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Malcolm Lee

I, ________________________________, hereby submit this original work as part of the requirements for the degree of: Master of Architecture

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It is entitled:
Site and the Senses: A Geothermal Resort in Southwestern New Mexico.

________________________________________

Malcolm Lee
Student Signature: _______________________

This work and its defense approved by:

Committee Chair: _______________________

John Hancock

Elizabeth Riorden

Approval of the electronic document:

I have reviewed the Thesis/Dissertation in its final electronic format and certify that it is an accurate copy of the document reviewed and approved by the committee.

Committee Chair signature: _______________________

John Hancock
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Malcolm Lee

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Abstract.

Natural landscapes, being inextricably linked to culture, have a rich and significant history. For most of that history, natural landscapes have offered respite from the woes of city life and have been valued for their relative state of wilderness. Today, landscapes are still highly valued for their potential as relief, although the increasingly ocularcentric ways in which they are commonly designed and experienced significantly limits that potential. We have forgotten how to experience the multi-sensorial richness of our cherished natural landscapes.

This thesis begins with a phenomenological examination of the traditional sequences, events, and biases of typical landscape experiences, then formulates a careful response that, building upon those sequences, events, and biases, creates architecture that allows for the multi-sensorial discovery of place and phenomena. A tourist accommodation and resort in the Gila Forest and Hot Springs area of southwestern New Mexico, provides the setting. Each moment in the experience of the site, from arrival, to dwelling, to hiking to remote pools, is carefully analyzed for its phenomenological or affective potential and subtly employed to reveal the inherent richness of the site.

Through careful analysis of each moment in the experience of the site, opportunities for improvement upon the traditional sequences are identified and maximized, resulting in a deliberately yet subtly structured experience that allows for the multi-sensorial discovery of the full richness of the Gila National Forest.
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Introduction

In the introduction to his *Critical History of Modern Architecture*, architectural theorist and historian Kenneth Frampton argues that, “architectural practice must readdress itself to the issue of place creation, to a critical yet creative redefinition of the concrete qualities of the built domain.” Others who echo Frampton’s plea argue that the reaffirmation of the concrete qualities of architecture is necessary to counteract the loss of regional and cultural variation in architecture, variation that helps create built environments to which people and cultures can relate, and in which they can find meaning and identity. Our increasingly global culture and economy is fueling the rapid deterioration of regionally specific and culturally relevant architecture, which is why now, perhaps more than ever, Frampton’s thirty year old call for place creation is so important to contemporary architectural practice.

Another solution to the decrease in geographically specific and culturally relevant architecture is the introduction, or reintroduction, of the bodily senses to the language and development of architecture. Proponents of this approach, such as Finnish architect and theorist Juhani Pallasmaa, argue that “life-enhancing architecture has to address all the senses simultaneously and fuse our image of self with our experience of the world.” This approach to architecture, “directs our consciousness back to the world and towards our own sense of self and being,” allowing us to experience everyday life as “complete embodied and spiritual beings.”

This thesis lies at the intersection of these two topics, place creation and sensual architecture. It advocates an approach to architecture that engages the bodily senses to create stronger experiences of place. It will explore the power of these senses of sight, touch, smell, sound, perhaps even taste, to create strong, meaningful, and memorable experiences of places that are too often encountered only visually. The setting for this investigation will be the American natural landscape. While the issues to be discussed are related and can be applied to architectural scenarios of all types and settings, the American natural landscape, because of its relatedness to culture, history, perception, and conceptions of place, offers an engaging foundation for focus of this thesis.

In Chapter One, I discuss natural landscapes and their place in American culture, considering issues like landscapes as clues to culture, natural landscapes in the cultural age, and
the commodification of natural landscapes. In Chapter Two, I present the philosophy of phenomenology as a viable framework for approaching the issue of place-creation and sensual engagement with architecture and designed landscapes. I establish the foundations of phenomenology beginning with Edmund Husserl and ending with Maurice Merleau-Ponty, then relate that philosophical foundation to the practice and theory of architecture through the writings of Norwegian architectural theorist Christian Norberg-Shulz. In Chapters Three through Six, I discuss the task of designing architecture and landscapes for the senses of sight, sound, touch, taste, and smell respectively. I present current trends and viewpoints and discuss the potentials for different types of sensual engagement with architecture. In Chapter Seven, I re-present Merleau-Ponty’s assessment that perception is embodied and multi-modal, establishing the need for multi-sensorial engagement with architecture – combinations of the strategies devised in the preceding chapters. I argue that architecture that forces itself upon the individual senses of its visitors is too forceful to be meaningful in people’s everyday life-world. I present the principal argument from Michael Benedikt’s *For an Architecture of Reality*, that architecture needs to be subtle to allow visitors to discover its sensuality and perhaps uncover new ways of experiencing places and landscapes. Chapter Eight presents the program and site of the architectural project and explains the processes developed to realize the final design. Chapter Nine explains and narrates the final design, and assesses its success in realizing the stated goals of the thesis.
Chapter One: Scenic Landscapes and their place in American Culture.

The relationship between culture and environment is extremely complex and is always evolving. Research into this relationship happens in a wide variety of fields, from social and natural sciences to fine arts, which makes any comprehensive examination of the interconnectedness of culture and nature essentially impossible. However, the varied fields of landscape research and commentary approach landscape study with the same assessment, which is that landscapes (even so-called wild landscapes) are intimately related to culture.

