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Knowledge

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Drawing as Landscape Architectural Scholarship

Landscape Architecture Program, School of Architecture

+ Design, College of Architecture and Urban Studies

Drawing as Landscape Architectural Scholarship

ABSTRACT

Considering the vital role that drawing plays in conceiving buildings and landscapes, the question of “knowledge” in relation to visual representations becomes a matter of importance. The conventional view of drawing considers it a passive and neutral means to communicate mental concepts in visual form. The present study, however, views drawing as an essential vehicle that both enlists our critical reasoning faculties, as well as engages our senses and imagination in an integrated way to generate new knowledge.

As a means to acquire architectural/landscape knowledge, drawing becomes an essential vehicle for scholarship in the field. Depending on the circumstances, drawing can capture or cast (or both). When the drawing is a recipient of the external world, it captures or catches the qualities of an actual place. When the drawing is of a space that perhaps *will* exist, it can bring out or cast ideas, thoughts, or sensations to an external world and eventually to that envisioned space.

After a discussion of the commonalities of drawing in architecture and landscape architecture, the present study concentrates on areas that distinguish landscape drawing from architectural drawing. In the end, the personal experiences of the author, in which the drawing served both as capturing and casting mechanism, is briefly depicted.

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PROLOGUE

The topic of my thesis, "Drawing as Landscape Architectural Scholarship," could seem to be either obvious or evoking. Either way, responding to the question "how drawing is scholarship?" is not that easy. Nevertheless, an attempt to find an answer to this question will help us gain a deeper understanding of the mechanisms of the architectural disciplines.

It is crucial to emphasize that even though this thesis would ostensibly belong to landscape architecture, I did not restrict my studies to landscape architecture alone. Rather, I took a more comprehensive approach that incorporated the concept of "drawing," as it relates to landscape architecture. Additionally, the aim of the present study was not to merely highlight "architectural drawing" and "landscape drawing" in terms of their differences. The goal was simply to study how "drawing" can inform us and spark a greater understanding of both of these fields.

I also should remind myself and my audience that the two disciplines of architecture and landscape architecture are highly integrated and have a lot in common. In fact, the separation between the two, at least from an institutional point of view, is very recent and goes back to Fredrick Law Olmsted, who was the first person to coin the term "landscape architect." Here, I do not want to ignore the differences between the two disciplines. Rather, I want to start my studies from a point that emphasizes their common ground. However, I do not ignore the important distinctions between landscape drawings and architectural drawings, including issues such as landform and temporality that are specific to landscape architecture. These are discussed later in this thesis.

The necessity of such a study becomes more apparent when we realize the degree to which architectural disciplines and related professions are dependent upon the use of visual artifacts—namely drawing. The core curricula of educational programs are based on design studios in which drawing and visual representations play critical roles. In contrast, when conducting "research," we must surrender "drawing" and instead rely on text as a medium that can generate and hold research.

Considering that the very nature of the architectural disciplines is inherently based on visual explorations, a mode of inquiry rooted in visual representations becomes both legitimate and essential. For example, areas such as the geometrical qualities of shape can be neither expressed nor explored through wholly verbal investigations.

It is hoped, therefore, that the present study will shed a light on the question of inquiry in our field. The results will be beneficial for both academia and practice. Its immediate impact might be a greater awareness of the design process and the relationship between a verbal and visual understanding of environments. It could also be useful in helping design educators in introductory courses in drawing, since I think it is imperative that students better comprehend the contemplative role of the drawing and appreciate how it can become a foundational tool in their learning endeavors. This is particularly important in this digital age, since students seem to be increasingly intrigued by digital representations. If they do not recognize the ways in which hand drawing can be essential to their learning, they are likely to rely exclusively on digital technology and miss a critical element of their training. And finally, the successes and mistakes in the present study will, I hope, create a basis for future research on the topic.

On the Treatise

Although the present study is qualitative in nature, it is not limited to the known methods of qualitative research since most qualitative research relies on textual knowledge. Consequently, in order to qualitatively interpret data, the “researcher” and “research” must become intertwined in a process that stresses the role, identity, and beliefs of the researcher. For this purpose, the “Reflexivity” section below discusses how those personal elements have impacted this qualitative study.

This dissertation also includes an overview and discussion of current architectural research (Section I). I will then demonstrate that contemporary research in architecture has not significantly considered drawing as research and I discuss the probable reasons for this. Sections II and III feature an analysis of the philosophical perspectives that advocate for the imagery world as a valid basis for research vs. the current dominant perspective that does not support this idea. Later, there will be a discussion of the roles of drawing in fostering an enhanced understanding of architecture (Section V). This discussion will analyze how drawing can function as a critical scholarly device, as well as suggest how it can be utilized as an informing narrative. Finally, the appendix of this study is devoted to a drawing experience I had several years ago that I hope elucidates how that process was insightful and educational.

REFLEXIVITY¹

Can a design be distinguished from the designer?

Can one really distinguish a design from the designer who created it? This is a question that has long intrigued me, but which cannot, I believe, be answered in absolutes. For example, I think a design exists independently from its creator when the design holds a poetic nature rather than represents the synthesis of an analytic procedure. In qualitative inquiry, where all the research “data” is produced through the interpretation of the human subject, the researcher becomes the filter through which results are reported.² Similar to a qualitative investigator, I, the researcher, can help an audience of architectural research better understand my subjective judgments made through any investigation in my study process. For example, forms in architecture express meanings; however, the meanings expressed in certain forms by designers are not necessarily universal among all designers. The same is true in qualitative inquiry, whereby I (the researcher) propose an understanding of certain things through an interpretive filter. Even though I have attempted to make this study as tangible as possible for every reader, it is still a subjective endeavor that may not connect with those whose beliefs and experiences are vastly different.

¹ Reflexivity is an essential component of qualitative studies. In this section the researcher introduces himself or herself (e.g. background, education) to give the reader a context about the “researcher” who is also the most important tool to interpret qualitative data. This section helps audience understand better reasons why the researcher has made certain subjective interpretations (judgments) in producing qualitative data. Since this study is highly dependent upon presence of the researcher, I, as a major tool for the study, it was essential to include this section at the begging of the study so that my audience could better follow my work.

² In such a qualitative procedure, the subject of interpretation (i.e. the researcher) utilizes all his/her prior knowledge and assumptions coming from his/her cultural background, ethnicity, education, and etcetera to make an interpretation of the research subject. Consequently, the final produced knowledge is influenced by the subject. Examples are numerous on the role of the researcher as an inseparable part of the research within the field of social sciences where qualitative inquiry plays a major role. In architecture, and in particular in the drawing, the presence of the person who draws in the drawing is evident.

Therefore, in my view there is an ethical obligation for a qualitative researcher to discuss this issue of the “influence of the subject of the study” on the research in order to ensure that the audience understands (as much as possible) the author as an essential element of the research and any associated biases. Let me be clear on this point through the following example. Let’s consider a qualitative inquiry about the concept of a “window” as viewed in Iranian architecture versus in the United States. Based on their cultural differences, an architect from Iran and one from the U.S. might experience the tradition of architecture and that window very differently. For example, a window in Islamic tradition is not merely an opening letting one experience the exterior space from the interior. There are windows in my culture that are highly decorated with symbolic ornamental patterns that invite one to *see them* rather than *see through them*. This contrasts with, say, the typical American “picture window” which has been popular since the last century. A picture window, which is simply a fixed frame of vision from inside to outside, is intended to focus the viewer on its landscape of concentration, the framed scene. These different understandings of window have inherent cultural foundations that could influence any qualitative research on the topic of the window. Therefore, it becomes essential for such a study to disclose to the audience the researcher’s background and how the researcher has impacted the subject of the study.

