-Gomez provides a thorough and thoughtful analysis on the development of perspectival representation and its ties to vision.

Johannes Kepler's discovery of the retinal image in 1604.[8] "The idea of the senses as receivers and decoders of information transmitted by physical means was a new one," and it acknowledged the non-light-based creation of a mental image when we *see* things, finally refuting Plato's extramission theory.[9] This crystallizes with Desargues' seventeenth-century treatise on projective geometry, *L'oeuvre mathématique de Desargues,* in which shadows, although not necessarily demystified, exist as objects following the rules of perspective foreshortening. Mind and body function mechanically, and perception eventually becomes a passive act realized within the mind itself—a sentiment further solidified by Cartesian dualism.

For Rene Descartes, 1596-1650 C.E., *space* is material, and light is simply a disturbance within it.[10] This understanding of light is quite clearly Aristotelian in nature, although Descartes has gone to great efforts to relieve himself of any dependence on existing modes of thought. The notion of space as a *dense medium* is directly reflective of Aristotle's concept of transparency. In his *Discourse on Method*,

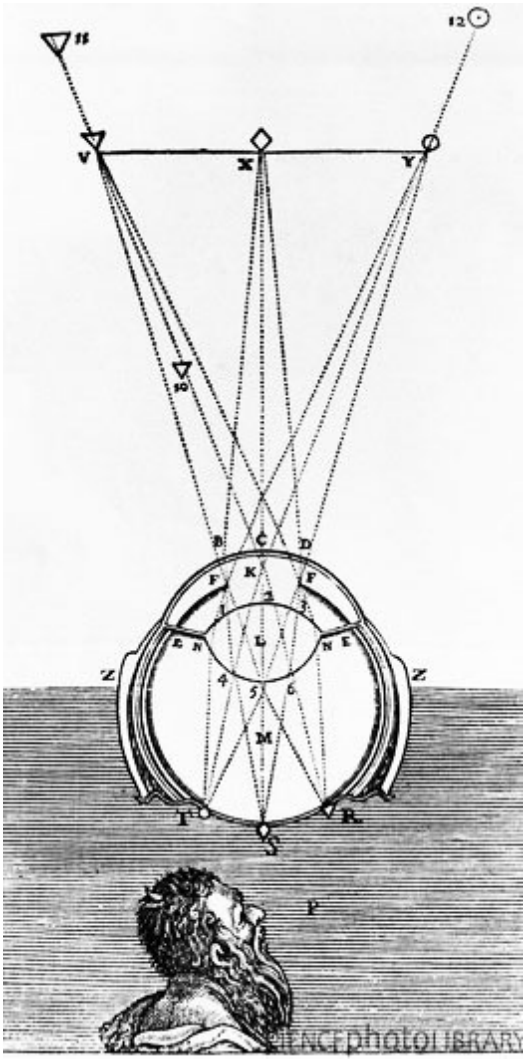


Figure 12. Light rays passing through the eye to the retina. Image from Rene Descartes' *Dioptrics*. As found in Park, (1997) 180.

Descartes writes, "Cogito ergo sum (I think, therefore I am)."[11] He "realized that our idea of the world is a mental construction based on sense perception of sight, sound, touch, taste, and smell rather than on participation in the world's forms,"[12] and so, in this

[8] Ibid. 12.
[9] Park, (1997) 136.
[10] Zajconc, (1993) . Park uses the term *pressure* to describe Descartes' understanding of light rather than *disturbance*. Pressure is perhaps a more appropriate term as it encompasses the directionality that light as vision possesses while it travels through space. Park, (1997) 179.

[11] Rene Descartes, *Discourse on Method and Meditations on First Philosophy* ed. David Weissman (New Haven: Yale University Press, 1996).
[12] Park, (1997) 181.

realization, he rends perception from experience. Here we see the beginnings of the Cartesian split between mind and body still present at times within contemporary thinking. Vision, as Descartes understands it, is not solely a product of light entering the eye—it is actualized within and by the mind itself (figure 12). Thinking, rather than seeing, serves as the active component in our engagement with the world, rendering the body as a passive receptacle for external stimuli. Despite this, vision recovers its central role as an active form of participation within religious art and architecture during the Baroque period at the end of the seventeenth century. This is particularly evident within the construction of *transparente* structures in Barroco Spain. We will explore this condition and its implications for larger issues of perception and agency through an analysis of the Cathedral of Toledo's *Transparente* and its relationship to concurrent shifts in painting, exemplified by the contemporaneous work of Diego Velázquez.

Tomé's Tabernacle

Transparente structures, which were meant to provide windows for viewing the Sacred Host within Catholic churches, first appeared in Spain in the fifteenth century. However, the Cathedral of Toledo's *Transparente* is the first of this type whose

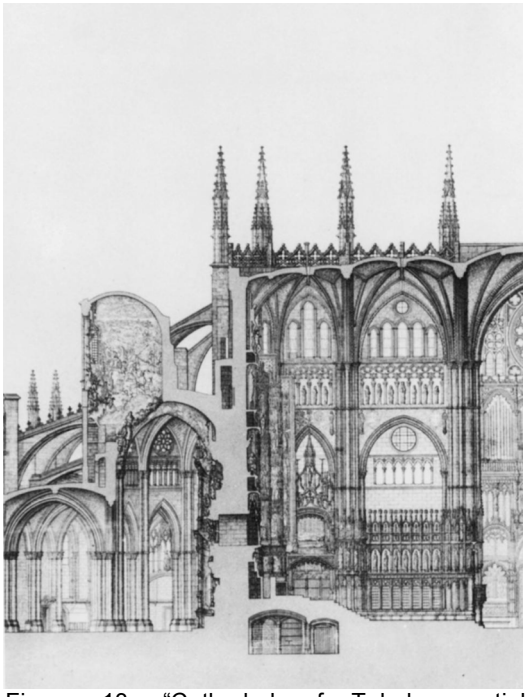


Figure 13. "Cathedral of Toledo, partial longitudinal section through east end." Source: Mallory, 13.

primary aim seems to be making the entry of light through the back of the retable visible, revealing the Divine Mystery of the Eucharist. The massive sculptural work consists of an oculus cut through the vaulted ambulatory behind the existing retable (figure 13). A beam of white daylight pierces the oculus, housed within a *cupulillo* oriented toward the east, and illuminates the otherwise impenetrable and shadowy darkness of the cathedral. It cascades across ornately sculptured and painted vaulting to shine onto the *trasaltar*, mingling divine *lux* with the sacred Host housed inside the tabernacle, which is hidden behind the golden sunburst Gloria and made visible from the nave through a similar opening above the main altar

Figure 14. View of illuminated trasaltar. Source: *Sacred Destinations*. April 4, 2007.

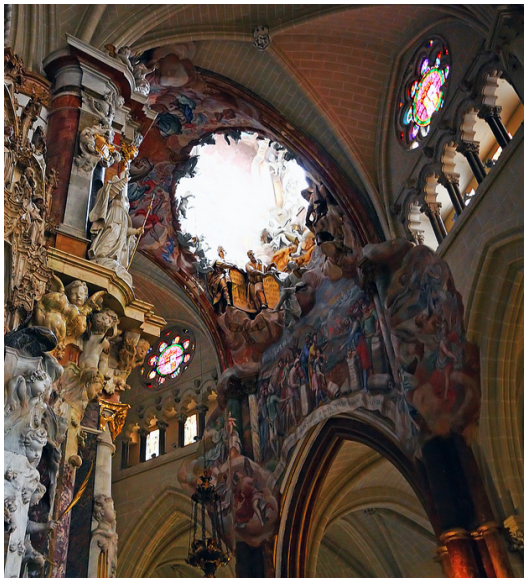


Figure 15. Oculus of the *Transparente*. Source: Wenjie Zhang. May 1, 2011. http://www.flickr.com/photos/zwenjie/5804010281/in/photostream/.

(figures 14 and 15). In this, the *Transparente* serves as a manifestation of the early origins of a modern architectural intentionality through its reliance on human agency and conversion of vision to an active form of worship in which human perception is required in enacting divine rituals.

The Cathedral of Toledo's main altar occupies an ornately carved and distinctly Spanish retable, creating a shadowy and clearly defined ambulatory space. Nineteenth-century pilgrims would have found themselves walking slowly through this dim corridor. Rounding the corner behind the altar, the space flooded with an intense glow (figure 16). A shaft of daylight pierced through the vault overhead, falling across the painted ceiling depicting scenes from the apocalypse to eventually give rise to an intricately carved *trasaltar* that seemed to capture the descending light, focusing it to a single point and reflecting it back in on itself until this entire section of the ambulatory hummed with an ethereal presence. The act of seeing the stream of light penetrating through the stone vaulting becomes significant through its ability to shock you, making you aware of the potency of your vision. However, when Cardinal Diego de Astorga y Céspedes visited the Cathedral for the first time in

Figure 16. View of the *Transparente* from the ambulatory of the Toledo Cathedral. Sketch by the author.

the eighteenth century, he found himself standing before a trasaltar shrouded in inky darkness. Separated from the nearest source of light by the ambulatory, the tabernacle lacked any form of direct illumination. Horrified by this, Astorga declared, "If God were to make me powerful, as he can, in that very instant I would remedy the defect, having a magnificent *transparente* carved here."[13] Upon being appointed Archbishop of Toledo in 1720, Astorga almost immediately commissioned the construction of the *Transparente* that I encountered on my visit, designed and constructed by Narciso Tomé as an addition to the ambulatory in 1729-1732.