James Corner, renowned landscape architect, historian, and theorist begins this survey of positions, explaining that landscapes are “not only a physical phenomenon, but also cultural schema, conceptual filters through which our relationship to wilderness and nature can be understood.” Corner believes that the physical elements of landscapes – their purposes and interrelationships – can be read as a sort of text which can reveal the cultural ideologies that dictate the ways in which people adapt to their natural environments. This belief, which is central to the discipline of cultural geography, argues that since cultural impositions on environments are typically inadvertent, that is, without any communicative objective, then they offer a direct line of sight to the underlying ideologies and beliefs of that culture. As cultural geographer Pierce F. Lewis explains, “Our human landscape is our unwitting autobiography, reflecting our tastes, our values, our aspirations, and even our fears, in tangible, visible form.” If we accept that landscapes can help uncover cultural ideologies and that they are worthy of investigation, what then becomes necessary is a method of investigation or some rules about how to read cultural landscapes.

From 1951 to 1968, John Brinkerhoff Jackson – considered by many to be the godfather of cultural geography – edited and contributed to a journal he also founded called *Landscapes*, which explored for a large audience the complexities and issues of humanized landscapes. The journal introduced to many the notion of the landscape as a significant tool for studying the values and ideologies of different cultures. It was a catalyst for the increasingly careful examination of everyday American landscapes, and led to the expansion of the rigorous and scientific field of cultural geography.

Pierce F. Lewis, a cultural geographer at Pennsylvania State University and student of Jackson’s, has spent many years developing a set of axioms to help in the often-difficult task
of reading cultural landscapes. His seven axioms — including The Axiom of Landscape as Clue to Culture; The Axiom of Common Things; The Historic Axiom; The Geographic or Ecologic Axiom; and the Axiom of Environmental Control — provide a viable method of inquiry that is grounded in historical, political, and economic considerations. Lewis’s axioms, however, fall short of the subtlety of Jackson’s thinking because they fail to acknowledge that most cultural development is carried out by a small percentage of the general population. Only in rare circumstances are individual people or small groups of people allowed to shape their environments according to their own desires and ideologies; more often development and environment-making is governed by laws, codes, and economics under the control of a much smaller part of the population. Therefore, Lewis’s axioms, unlike Jackson’s observations, are less successful at uncovering the cultural variations that are manifest in the ways that people adapt to their given environments and to their political and economic constraints. His observations, like those of many 20th Century philosophers, address more general cultural tendencies and ideologies, and point the way to a reading of our cultural landscape that is shaped largely by our national and international systems of politics, finance, and morality.

Twentieth-century German philosopher Martin Heidegger sees landscape through the paradigm of technology. His compelling argument, detailed in his 1954 essay, “The Question Concerning Technology,” is that modern technology and sciences have given man an unprecedented mastery over nature that allows him to unlock, store, distribute, and re-appropriate the energy hidden within nature. This ability changes the relationship we have with nature such that we now see everything as standing reserve, that is, all of nature is reduced to resource, be it physical, social, economic, or otherwise. This assessment has been echoed and expanded upon by nearly all fields of landscape research. The social reserve of nature is demonstrated in national parks and other scenic landscapes that
are employed as tools for recreation, or objects of cultural identity. J.B. Jackson echoed the physical and economic reserve of nature just a few years after Heidegger’s assessment in his 1965 essay, “Several American Landscapes.” He explains that, “Nature as manifestation of the Infinite became nature as a resource, and this resource was broken down into its component parts, each being examined for its usefulness (figure 01.05).” Scenic landscapes and national parks are highly valued social commodities, largely because in contemporary society they offer relief from everyday life and its associated woes. However, as James Corner explains, the viewing of scenic natural landscapes is often a nostalgic and escapist activity because, “there’s simply nothing to look forward to.”

In Corner’s review of common engagement with scenic landscapes, largely laid out in his 1992 essay, “Representation and Landscape,” we begin to see the problems in the relationship between culture and scenic landscapes. Central to all these problems, as Corner explains, is the necessity of the image in conceptualizing and recognizing landscapes: “without image, there is no such thing as landscape, only unmediated environment.” Since landscapes are the manifestation of a culture’s relationship with its environment, there must be recognizable cultural features within that landscape, otherwise it is seen as environment. The trouble with this necessity is that it leads to the reduction of landscape experience to the eyes alone. If we accept that landscapes are the integration of culture and environment, and that we have a tendency to engage with landscape through vision alone, then we must accept that we are only encountering a very small part of the potential landscape experience.

This ocularcentrism in landscape experience can also be credited to the commodification of natural environments. As American philosopher Albert Borgmann explains, “commodification is the process of moving something into the market so that it becomes available as a commodity, that is, for sale and purchase.” The popularity of National Parks, beachfront homes, and mountain lodge getaways, is proof enough of the commodification of natural environments.

Objections and criticisms of this commodification have taken several forms; many are troubled by it because of their belief in an intrinsic value of nature. But, as Borgmann explains in his book Real American Ethics, the trouble with the idea of an intrinsic value of nature is its “embrace of human agency and the contention that the very notion of wilderness, whether it refers to untouched or to tainted nature, is a human construction.” A further
problem with this idea of intrinsic value is that it offers little or no cultural use for natural environments. “That establishing the intrinsic value of nature is not enough appears from the abrupt and negative instruction it is confined to – Do Not Enter, or something similarly forbidding. What needs to be shown, in keeping with the most profound environmental concern, is how nature regains a new moral voice in the midst of a technological era and presents itself and speaks to us not only in the distance and from afar, but in our civilized and urban conditions and tells us that we must change our lives.” In other words, absolute environmental protectionism, as many would propose against commodification, offers no productive solution for, or even acknowledgment of, the powerful social and economic forces that create and sustain environmental commodification.