Consequently, in the present study which concentrates on the subject of drawing and scholarship, I would like to reflect upon myself, and how the “self” has influenced my drawings, scholarship, as well as my understanding of drawing and research.” For this, I will discuss three areas that I have found to be the most important: my cultural background, my educational experience, and my corporeal experience of drawings. I believe each has a significant presence in my drawings and the way I want to relate drawing with research.

Cultural Experience

Having been born and raised in Iran, where traditional belief systems are quite prevalent, I still find myself very much influenced by the norms of that culture. For me, for example, buildings and landscape are beyond a material existence. Unlike a modern perspective in which the material world finds greater primacy as a shaping force for shaping built-environments, in a traditional society some spiritual and transcendental qualities, which often are associated with a divine origin, are the anchor for making environments. This traditional understanding of architecture is a vital notion that will demonstrate its presence throughout my scholarship. Whether you agree or disagree with my personal belief system, my subjective judgments (displayed either visually or through written scholarship) are highly influenced by my traditional upbringing.

In the case of drawing, this is a bit different from being an interpreter of others’ thoughts. Drawing can be an expression of us; we sometimes draw spaces because we like them, or in the case of design drawings, our drawings express our wishes for our imagined places. As I noted, the culture that has fostered me has also fostered some of the richest traditions of architecture and garden making. It is also a multi-periodical culture. In other words, certain historical stages have dramatically impacted the traditions of creating the built-environment. Except for the present day, all prior architectural stages have been viewed as a symbolic act of world making, *cosmopoiesis*, and the practice of creation has been considered a magical sacred practice. Yes, it was symbolic, because architecture and gardening had (and in some cases still has) rich symbolisms in their identity. For example, a garden was considered a symbol of heaven. With respect to architecture, the dome (circular form) was a symbol of heaven while the lower part of the building (square form) represented earthy life. In making such representational environments, architecture and gardening were considered much more than mere physical constructions, but instead represented symbolic, often sacred, places.

In such a climate, building and faith find some relevancy. The orientation of a traditional house in Iran, for example, is towards Mecca, whereto the daily prayers are performed. The courtyard, which is an essential “structure” of any home, carries a symbolic meaning of Paradise. These influences have also shaped the design of traditional gardens in the region. For my part, I have purposefully sought to rediscover the traditional spiritual dimensions of art and architecture, while developing my own encyclopedia of knowledge of architectural theory, design, and practice. As such, I view the practice of making places, which includes design and drawing, as belonging to traditions that incorporate symbolism, myth, faith, and so on.

The above discussion is relevant to the present study as I will use drawing as a means to facilitate an enhanced understanding of architecture and landscape architecture. In such a climate, drawing is not merely some neutral graphic on paper that represents a reduced form of a real building or landscape. Rather, drawing could also serve as a unique means to uncover some symbolic or mythical aspects of architecture and gardens as well. Significant examples of non-neutral drawing are found throughout Islamic geometrical drawings. These complex drawings serve both as practical means of construction (e.g. in the transitional spaces between the square and the circle, the *Squinch*) and as symbolic ornaments carrying cultural values (e.g., *Muqmas* or glazed bricks).

In short, such an understanding of architecture will remain vital throughout the present study. As such, drawing should neither be considered as neutral marks on paper, nor as reduced representations of other concepts or things.

Architecture vs. the Landscape Experience

For the practice of architecture, drawing is the heart. While this might seem to many to be too bold a statement, for me it is true. In contemporary common practice, architects produce drawings. As such, the construction of a building is wholly dependent on drawings. At a minimum, drawings provide figures, proportions, dimensions—representing materials, their shapes, their juxtapositions—by which a building can take form. These prescriptive drawings and resulting construction documents are essential for the act of erecting a building. Conversely, landscape design is less tethered to a drawn plan. In fact, in my experience of designing landscapes, I have probably achieved results that are more enviable when I have deviated from the drawing. When a design deals with plantings and actual living ingredients, the drawing loses its dominant authority in leading of act of creating landscapes. That is, drawings for such a purpose primarily denote where the plants *might be situated* rather than how they are/should be planted. I am aware that there are drawings in landscape architecture that just give instructions on how to plant trees so that they will thrive. I am also aware that in landscape architecture the drawing sometimes is expected to be a means to describe a landscape. The depiction of a landscape can range from an accurate explanation of the natural processes of a landscape to a poetic portrayal of that landscape.

Moreover, in the world of architectural drawing, a line often denotes an edge that will eventually be tangible in palpable ways. For example, the line denoting a window frame will find solid, immutable expression in that firm structure. In landscape drawing, however, the experience is different. While there may be lines representing an edge (e.g. the edge of woodland with a lawn), the eventual corporeal expression is quite altered. In other words, there is no distinct physical translation of that line that exists as such distinct and independent as in the drawing. Some of those physical translations are even hard to find in reality, such as a line that denotes the tangent lines of the trunks of trees or lines that represent the edge of water in a

creek. Instead, that line represents an extended space, in which one can stay or walk along and enjoy the beautiful transition between the two features of the landscape.

I have to admit that oftentimes the lines I draw or speak of in landscape architecture are more akin to those in architecture, which are distinct and fixed. However, I think I am moving away from that reality towards lines that do not necessarily project a reality, but rather an idea. This means a move towards to more sketches or design drawings that explore spatial and also temporal concepts with less concern for one-to-one evidence in real world. In fact, my awareness of this issue has become increasingly important to me as I discuss the relationship between imagination and drawing. As for highly imaginary concepts, lines are not necessarily representations of distinct physical boundaries or edges.

This explanation is also intended for my audience, as I will attempt to make some drawings in this study that might seem to deviate from conventional architectural drawings. I would like to emphasize that these drawings, although they might seem to resemble paintings or sketches, are still architectural in that their main concern is to “create space” – or in the case of landscape architecture, they “depict” a given landscape or “make the experience of a landscape available.”

Corporeal Experience

I also consider it important to share herein my corporeal experience with drawing. This includes both the drawing medium and my own drawing skills. The medium is important because it has the potential to impact the types of drawing that can be created, while the skills that an individual brings to a drawing can be considered both as strength and as a weakness to his/her understanding of architecture.

The medium and techniques: I have gained mastery over certain types of drawings and drawing materials, which I consider a mostly positive aspect of my investigation. On the one hand, familiarity with various qualities of lines and visual features can easily trigger my architectural imagination—a spatial imagination that also includes materials construction. On the other hand, mastery over certain media and techniques of drawing can also be restrictive, as it limits the development of architectural imagination in certain ways. For example, I have habitually used charcoal and graphite to study traditional Iranian architecture since these materials lend themselves to depictions of old architecture with its shadows and cracks. Compared with pen, I have found graphite, charcoal, and pencil more flexible media that can cast a variety of shadows on paper and also offer different thicknesses in lead. Some of these drawings are included herein. This does not mean that I do not consider other drawing media, such as watercolor, as a viable means to inform and enlighten. Use of the former simply indicates my greater experience and/or interest with those media.

The hand: Drawing has become part of me. My hand movements (coming from my drawing experience) and the body gestures I employ during the drawing process have become an inseparable part of my life. My hand has been well trained to create certain forms and marks against paper. My hand also works well with my eyes. I believe I have a talent for “fore-tracing” with my eyes lines that will eventually appear on paper. This is evident when I do idle drawings, and I refer to this as my “corporeal habit of drawing.” You will see lots of marks that have been repeated in many of my drawings, some of which include certain curvilinear forms in my freehand sketching. I would like to note herein that I am aware of this and will attempt to consciously discuss this in my drawings. For example, I can see them easily being considered as “intervening factors” to my drawing “research.”

The negative side of this corporeal drawing habit is that it could restrict the creative exploration of “the unknown” in design drawings. In other words, my concern is that the better one draws, the less likely one is to creatively explore. That is, sometimes I have found myself in habitual situations in which I was producing a very well-crafted drawing, but one that evidenced very little creativity. This idiosyncratic drawing habit that draws on a great deal of experience is personally inhibiting, and I equate this with slogans or catchwords that are repeated out of habit. Thus, an awareness of this shortcoming was needed throughout this study³.