Although the *Transparente* is often regarded as a work of "total art," which merely incorporates some architectural elements, we might argue that it functions as much more than this. Its intentionality and symbolic program, centered on the ritual of the Mass, are inherently architectural in nature. Its addition to the Cathedral changes the substance of the building itself and serves to literally frame the miracle of the Eucharist. The construction of the oculus required that a section of the existing thirteenth-century vaulting over the ambulatory directly behind the retable be removed completely. Such an act, risking the integrity and wholeness of the cathedral, was incredibly bold. However, when considering the role that divine agency played in the structural understanding of Gothic architecture, which privileged the will of God over any human knowledge of engineering, it seems that something else may have been at stake here. The rapid construction of the *Transparente* implies a sense of urgency and necessity—it needed to happen and would be brought into the world through the Divine Will of God. Despite this, upon its completion the massive altarpiece was almost immediately the subject of great praise and intense debate—at once hailed

[13] Castañeda "Aprobación del M. R. P. Presentado Fr. Juan Antonio González de Frías," in Nina Mallory, "Narciso Tome's *Transparente* in the Cathedral of Toledo (1721-1732)," *Journal of the Society of Architectural Historians*, Vol. 29, No. 1 (Mar., 1970) 11.

as the “eighth wonder of the world” in a poem by Fr. Francisco Rodriguez Galan and denounced as an excessive atrocity by D. Antonio Ponz in his *Viaje de España*.[14]

While the intention in creating a second vantage point for direct veneration of the Host from the ambulatory through the addition of the trasaltar most likely served to facilitate its adoration by pilgrims without disrupting the ritual of the Mass, the necessity for the physical presence of light at this spot remains unclear. It points toward a need for the intervention of observable divine light in order to fulfill the miracle of transubstantiation, which completes the ritual of the Mass. Earlier Gothic cathedrals also utilized architecture as a means of making the Divine apparent to the senses through a physical participation in light.[15] However, here we see an intention within the construction and liturgical program of the *Transparente* that is markedly different and pushes us toward a new reliance on vision and *seeing* as essential to sustaining faith in the Mass in

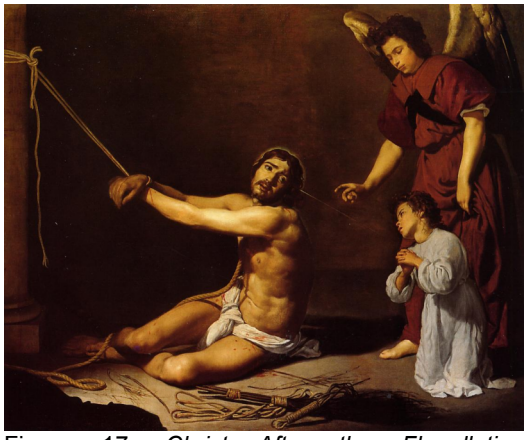


Figure 17. *Christ After the Flagellation Contemplated by the Christian Soul*, Diego Velázquez, 1628-29.
Source: http://www.nationalgallery.org.uk/

the face of a rising belief in Newtonian science and human agency. Tomé’s window opens up a portal through which we might observe the visible presence of the Divine within the Eucharistic celebration. Through an examination of the artistic and theological context surrounding the Barroco movement in seventeenth and eighteenth-century Spain, we will aim to identify the shift towards vision as an active form of worship and to reveal its influence on the architecture of the *Transparente*.

Velázquez and the Bleeding of Worlds

The shift in the relationship between vision and tactile experience away from the passive condition imposed by Cartesian dualism becomes apparent in the reflexive condition established between the world and the work within the paintings of Barroco artist Diego Velázquez. Through his paintings, he challenges the viewer to

[14] F. Rodrîguez Galán, *Octava maravilla cantada en octavas rithmas. Breve descripción del maravilloso Transparente, que costosamente erigió la Primada Iglesia de las Españas…*, Toledo, 1732 and D. Antonio Ponz, *Viaje de España,* Madrid, 1947, First ed. 1772-1794 in Mallory (March, 1970).

[15] This becomes evident within the architecture and organization of Gothic pilgrimage churches including the Sainte-Chapelle in Paris, France. This understanding of supersensory light as the physical manifestation of God within the world, made possible by the Incarnation, can be traced through the writings of Robert Grosseteste and the Franciscan interest in a Neo-Platonic metaphysics.

extend their presence beyond the realm of the tactile and into the visible space of the work itself. In this, experience and perception come together in a way that prefigures the union later recovered through twentieth-century phenomenology. Of particular significance to our analysis is *Christ After the Flagellation Contemplated by the Christian Soul* (figure 17). Velázquez depicts Christ in his most vulnerable state. He sits, disrobed and slumped back, held up by the bloody ropes tying His wrists to a column that extends beyond the edge of the canvas. The painting is almost entirely dark except for a hidden light source that seems to emanate from somewhere deep within His body until His skin glows brightly against spatters of blood that provide tangible evidence of His suffering. The trail of blood guides our eyes across the canvas to its source, a pile of lashes that opens up a gulf between Christ and the childlike Christian Soul clothed in white kneeling beside him. An angel stands behind the soul, looking down at him, and points toward Christ's back, which is hidden from us. The Soul's eyes follow the angel's finger to sit transfixed upon wounds we will never see. Our gaze traces the Christian Soul's to settle on the face of Christ, who stares back toward us at a point not confined to the space of the canvas, pulling the work out into the world before it.

Jeremy Roe asserts that in this piece "Velázquez did not simply offer his spectators a ready made composition to imagine; instead he expected them to 'enter' into it and supplement its details."[16] As the world bleeds into the work, the work also bleeds into the world through the gaze of the Christ figure. The cropping of the objects around the frame implies the presence of a much more vast space *within which* we are standing as well as an extended temporality that does not freeze the action of the painting. Rather, it brings the work into a continual and participatory thick present activated by its *being seen* by the viewer, a condition also set up by the sculptural elements of the *Transparente*—angels and clouds that seem to dive and shift as our gaze turns toward them. We cannot, however, look directly on the lash-marks signifying Christ's corporeity. He turns his back to us, blocking our view and leaving us to imagine the extent of the wounds we know are there, fully exposed only to the child-soul whose expression provides confirmation of their severity. We should carefully note this *need* for visual confirmation, which also seems present in the need for divine *lux* mingled with the Host to confirm its transubstantiation and the presence of Christ within the cathedral.

This approach to painting, sculpture, and architecture became commonplace in

[16] Jeremy Roe, "Nature and Beauty in Velazquez's Representations of Christ," in *Imagery, Spirituality, and Ideology in Baroque Spain and Latin America*, eds. Jeremy Roe and Marta Bustillo (Newcastle upon Tyne: Cambridge Scholars Publishing, 2010) 92.

Barroco work and would no doubt have heavily influenced Tomé, an artist himself, whose brother Diego was working as a sculptor. Karsten Harries argues that the Rococo, of which the Barroco was the Spanish manifestation, constitutes a break in the frame separating artwork from reality.[17] With the implicit dissolution of the picture plane, the perspectival world of the work of art bleeds into and mingles with the world of lived experience, and we are placed precariously at the threshold of being able to understand the two as somehow equivalent. It inserts perspective into the world in a way that was previously not possible, implying that we see and experience space perspectivally. Following Newtonian shifts in science, however, this could be regarded as the observable presence of a divine and mysterious God within a rationally immanent natural world. This new understanding of the space of the divine as *directly* perceptible problematizes the transubstantiation of the Host during the celebration of the Mass, which is by definition imperceptible. John Moffitt reads the *Transparente*'s oculus window as the image of God within a larger *Allerheiligenbild*, or "All-Saints" representation, noting the anamorphosis revealed from the vantage point of the *cupulillo*.[18] In this Oculus Dei, God functions much like the Christian Soul depicted in Velázquez's painting—bearing witness to the corporeity of Christ through the mystery of the transubstantiation within the tabernacle, which is hidden from both our eyes and our range of bodily perception. Our ability to see the light pouring in through the oculus—the physical presence of the divine within the world—fulfills the need for visible confirmation of the Sacrament.

In his discussion of "pious perception," Moffitt seems to argue that the role of perspectival space was purely to engage the optical sense. However, it seems that this moment in the eighteenth century is, rather, the final stand of a full tactile engagement with vision—one in which perspective enters the world in a wholly different way through the necessary visual and perceptible presence of the Divine. The role of vision, in the case of the *Transparente*, is made active through its direct participation in the worship of the Blessed Sacrament. Seeing itself becomes an essential act. In Western Christian Basilica Plan Churches, the collective vision of the congregation is directed toward the elevation of the Host during the Mass. "This point of optical focus, the Eucharistic container itself, was repeatedly said to represent a historical architectural

[17] Karsten Harries, *The Broken Frame: Three Lectures (*Catholic University of America Press, 1989).

[18] John Moffitt, *Painterly Perspective and Piety: Religious Uses of the Vanishing Point, from the 15th to the 18th Century* (Jefferson, NC: McFarland and Company, Inc., 2008) 217, 232.

prototype, the Tabernacle."[19] This insight concerning the privileged place of the tabernacle reveals the potential implications of the new significance of vision as an active form of worship on the architecture and intentionality of the *Transparente*.