A more effective method of amelioration of the problem of landscape commodification may be found by examining another aspect of the situation, namely, the way in which natural landscapes have become commodified – for their image. The image of the landscape has become the actual item of commodification. Proof of the image-centeredness of landscape commodification can be found in any number of publications of the travel or residential development industries. The travel industry is being furthered by the increased popularity and accessibility of high-end photographic equipment, and by its own response to this development by marketing photographic-themed tourism and by marketing tourism almost entirely through the use of images. While the popularization and accessibility of photography, and the increased ease of sharing travel photographs through cheaper printing capabilities or the internet have only pushed the image-centeredness of travel further, it is not a new development in the tourism industry. The necessity of the image, perhaps even the image as the primary product of tourism, has persisted since the earliest days of tourism. As sociologist Davydd J. Greenwood explains,
“Monuments and history were not built for consumption in the sense of converting them into commodities and carrying them away. However, commodification in tourism has long involved a variety of reifications of objects that ‘prove’ that an act of presence has taken place, an act that enhances the status of the tourist once back at home. [...] the tourist] experiences have to be bought and sold and also reified in photos and souvenirs. Without these materials, the ‘proof’ tourists require would involve dismantling the location they visit in the very act of visiting it.”

This ocularcentrism (from the necessity of the image in the conception of landscapes as described by James Corner, and from the commodification of natural scenery) leads to two specific tendencies and conditions that inhibit any meaningful experience of place. The first is increasing globalization and the loss of regionally or culturally specific architecture. Because our ocularcentrism causes us to experience places primarily through vision, distinct and meaningful places become harder and harder to find as globalization creates more and more cities and places that look alike. The second tendency, perhaps more troubling because of its romanticism and nostalgia, is to decontextualize and re-appropriate architectural styles. This is possible, again, because when our engagement with places is through vision alone, we are only able to confront how things look, which then allows us to forget why things look the way they do and how they are related to the cultures, ideals, and ways of life that created them. Ocularcentrism makes it easy to ignore these origins, allowing us to decontextualize and reappropriate anachronistic visual elements or styles. The contemporary popularity of plantation style architecture in many Midwestern and Southern states, for example, derives from seeing the original artifacts (the slave plantations of the south) as nothing more than an image, removed from their causes and ideologies of creation. Our re-appropriation of them as cultural symbols in our own time, drained of the abhorrent ideologies that created them, inhibits any meaningful experience of place by denying architecture its cultural or geographic relevance, and fostering naive and romantic, or even dangerous notions of history.

It can be argued that Corner’s outright dismissal of natural landscapes as “escapist and nostalgic” may be too bleak. While the primacy of the image in natural landscape experiences is rightly troubling, there is still potential for more meaningful and relevant experiences within natural landscapes. The otherness that these landscapes offer can be extremely valuable and enhancing to the everyday life-world of individuals and cultures. Seemingly untouched nature sets the far end of the environmental spectrum, opposite Lower Manhattan or Los Angeles as concentrated places of culture. Momentary glimpses of other parts
of this environmental spectrum (experiences of otherness) allow detachment from given places along the spectrum and the ability to understand, from a new viewpoint, our individual or cultural relationship with our natural environment. Along these lines, environmental otherness can be a very valuable cultural experience, allowing for the reevaluation of cultural patterns, positions, and ideologies. The sense of otherness can also be a very powerful design tool, as Portuguese architect Alvaro Siza explains,

“I remember going to Valencia as a child: I felt the sensation of reaching the limits of the city and being embraced by an orchard of orange trees. Today, on the other hand, in South America there are vast cities that give the sense of having no limits at all. Anyone traveling through Buenos Aires and moving away from the centre will experience the sensation that the city is in-terminable. What disappears is the sense of continuity of the landscape in relation to the city: it is a terrible phenomenon and one that is becoming increasingly apparent, particularly in developing countries. This otherness, however, is fundamental to any project.”

To create opportunities for an experience of this otherness, and to design for a deeper understanding of our relationship with nature, we need to move beyond the primacy of the image in our encounters with natural environments. Design that encourages multi-sensorial encounters with places will allow for more effective experiences of this otherness, which may be one small step to improving our troubled relationship with our environment.
Chapter Two: Potential for Richer Engagement with Architecture and Landscapes through Phenomenology.

In order to move beyond the visual bias that dominates our encounters with nature, it is first necessary to gain a basic understanding of how our experiences are structured and perceived. The philosophy of phenomenology offers the most relevant and productive path to this understanding. First posited by Edmund Husserl in the early twentieth century, phenomenology is a method of inquiry that rejects scientific objectivism as the only way of understanding the things around us. Phenomenology attempts to uncover and explain the complex relationships between us (as perceiving subjects), the phenomena of everyday life, and the multifarious background conditions and preconceptions that influence our understanding of the world. Husserl, largely influenced by his professors Franz Brentano and Carl Stumpf, developed the original framework for the philosophy of phenomenology during the first forty years of the twentieth century. Central to Husserl’s formation of phenomenology was his break from objectivism, or the scientific rationalism that served as the foundation to all philosophical work of the time and his assertion that experience was the basis of knowledge. To Husserl, consciousness was the foundation of existence, thus existential knowledge, or the knowledge of our own existence in the world, had to come from our personal experiences in the world, rather than from the empiricism and abstractions of the sciences. Accordingly, Husserl made the founding call of phenomenology, *Zu den Sachen selbst*, ‘to the things themselves’, which championed a return to the concrete and specific realities of experienced phenomena, free of biases and presuppositions.