³ I also draw with my left hand. While this might not seem important to a conventional researcher, in the context of the present study, I believe it has bearing in that it has affected the way I draw, and thus the way I interpret the medium. For me, lines often start from the right and end at the left. In drawing sections and casting light into a drawn building, I put the source of light (i.e. the sun) at the upper left of my drawings. Therefore, the fact that most of my drawings are lit from the left and shadows are cast towards right becomes relevant to my body of work.

I. ON ARCHITECTURAL RESEARCH

Opening Conversation: Research and Architecture

The question of “drawing” as a legitimate means for architectural inquiry has been much debated and remains controversial. The place and inherent value of drawing as an essential speculating tool in the architectural endeavor has sparked significant interest in recent architectural scholarship. In response to the conventional concept of drawing as “a paradigm for architectural knowledge based on a visual relationship between an idea and a built work” (Wood, 2002, abstract), scholars and theorists have sought paths beyond this paradigm to clarify the role of the drawing and representation in the architectural thinking. Considering the vital role that visual representations (e.g. drawing) play in conceiving buildings and landscapes, the question of architectural knowledge in relation to visual representations becomes a matter of importance.

With regards to the conventional view of architectural drawing, “where the drawing operates as a neutral and passive vehicle for the transformation of architectural thought into architectural practice” (Wood, 2002, abstract), the title of this treatise might appear paradoxical, given that a visual relationship between a set of graphic signs and an edifice does not necessarily involve / require any act of “research.” Thus, the term “scholarship” is cautiously employed herein to avoid any misinterpretations that the term “research” might cause in the realm of architectural inquiry. The common term “research,” which is widely used in both the social and hard sciences, carries with it commonly understood meanings that do not apply as well to the discipline of architecture. This is not to say that the term “research” is absent from the architectural disciplines today. Scholars in this field, in fact, vary in their readiness to fully embrace the concept as it has been adopted in the social and natural sciences. The argument proposed herein, therefore, is that in order to consider the drawing and representation as a legitimate mode of inquiry for architecture, we must first comprehend the concept of “architectural research,” and then discuss why another form of research is not a legitimate means for inquiry in architecture. Then we need to examine how drawing and representation are and have been essential in architectural production and thinking.

Although the genesis of critical thinking is traceable to antiquity, such as the teachings and vision of Socrates (469 – 399 BC) almost 2,500 years ago, the concept of “research” is a relatively modern one that has rooted its origins in the work of Rene Descartes (1596-1650). Descartes gave the faculty of critical reasoning priority over other faculties of understanding (such as imagination) and legitimized that every aspect of thinking and inquiry should be questioned, doubted and tested in a systematic way. Thus, the existence of literature addressing “research” in their title or via their content belongs to this recent era too. In other words, literature carrying “research” belongs to our modern era. Considering that “research” as it is broadly understood today has its own operating mechanisms to make sense of things, one might wonder how this new investigatory phenomena has made sense of historical architectural traditions—and particularly of architectural drawing. For example, in Islamic architecture, “faith” has historically played a crucial role in architecture. Master masons built edifices as part of their faith, making building equivalent to prayer. Therefore, in that worldview any attempt to understand traditional architecture—today we might say *research* architecture—would require the individual to understand the coexisting religious thrusts that gave rise to the edifice. Such an approach is not necessarily valid to modern research approaches.

In the following section, the major anthological literature on the subject of architectural research is reviewed. While many individual articles, journal papers, or book chapters have been dedicated to the theme of “research” in architecture, very few collective works have addressed this topic.

Architectural Research and the Missing “Drawing”

In this section, research and architecture in the context of contemporary academia is briefly discussed. The purpose of this is to bring a broader perspective of what is defined as “research” in architecture today and show how that is related to the main question of this study, which is drawing.

Although various symposiums, roundtables, and conferences have addressed the subject of architectural research, published scholarly attempts to tackle this theme are relatively recent. A 1977 edition of the *Journal of Architectural Education* can be considered one of the first publications to address “search and research” in the field of architectural research. The *Journal of Architectural Research* (JAR), for example, had its origins in 1975, followed some twenty years later by *Architectural Research Quarterly* (ARQ), which was initially published in 1995 and whose first edition included some concerns regarding the realm of architectural inquiry. Snyder (1984) was the first to publish a book on architectural research, which featured a collection of essays that stemmed from a conference of the same theme. These essays, submitted by scholars and practitioners of the time, represented the current concerns of the time regarding architectural research. Prior to that, architectural research was largely debated by professionals and academicians in the form of individual essays. This treatise, however, will primarily concentrate on two major books that address this discipline: *Architectural Research* (1984) and *Architectural Research Methods* (2002). The JAR will be also referenced—both because of the wide range of subjects addressed therein, as well as with respect to its references to the two books mentioned above.

Snyder (1984) began his examination of the subject of architectural research with a fundamental inquiry into the nature “research.” Snyder used a commonly accepted definition of research as “systematic inquiry directed toward the creation of knowledge” and then applied that to architecture (p.2). The relevance of this definition with respect to the discipline of architecture was affirmed in a seminal book by Linda Groat and David Wang (2002), *Architectural Research Methods*. The two major elements of the definition emphasized that research should somehow be “systematic” and demonstrate “creation of knowledge.” Without delving too deeply into what constitutes “systematic” research, one can conclude that some creative and intuitive works of designers are excluded and cannot be considered as “research.”⁴ While some might believe that creative works of designers, although not easy to comprehend, are still systematic in some ways, others believe that a creative work is not necessarily an outcome of a systematic procedure. This is primarily due to the fact that, unlike the natural sciences, the process of creation in art or architecture⁵ is not as transparent. The second core component in this definition requires any research to produce new knowledge. This second component seem to be applicable to works of art or creative design procedures, as they often stimulate us to gain a new awareness or appreciation of things. Although new insights might

⁴ While Groat and Wang (2002) indicated that “the term systematic need not be equated with experimental or positivist, terms that many critics associate with work they consider ‘reductionist,’” they considered all research involving “reducing lived experience or observed phenomena to chunks of information that are noted and categorized” (p.7). This definition shows that the authors first assumed a conscious, and in some ways, transparent procedure for research endeavors. It also assumes that they are still very much bound to an analytical approach to research as they postulated the necessity of a division of information.

⁵ The present study does not assume a separation between art and architecture as two distinct realms of practice. Indeed, art and architecture have traditionally belonged to a unified realm until very recently. Architects were artists (e.g., DaVin Ci, Michelangelo, and Brunelleschi). It is our modern conception that assumes such separation between arts and architecture.

not be perfect and complete, any partial understanding is still an understanding. Therefore, even by Groat and Wang's definition of research, we see that creative and intuitive works of art still can result in some awareness or understandings even if those are not explicit.

Snyder (1984) also addressed two seemingly conflicting viewpoints that dominate the realm of human inquiry—namely “classic” versus “romantic,” which then corresponds to the two primary realms of investigatory research: scientific/empirical inquiry and creative/inspirational analysis. Although Snyder clearly stated that the “cultural heritage of our professional and academic institutions tends to place us in one camp or in the other—the arts or sciences” (p.2), he didn't continue that line of thought with respect to architecture. In other words, he didn't explore the nature of the profession of architecture by addressing whether it can be considered pure science or art. Nor did he ever question how this fragmentation between the two has come to the page. Nevertheless, it is obvious that Snyder's use of the common definition of the term “research” is based on his acceptance of the universality of the “research” in other disciplines and professions. The concern of the present study is that the assumption of a universal definition of “research” might not work well in all aspects of architecture. This is also evident in the works of Groat and Wang (2002), who point out that the second element of research, namely, knowledge creation, is frequently cited. One should note, however, that this prevailing belief cannot be attributed to all architectural treatises, particularly to works of scholars who hesitate to accept the term “research” as embraced in other disciplines. That means that “research” in architecture may result in “knowing,” but not necessarily in the creation of “knowledge” as is evidenced in the sciences⁶. One should note that “knowledge” in sciences is often a propositional knowledge⁷, while in design practice and in making environments we also deal with operational knowledge.