Tabernacles and Transubstantiation

In the Old Testament, the tabernacle, coming from the Latin *tabernaculum* meaning "tent," was "a tent used as a sanctuary for the Ark of the Covenant by the Israelites during the Exodus and until the building of the Temple."[20] Likewise, within Catholic churches, it serves as the receptacle for the reserved Sacrament—the container for the Body of Christ, the Word made Flesh. Tabernacles and monstrances traditionally had a "micro-architectural" intention.[21] At a small scale, they provided a symbolic dwelling place for God amongst His people on earth. In Exodus, God orders Moses, "Make me a sanctuary so that I can reside among them. You will make it all according to the design for the Dwelling and the design for its furnishings which I shall now show you."[22] He goes on to describe, in great detail, the construction of the Ark, the mercy platform on which it will sit, the Dwelling to house it, and the tent within which the Dwelling should stand, perpetually illuminated by the lamp burning within it, before concluding, "There I shall meet the Israelites in the place consecrated by my glory."[23]

Through the construction of the *Transparente*, the Cathedral itself becomes a massive tabernacle housing the Divine Light of God's presence with the trasaltar serving as the screen "mark[ing] the division for you between the Holy Place and the Holy of Holies" manifest within the Sacred Host housed inside it.[24] This differs from the accepted understanding of the church building as a reliquary, discussed earlier in regard to Sainte-Chapelle. The tabernacle precedes the reliquary by providing a dwelling place for the corporeal Body of the Divine, made doubly necessary after the Barroco melding of the world and the work previously noted. In this regard, the frontal view of the trasaltar itself resembles a *caliz custodia*, or "chalice-

[19] Moffitt, (Jefferson, NC: McFarland and Company, Inc., 2008) 141.
[20] "tabernacle noun" *Oxford Dictionary of English*, Edited by Angus Stevenson, Oxford University Press, 2010, Oxford Reference Online, Oxford University Press, McGill University, April 2012. <http://www.oxford reference.com/views/ENTRY.html?subview=Main&entry= t140.e0839660>
[21] Moffitt, (Jefferson, NC: McFarland and Company, Inc., 2008) 201.
[22] "Exodus 25:8-9 (New Jerusalem Bible)" in *New Jerusalem Bible*, http://www.catholic.org/ bible/ accessed April, 2012.
[23] "Exodus 29:43 (New Jerusalem Bible)" in *New Jerusalem Bible*, http://www.catholic.org/bible/ accessed April, 2012.
[24] "Exodus 26:33 (New Jerusalem Bible)" in *New Jerusalem Bible*, http://www.catholic.org/bible/, accessed April, 2012.

Figure 18. Design of a *caliz custodia*. Source: Archive of the Cathedral of Valencia.

monstrance" (figure 18).[25] The monstrance is traditionally stored within the tabernacle, thus strengthening the effect of the *Transparente* acting as a monstrance for viewing the Host within the larger tabernacle of the Cathedral proper, setting up a layered veiling of the Divine as His presence becomes increasingly imperceptible to the range of human senses. The building serves as a tabernacle to house the divine light pouring in through the *Transparente*; the *Transparente* becomes both monstrance and tabernacle, housing and framing the more traditional Tabernacle embedded within the retable's back wall; the Tabernacle houses the Sacred Host; and through consumption of the Host our bodies—witness to each of these events—also become tabernacles to house the spirit of Christ within our souls. Thus, the light piercing into the shadowy space of the Cathedral through the *Transparente* ultimately attains the same bleeding of one realm into another achieved within Velázquez's painting as God comes to dwell within our bodied flesh. It is all part of a singular gesture, channeling the divine through different levels in a manner similar to the descent of *lux* through the spheres in Grosseteste's *De Luce*.[26] Here, however, the *appearance* rather than the *substance* of the light changes.

To transform means, "to make a marked change in the form, nature, or appearance of."[27] In Catholic dogma, transubstantiation goes beyond the order of perceptible appearance to change, fundamentally, the *substance* of a thing—its being or essence. The term *transsubstantiatio* is first officially used in regard to the Eucharist at the 1215 IV Lateran Council where it was written, "There is one Universal Church of the faithful, outside of which there is absolutely no salvation. In which there is the same

[25] Moffitt, (Jefferson, NC: McFarland and Company, Inc., 2008) 220.

[26] "But in proportion as these spheres are lower they receive this motion in a more weakened state, because in proportion as a sphere is lower the purity and strength of the first corporeal light is lessened in it," in Robert Grosseteste, *De Luce* trans. by Clare Riedl, (Milwaukee: Marquette University Press, 1942) 16.

[27] "transform verb" *Oxford Dictionary of English*, Edited by Angus Stevenson, Oxford University Press, 2010, Oxford Reference Online, Oxford University Press, McGill University, April 2012. <http://www.oxfordreference.com/views/ENTRY.html?subview=Main&entry=t140.e0877370>

priest and sacrifice, Jesus Christ, whose body and blood are truly contained in the sacrament of the altar under the forms of bread and wine; the bread being changed (transsubstantiatio) by divine power into the body, and the wine into the blood, so that to realize the mystery of unity we may receive of Him what He has received of us,"[28] and this conversion was concretely termed Transubstantiation within Catholic dogma in Canon 2 of the 1551 Council of Trent.[29]

Under the influence of St. Thomas Aquinas in the thirteenth century, the belief in transubstantiation followed an Aristotelian (as opposed to a Neo-platonic) metaphysics in which *substance* is bound up in a thing's imperceptible and essential nature rather than its perceptible appearance. Thus, the Host retains the appearance of a wafer even after its substance has become the Body of Christ. The Divine, in this case, is not supersensory—His presence is both fully corporeal and fully imperceptible. Tomé's *Transparente* was intimately bound to this ritual. The completion of the work in 1732 was celebrated by festivities coinciding with the feast of Corpus Christi. This is, appropriately, the feast celebrating the mystery of transubstantiation and the presence of the Body and Blood of Christ in the Eucharist. The celebration entails a procession of the Blessed Sacrament through the city, an event that was known to be quite extravagant in Toledo.[30] Mallory notes the centrality of the Sacrament to the *Transparente*'s symbolic program, asserting, "[The sculptural elements] suggest that the breaking of the vault is the effect of a supernatural event taking place with occasion of the exposition of the Sacrament. The little scene of the angels in the window in particular is clearly intended to suggest that the new opening in the vault is due to the miraculous irruption in the cathedral of a mystic light to illuminate the Sacrament."[31] The shift in the appearance of the Divine made possible through the *Transparente*'s incoming light becomes crucial in the eighteenth century in fostering faith in the miracle of transubstantiation of the Host in light of increasingly accepted Newtonian ideas concerning the rationally perceptible nature of divine order within the world. Isaac Newton himself is thought to have questioned the validity of the Trinity and the unity of God and man.[32] This challenge to the human embodiment of a

[28] "Canon 1, Twelfth Ecumenical Council: Lateran IV 1215," Medieval Sourcebook, Fordham University, http://www.fordham.edu/ halsall/basis/lateran4.asp.

[29] "Documents of the Council of Trent, Session 13," under Pope Julius III, October 11, 1551, accessed April, 2012, http://www.catholic-forum.com/saints/ trent00.htm.

[30] See Chapter 10. "Host Worship and the Spanish *Custodias Procesionales*" in Moffitt (Jefferson, NC: McFarland and Company, Inc., 2008) on monstrances.

[31] Nina A. Mallory, "Narciso Tome's *Transparente* in the Cathedral of Toledo (1721-1732)," *Journal of the Society of Architectural Historians*, Vol. 29, No. 1 (Mar., 1970) 21.

[32] Stephen D. Snobelen, "Isaac Newton, heretic: the Strategies of a Nicodemite," *British Journal for the History of Science* vol. 32, 1999, 381-419.

wholly divine God is made apparent by the pressing *need* to construct *transparente* structures in order to complete the mystery of the Eucharist. A continued belief in the actualization of the Eucharist now requires some form of visible evidence. After the Incarnation, God is no longer wholly beyond the realm of body, and through the transubstantiation he is embedded within it, recovering the Medieval significance of geometry and light as the material expression of the divine, as in the case of Sainte-Chapelle. However, unlike the direct participation in light experienced through the stained glass of Gothic Cathedrals, the *Transparente*'s light is distant from us, no longer surrounding us and attainable only through the Host in the Sacrament of the Eucharist—a corporeal engagement with the Divine that privileges active vision above all else.

Active Vision as Agency

Thus, the necessary presence of the *Transparente* points to a shift in the eighteenth-century towards vision as an active form of worship with clear influences on the intentionality of both Barroco art and architecture. As an architectural work, the *Transparente* must frame and facilitate the transubstantiation by making it visible. With a newly emerging Enlightenment outlook on human agency, perceptibility and observation are requisite for the perpetuation of a faith in the Divine. There can no longer be a belief in supersensory phenomena in the complete absence of sensory evidence—divine order and geometry must be *observable*.

This need for visible confirmation brought out by the expansion of the divine into the world becomes evident within Velázquez's work. In *Christ After the Flagellation*, the gaze of the Christian Soul affirms for us the presence of wounds—evidence of Christ's humanity—that are otherwise hidden from our eyes within the depths of the canvas. The *Transparente*, as a depiction of God, operates on a similar level. It provides an eye, perceptible to our own, capable of observing the Sacred Mystery that would otherwise be inaccessible to us.