Later in the Twentieth-century, Martin Heidegger – a student of Husserl’s – expanded upon the philosophy of phenomenology by developing his theory of hermeneutics, or the phenomenological method of interpretation. Heidegger argued (echoing Husserl) that existential knowledge comes from the experiences of everyday life and therefore established hermeneutics as a method mainly existential and experiential rather than textual or empirical. His assertion was that experiential hermeneutics allows for a more direct, non-mediated understanding of existence in the world because it allows the complex relationships among objects, subjects, presuppositions, and background conditions all to come into focus and enter the interpretive process.

Following Husserl and Heidegger, French philosopher Maurice Merleau-Ponty developed
experiential phenomenology further with his text, *Phenomenology of Perception* (1945), in which he rejects the Cartesian ‘cogito’ notion of being in the world and posits a more complex idea of body-subject. In the cogito model, (perhaps best explained with Descartes’ “Cogito ergo sum, or “I think, therefore, I am”) the thinking mind is the subject of philosophical inquiry. In the body-subject model, Merleau-Ponty asserts the presence of the physical body and its perceptual systems and argues that the world and the body are permanently interdependent and interrelated. Merleau-Ponty relays earlier phenomenological work in his assertion that the world is not a series of unique objects to be viewed by and related to distinct subjects, but is rather a complex and ever-changing network of relationships, meanings, and biases that are interminably and inexhaustibly related.

This philosophical framework sets the stage for the possibility of meaningful and engaging architecture that relates to the specifics of the complex body-mind experience, within complex yet concrete environmental and cultural situations. This philosophical method teaches us that places don’t exist strictly as places in physical architectural, topographical, or empirical terms, but rather are related to and experienced through a complex framework of emotions, memories, morals, and biases that are always affecting and being affected by the world around us. How then can architects and landscapes designers use this complex network to create significant and memorable architecture? How does architecture affect emotion and perception? What role does this have in place creation?

A useful path to these answers can be found in the writings of Norwegian architect and theorist Christian Norberg-Schulz. He argues that architecture can be used to “give man an existential foothold” within the world around him, that is, to provide places that allow for “identification and orientation” within our world. He relates the phenomenological rejection of objectivism to the theory of architecture by stating that, “man cannot gain a foothold through scientific understanding alone. He needs symbols, that is, works of art [or architecture] which ‘represent life situations.’” Norberg-Schulz also develops the notion of existential space, which he presents as a synonym to Heidegger’s dwelling, and uses to describe the space of existence, or the place of relation between man and his environment. With these concepts, Norberg-Schulz begins the process of translating a framework of phenomenology to the task of designing engaging and meaningful architecture. This thesis explores that process of translation further, adding to it the engagement of the bodily senses to create more engaging and memorable architectural and landscape experiences.
The task of designing for sight at first seems to be very simple. One could easily say that nearly all of architectural design is done for sight – from the first conceptual sketches, to the selection of finishes and efforts in detailing and photographing the final built work. It is certainly done entirely through site – through visual representations and abstractions of space, light, material, sequence, etc. However, it could easily be argued that despite contemporary culture’s rampant ocularcentrism, and despite the greatest efforts of the most widely published architects to push visual form as far as possible to tantalize our eyes and create beautiful images, our sense of vision can be engaged much more than current architectural trends allow.

In order to understand this further potential, we must first understand the body-mind process of visual perception, which occurs in two steps. First, light enters the eye through the focused lens and is projected onto the retina, an isolated part of the brain. Second, the retina translates the patterns of light into neuronal signals, which are sent out to different parts of the brain. The first step of visual perception is a physiological process unaffected by psychological processes. The second step, however, is affected by psychological processes in the brain and must therefore be called a subjective process. German physician Hermann von Helmholtz first postulated this two-step process in the middle of the 19th Century. He found that the eyes provided too little information to allow for significant visual perception, and concluded that a psychological process of assumptions, based on previous experience, must play a part in the process of visual perception. This two step process is explained in (among others) W. J. T. Mitchell’s essay, “Gilo’s Wall and Christo’s Gates” (2006). He explains that,

“The physical eye, trapped in a body that has never moved
in space, that has never walked upright, or reached out to touch objects, sees nothing but a blurry chaos of light and color. Relations of figure and ground, the occlusion of objects, estimations of distance, and the relation of colors and objects are all elements of the basic vocabulary of vision.... Seeing, even the most fundamental and transparent acts of taking in objects, is a kind of reading – the kind of reading we experience when we are absorbed in a ‘page turner’ novel, and the words seem to disappear as we immerse ourselves in the fictional world of the narrative.”

This two-step process is important to understand because in the work of most contemporary architects, designing for the eyes takes place entirely in the first step, even though the philosophy of phenomenology would suggest that the greatest potential for meaningful, place-making visual architecture lies in the manipulation of the second step. Let us look at three main strategies for creating visually engaging architecture and evaluate their effectiveness in place making.

The first strategy can be found in the work of any number of architects, but is perhaps best exemplified by that of Zaha Hadid. In Hadid’s work, architectural form is pushed to create intense contrasts between her buildings and their surroundings. In her early work, such as the Vitra Fire Station, strong diagonals were used to attract the eye and lead it away from the architectural composition – something rarely done previously. While this technique of strong diagonals and inventive, irregular forms is very successful in attracting and moving the eyes of people, it does little to create a strong sense of place in the building because it has little or no effect in relating the building and the building’s audience to its context and does not offer its audience new ways of seeing that can be translated or incorporated into other parts of their everyday lives.