For example, a study of the façade of a historical edifice will help us gain an understanding of the visual ratios and forms used in the design of the façade, as well as insights about how the façade elements were tectonically constructed. Even though this constitutes essential “knowing” in architecture, it cannot necessarily be verbalized in a way comparable to the “creation of knowledge” in its propositional sense, as in other disciplines.

⁶ The definition and question of knowledge is a matter of on-going debate in the field of epistemology. (Wikipedia). Merriam Webster dictionary gives various definitions of “knowledge” such as “the fact or condition of knowing something with familiarity gained through experience or association (2): acquaintance with or understanding of a science, art, or technique b (1): the fact or condition of being aware of something (2): the range of one's information or understanding” it seems that there is no consensus in the meaning of knowledge. “knowing” is the state of gaining knowledge. However, there is a common agreement that knowledge can be referred to an outcome of “knowing that” or “knowing how”. “Gilbert Ryle (1900–76) has pointed out, there are important differences between “know that” and “know how.” The latter expression is normally used to refer to a kind of skill or ability, such as knowing how to swim. One can have such knowledge without being able to explain to other people what it is that one knows in such a case—that is, without being able to convey the same skill. The expression “know what” is similar to “know how” in this respect, insofar as one can know what a clarinet sounds like without being able to say what one knows—at least not succinctly. “Know that,” in contrast, seems to denote the possession of specific pieces of information, and the person who has knowledge of this sort generally can convey it to others. Knowing that the Concordat of Worms was signed in the year 1122 is an example of this sort of knowledge. Ryle argued that, given these differences, some cases of knowing how cannot be reduced to cases of knowing that, and, accordingly, the kinds of knowledge expressed by these phrases are independent of each other.” See: epistemology. (2009). In *Encyclopædia Britannica*. Retrieved April 7, 2009, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-247948>

⁷ “The propositional sense of knowing (i.e., knowing that something or other is the case), rather than the operational sense of knowing (i.e., knowing how something or other is done), is generally taken as the starting point for a logical theory of knowing.” See: applied logic. (2009). In *Encyclopædia Britannica*. Retrieved April 7, 2009, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-65895>

Considering that both aforementioned key constituents of “research” (i.e., involving systematic inquiry and the creation of knowledge) are not always applicable to all architectural endeavors, one might justifiably wonder what, then, does constitute architectural scholarship. In responding to this quest, it might be more fruitful to first ponder the nature of “architecture” instead of mirroring Snyder’s investigation of “architectural research” from the perspective of the inherent nature of “research.” Indeed, because he fails to address the prime role of historical development in architecture in raising the question of architectural scholarship, he raised some practical problems facing architectural disciplines today. As he stated, “twelve substantive topics appear to be high in the list of priorities in the list of the schools and the profession” (Snyder, 1984, p.9). While such an attempt is valuable in bringing to light the issue of architectural research, it does not necessarily contain a philosophical perspective. That is, it is not clear that based on such a philosophical view that the realm of architectural research can be encapsulated in twelve topics. The demands of schools and the profession are no doubt valid, but they are not necessarily representative of all possible areas of study in architecture. For example, none of the twelve topics has a specific concentration on the contemplative role of visual explorations in the discipline, which seems to be vital. Absent in both Snyder’s (1984) and Groat and Wang’s (2002) publications are the viewpoint of a spectrum of authors which characterized the 1977 edition of the *Journal of Architectural Education*. In that edition, questions of “search” and “research” were scrutinized by a group of academicians and practitioners. The articles contained therein were diverse and in some ways contradictory, and represented a wide breadth of architectural inquiry that included “pure observation,” “design activity,” and more traditional “scientific research.” Interestingly, we see that the co-editors of the 1977 journal are included as contributors to Snyder’s 1984 book. Yet the views of some authors such as Chris Arnold, one of the author contributors who advocated for drawing as a means of scholarship, have not been properly pursued and seem to be marginal in the works of Snyder and Groat and Wang.

If one serially examines the 1977 journal edition and Snyder’s 1984 tome, one observes a shift from pure discussions of search and research in architecture towards issues of instrumentality and the practical problems within the profession, such as those involving the environment, energy, and the more technological aspects of architecture. Similarly, if one compares the earlier publication, *Architectural Research* (1984), which was more limited to quantitative areas of inquiry, to the later resource, *Architectural Research Methods* (2002), one finds a publication that is more expansive and includes qualitative avenues of inquiry as well. This makes the 2002 publication a more inclusive and encompassing publication in terms of subject matters that concerns architectural inquiry, since questions of historical interpretation and the qualitative dimensions of architecture can now be considered in a more scholarly light. Nevertheless, issues such as “seeing” or “designing,” which were brought up in the 1977 journal edition, were not addressed in the succeeding publications.

Design: A Polemical Argument

As mentioned earlier, the breadth of perspectives in the 1977 edition of the *Journal of Architectural Education* was, unfortunately, not echoed in the succeeding books (i.e. Snyder, 1984 and Groat & Wang, 2002). In fact, Jan Wampler’s paper on “watching” was only briefly mentioned in *Architectural Research* (Snyder, 1984) as “an extreme” viewpoint that imparted arbitrary observations. Another example from *Architectural Research Methods* (Groat & Wang) includes a statement by Chris Arnold that calls Alvar Alto’s 1927 sketch for the Viipuri Library “a beautiful example of a designer’s research” (1977), which the 2002 publication subsequently debunks as a “difficult claim.” Although the resistance to drawing and design as a mode of inquiry is still evident, the 2002 publication shows significant progress in its willingness (which

is evident in devoting two chapters of their book to the issue of design) to open up a discussion regarding design and research, especially in comparison to Snyder's 1984 publication.

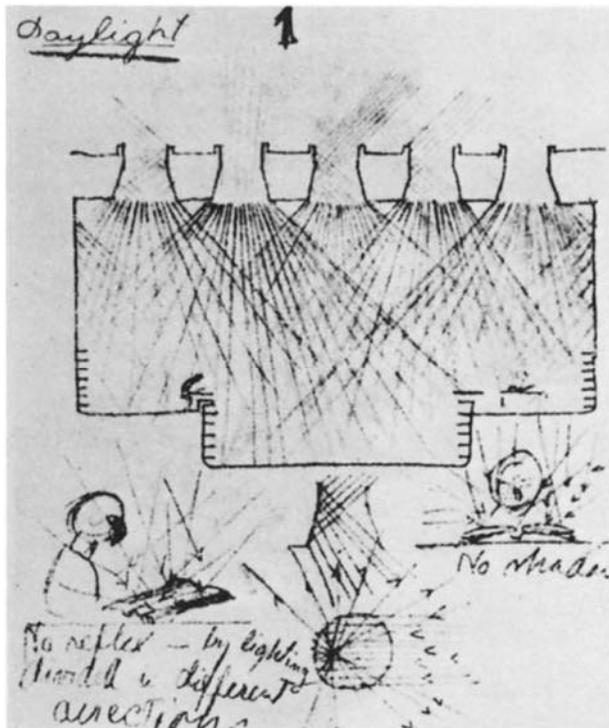


FIGURE.1. Alvar Alto's Sketch for the Viipuri Library

The issue of "representation" in architecture begins to be addressed in the "Design in Relation to Theory" chapter of *Architectural Research Methods*, which includes a section that discusses "design" and its relation to architectural research. Although the authors (Groat & Wang, 2002) have not semantically and historically studied and deconstructed the term "design," its use seems to largely correspond to visual and graphic procedures. Their concentration, instead of being on the imagery nature of the design, is on the two modes of design, "generative" and "analytic." For them, while analytic design is a transparent "process," "the generative design process is indeed a 'subjective' process—in the sense that it cannot be fully captured by rule-based propositions. As such, the process of designing is different from the process of researching" (Groat & Wang, p. 104). Clearly, the underlying assumption of their work considers drawing as a process that can be controlled by the critical reasoning faculties of the human mind.