Moffitt's reading of the cupulillo as an Oculus Dei and the trasaltar as an anamorphic scene set up for God through the oculus peep-hole strengthens the argument that the light pouring in through the oculus was thought to come directly from God as a manifestation of His presence within the world, contained within the Tabernacle of the Cathedral itself, that is actually necessary to endow the Sacred Host with divine substance. The alteration of the substance, then, occurs through an act of sight. There is a definite privileging of the visual, which has its roots in the intense emotional response linked to the exploitation of linear perspective within basilica plan cathedrals centered around

Spanish Host-worship. This privileging deepens with the emerging expectation that we should be able to observe the divine within the world. The Barroco constitutes the threshold of a seemingly modern visual hegemony, and yet here the sense in question takes on an active rather than a passive role. Modern architecture seeks to transform the world by acting upon it. In this regard, one could argue that Modern architecture originates with the belief that human action can make a lasting and perceptible change within the world. Its intentionality comes up from a new faith in the power of human agency, the beginnings of which are already evident in the active vision linked to the *Transparente* in the eighteenth century. The light pierces through the vaulting of the cathedral in an act rendered simultaneously violent and delicate. It opens up the space of desire and hunger for unity with God actualized by the ritual of the Mass, which can only be completed through our seeing it. Vision as action, then, stands as conceptually separated from light—an external expression of Descartes' thinking logos.

Interest in the nature of light, however, remains an important pursuit. Leonhard Euler builds on Descartes' view of space as material and asserts that light functions as a wave.[33] He makes an analogy to sound waves, implying that our eyes are able to perceive wave-vibrations in the same way that our skin and ears do and that vision is only one form of seeing—a notion that we will now see picked up by Modern painters in the pursuit of a secular spirituality through visual tactility. The abstract Modern art movement has a profound influence on developments in both sacred art and Modern architecture, leading to the meeting of experience and perception that maintains the subjectivity granted to light as the presence of the Divine as in the *Transparente* even after God is banished from the corporeal world.

[33] Park points out that Euler was the only 18th century scientist to publicly pursue a wave theory of light, (1997) 235. This illustrates how deeply rooted substantial light was in all levels of society at that time. To propose anything else was both difficult and risky.

The Threshold of Convergence: Seeing as Experience

Chapel Notre-Dame-du-Haut, Ronchamp, 1950-1954 C.E.

In building this chapel I wished to create a place of silence, of prayer, of peace, of spiritual joy. A sense of the sacred animated our effort.

Le Corbusier[1]

Scientific, theological, and philosophical views of light and human perception heavily influenced an architect's intention to reveal the spiritual through the interplay of body and building. For the early modern viewer, this revelation came to bear through seeing as a necessary act in coming to know and believe in the presence of the Divine, as observed in the liturgical function of the *Transparente*. However, during the nineteenth and twentieth centuries science increasingly mechanized vision, reducing it to the passive reception of retinal images in which seeing served as a tool of direct correspondence rather than a window into the spiritual realm. Influenced heavily by romantic philosophy and phenomenology, a number of artists and architects rejected the separation of light from our experience of it imposed by scientific models of vision as passive and mechanically driven, essentially constituting a union of Platonic light and Aristotelian vision. In this, "[m]eaningful architecture depends on a realization that visible form and language refer to something other, recognized only when the dominant sense of vision is mediated by the body's primary tactile and synaesthetic understanding."[2] As *embodied images* and *lived metaphors*, then, spaces capable of truly moving us do not restrict our understanding of light to purely visual realms.[3] They allow us to meet it with our bodies rather than our eyes. Light regains its substantiality through our experience of it. This shift in the relationship of vision to the tactile senses calls for a redefinition of light as the generator of architectural form and meaning.

[1] Le Corbusier, *The Chapel at Ronchamp* (New York: Frederick A. Praeger Publishers, 1957) 25.

[2] Frances C. Lonna, diary, 1998 in Alberto Perez-Gomez, *Built Upon Love: Architectural Longing After Ethics and Aesthetics* (Cambridge: MIT Press, 2006) 204.

[3] For more on the role of the embodied image in disseminating architectural meanings, see Juhani Pallasmaa, *The Embodied Image: Imagination and Imagery in Architecture* (West Sussex: John Wiley and Sons, 2011).

In the nineteenth century, before Einstein redefined space-time, the poet and artist Johann Wolfgang von Goethe allowed the primitive source of Beauty—the *Urphanomen*— to exist unquestioned. [4] Rather than trying to analyze the nature and origin of light, he sought to understand the visual perception of color, stating, "In reality, any attempt to express the inner nature of a thing is fruitless. What we perceive are effects, and a complete record of these effects ought to encompass this inner nature."[5] His words echo Aristotle's assertions. Within Goethe's model of vision, humans perceive the effects of things as they come to actuality, realizing the fullness of their composite nature. In his experiments, Goethe became absorbed by the idea that darkness is equally critical to light. He observed colored shadows resulting from chromatic adaptation, a phenomenon demonstrating the active nature of sight assumed earlier by the *Transparente*. He emphasized the "imaginative power active within sight."[6] Visual perception did not result as a pure expression of the properties of light itself. Rather, the eye perceived and then reinterpreted sensory data to result in the experience of sight. Color, as we perceive it, becomes a combined expression of vision and imagination rather than of light—a conclusion that depends heavily on the mental component of vision presented by Descartes while also diminishing its abstract mechanization.[7]

Flesh and Form: In Search of Spirituality

In the twentieth century, theologians and philosophers observed a notable decline in the sacredness of religious art running parallel to science's increasing mechanization of vision as a passive act. Mircea Eliade writes, "There is a certain symmetry between the perspective of the philosopher and theologian, and that of the modern artist; for one as for the other the 'death of God' signifies above all the impossibility of expressing a religious experience in traditional religious language."[8] This impossibility has been attributed to the fact that religious artwork was no longer an appropriate means for

[4] Park, (1997) 242. Park explains Goethe's description of color as put forth in *Farbenlehre* in 1810. He largely dismisses Goethe's experiments, noting their lack of scientific and mathematical grounding and proposing that Goethe was too much a poet. Clegg notes that the confusion present in Goethe's work lies primarily in its intention. "In effect, both Goethe and Newton were right, but Newton was describing what *light* was like, while Goethe was describing what *the human perception of light* was like. Had this been his intention, Goethe's work would have stood up as a useful contribution to the sum of scientific knowledge," (2008) 104.

[5] Goethe, *Scientific Studies* (New York: Suhrkamp, 1988) 158, in Zajconc, (1993) 202.

[6] Zajonc, (1993) 198.

[7] This is supported by Goethe's disdain for Newton, which is discussed by both Park and Zajonc. (1997) 239 and (1993) 201.

[8] Mircea Eliade, "The Sacred and the Modern Artist," in *The Religious Imagination in Modern and Contemporary Architecture: A Reader* edited by Renata Hejduk and Jim Williamson (New York: Routledge, 2011) 123.

conveying divine truth through the didactic use of symbols and portrayal of biblical narrative. In the face of a new confidence in human agency and the interpretation of sensory data by a mechanical body, these symbols lost the inherent power formerly attributed to them and sunk to the level of mere representation. Many, including Marie-Alain Couturier, identified the beginnings of a commodification of the religious image through the mass reproduction of icons following this symbolic reduction. This carries over into a lack of spiritual intention embodied within cathedral architecture, which reaches its climax with the construction of the basilicas at Lourdes, Lisieux, and Fatima.[9] Each of these pilgrimage churches uses a revival of traditional styles to create a massive presence dominated by figurative stained glass and iconography depicting the miracles that occurred at the site. The argument raised by opponents of these structures, including Paul Claudel and Jacques Maritain, is that they were constructed to attract pilgrims through their grandeur, becoming tourist sites, rather than to celebrate the ritual of pilgrimage itself.[10]

In the face of the growing crisis, a group of French clergy, the Commission d'Art Sacré, recognized the need to reconcile

Figure 19. Église Notre-Dame de Toute Grace du Plateau d'Assy, featuring work by Bonnard, Léger, Rouault, Bazaine, Matisse, Braque, Chagall, Lipchitz, and others. Source: Maurice Novarina, http://tetramorphe.blogspot.ca/

Catholicism with a secular spirituality in order to produce truly sacred art or architecture in modern times. Maurice Denis and George Desvalliéres pioneered this effort in founding the Ateliers d'Art Sacré in 1919. While the Ateliers exerted very little real influence, the search for renewed spirituality within the work of art gained momentum in postwar France. "A first ray of hope came in March, 1939, when Abbé Devémy decided to leave the beaten path and asked Père Couturier to direct the decoration of the church of Assy, a city sanatorium in the Alps" (figure 19).[11] Couturier, an artist from the Ateliers d'Art Sacré, joined the Dominican order in 1925 and, beginning in 1937, continued his involvement in the matter as co-editor with Pére Pie-Raymond Régamey of *L'Art Sacré*, a review printed to further the

[9] Marie-Alain Couturier, *Sacred Art,* trans. by Granger Ryan (Austin: University of Texas Press, 1989) 157.
[10] Ibid

[11] Dominique de Menil, "Introduction" from Marie-Alain Couturier, *Sacred Art* (1989) 157.