The second strategy for visual engagement with architecture is the employment of intricate patterns or filigree details to break the scale of large facades and give the eye a textured surface of multiple scales to examine and move across. This technique can be seen in much of the work of Herzog & de Meuron, where an almost obsessive attention to surface and texture creates visually stunning and engaging architecture. From one of the pair’s earliest projects – the Ricola building in Mulhouse – to one of their latest – the Barcelona forum – surface treatment, patterning, and rich textures are created to stimulate the eye. While these treatments can occasionally create captivating conditions of light, and certainly make for beautiful buildings, again, they often do little to help ground buildings within their site and offer little or no means of connecting people to the particular phenomena of the site conditions. The work of Peter Zumthor offers an important exception to this case. His chapel
in Sumvitg, Switzerland is clad with hand-cleft wooden shakes that give rich texture and broken scale like the many projects by Herzog & de Meuron, but Zumthor’s chapel also conveys and encourages a sensitivity to local building traditions and intimate knowledge of building materials. The chapel situates itself within the building tradition of the small Swiss village by using the same cladding as the surrounding buildings, a cladding which also helps orient the building by its weathering from the sun, distinguishing north from south without any formal or material change.

In the work of Steven Holl we see the third strategy, which is to create optical tricks and unusual lighting conditions to create engaging visual experiences. In Holl’s addition to the Cranbrook Institute of Science, multiple parallel layers of regularly perforated metal are used to create a moiré effect for passing visitors. Elsewhere within the project, skylights are designed to refract sunlight and display it as a color spectrum against the adjacent concrete wall. While these devices are certainly eye-catching and add a level of interest to the building, they do little to imbue the building with a sense of place and offer people no significant way of orienting themselves within the building or its surrounding landscape. One exception to this shortcoming is a technique of daylighting used by Rick Joy in the Rubio Ave Studio and the Palmer residence, both in Tucson, Arizona. In each of these projects, a long, narrow skylight is placed directly above a thick rammed-earth wall. The skylights are each oriented directly along the north-south axis, ensuring that every day at noon (Arizona doesn’t use Daylight Savings Time) a thin strip of light washes the rammed earth wall, beautifully exposing its intricate texture and color as well as creating a direct connection to the movement of the sun, and a continuity of time from day to day that helps to create not only a place in space, but also a place in time.

A fourth strategy that I would like to propose for creating a richer visual engagement with architecture and landscapes – and one
that does more to help define a sense of place – is the purposeful co-ordination of focused and peripheral vision. This possibility is suggested by Pallasmaa in his book, *The Eyes of the Skin* where he states that, “Peripheral vision integrates us with space, while focused vision pushes us out of the space” [15]. The co-ordination between the two modes of vision can help foster a stronger understanding of space, as well as richer engagement with it, space by controlling the ways that people experience enclosure, openness, detachment, and orientation. This method is obviously the most difficult to prescribe as its viability depends entirely on a building’s individual setting, which also makes it the most difficult to design. Its effects are impossible to experience through the focused view of photographs however its potential for creating engaging architecture should not be overlooked.
Chapter Four: Architecture for the Ears.

The sense of sound is something that is rarely considered by contemporary architects but plays a very important role in our everyday understanding of space and the way that our bodies relate to space. Sound helps to establish the scale of space and our position within that space. Our ears position us above, below, left, right, near, or far from other sound-generating or sound-reflecting objects. Other acoustic properties, such as echo and reverberation, help us understand the size, shape, and texture of spaces. Sound is also very important for establishing personal space. A quick ride on New York’s subway system during rush hour shows how people use sound isolation – headphones – to create their own personal sound spaces. If we accept sound as a mode of spatial recognition, then we can see why acoustic isolation is so successful in partially removing ourselves from space. When one walks down a busy sidewalk, rides a subway, or flies on an airplane with earplugs or headphones, he or she has a largely different spatial experience than those without the earplugs or headphones. If sound incorporates us with our surroundings (the sound of the traffic, the subway, or the airplane engines and fellow passengers), then the absence of sound or the presence of foreign sounds disengages us from our surroundings. Herein lies one part of the architectural potential for sound.

In addition to clarifying the scale and texture of spaces, and creating personal subspaces, sound also serves as an important cognitive datum, to which other sensual experiences can be related, strengthened, and contextualized. As Pallasmaa explains,

“hearing structures and articulates the experience and understanding of space. [...] Anyone who has half-woken up to the sound of a train or an ambulance in a nocturnal city, and through his/her sleep experienced the space of the city with its countless inhabitants scattered within its structures, knows the power of sound [...] Anyone who has become entranced by the sound of dripping water in the darkness of a ruin can attest to the extraordinary capacity of the ear to carve a volume into the void of darkness. The space traced by the ear in the darkness becomes a cavity sculpted directly in the interior of the mind”

This type of acoustic engagement is used with great success by Zumthor in the Thermal Baths at Vals, Switzerland. Here, dark cavernous spaces are enhanced by the sounds of trickling water. The dimness of these spaces accentuates the sounds, as the diminution of one sensual mode often leads to heightened awareness of the others.