The differentiation between "research" and "design" in the above discussion can be tied to a long-standing philosophical distinction between "Subjective Idealism"⁸ and "Objective Reality."⁹ These are viewpoints that,

⁸ Formulated by the 18th century philosopher, George Berkeley, Subjective Idealism is "a philosophy based on the premise that nothing exists except minds and spirits and their perceptions or ideas. A person experiences material things, but their existence is not independent of the perceiving mind; material things are thus mere perceptions. The reality of the outside world is contingent on a knower."

(2008). In *Encyclopædia Britannica*. Retrieved June 30, 2008, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-9070097>

respectively, favor either “our mental constructs of phenomena” or the “world out there” as a point of reference. An objective understanding of the world tends to be deductive and analytic in nature and avoids an individual’s personal interpretations. Thus, in the case of research, the end product is traceable and/or reproducible under the same conditions. Most natural sciences research fits in this “objective understanding” category. Noteworthy to mention here is that “the dominance of scientific method in the West has placed a premium on propositional understanding and has historically tended to devalue subjective experience” (Groat & Wang, 2002, p.104).¹⁰ This tendency has impacted the architectural disciplines as well. Even though architectural education depends greatly on the performing practice of “design” as an effective tool of incorporating and implementing fragments of knowledge, there is a “tendency in the academic venue to consider research a more legitimate form of scholarly inquiry than design” (Ibid p.107).

Recent qualitative research, however, has authenticated the use of “subjective” investigatory methods that believe the researcher is an essential component of the process (Deniz & Lincoln, 20XX). Even though these new insights could add weight to the subjective aspects of the design process, Groat and Wang (2002) remained concerned with the vagueness of works of art: “The entire process of art production (under which figural design can be subsumed indeterminate; that is, it cannot be captured by determinate descriptions, and yet it is within the domain of reason” (p.105). The authors draw on Kant’s aesthetic theory to provide foundations for the idea that “generative production of art and architecture are rooted in different regions of the human faculties of reason. These generative productions do not play ‘second fiddle’ to the analytic process of the faculty of understanding” (Groat & Wang, p.105).

Although the authors asserted that “generative productions” play an equally essential role in the “faculty of understanding,” they would not advocate that “design,” a procedure depending on visual and graphic representation, be considered as “research.” As indicated earlier, they reacted to Chris Arnold’s 1977 statement on Alto’s sketch of the Viipuri library as “a difficult claim” and continued by stating that “at minimum it raises the question of when a sketch is ‘research’ and when a sketch is, well, just a sketch”¹¹ (Groat & Wang, 2002, pp.106-7). While the question is fundamental, the way it is phrased conveys some preconceptions; that is, the sketch used therein is more a “visual object” requiring some additional analytical explanations.

Although *Architectural Research Methods* highlights polemical areas which make it difficult to consider design as research, it cautiously indicates that design as research could be “at best a difficult conceptual union of all mental abilities” (Groat & Wang, 2002, p.105). Yet the authors emphasized the necessity of efforts “to encourage the view that design activity and research activity are of equal value.” In this vein, they mentioned that “the suggestions of Boyer and Mitgang make for increasing the scope of what ‘scholarly work’ for architectural faculty are generally good in this regard” (Groat & Wang, p.107). Towards the end of the chapter, the authors discussed the emergence of alternative terms denoting design investigations in the architectural field. For example, “some architects have recognized that ‘inquiry’ is a much more comfortable word than ‘research’ to describe what they do” (Groat & Wang, p.107). Such an inclination

⁹ As opposed to the Subjective Idealism, Objective Reality considers human subjects as neutral recipients of information from the “world out there.” This view is manifested in the natural sciences.

¹⁰ The authors have not further explored the origins of the historical tradition which privileges a propositional understanding, or deductive reasoning. Many believe that Descartes played a prime role in dominating such perspective in human thinking. This issue will be discussed in detail in the following sections.

¹¹ Some might infer that the use of the word “well,” somehow, might convey the disbelief of Groat and Wang in that a sketch could be research at all.

among architects to seek alternative terms nevertheless demonstrates that the term “research,” which is chiefly associated with the natural and social sciences, is still controversial within architecture and does not fully respond to the entire body of the profession’s demands. Many have preferred to adopt terms such as “inquiry,” “scholarship,” or “scholarly inquiry.” Others have taken another approach and avoid terms denoting to any form of systematic investigation. Instead, they prefer expressions such as “architectural thinking” or “design thinking” instead.

To conclude this discussion, one should remember that architecture is one of the oldest professions undertaken by humankind. It has evolved and been nurtured throughout history by “architects” who were also thinkers, mathematicians, geometers, and philosophers. The creation of architecture, therefore, was not the mere act of composing materials in a utilitarian manner. In fact, architecture has a deeply rooted historical tradition of facing scholarly challenges that go beyond the technical knowledge needed to make buildings—and this is reaffirmed in the historical literature. These challenges, indeed, are part of the continual quest of architecture to overcome the unknown and create designs that reflect intellectual intent.

Reflection on the Existing Architectural Research Literature

A review of the exiting literature associated with architectural research reveals that questions of drawing, which have been embedded in a historical foundation, are largely absent. In fact, I would argue that any scholarly endeavors associated with the field of architectural research have not considered the nature of the discipline properly in terms of its historical growth and challenges—and that this lack undermines its comprehensiveness and value. Ironically, even though Groat and Wang (2002) stated that “architectural research has been conducted throughout the history of architecture” (p.6), they refer to it as the “development of particular structural forms and building materials” (p.6). The authors also expressed their belief that architectural research outside the confines of buildings is a recent phenomenon. Neither Snyder (1984) nor Groat and Wang (2002) addressed the historical quests of architects, mathematicians, and geometers in the pursuit of architecture as a visual and/or representational intellectual knowledge. Brunelleschi’s attempts to find proper ways to draw architectural ideas would be a good example in this regard.

The supporting philosophical perspective used by Snyder (1984) and Groat and Wang (2002) was derived from the Cartesian era, in which the duality of mind and body was dominant and knowledge was created by means of deductive and critical reasoning. In this view, drawing could be considered the mere pictorial renderings of buildings and landscapes as graphic representations, or at best, the result of a deductive process in which the image stands for a meaning outside of the realm of imagery.¹²As Frascari (2008b) described, the present era is characterized by a “Cartesian metaphysical phenomenon of the separation between the image and its support” (p.26). Such a separation, obviously, devalues visual explorations as means to generate new understandings. Although we often start drawing with some *a priori* understanding of what we intend to draw, we do not necessarily have a clear understanding of that as it will be demonstrated in our drawing.

Because it serves a core role in architectural production, drawing needs to be reconsidered beyond our Cartesian perspective. In fact, the quest for a better understanding and a more comprehensive practice of

¹² Those which fall into a deductive category, of course, are labeled as “analytic” design, a category of drawings which was discussed earlier.

architecture through visual explorations is well documented in the history of the discipline, beginning with Vitruvius (70/80 to 15BC), whose *The Ten Books on Architecture* is the only surviving major book on the subject from classical antiquity. In his manuscript, Vitruvius indicated that the “idea” of architecture should be represented in *Orthographia*, *Iconographia*, and *Scenographia*, which are certainly in the realm of architectural representation. Theoretical discussions mediated through use of projection, geometry, and optics (all within the domain of representation) continued in the succeeding centuries to the modern era. Therefore, the concept of “architectural scholarship,” it seem to me, revolves around the issue of representation.