Figure 20. Interior of south wall at Chapelle Notre-Dame-du-Haut, Ronchamp. Photograph by the author.

discussion and dissemination of religious art.[12]

Within the articles he wrote for *L'Art Sacré*, Couturier professed that abstract art, in conveying intrinsic beauty, could have religious potential. This belief constituted a significant break from the formerly representative nature of religious art—even in the *Transparente*, the incoming light itself served as a direct representation of God within the work as an *Allerheiligenbild*. Couturier maintained close relationships with artists including Georges Braque, Fernand Léger, Henri Matisse, Pablo Picasso, Joan Miró, and Georges Rouault, resulting in their commissions for the chapels at Assy, Vence, and Audincourt. This collaboration with both Catholic and non-Catholic artists demonstrated a radical new approach to the creation of sacred art. Influenced by German Romantic notions of artistic genius, Couturier was convinced that the Catholic church must look to the masters outside of the faith in order to attain the truly spiritual. "The theory of artistic genius formulated by the Romantics is aligned with the idea that the creative artist is a prophet, an expressive instrument enunciating God's Word."[13] Thus, Couturier believed that by enlisting the aid of the great masters of Modern art the church was actually establishing a more direct connection with God's divine truth.

According to Couturier, "To be *true* today, a church should be no more than a flat roof on four walls. But their proportions, their volume, the distribution of light and shadow, could be so pure, so intense, that anyone coming in would feel the spiritual dignity and solemnity of the place. God is glorified not by richness and hugeness but by the perfection of a pure work."[14] For the reconstruction of the Chapel Notre-Dame-du-Haut at Ronchamp in 1950, Couturier and the Commission d'Art Sacré enlisted Le Corbusier to take precisely this approach (figure 20). The chapel became his first built religious work after the controversy surrounding his design for the Basilica of Sainte-Baume in 1948, which was never completed. Le Corbusier's selection for the project followed the recommendation of Canon Ledeur, Secretary of the Besançon Commission d'Art Sacré, and met with great

[12] Ibid.

[13] Joseph Burton, in *The Religious Imagination* (2011) 68.

[14] Couturier, *Sacred Art* (1989) 42.

resistance from leading church officials. However, he had the full support of the Commission, especially Couturier. Although Couturier died just before the chapel's completion, the artist-priest and architect maintained constant dialogue and developed a close friendship throughout the design. The overlap and synthesis of their ideas regarding Modern art, although often overlooked, are clearly etched into the forms of Ronchamp and later carried into the design for the convent Sainte Marie de La Tourette in 1953, also commissioned by Couturier before his death. While many Modernists at the time condemned the project as opposing the pursuit of rationalism, Le Corbusier's acceptance of the commission reveals that for him the aim of Modernism was perhaps closer to that professed by Couturier—it sought to reveal the poetic and invisible "flesh of the world" through artistic creation and the unveiling of the pure form, an intention embedded clearly in much of his written work.

During design, Le Corbusier consulted Couturier and various religious art journals—presumably including *L'Art Sacré*—to familiarize himself with the demands of the Catholic liturgy. Studies of his annotations and comments written in his sketchbooks reveal that he exhibited a particular interest in the site's history as a place of pilgrimage and destruction and in the cult of the Virgin Mary, to whom the chapel is dedicated. These interests seem to have paralleled his fascination with alchemy and the union of opposites—especially the meeting of matter and spirit brought about by the Incarnation and historically symbolized in painting through rays of light falling down upon the Virgin. The reintroduction of light as a phenomenon to be experienced in a sensuous manner through built form, then, aligns critically with the Commission d'Art Sacré's push for the emergence of a secular spirituality through Modern art.[15] This time, however, the intentionality falls into the realm of *lighting*—light articulated by shadow and called into participation in being in the world. "Lighting is not light itself. Lighting is the chiasm of light, or light as flesh. Lighting belongs to the 'body,' whose irreducible obscurity is an opening against which, or in whose divergent senses, there can be a coming to light of a perceivable world."[16] The Chapel at Ronchamp presents a unique opportunity to examine the spiritual basis of Le

[15] Throughout the 19th century, following Faraday and Maxwell's work on electromagnetism, there is a disjuncture at all levels between the spiritual and the scientific in which the spiritual is not always so embedded as it had been previously. The recognition that light could be reduced to something like a field diminished its ontological body and presence as divine material, shaking the belief system that had dominated since the mysticism of the Middle Ages. Zajonc (1993) 220.

[16] Cathryn Vasseleu, *Textures of Light: Vision and Touch in Irigaray, Levinas and Merleau-Ponty* (London: Routledge, 1998) 48. Vasseleu provides an excellent study on the importance of light and vision in the phenomenological philosophies of Luce Irigaray, Maurice Merleau-Ponty, and Emmanuel Levinas.

Corbusier's use of light as the material that binds the incorporeal and corporeal—or human bodies and the divine within Catholic doctrine.

In *Towards a New Architecture*, Le Corbusier famously writes, "Architecture is the masterly, correct, and magnificent play of masses brought together in light. Our eyes are made to see forms in light; light and shade reveal these forms…"[17] At Ronchamp in 1950, this play between light and mass becomes central to Le Corbusier's design in a new and meaningful way. Light dematerializes mass, cutting through shadow and making it appear darker—deeper. Shadows trail across gunite walls, textured like sandpaper, and, when followed, lead to hidden pockets of densely channeled light full of color carving out and illuminating smaller chapels. Light and shadow provide the media through which Le Corbusier communicates with visitors, immersing them in a fully synaesthetic visual tactility. The use of light at Ronchamp, while often mentioned, has not been discussed with a due level of importance that considers its direct relationship to Couturier's beliefs regarding the work of art and its parallels with the spiritualization of the originally secular ideas presented within the late phenomenology of Maurice Merleau-Ponty. Through an examination of the potential of Modern art as defined by Couturier in *L'Art Sacré* and contemporaneous phenomenological discourse in postwar Paris, we will now attempt to open up a reading of light as *objet ambigu* and revealer of form in Le Corbusier's Chapel at Ronchamp.

The Poetic Moment and Pure Form

The crucial link between Le Corbusier and Courturier's thoughts on the potential power of Modern art lies in what Le Corbusier refers to as the *poetic moment*. He remarks, "Painting, architecture, sculpture, are unique phenomena of plastic nature in the service of poetic research in that they are capable of releasing the poetic moment."[18] The poetic moment links the viewer's experience of the work of art to an act of showing intent and meaning on the part of the artist, which manifests within architectural works through the play of light and shadow. Abstract Modern art, then, becomes a lived experience revealing beauty as figurative religious art formerly revealed divine truths to its beholders. The potential Courturier identifies of renewing sacred art through a secular spirituality rests firmly within this revealing. Architecture, as a plastic art, accomplishes

[17] Le Corbusier, *Towards a New Architecture*, trans. by Frederick Etchells (New York: Dover Publications, 1986).

[18] Danièle Pauly, *Le Corbusier: The Chapel at Ronchamp* (Basel, Birkhauser, 2008) 96 from Le Corbusier, *Œuvre Complète*, vol VI (Zurich: Editions Girsberger, 1957) 11.

Figure 21. *The Annunciation*, Fra Angelico, 1430. Source: http://www.lib-art.com/

this on a profound level by layering meanings held within the physical and historical context, the program, and the poetry of the work and by allowing us to be embedded within the work itself rather than merely viewing it from a distance, exemplified by architectural historian Robert Coombs' reading of Ronchamp as a spatial translation of earlier Christian representations of the Annunciation (figure 21).[19] Through architecture, then, we may begin to question the normative subject-object relationship of user and building in favor of the intersubjectivity grounded by the intimacy of enclosure and movement through space that painting, when practiced as a purely representative exercise, would struggle to achieve. This shift of subjectivity to the work itself establishes the reflexive condition between matter and spirit implied by Catholic doctrine.

Couturier viewed art as a language whose primary aim was the revelation of beauty through pure forms.[20] In *L'Art Sacré* he wrote, "For beauty, of itself and by itself, is a genuine good: *diffusivium sui* (self-diffusing). Pure forms, just by *being* before our eyes to see, 'tune' us (as a piano is tuned) to their beauty. Like music, they secretly impose their measure and rhythms upon us."[21] Le Corbusier believed that these forms were connected to the mathematical proportion of the Modulor and that the role of the artist-architect was to perceptibly articulate them in order to communicate their essence through the built work. For both Couturier and Le Corbusier, the ability to perceive the pure form within the world—aligned with the observable nature of the divine in natural philosophy—constitutes the relative directness of the relationship between the Master artist as the revealer of these forms and God as their original maker. The poetic moment occurs in the instant at which the pure form articulated by the work reveals itself to the viewer. Le Corbusier's architecture, I will argue, seeks to reveal the pure form largely through the carefully orchestrated play of light and shadow.

[19] Robert Coombs, *Mystical Themes in Le Corbusier's Architecture in the Chapel Notre-Dame-du-Haut at Ronchamp: The Ronchamp Riddle* (Queenston, Ontario: Edwin Mellon Press, 2000).

[20] "Make no mistake about it: in the greatest periods, art is not decoration, it is a language and nothing else. Even when it is expressed in very difficult terms." Couturier, *Sacred Art* (1989) 97.

[21] Couturier, *Sacred Art* (1989) 16.