This same technique is used by Alvaro Siza in his design for the Ocean Swimming Pools at
Matosinhos, Portugal. Siza draws visitors from the beachside boardwalk and brings them slowly down a ramp whose walls, rising on both sides of the visitor, gradually take away the sounds of the beach and the street. At the base of the ramp, visitors are left only with the light of the sky and the sound of their own footsteps. Turning a sharp corner, they enter into the darkened changing rooms, where now their sense of sight is diminished. This gradual and systematic diminution of senses causes users to become more aware of their bodies in space. As their eyes adjust to the darkness, so do their ears to the muted sounds of waves and the trickling of water, and their noses to the smell of the salt water and the wet concrete and wood, and their bare feet and skin to the concrete and wood floors, the cold metal of the water spigots, and the cool drafts of ocean air coming in off the beach.

Because our hearing cannot be turned off or blocked completely (unlike vision), it provides what Pallasmaa calls a ‘temporal continuum’ that can serve as a mental datum to which other sensual encounters can be related. The sight of light filtering and flickering through leaves is easily augmented by the sound of the wind through those same leaves, the cool, earthy smell of the moving air which graces the skin, leaving goosebumps behind as it passes. This same type of experience is possible in architectural spaces if these types of sensual relationships are considered and valued enough to enter the process of the designer. This type of architectural space is the subject of Peter Zumthor’s book, Atmospheres, in which he proposes a more holistic understanding of architectural space, an understanding that accounts for the complexity and richness of perception. One needs to look no further than the nearest concert arena to see that the deliberate integration of audible and visual stimuli creates stronger and more lasting impressions than when the senses are engaged independently. The power of deliberately and simultaneously engaging multiple senses should be considered in the architecture and landscape design process. “Meaningful architecture,” as Michael Benedikt explains in For An Architecture of Reality, “is experienced not only visually, but also by coherent appeal to other senses: to touch, movement, sound, and smell.”

Other potentials for hearing in architecture and landscape design can be found in the writings of Henry David Thoreau, where he insists that the visual beauty of nature must be accompanied by sound. In his writings entitled Autumn, Thoreau insists that “Man’s progress through nature should have an accompaniment of music. It relieves the scenery, which is seen through a subtler element, like a very clear morning air in autumn. Music
wafts me through the clear, sultry valleys". Sound offers architects and landscape designers a highly effective means of creating a strong sense of place and connecting people to their surroundings. It would be hard to imagine a more powerful sensual connection to a site than experiencing the myriad natural sounds that it offers.
Chapter Five: Architecture for the skin and bones, or somatosensory design.

The sense of touch is actually a complex sensory mode that comprises the senses of touch as such (pressure), along with temperature, pain, and body position. This complete sensory network is called the somatosensory system, and has receptors in the skin, internal organs, bones, joints, and muscle tissue. For the purposes of this text, the complete somatosensory system will be simply referred to as the sense of touch.

“Touch is the sensory mode that integrates our experience of the world with that of ourselves,” writes Pallasmaa. The sense of touch differs greatly from the senses of sight, sound, and smell because its experience requires direct physical contact with the sensorial subject. Whereas sight, sound, and smell are all sensorial modes that are effective over distances, relating our bodies to sensorial subjects across varying distances, the sense of touch can only be experienced intimately. For this reason, open discussion of the sense of touch was, for a long time, considered taboo. Yet by being the most intimate of the senses, it offers great potential for creating meaningful and engaging architecture. The sense of touch has been used with great success by many architects, perhaps most recognizably Alvar Aalto. The typical moments of contact between bodies and buildings (door handles, handrails, benches, etc) lend themselves well to the design of engaging architectural experiences. In these moments, different materials are often used for their textural and/or thermo-conductive properties, and forms are often based on the ergonomics of the point of bodily contact.

Generally speaking, architecture has two ways of relating to the body through the sense of touch: either by contrast or by similarity. Relating with similarity can be exemplified by the leather door pulls in Alvar Aalto’s Saynatsalo Town Hall, where the texture and
thermo-conductivity of the leather mimics that of the body (skin), and where the form is determined largely by the natural shape of the pulling hand. In this type of bodily relation, architectural audiences are captivated by the softness of the contact, the comfort in the texture and form. In the other type of relation, through contrast, the hardness and or coldness of the points of contact illustrate/present the differences between the body and the building, simultaneously softening the body and hardening the building. Either method can be equally successful, depending on the physical and emotional context of the point of body-building contact.

By suggesting that architecture can facilitate richer and more engaging encounters with site — or other types of places or conditions — the assumption is made that the visitor will be in a state of mind that allows him or her to be open to an elevated level of engagement. This should not be a passive assumption, however, but one instead actively engaged by the architectural design to minimize any number of potential impediments to this prerequisite mental state. General comfort and appropriate body position are two of the primary means through which this thesis hopes first, to enable the mental calm needed to move beyond surficial interactions with the site, and second to draw attention to and enable subtle readings of changing light, sound, temperature, and scent.
Chapter Six: Architecture for the nose

The sense of smell, as Jim Drobnick states, “is one that has been for the most part neglected in architectural theory, yet the effects created by odoriferous materials, ventilated scents and other wafting perceptions can significantly influence one’s experience of a structure.” He continues, “Despite the best efforts of architects, urban planners and sanitary reformers over the last two centuries to evacuate all odors from the built environment, it is nevertheless a fact that every place bears an olfactory trace.” So what potential is hidden within the sense of smell for architects to better achieve the goal of creating a strong and meaningful sense of place? One possible answer can be found in the travel advertising industry. A website promoting tourism in Wellington, New Zealand describes the city as having “the sounds and smells of the ocean [hanging] in the air.” Here we see a call to multiple senses in order to create the sensation of place. Further evidence of the power of smell to create a strong and meaningful sense of place (and time) can be found, again, in Thoreau, who held “that the sense of smell is the most reliable of the senses” and who described a bouquet of dried flowers as having a “general fragrance of the year” and of the woods. “References to the olfactory nature of architecture are essential to defining the mood and emotional tenor of a place,” Drobnick concludes.