In order to further explore architectural scholarship with respect to representation, one must look at how the profession of architecture has been historically notated and documented through the millennia. While architectural treatises from the past all employed a pre-Cartesian viewpoint, the modern era has looked at “architectural representation” in a much more deductive way, as discussed above. I would also argue for the incorporation of philosophical perspectives which have fostered architecture in the past.

In concluding this brief overview of academic publications on the topic of architectural research, two overarching impressions come to mind. First, the notion of “research” in architecture as introduced in those publications is the same as in other fields. This concept of research, however, might not consider the creative works of some designers that would be hard to conceptualize via the systematic process commonly understood as “research.” Therefore, many great works of designers, which have tremendously impacted succeeding generations of designers, are hard to be considered as a product of scholarship in architecture. It seems that there is need for a broader notion of research that could address specific investigations of designers as they design and build. Second, in the abovementioned publications, issues of “drawing and design” have not been significantly discussed. While these are vital to the design disciplines as a means of creating informed projects, the question remains as to how they inform us. This question is also not adequately addressed in the above references.

Consequently, the search for a mode of “inquiry” that could incorporate creative works of designers as well as their visual explorations seems to be essential. For this purpose we need to search for a philosophical perspective that considers the world of imagery not merely as a “second fiddle” for understanding, but as an essential element for acquiring knowledge. In the following section, this quest is examined through both a Cartesian perspective as well as through the introduction of a non-Cartesian viewpoint.

II. IN SEARCH FOR A (PHILOSOPHICAL) GROUND FOR DRAWING

A Philosophical Home for Representation

The conception and the creation of edifices and landscapes is highly dependent upon the use of graphic procedures and imagery representations. Educating and training architects without using graphic procedures is impossible, since drawing resides at the very heart of architectural endeavors. Nevertheless, the present normative view hesitates to consider this very essential representational procedure as a vital way of understanding. At this point, pondering the ontology of representation and drawing is essential. One must also rethink what constitutes architectural knowledge and what makes it so distinct from other forms of knowledge that are reasoning-based and often depend upon verbal explanations to propagate an idea and understand the world. In other words, it is critical to investigate how “knowing” can be obtained in architecture, which is a pursuit that is both distinctively visual and largely related to making. This by no means suggests that architectural knowledge can be, at least partially, independent from verbal interpretation. Rather, it implies that in architecture, knowledge can be derived not only from the reasoning faculty (in the form of verbal knowledge), but also from an imagery origin as well. In essence, one must contemplate questions of architectural knowledge as derived from both speech and imagery.

An argument for using imagery to make sense of built environments essentially leads to the questions of drawing and design, which are the main visual means by which designers depict spaces on paper. In this vein, therefore, it is essential to examine how design and drawing are interrelated and how they can be used to inform designers. Such considerations lead us to some fundamental questions that are core to this study; some of which include: Can we distinguish a drawing from its embedded design idea? What is the relationship between drawing and the mind? Is drawing the result of our faculty of critical reasoning or our imaginative abilities, or both?

Answering these questions requires a philosophical viewpoint that acknowledges a deeper understanding of the imagery world as a source of understanding. Clearly, the modern view, which has its origins in and is still dominated by Cartesian thinking, would not suggest such an approach. According to Cartesian philosophy, the critical mind is the preeminent means for understanding the world. Because this has consequences for architectural thinking—and thus for this study—I will attempt to briefly discuss the impact of the Cartesian view and how it has delimited the realm of architectural inquiry.

Directed Purposive Reasoning and Architectural Representation

*“...un peu d’encre posee ca et la sur du papier...”
... a touch of ink laying here and there on paper...*

Rene Descartes¹³

Living in an era dominated by Cartesian thinking that stresses the duality of mind and body makes it all too easy to interpret the world in a fragmented way. This is a mechanistic world in which a “thing” secures its being through its “clear and pure” idea and not through its whole embodied existence. “Skepticism presented a legitimate challenge that needed an answer”¹⁴ after Descartes. As a result, human values

¹³ Quoted in Frascari (2008b, p.26)

¹⁴ **epistemology**. (2008). In *Encyclopædia Britannica*. Retrieved September 7, 2008, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-11451>

began to diminish or become marginalized in a setting that stressed deductive processes for justifying their existence. Some values such as myths, which played a significant role in architecture for millennia, were set aside as they could not be rationalized according to Cartesian thought. Because the Cartesian metaphorical idea observes a separation between the image and its support (Fracari, 2008b), the image becomes a mere graphic object to be understood by means of reasoning. This is clear in Descartes own words:

“One of Descartes’ most celebrated positions is the distinction between the mind and the body” (Garber, 1998, 2003),¹⁵ which has become known as the duality problem. “Certain dualism between God the Creator and the mechanistic world of his creation, between mind as a spiritual principle and matter as mere spatial extension, was inherent in the Cartesian position.”¹⁶ This was the beginning of a disembodied world in which imaginative and cosmic characteristics of the material world, including architecture, became marginalized. For example, the light penetrating from a dome used to be considered as both a physical phenomenon and also an imaginative presence of a transcendental being. The same very light today is considered merely as a natural phenomenon describable by scientific means. Additionally, poetry and poetic reasoning were replaced by directed purposive reasoning.

*Cogito ergo sum*¹⁷

Through a process of skepticism and the radicalization of the human mind, Descartes separated the thinking mind from the corporeal body. “The mind, a thinking thing, can exist apart from its extended body...” Descartes indicated, “...And therefore, the mind is a substance distinct from the body, a substance whose essence is thought.” He gives his argument in *Meditation VI* as follows: “I have a clear and distinct idea of myself as a thinking non-extended thing, and a clear and distinct idea of body as an extended and non-thinking thing. Whatever I can conceive clearly and distinctly, God can so create.” For Descartes “...each substance has a principal attribute, an attribute that characterizes its nature. For mind it is thought, and for body it is extension” (Garber, 1998, 2003). In other words, distinguishing an existence from its essence (mind and thought) convinced Descartes to consider “images as partial similitudes to their objects (Fracari, 2008b, p.26).

Cartesian dualism impacted the question of “knowledge” as well. As a result of the prevailing skepticism of the day, the status of knowledge was reduced to what could be discerned through deductive reasoning faculties. “By proving to his own satisfaction that God exists,”¹⁸ Descartes tried to set the limits of

¹⁵ “Descartes did not invent the position. It can be found in various forms in a number of earlier thinkers. It is a standard feature of Platonism and, in a different form, is common to most earlier Christian philosophers, who generally held that some feature of the human being – its mind or its soul – survives the death of the body (see Plato §13). But the particular features of Descartes’ way of drawing the distinction and the arguments that he used were very influential on later thinkers.” Also from: GARBER, DANIEL (1998, 2003). Descartes, René. In E. Craig (Ed.), *Routledge Encyclopedia of Philosophy*. London: Routledge. Retrieved September 07, 2008, from <http://www.rep.routledge.com/article/DA026SECT8>

¹⁶ **philosophy, Western.** (2008). In *Encyclopædia Britannica*. Retrieved September 7, 2008, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-260417>

¹⁷ “I think therefore I am.”