He writes, “As you can imagine, I use light freely; light for me is the fundamental basis of architecture. I compose with light.”[22] *Le Poème de l’Angle Droit*, a series of poems and paintings composed by the architect from 1947-1953 overlapping with his work at Ronchamp, provides an intimate portrayal of Le Corbusier’s personal beliefs. The overarching theme of *Le Poème* lies in the union of the physical and the spiritual through embodied human perception as defined by the right angle, at one level referring to man’s upright posture and its influence on the nature of human experience. This, for Le Corbusier, is what is truly at stake within any work of art or architecture—to provide a ground for the union of spirit and matter to occur through the revelation of the poetic moment. His portrayal of the sun within *Le Poème* addresses how this revelation might occur:

> The sun is the master of our lives
> indifferent far
> He is the visitor—a lord—
> He comes to us (x).”[23]

Le Corbusier characterizes the sun as the keeper of time who comes to us at the right angle (x) of the horizon (figure 22). He regards time as unrepeatable in that the passage from light to dark varies daily and never reoccurs in exactly the same way. So, light marks time through its articulation

Figure 22. *Milieu A.1* in *Le Poème de l’Angle Droit*, Le Corbusier, 1947-53. Source: Fondation Le Corbusier Online Archive.

of this transition from night to day, and it provides a way of understanding the un-timelessness of our own experience, which is also varied and unrepeatable. The fluctuation of light and shadow becomes one agent through which the passage of time enters the realm of perceivable experience. In its ability to make the intangible sensible, light also becomes essential to the revelation of meaning through the pure form.

At Ronchamp, our experience of light is intensified, colored, and manipulated. The incoming light itself is not colored or changed. Rather, these changes occur only through light’s architectural articulation. For example, light coming through the vitrages

[22] Pauly, *Le Corbusier* (2008) 91 from *Prècisions sur un état present de l’architecture et de l’urbanisme*, (Paris: Crès, 1930) 132.
[23] Le Corbusier, *Le Poeme de l’Angle Droit* (Paris: Tériade, 1955) Milieu A.1 translated by Richard Moore.

in the south wall casts colored shadows but is not itself considered by Le Corbusier to be directly transformed or colored, as was the transubstantiated light pouring through the stained windows of Sainte-Chapelle. Ronchamp's light never ceases to be light itself, which is ultimately unchangeable and immaterial. It exists as a *pure potentiality* of experience, entering the realm of Valery's *objet ambigu*—"something for which there is no designation in a Platonic ontology" and which "fails to find a place in the ultimate classification of ancient metaphysics, into the distinction between the natural and the artificial," that is that made by God and that made by man.[24] I believe Le Corbusier understood this and the implications it could have for light as a condensation of matter and spirit that is, in itself, neither of the two. Understood in this way, light goes beyond the representation of the divine or the literal manifestation of the spirit within the corporeal world. Rather, it is the potentiality that makes the meeting of the two perceptible. Le Corbusier, heavily influenced by Valery's *Eupalinos*, carries this further into his own use of the *objet à rèaction poétique*.[25]

Le Corbusier's poetic objects bring together touch and vision, with both elements being required to experience them fully. However, his interest in the objects does not seem to have been one of literal formal translation. Rather, it concerns embedding the *quality* of a thing's tactile experience into the perceptible forms of the built work. One example of such an object is the crab shell that inspired Ronchamp's distinctive roof.[26] However, unlike the *objet ambigu*, the objets à rèaction poétique are grounded in their physicality. Their forms must still be sensibly articulated in order to communicate with the viewer. Light, then, provides the element needed to actualize this articulation. It is used as an active tool in itself to reveal the qualities and pure forms embedded within the architecture, pointing toward the spirituality sought by Couturier.

Light as Flesh

The potential tactility of vision implied by Le Corbusier's concept of the poetic moment also exists within the French philosopher Maurice Merleau-Ponty's ontology of the "flesh of the world." In this, light and vision come together once again. Although he sets up a concept of vision in opposition to Plato, in *Phenomenology of Perception* Merleau-Ponty reunites embodied experience and perception, striving against the dualistic separation of the thinking mind and sensing body and effectively interweaving consciousness, the

[24] Niklas Maak, *Le Corbusier: The Architect on the Beach* (Munich: Hirmer Verlag GmbH, 2011) 26.
[25] For more on Le Corbusier's reading of Valery, see Maak, *Le Corbusier: The Architect on the Beach* (2011).
[26] Danìéle Pauly, *Le Corbusier: The Chapel at Ronchamp* (Basel: Birkhauser, 2008) 72.

perceptible world, and the perceiving person. He initially takes up this task in his first major work, *The Structure of Behaviour*, in which he identifies both scientific "real light" and "phenomenal light" as experience. Catherine Vasseleu writes, "Rather than distinguishing between these two aspects of light, Merleau-Ponty's task in this early work is to demonstrate that the nature of light dwells in the inability to objectively distinguish between the two."[27] Light simultaneously reenters the realm of the sensible and the extrasensory.

The connection I will make between Merleau-Ponty's philosophy and Le Corbusier's architecture involves the direct spiritualization by certain scholars within the Church of originally secular philosophical ideas based on the shared question of non-human perception. For Merleau-Ponty, the invisible carries no necessary spiritual component. Rather, it is that within the material world which is not perceptible to our senses due to the nature of our relationship to it, as with the side of an object that is facing away from us. In his final work, *The Visible and the Invisible*, Merleau-Ponty directly addresses the relationship between the sensible and the non-sensible through the lens of vision and touch. He writes,

> If we took all these participations into account, we would recognize that a naked color, and in general a visible, is not a chunk of absolutely hard, indivisible being, offered up all naked to a vision which could be only total or null, but is rather a sort of straits between exterior horizons and interior horizons ever gaping open… an ephemeral modulation of this world—less a color or a thing, therefore than a difference between things and colors… Between the alleged colors and visibles, we would find anew the tissue that lines them, sustains them, nourishes them, and which for its part is not a thing, but a possibility, a latency, and a *flesh* of things.[28]

However, Merleau-Ponty's strictly material flesh takes on new and decidedly metaphysical implications when reinterpreted into a religious context, particularly following the work of the Thomist scholars of the Lublin school—producing such work as Pope John Paul II's later *Theology of the Body*, which uses phenomenological principles in order to address questions of Being. I will argue that it is this reinterpretation that exerts an influence on Le Corbusier's concept of light and the way he uses it within the chapel at Ronchamp.

For Merleau-Ponty, the flesh as a pure potentiality is not something that we can

[27] Vasseleu, *Textures of Light and Vision* (1998) 43.

[28] Maurice Merleau-Ponty, *The Visible and the Invisible* (Evanston: Northwestern University Press, 1968) 132-33.

Figure 23. Varying degrees of shadow cast across gunite walls at the southeast end of the chapel. Photograph by the author.

experience directly. Le Corbusier, on the other hand, considers the spiritual and the pure form to be the things we cannot experience until they are revealed to the senses through light. Light as immaterial material architecturally fulfills the role held by the flesh within Merleau-Ponty's ontology. It is the *latency* of the visible—a pure potentiality that is not itself color or form but is inextricably tied to the coming into vision of either and of everything. The poetic moment, then, is the touching that occurs when this light as flesh fully comes into contact with our own thinking and sensing flesh. We see this light only as it is articulated architecturally by its other side, shadow, and thus experience it as a contrast—as its simultaneous presence and lack of presence, both of which are necessary to constitute its being there (figure 23).

This concept of light as flesh aligns with the intentions expressed by Couturier and the Commission d'Art Sacré in that it admits the necessary presence of something beyond the visible that is also sensible within it as the invisible, as with a corporeal experience of the divine. Within this tactile world in which all sensing becomes a dimension of touch extended, there is an opening of the real possibility for the bodied experience of spiritual things through a visual encounter with the flesh, of which light becomes a primary component within the Chapel as the revealer of pure form and meaning. The Dualist separation of the physical and spiritual senses falls apart along with the divide between experience and perception.

"It is that the thickness of flesh between the seer and the thing is constitutive for the thing of its visibility as for the seer of his corporeity; it is not an obstacle between them, it is their means of communication."[29] Light becomes flesh in that it is neither physical nor spiritual, material nor immaterial. Rather, it is the potentiality that provides the link between these two conditions of being. For Le Corbusier, light is the means of communication through which form, color and proportion are

[29] Merleau-Ponty, *The Visible and the Invisible* (1968) 135.

articulated and made sensible. At Ronchamp, this use of light to communicate becomes an act of showing pure form to the chapel's users through the work of architecture as a plastic art.

Le Corbusier's Language of Light

In his book on Ronchamp, Le Corbusier writes, "The key is light/ and light illuminates shapes/ and shapes have an emotional power."[30] For Merleau-Ponty, the reality of light lies wholly in its contingency to the sensible. Corbusier achieves this reality of light at Ronchamp through the careful manipulation of color and shadow, recalling Goethe's experiments, which revealed the intimate bond between vision and imagination. Thus, the articulation of light through architecture and of architecture through light becomes a way of pulling the visible and the invisible into a singular experience to be engaged by the thinking and sensing body. In the Chapel this becomes most evident in the loss of distinction between interior and exterior, the symbolism regarding the Incarnation, and the use of color and shadow in articulating an architectural void.

In his discussions with Le Corbusier, Couturier emphasized the importance of Ronchamp as a site of pilgrimage. This stemmed from his own beliefs concerning the restoration of true spirituality made possible through the renewal of ritual: "In rural France the people still cherish these traditional sites: once or twice a year a ceremony from the past, a pilgrimage restored, would be enough to revive some degree of genuine life, and this would save them."[31] The Chapel at Ronchamp remained an important destination for thousands of pilgrims on the Feast of the Assumption, August 15, and Mary's birthday, September 8, and as such provided a stronghold for the preservation of the pilgrimage tradition. Le Corbusier celebrates the ritual of the pilgrimage as a procession by expanding the chapel to encompass the entire site and sequence of approach. In doing this, he blurs the distinction between interior and exterior while collapsing experience and perception into an act of movement through the work as it reveals itself. Daniéle Pauly observes, "The architect attached great importance to the visitor's route towards and through the construction as well as his direct perception of the edifice—imperative for understanding the architecture."[32] This collapse of experience and perception opens up the possibility for a direct meeting of the corporeal and psychological, matter and spirit, which carries over into Le Corbusier's use of light as material.