The sense of smell is strongly integrated with memory and emotion, making it perhaps the most effective tool in creating place. Scent, as Drobnick explains, “is a key means by which identifications with place are enacted. Smell, an integral component of emotional investment, works implicitly to convey a ‘structure of feeling’ – that unrepresentable, inarticulable sense of lived experience.” This strong connection between emotion, memory, and olfaction is the basis for one of the main arguments against designing with smell. Because of the ability of certain smells to vividly recall certain memories (good or bad), and because of the impossibility of predicting the olfactory triggers, people may have adverse reactions to certain ‘designed’ scents. This possibility raises the appeal of a less forceful approach to olfactory design. Instead of filling spaces with certain scents, a technique often used in retail and spa settings, a more successful and more meaningful approach would be to use, augment, or isolate naturally or already occurring scents to help define place. An example of this approach would be to create small gardens of native, aromatic plants that help connect building with site, and memory with place.

The sense of smell, like the sense of sound, can be very useful in creating personal spaces.
Every person has its own unique natural scent (often masked or augmented cosmetically) that is only perceptible to others at a certain distance. A person’s scent-space is often quite intimate, therefore the perception of another’s scent is often interpreted as occupation of that person’s personal space.

The strong relationship between scent and memory can be used by architects to ‘extend’ spaces beyond their physical realities through memories associated with certain scents. Vivid, common examples such as a fishing pier, a pine forest in summer, or a small pacific northwest harbor town may illustrate the potential strength of this type of emotionally- or mnemonically-charged place experience. When spatial memories are associated with certain scents, it is possible to bring back highly detailed spatial memories and to ‘re-experience’ spaces apart from their physical presence.
Chapter 7: Embodied experience of Architecture.

Architecture that addresses the different senses individually, as has been described in the previous chapters, has the potential to engage its audience more memorably than architecture that is simply the expression of abstract formal ideals. However, when the senses are only engaged individually through specific devices or moments, the architecture still lacks the potential for truly meaningful and rich corporeal experiences that help us integrate ourselves with our culture and environment. As Merleau-Ponty explains, perception is embodied, meaning it is the result of our five senses, our voice, our movements, our emotional states, our sexuality, our imagination, our thoughts and desires, plus all these things as they continue to accumulate in memory and habit and become “sedimented in our bodies.” The architect who tries to stimulate individual senses distinctly to attract the attention of the building’s audience, is often too forceful to allow the audience to connect the building authentically within their everyday life-world. More likely, the building’s audience will experience the building as a sort of treat that, while perhaps engaging, offers little or no means to relate the building’s experience to other daily experiences. As Bernard Tschumi declared in his advertisements for architecture, “Sensuality has been known to overcome even the most rational of buildings.” Rich, multimodal sensorial experiences that can enhance people’s everyday life are available everywhere and all the time. Architecture, as a significant part of people’s everywhere and all the time, has the potential to reveal the possible richness of everyday experiences, and yet this revealing also needs to keep that experience within the stable matrix of people’s lives. The sensual engagement must be sufficiently vague to allow for individual experiences for individual people, and for different experiences based on audience mood, time, temperature, etc. Because the philosophy of phenomenology addresses itself largely to the study of the preconceptions and biases that people carry with them (which affect the way they see...
their world), architecture that forcefully prescribes sensual experiences denies the variation in the biases and preconceptions that allow for individuality. Therefore architecture should only be a framework upon which individual, multi-modal sensual experiences can be based, not a dictator or explicit choreographer of specific bodily experiences.
Part Three
Chapter Eight: The Site

In the preceding chapters, the current state of scenic landscape experiences have been described in order to uncover some of the potentials for richer and more meaningful landscape experiences. The architectural design of this thesis explores a number of those potentials as they may be employed in an area of the Gila National Forest in southwestern New Mexico.

The architectural work of this thesis is the design of accommodations, pools, and supporting infrastructure around a series of naturally occurring hot springs. The Gila National Forest encompasses more than 3 million acres of first-growth forest, mountains, canyons, rivers, springs, wildlife, and archaeological sites, and has become a popular destination for campers, hikers, bathers, and motor-tourists from all over the southwest since its designation in 1924.37

The design builds upon the traditional sequences and experiences of tourism and travel – approach, arrival, orientation, sequencing, interiority, exteriority, adventure, relaxation, conviviality, and departure. This connection to archetypal experiences and meanings is critical
to the design, so that it is not merely a sensorial anomaly or experiential adventure in itself, but is grounded in the everyday life-world experiences of its audience. Similarly, I am not setting out to re-appropriate, or augment the multi-sensorial richness that can be found in the surrounding natural landscapes, but rather to create architecture that prepares its audience for the processes of discovery, each in their own ways. The accidental or unexpected discovery is often the most memorable; therefore, to really activate the senses of the site’s visitors, it seems that allowing and preparing for the discovery of the site’s richness will have more effect than the directed introduction and augmentation or re-appropriation of the site. A number of carefully devised design strategies have been employed to this end, building upon archetypal experiences and meanings, and providing the greatest potentials for the discovery of the site.