¹⁸ This seems to be controversial to Descartes Philosophical framework as his knowledge of exiting God did not necessarily come from the same deductive procedure that he was advocating for. It is also known as Cartesian Circle:

“The inherent circularity of Descartes’s reasoning was exposed by Arnauld, whose objection has come to be known as the Cartesian Circle. According to Descartes, God’s existence is established by the fact that Descartes has a clear and distinct idea of God; but the truth of Descartes’s clear and distinct ideas are guaranteed by the fact that God exists and is not a deceiver. Thus, in order to show that God exists, Descartes must assume that God exists.”

knowledge so that “the standard for knowing something is having a “clear and distinct” idea of it.”¹⁹ Additionally, knowledge belonging to the realm of the human mind did not need to be associated with the body, (i.e. with human action). Finally, Descartes disparaged the value of sensual perception, since these senses belong to the body with no essence of “thought.” This is evident in his arguments regarding vision. Descartes was obsessed with “constructing vision according to a conceptual model rather than perception” (Perez-Gomez, 2007, p. 58). This view corresponds to a more disembodied philosophy, which is closer to a mathematical interpretation of the world than to the world as experienced. Similarly, architectural space for Descartes is “an autonomous geometric entity, independent from points of view” (p.58).

In this Cartesian view the architectural idea in mind remains independent of its translation into a visual realm, and the state of representation on paper is reduced to merely a visual tracing of an idea. In turn, drawing becomes a neutral tool voided of any internal value per se. This means that drawings are operative tools in the hands of our critical reasoning—or as Descartes himself said, they are “a touch of ink laying here and there on paper.” In a refusal to sensual perception, Descartes “had not detected that the material reaction between papers and ink plays a key part in making of drawings” (Frasconi, 2008b, p. 26). His refusal led the architectural profession to distinguish between design and drawing; drawing simply became instrumental and “design” became the performance of architectural conceiving. This view of the design process corresponds to a wholly mental course of action that requires appropriate media to facilitate a visual (i.e., a drawing) or a material (i.e., a model) representation. This understanding of design, and in turn architectural design, became even more ingrained when it was legitimized by practitioners such as Frank Lloyd Wright:

“I no longer touch pencil to paper until the idea of the design is so fixed within my own imagination that I am arranging the furniture and placing bowls of flowers in the building. Then I go to paper and put it down.”²⁰

Apparent in Wright’s perspective is that the design process that results in the creation of an edifice is primarily mental. While he does not completely ignore the role of graphic representation in conceiving buildings (i.e. architecture), he clearly sees design as a mental process and not as the embodiment of a representational procedure as well. Ambiguous in this view is how detailed a building plan can be if it is wholly envisioned in the mind without being translated into a visual and embodied world. This view, which is commonly accepted in the practice, assumes drawing to be a neutral and passive instrument devoid of inherent value, operating merely for the transformation of architectural thought into architectural practice (Perez-Gomez & Pelletier, 1977, p.5); (Wood, 2002, abstract). In order to be able to treat architectural drawing as more than a neutral instrument under the service of mental processes, we need to go beyond Cartesian thinking.

Descartes, René. (2008). In *Encyclopædia Britannica*. Retrieved September 7, 2008, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-43354>

Part of the contradiction is also apparent in his distinction of sources of knowledge.

“Descartes distinguished two sources of knowledge: intuition and deduction. Intuition is an unmediated mental “seeing,” or direct apprehension. Descartes’ intuition of his own thinking guarantees that his belief that he is thinking is true. Although his formula might suggest that his belief that he exists is guaranteed by deduction rather than intuition (because it contains the term “therefore”), in the *Objections and Replies* (1642) he states explicitly that the certainty of this belief also is based upon intuition.”

epistemology. (2008). In *Encyclopædia Britannica*. Retrieved September 7, 2008, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-11451>

¹⁹ epistemology. (2008). In *Encyclopædia Britannica*. Retrieved September 7, 2008, from Encyclopædia Britannica Online: <http://search.eb.com/eb/article-11451>

²⁰ Frank Lloyd Wright quoted by Futagawa, Y. (1985): viii. Referred in Wood (2002)

Poetic Reasoning and Architectural Representation

Giambattista Vico, a Neapolitan philosopher (1668-1744), is known as a key figure who established a philosophical argument against Descartes regarding the issue of human knowledge. In opposition to Descartes, Vico developed a more humanistic science, a science in which humans are given greater role for the creating of meaning. Vico's science is "a science of things mortals make. Language, law, art and so on; Descartes' was a science of things the gods make: the things of nature" (Leatherbarrow, 1988, p. 53). Vico considered human imagination as the source for the creation of human institutions and knowledge. (Encyclopedia Britannica, (EB)) Vico, unlike Descartes, regarded imagination as a key constituent in human life and refused to accept Cartesian deductive reasoning. Vico advocated for a poetic understanding of the world, poetic reasoning.

Vico's philosophy sheds light on architectural production and knowledge. According to Vico, human-made architecture is highly dependent upon one's imaginative capacity as well as on analytic thinking. Therefore, if placed under the scrutiny of Vechean insights regarding imagination, architecture could reveal its imaginative inhabitation. That is, architecture could be seen as a product of human imagination too, which in turn leads us to ponder the "imaginative" quality of architecture and by association architectural knowledge and inquiry.

To further articulate this, I would like to take on the history of architecture and gardening. In many cultures, gardens were regarded as built manifestations of humans pursuing beauty and the sublime. The physical response (i.e. the spatial configuration of gardens) to the quest for the sublime at least partially came from human imagination. One could say that the collective imagination of a culture contributed in capturing a sense of the sublime in the form of a built garden. As in the case of Islamic gardens, human imagination has contributed to embodying a divine idea in a physical form. This is particularly important with respect to architectural thinking and production as well.²¹ Key elements that contribute to such poetic reasoning include an appreciation of the unity of body and mind (i.e., our embodied presence in the world), a recognition of language and its historical evolution as a source of understanding (and in particular the use of poetic language), and the use of imagination as a path to knowledge. These issues are addressed in the following section, with particular emphasis on the "imagination," which remains core to our discussion of drawing and architectural research.

Embodied Knowledge

Understanding the implications of Cartesian philosophy, Vico "sought to recover an understanding of an embodied knowledge" (Perez-Gomez, 2007, p.23). Vico emphasized "that science should be conceived as the "genus or mode by which a thing is made" so that human science in general is a matter of dissecting the "anatomy of nature's works" (DA, 48), albeit through the "vice" of human beings that they are limited to "abstraction" as opposed to the power of "construction" which is found in God alone (DA, 50-52)" (SEP). Arguing the difference between the human mind and the divine, Vico, unlike his contemporary early-modern thinkers, brought attention to the fact that humans are also endowed with an embodied consciousness (Gomez, 2007). This embodiment necessitates humans to engage in experimenting and making things by which they "project mathematical reason into the world, and thus humans attain some certainties" (p.23). Given that "the norm of the truth is to have made it" (DA, 52), Vico reasoned, Descartes' famous first principle that clear and distinct ideas are the source of truth must be rejected: "For the mind

²¹ Captured in a post-Cartesian culture, architecture is reduced to a mechanistic material composition that no longer mediates deeper principles of human being, in Vechean view, principles dealing with birth, marriage, and death.

does not make itself as it gets to know itself," Vico observed, "and since it does not make itself, it does not know the genus or mode by which it makes itself" (DA, 52)²² (SEP). The embodiment advocated by Vico was the antithesis to the fragmentation of body and mind in which knowledge was exclusively associated with the human mind. It is relevant to the present study as drawing is also an embodied experience, which clearly puts creation of knowledge in association with corporeal presence.²³ This is also important in the sense that many of the things we understand from built environments and landscapes have come to us from our corporeal and perceptive experiences of those spaces.

Vico's significant work, *New Science (Scienza Nuova)*, clearly renders his position on the problem of human knowledge. Vico "consciously develops his notion of *scienza* (science or knowledge) in opposition to the then dominant philosophy of Descartes with its emphasis on clear and distinct ideas, the most simple elements of thought from which all knowledge, the Cartesians held, could be derived a priori by way of deductive rules"²⁴ (SEP). He argues that "full knowledge of anything involves discovering *how* it came to be what it is as a product of human action and the "principal property" of human beings, viz., "of being social" ("Idea of the Work," §2, p.3)" (SEP). Such a precept links the process of attaining knowledge to the body, which contains the senses that are capable of artistic creation. With that in mind, one is reminded of Vitruvius, who stressed that architects "must have a knowledge of drawing so that he can readily make sketches of the appearance of the work which he proposes" (p.6). In such a view, drawing, which results from human action, could then be considered as a source for creating knowledge.