[30] Le Corbusier, *The Chapel at Ronchamp* (New York: Frederick A. Praeger Publishers, 1957) 27.

[31] Couturier, *Sacred Art* (1989) 48.

[32] Pauly, *Le Corbusier: The Chapel at Ronchamp* (2008) 29.

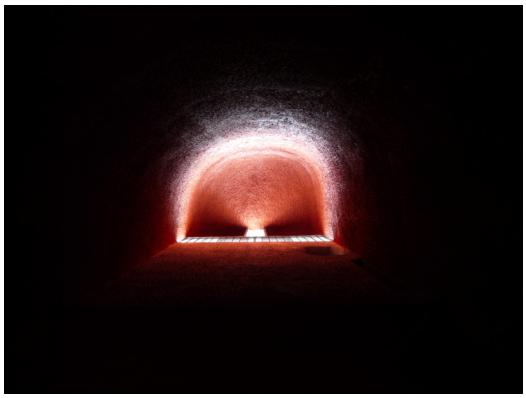
From a distance, the chapel's protruding light towers rise up above the surrounding landscape, and the form of the building continues to unfold itself slowly upon approach, changing slightly with every step to reveal a new curve or surface (figures 24-26). At the top of the hill, the east wall opens up into the outdoor pilgrimage chapel—a cathedral to both the sky and the view to the horizon from the space of the altar (x). This is a chapel flooded by intense natural light from all sides in a celebration of the sun marked by the stepped pyramid at its furthest edge, recalling ancient monuments to pagan sun-gods. The altar sits below the overhang of the sloping crab-shell roof whose shadow slowly arcs across the exterior of the east wall, marking the transition from one moment to the next.

This marking of time is doubled on the interior by the east and west tower chapels, which use the changing light to frame the sun's movement through the sky as it passes from sunrise to sunset (figures 27 and 28). We are reminded of the sun's depiction in *Le Poème de l'Angle Droit*. In his notes Le Corbusier writes, "Inside, alone with yourself. Outside, 10,000 pilgrims in front of the altar."[33] The open-air cathedral exists as an autonomous space while maintaining a clear connection to the indoor chapel. The rotating niche housing the Statue of the Virgin to which Notre-Dame-

Figures 24-26. The form of the chapel continually shifts and reveals itself as visitors move around it. Photographs by the author.

du-Haut is dedicated acts as a link between the two chapels—one articulated by the penetration of the light coming from outside and the other by shadows cast by the building from within itself (figure 29). The architecture, designed for the passage of pilgrims across the site, frames both the

[33] Le Corbusier, *The Chapel at Ronchamp* (1957) 103.



Figures 27 and 28. East and west towers in late afternoon sunlight. Photographs courtesy of Andrew Ruff.

body of the church, through movement and space, and the body of the Divine, through light. In this, the meeting of the interior and exterior chapels constitutes the meeting of corporeal and spiritual bodies.

This meeting is reiterated liturgically and architecturally in the symbolism surrounding the Virgin Mary. Within Catholic tradition, Mary serves as the mediator between God and humanity, establishing a direct link between the spiritual and the physical through her Immaculate Conception, Assumption into Heaven, and subsequent role as intercessor. In 1950, the year of the

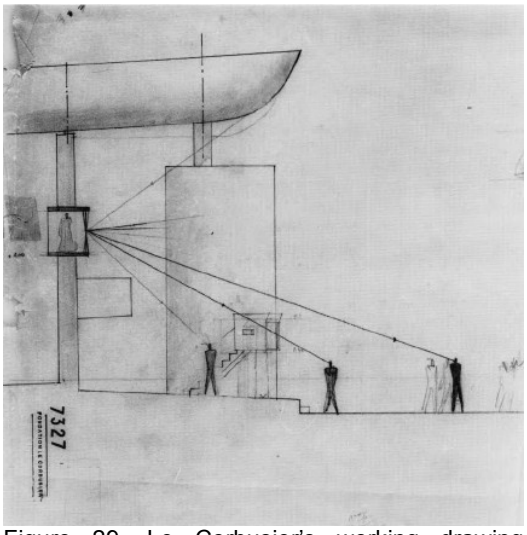


Figure 29. Le Corbusier's working drawing showing section through box containing the figure of Mary above the altar, in Samuel (2004) fig 6.22, p 125.

Chapel's commission, Pope Pius XII officially adopted Mary's Assumption into Catholic doctrine, solidifying her place within the Church's teaching. The importance of Mary within Ronchamp's iconography is evidenced by Le Corbusier's murals on the enameled south door, which functions as the main entry into the building. The outer panel of the door depicts the Annunciation, in which the angel Gabriel comes to visit Mary and she conceives Christ, and the inner panel represents the Assumption of her body into Heaven (figures 30 and 31).[34] The Annunciation and Incarnation constitute the spiritual concretely entering the realm of the physical, and the Assumption completes

[34] Robert Coombs, *Mystical Themes in Le Corbusier's Architecture in the Chapel Notre-Dame-du-Haut at Ronchamp: The Ronchamp Riddle* (Queenston, Ontario: Edwin Mellon Press, 2000) 22.

this as the physical then passes into the realm of the spirit. Given the direct association between light and the corporeal presence of the Divine dating back to the Neo-platonic thought of the Middle Ages, it comes as no surprise that a ray of light had traditionally symbolized the Immaculate Conception within religious artworks. Le Corbusier makes strong connections to this representational tradition within the Chapel.

His personal ties to the cult of Mary stem from a 1911 trip to Mount Athos in Greece, where he attended the festival of the Virgin at the Monastery of Iviron:

> Morbid meditations.
>
> During a festive night…
>
> A fantastic vision of the sanctuary of the Virgin…
>
> In a dark apse behind the iconostasis.
>
> After a year of darkness the iconostasis is ablaze with brilliant golds rekindled by the fiery torch of offerings burning in the chancel…
>
> Finally, closing my eyes, I have a vision of a black shroud covered with golden stars. In fact I am in the shroud, but a stranger to the stars![35]

The image of Mary as a female deity imprinted itself strongly on the young architect. Her role as the Woman of the Apocalypse—"clothed in the sun, the moon

Figures 30 and 31. The outer and inner faces of the south entry door, painted by Le Corbusier, depicting the Annunciation and Assumption. Source: Iqbal Aalam, www.flickriver.com

at her feet," as Le Corbusier noted in his sketchbook—bears strong alchemical overtones in the union of opposites: sun and moon, male and female, matter and spirit.[36] At Ronchamp, he drew particularly on the duality of Mary as both Virgin and Magdalene as represented in the statue

[35] Le Corbusier, *Journey to the East* trans. by Ivan Zaknic (Cambridge: MIT Press, 1987) 202-206.

[36] Le Corbusier, *Sketchbooks* Vol. 3 (Cambridge: MIT Press, 1981) sketch 492.

Figure 32. Light pouring in through the southeast corner and statue niche. Photograph by the author.

niche, which is half in shadow and half in light and can be rotated to face either the illuminated outdoor chapel or the shadowy interior.[37]

The union of immaculate purity and transgression find their perceptible manifestation in the way light penetrates the building's openings as it invades and impregnates the sacred space of the inner chapel. According to Flora Samuel, the handle of the east door connecting the inner and outer chapels, shaped in plan like a pair of breasts, and the cockleshell imprinted above it assign the passage a feminine role. She goes on to argue that the presumably male visitor is then encouraged to engage with the building sensually through the act of touch upon grasping the handle.[38] However, we should consider the alchemical designation of the sun as a male entity and traditional Catholic iconography linking sunlight to the sensible presence of God. In this context, the relationship between the shadowy interior and the luminous exterior chapels reveals itself anew, and we might interpret that the light flooding in through the opening of the southeast corner around the door actually assumes the role of male divinity as it penetrates the Virgin threshold. The south wall is transformed by light. It is no longer purely concrete or static—the roof is lifted and made weightless. We see it in its moment of becoming. The southeast corner, entirely dematerialized at the highest point of the sloping roof, assumes the critical moment at which the corporeal and incorporeal become one, and it spills its light across the altar where this joining will be re-enacted through the transubstantiation of the host during the celebration of the Eucharist, overlooked by the Statue of the Virgin also immersed in eastern light (figure 32).

In this, the incoming light establishes the hierarchical space of the altar as the site where the ritual of the Mass is actualized. Here we can recognize that Le Corbusier has not created an architecture of envelope. He has designed the void and treated the experience of the interior space as the form rather than the negative. The use of light as a positive compositional

[37] Flora Samuel, *Le Corbusier: Architect and Feminist* (West Sussex: John Wiley and Sons, 2004) 125.
[38] Samuel, *Le Corbusier: Architect and Feminist* (2004) 128.

element intensifies this. As flesh, it acts as the potentiality that brings the void into the realm of the sensual. However, as observed by Merleau-Ponty, the flesh itself is only made perceptible through its sensible articulation. Le Corbusier uses color at specific moments within the chapel to serve as the actualization of perceptible light and form. On the exterior, he selectively reserves color for the interior of the niche for the Statue of the Virgin, the main entry door on the south wall, and the two service doors on the north wall. On the interior, we also see this color picked up in the painted vitrages inset in the south wall, the tabernacle, and the east chapel tower. Each of these dashes of color denotes a moment of threshold—a point of entry into the chapel for either corporeal humans, as with the doors, or incorporeal spirit, as with the vitrages and the tabernacle. Le Corbusier writes, "Sometimes there is a door: one opens it—enters—one is in another realm, the realm of the gods, the room which holds the key to the great systems. These doors are the doors of the miracles."[39] At Ronchamp, these doors are the doors of penetration and Incarnation. The meeting of spirit and matter within them appears in the articulation constituted by their color appearing in light.