To begin with the traditional sequences and experiences of tourism, it is first necessary to recognize the different modes of each, namely driving, walking, and sitting. Each mode has its own inherent advantages, disadvantages, and potentials and has therefore been carefully considered in relation to the overall experience and discovery of the site.
Chapter Nine: Driving

Driving, over the last several decades, has become a central and necessary mode of landscape experience, particularly in the American west, where non-vehicular modes of transportation are rare. “The automobile,” as environmental theorist Paul Gobster explains, “has individualized and somewhat democratized [landscape] travel,”38 however the physical restrictions of the vehicle, as well as its inherent speed and environmental segregation make it very difficult to allow for a sense of adventure or discovery of the landscape. It remains, nonetheless, a necessary mode of the landscape experience, and the design attempts to make the most of the specific potentials of the driving experience. The building site is located approximately 50 miles north of Silver City, connected by a narrow, winding road that traces the steep switchbacks and ridgelines of the mountains between Silver City and the building site. The many turns and blind corners along the way limit the diving speed of this 50-mile stretch to no more than 40 or 50 miles per hour, often lower. This slowed driving pace elongates the initial site approach to a 60 to 90-minute experience, allowing visitors to see and feel a large part of the forest. Significant changes in elevation and momentary glimpses of lush river valleys from austere mesas foreshadow the setting of the building site, and give environmental context to the final arrival. The last twenty minutes of the vehicular approach follows the western bank of the Gila River as it winds its way through a lush riparian valley. The winding of the road invokes the feeling of the winding river and the shade and color of the uncharacteristically large trees along the river bank create the sense of an oasis within the vast, spare landscape that stretched out along the initial approach. This sense of oasis and enclosure of the river valley is augmented by the specific framing of the view by the car, as the surrounding ridgelines are mostly hidden outside the view of the windshield and passenger windows. Here, driving slows further as visitors begin to see signs for campgrounds and hiking trails, and
begin to sense that they are nearing their destination. One-half mile out, posted speed limits lower even more, and a sign indicates that visitors are nearing the interpretive center and the reception and café for the overnight accommodations, offering a sense of orientation after the long journey. A stop sign presents the first fork in the road since Silver City, and a small sign directs visitors to the left, where they ascend a small hill, curve to the right, and finally arrive at the reception plaza. Other guests are sitting outside the café, eating and drinking, providing the new arrivals with their first significant signs of human activity since leaving Silver City 90 minutes earlier. The road widens to the left and visitors pull off and park next to the reception plaza.
Visitors are first presented with the full view, sounds, and temperature of the site when they step out from the car. Progressing onto the reception plaza, and walking between the office to the left and café to the right, their experience is slowed significantly, and the subtleties of light and color begin to become apparent, contrasted against the relatively plain reception plaza. Entering further, the Middle Fork of the Gila River reappears from the driving approach, fills the plaza with the faint hum of rushing water, then disappears again as it winds its way up Middle Fork Canyon. Once checked-in, visitors are seated in the adjacent café and, finally being at rest, can now watch the movement of the site – the changing light, the birds in the air, the movement and sound of the water, etc. In the café can taste local delicacies, such as bitter jojoba nuts, spicy chiles, and rare New Mexico pinon nuts, highly valued for their distinctive taste. Beginning the walk across to the cabins, visitors descend directly from the reception plaza down a series of steps, which lowers them to a narrow stone-paved path. After curving to the left, it crosses a bridge, then approaches the cabin village along a slight curve, finally arriving, after about five minutes, at the village entrance. The feel of the path as it changes from concrete paving at the plaza to stone pavers at the cabins, signals their entry into more primitive parts of the site. This change, augmented by the fading
sounds of the visitor center and plaza, the embrace of the hill surrounding the cabins, the now-stronger sound of the river, and the wind blowing through the tall grasses leading to the cabin are all serve to cognitively distance visitors from the busier side of the river and help establish a strong sense of place in the clearing next to the river. At the cabin village, visitors enter up a shallow ramp and pass the first pair of units where the sound of water enters the space, and further removes the space from its larger surroundings. The first views between the units are obstructed by shade trees and attentive guests may be reminded of their first entrance into the river valley, and feel again the sense of oasis and enclosure first encountered earlier in the car. Passing the third pair of units, guests are finally presented with a wide view of the surrounding hillsides, as they turn and climb a shallow ramp and are led into the main gathering space. Here, visitors encounter the largest view to the surrounding site, and are re-presented with the sounds of the wind and the river. The sense of enclosure is replaced with a feeling of expansion, bordered only by the distant hillsides.
Chapter Eleven: Sitting

Visitors arriving at their unit are greeted with a final pavement change at the doorstep, and enter through a heavy wooden door, which carefully lines the space between the heavy masonry walls. The interior of the unit is one large space – a bed in the center, in front of a partitioned bathroom, and opposite the large view windows. The interior is darker and softer than the adjacent exterior spaces, and guests again feel a strong sense of enclosure as they sit on the bed or on the built-in sofa and enjoy the view, carefully framed by the large windows, through which they can watch the changing light and movement of the landscape.

From the cabins, visitors can access miles of hiking trails, many of which have been designed to elongate and augment the described sequences and moments of hospitality. Or, remaining in the village, they can congregate in the gathering spaces by a fire or in pools where they can watch the setting sun, the emerging stars, and experience the change from visual beauty to acoustic beauty as day turns into night.
11.02 - main gathering area with seating and firepit.

11.03 - cabin entry
11.04 - vehicular approach
11.05 - paving pattern in cabin village
11.06 - fountain beyond entry ramp

11.07 - seating between units
Endnotes

5 Lewis, “Axioms.”
9 Corner, “Representation.”
14 Corner, “Representation.”
15 Corner, “Representation.”
32 Thoreau, XV, 361.