Similarly, the architect sculpts shadow as the other side of light rather than its

Figures 33 and 34. Shadows captured by the textured walls and colored vitrages articulate the light pouring into the chapel, bringing it into the realm of perceptible experience. Photographs by the author.

absence. He remarks, "Observe the play of shadows, learn the game."[40] Outside, the form of the building reveals itself through the shifting emergence of shadows as a visitor moves around it. The curves of the walls and crevices captured by the roof expose the shadowy interior that is the other side of the sunlight pilgrim's chapel—even the painted vitrages appear as black holes punched into the south wall. The skin of the building gathers shadow into itself in the textured relief of the sprayed gunite finish (figure 33). These shadows dance

[39] Le Corbusier, *Modulor I and II* trans. by Peter de Francia and Anna Bostock (Cambridge: Harvard University Press, 1980) 224.

[40] Le Corbusier, *The Chapel at Ronchamp* (1957) 46.

across the Chapel, marking time as the sun proceeds on its own pilgrimage through the sky. The interior, already immersed in a cool darkness, takes in the colored shadows cast by sunlight piercing through the vitrages (figure 34). Thus, the pure form reveals itself through the architectural articulation and movement of light.

Modern Art and Secular Spirituality

In *The Meaning of Modern Art*, Karsten Harries argues, "In a more self-conscious [Modern] age, religious art can no longer be imitative in the traditional sense."[41] In this, figurative representations of the divine no longer constitute a direct sensuous relationship between matter and spirit. In the eighteenth-century we observed a shift in the power granted to human agency to enact change on the world through vision coupled with the adoption of a Newtonian natural philosophy. This shift eventually results in the increased self-consciousness of the Modern viewer whose vision, once an active agent of change, has been rendered a passive mechanical process. For Marie-Alain Couturier, abstract and transcendental Modern art had the potential to go around the issue of figurative representation and the loss of power granted to the mimetic image in order to create sensuous works that make emotional appeals through the portrayal of the "really true" rather than the strictly corporeal. It turns the visible upon itself, using it to represent the invisible without trying to picture it literally.

As we have seen, Le Corbusier captures this potential within architecture as a plastic art through the use of light as pure potentiality revealing the pure form at the meeting point of the visible and the invisible, invoking Maurice Merleau-Ponty's ontology of the flesh. This revealing restores the active, tactile component bound up in the experience of seeing. In *Le Poème de l'Angle Droit*, Le Corbusier proposes that the right angle is an act of solidarity with nature of perceiving the world upright with both the body and the eyes.[42] In this, seeing becomes an act that is necessarily bodied. In the case of Toledo's *Transparente*, our sight is indirect—we see light, which, as a mimetic representation of the divine, bears witness to the invisible event of the transubstantiation. However, the act that Le Corbusier implies in *Le Poème* and actualizes at Ronchamp is grounded instead in individual human bodies themselves as acutely tuned sensing beings without the need for an intermediary, bringing into play Merleau-Ponty's definition of perception as a primary component in our experience of the world.

[41] Karsten Harries, *The Meaning of Modern Art* (Evanston: Northwestern University Press, 1968) 15.

[42] Le Corbusier, *Le Poème de l'Angle Droit* (1955) Milieu A.3.

Thus, Le Corbusier's manipulation of light at the Chapel Notre-Dame-du-Haut points toward the secular spirituality sought by Couturier and the Commission d'Art Sacré, renewing the capacity of the plastic work to move us emotionally and spiritually. It challenges the role of the building, or the work of art, as a static object, opening up instead a reflexive connection between the user and the work through the revelation of the poetic moment. Of Ronchamp Couturier writes, "A truly sacred edifice is not a secular one made sacred by a rite of consecration or by the eventual use to which it is put; it is sacred in its very substance, made so by the quality of its forms."[43]

[43] Couturier, *Sacred Art* (1989) 154.

Expanding Light

Conclusion

Every culture has used its own language and way of seeing to define light, and its views of the world have simultaneously shaped and been shaped by this understanding. [1] A lack of consideration for the history of light as an active component within the revelation of architectural meanings and intention has presented difficulties in considering how light might still hold spiritual significance within a secular contemporary society. I have argued that the rift between the perception and experience of light really began around the third century in the early Christian era as scholars increasingly questioned how embodied humans might know the presence of a wholly transcendent God. As we have seen, within Catholic discourse the concern always seems to involve reconciling an incorporeal God with the fusion of matter and spirit through the miracle of Christ's Incarnation. Shifts in the constructs of light and vision made possible by this fusion have greatly influenced and found their physical expression in sacred art and architecture, particularly in regard to the symbolic incorporation of light as an immaterial substance.

In the Middle Ages, influenced by the writings of Robert Grosseteste and early Neo-Platonic philosophers, light assumed a certain level of physical materiality. It was only because of this materiality—*lumen*—that bodied humans might experience it directly. Divine *lux* remained within the realm of the supersensible, evidenced within Gothic cathedrals by the presence of darkness—or light which "in nonbeing is really an excess of being."[2] As at Sainte-Chapelle *lumen*, or light transubstantiated into visible material by its passage through stained glass, acted as a perceptible symbol of the Divine, which was not considered directly perceptible within the corporeal field. In this, the place of light within Gothic architecture relied upon both the ultimate supersensibility and potential corporeity of Divine things.

[1] "The discoveries we make, the 'realities' we see, may well reflect more about us than the object of our investigation…" Zajonc, (1993) 289.

[2] Pseudo-Dionysius (1987) 4.3, 73.

However, following the spread of Newtonian science, the ontological place of the Divine and its relationship to human experience changed. *Lux* as supersensible light was no longer a category within Baroque constructs of vision coming down from Aristotelian texts. In the eighteenth and nineteenth centuries, direct perceptibility and observation were requisite for the perpetuation of a faith in the Divine. The faithful could not sustain a belief in supersensory phenomena in the complete absence of sensory evidence. In the case of the *Transparente*, light did not merely symbolize the Divine. Rather, it represented the bleeding of the perspectival space formerly confined to the work of art into the human realm. This crossover constituted the actual presence of a directly observable God. Vision as an act possessed a new degree of agency, which, following the "death of God" at the advent of modernity, no longer remained subordinate to Divine Will.

At the Chapel Notre-Dame-du-Haut, Le Corbusier and the members of the Commission d' Art Sacré used the visual tactility professed by abstract Modern artists to craft a sacred architecture rooted in the pressing need for a secular spirituality. With the *Transparente* we saw the rise of an early modern attitude toward light, which became the real presence of the Divine rather than a bodied symbol. At Ronchamp, the actual presence of the Divine within the world was no longer a given. However, Le Corbusier granted light spiritual significance by embracing its inherent potential subjectivity as an *objet ambigu* and the revealer of pure form. There is a break in the distinction long imposed between the natural and the artificial that was already present to a certain extent within Baroque art and architecture, reaching its climax with the Rococo. Within this break, light serves as a bridge between the natural and the artificial. However, we might question the need for or relevance of a deus ex machina like Le Corbusier and Couturier's pure form, which ultimately relies on a continued belief in the power of the symbol, within a secular society. Light, in this sense, held value more for its ability to reveal the symbolic than its capacity to move us simply through embodied interactions with it as a subject. Perhaps light demonstrates a union of the visible and invisible that lies outside of such non-sensible symbolic constructs, resting wholly within the perceptible world.

Furthermore, a new tension has emerged within contemporary architecture between the real and the virtual. The two continue to bleed together, becoming increasingly indistinct. We must ask if it is still possible to grant light autonomy as a subject within this context. On what ground can we claim the relationship between the visual and tactile senses held by the Divine until Modernity? Contemporary artists of the Light and Space Movement including

James Turrell, Doug Wheeler, Robert Irwin, and Olafur Eliasson have begun to address this question within their work. These artists force a heightened awareness of the way we perceive space through our senses—drawing attention to the intangible, transcendent qualities of light while simultaneously giving it depth and form through its relation to shadow. Speaking of his skyspace, *Arcus*, Turrell notes, "The power of the physical presence of the light-filled space and its changing sense of existence tend to make it feel like the dream that coexists with the awake state."[2] The occupants of these installations experience a profound sense of wonder through the heightened awareness of their own perceptual being—the secular spirituality granting meaning to our engagement in sensuous atmospheres.

A contemporary subjectivity of light must point us back to something beyond ourselves. However, I do not believe that this is possible through a return to the purely symbolic. The symbol belies any hope for an authentic sacredness. Rather, the possibility for a truly secular spirituality will come from an architectural embeddedness in the tactile awareness of the real. Such an awareness goes beyond questions of the natural or artificial to get at the *really present*—that which does not lie solidly within the realm of the virtual—to imply the parallel presence of something else that lies beyond and within it as a sort of connectedness. Thus light, in its ability to underline the physicality of our sense perception through its substantial immateriality, holds the key to articulating the continued presence of the real and the spiritual.

[2] Georges Didi-Huberman, "The Fable of the Place," *James Turrell: The Other Horizon*, edited by Peter Noever, MAK (Germany: Cantz Verlag, 1999), 117.

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