²² "Thus the truths of morality, natural science, and mathematics do not require "metaphysical justification" as the Cartesians held, but demand an analysis of the causes-the "activity"-through which things are made (DA, 64)" (SEP)

²³ It seems like there are different parts to the drawing process. One is the conceiving what one intends to draw. And a second part which starts from putting the pen or charcoal to paper would be an embodied experience. However it is mentioned that separating our mental faculties from our corporeal actions might not seem to be correct in all cases. Many phenomenological scholars such as Juhani Pallasmaa believe in some level of integration between the hand and the brain:

"Western consumer culture continues to project a dualistic attitude towards the human body. On the one hand we have an obsessively aestheticized and eroticized cult of the body, but on the other, intelligence and creative capacity are equally celebrated as totally separate, or even exclusive individual qualities. In either case, the body and the mind are understood as unrelated or even conflicting and exclusive entities that do not constitute an integrated unity. This medium of identity and self-presentation, as well as an separation is reflected in the strict division of human activities and work into physical and intellectual categories. The body is regarded as the instrument of social and sexual appeal, but its significance is seen merely in its physical and physiological essence, while totally undervalued and neglected as the very ground of embodied existence and knowledge, and the full understanding of the human condition." (Quote from Juhani Pallasmaa's manuscripts distributed to the school of architecture +design at Virginia Tech in April 2009).

Pallasmaa is not the only person who advocates for union of body and mind in architecture. Many other scholars such as Wilson support such approach. Wilson's indication on the relationship between the two is fruitful to this discussion:

"The brain does not live inside the head, even though it is its formal habitat. It reaches out to the body, and with the body it reaches out to the world. We can say that the brain "ends" at the spinal cord, and that the spinal cord "ends" at the peripheral nerve, and the peripheral nerve "ends" at the neuromuscular junction, and on and on down to the quarks, but brain is hand and hand is brain, and their interdependence includes everything else right down to the quarks."

See: Frank R. Wilson, *The Hand: How its use shapes the brain, language, and human culture*. Pantheon Books, New York, 1998, front flap.

²⁴ Vico had already argued that "one consequence and drawback of this hypothetico-deductive method is that it renders phenomena which cannot be expressed logically or mathematically as illusions of one sort or another." Costelloe, Timothy, "Giambattista Vico", *The Stanford Encyclopedia of Philosophy* (Fall 2008 Edition), Edward N. Zalta (ed.), forthcoming URL = <<http://plato.stanford.edu/archives/fall2008/entries/vico/>>.

Language

With respect to language, Vico considered it as a source of historical knowledge (SEP). He observed, for example, that many words in the Latin language did not necessarily come from the vernacular usage of the people, but instead seemed to be “derived from some inward learning”(SEP). Vico suggested that by tracing words back to their origins, humans could discern the true meaning of things. Indicating that “that phenomena can only be known via their origins, or *per caussas* (through causes),” he argued that “Doctrines must take their beginning from that of the matters of which they treat” (Element CVI, §314, p.92).” Vico believed that “the passage of years and the changes in language and customs has come down to us enveloped in falsehood” (Element XVI, §150, pp.64-5)” and that “unveiling this falsehood leads to “wisdom,” which is “nothing but the science of making such use of things as their nature dictates” (Element CXIV, §326, p.94)” (SEP). He considered this restoration of truth as a duty of science. Such an approach to language has been reaffirmed by many contemporary thinkers such as Heidegger. The evolution of words not only helps designers in understanding the evolution of ideas and views, but can shed essential light on design ideas. For example, the terms *paradise* in English comes from *Ferdows* (meaning heaven or garden) in Farsi. *Ferdows*, in turn, comes from *Pardis* meaning garden. Interestingly, in archeology of the term, *Pardis* comes from ancient Persian language *Paradaeza*. *Paradaeza* is a combined word: *para* (around) *daeza* (wall); therefore, the meaning of garden in Farsi is associated with an “enclosure.” We see that even today, Iranian gardens are enclosed landscapes, even though most probably do not know the original meaning of *Pardis*.

To facilitate discovering the true, original meaning of things, Vico advocated the use of “philology.” As he stated, “Philosophy contemplates reason, whence comes knowledge of the true; philology observes that of which human choice is the author, whence comes consciousness of the certain” (Element X, §138, p.63).” (SEP) For Vico, “Philosophy aims at articulating the universal forms of intelligibility common to all experience, while philology adumbrates the empirical phenomena of the world which arise from human choice: the languages, customs, and actions of people which make up civil society.” (SEP) Thus, human thought is essentially rooted in its given cultural context. And since context is developed historically, it is innately related to ordinary language, and has evolved from the state of myth and poetry.²⁵ (SEP). Vico’s “weaving together of philosophy and philology,” Perez-Gomez (2007) argues, represents the “first instance of historical hermeneutics” (p.90). Although hermeneutics had its origins centuries ago, modern hermeneutics is mainly disseminated by Heidegger and Gadamer, and is defined as a journey through language and culture in order to uncover historical truths. The result, unlike Cartesian’s deductive thinking, is a coherent and comprehensive understanding of the phenomenon under scrutiny.

Such an understanding of language is essential for design and drawing primarily because of the following reason: a design drawing is a process with close interactions with verbal language. Attempts to translate some concepts from “verbal” language into visual are common. Therefore, an understanding of the origins of words becomes important in order to better translate them into the visual. For example, when considering the design of an Iranian garden (*Pardis*), an understanding of the meaning of *Pardis* can help the designer remember to incorporate a sense of “enclosure” to the design.

²⁵ Ramberg, Bjørn, Gjesdal, Kristin, “Hermeneutics”, *The Stanford Encyclopedia of Philosophy* (Fall 2008 Edition), Edward N. Zalta (ed.), forthcoming URL = <<http://plato.stanford.edu/archives/fall2008/entries/hermeneutics/>>.

Imagination

According to Giambattista Vico, human beings “are not innately rational.”²⁶ He argued the importance of “understanding results not through sense perception but through imaginative reconstruction” (EB), mental constructs. Vico traced “the origin of nations back to two distinct features of human nature: the ages of gods and heroes result from memory and creative acts of “imagination” (*fantasia*), while the age of men stems from the faculty of “reflection” (*reflessione*)” (SEP). Imagination has the potential to engage humans in a poetic association with the world. Vico thus discovered “two kinds of wisdom-“poetic” and “philosophical”-corresponding to the dual nature of human beings (sense and intellect), represented in the creations of theological poets and philosophers, respectively (“Poetic Wisdom,” §779, p.297)”²⁷(SEP). Considering *poiēsis* to be the origin of all cultures and nations, Vico deliberated that “poetic images were the true universals” (Perez-Gomez, 2007, p.90). Vico asserted that, in the absence of an understanding of “the true causes of things,” identifying the gods behind and within the reality became the means by which “the first humans ‘made themselves the measure’” (Kunze, 2005, p.50). In other words, “incapable of forming “intelligible class concepts of things”-a feature of human mind realized only in the age of men, people had “a natural need to create poetic characters; that is, imaginative class concepts or universals, to which, as to certain models or ideal portraits, to reduce all the particular species which resembled them” (Element XLIX, §209, p.74)”²⁸(SEP). Through the establishment of poetic characters, often materialized in imagery, a new understanding based on image can take place. Frascari provided a clear indication that how Vico’s “imaginative class concepts” empowered an understanding based on image:

“In consolidation of his own theory of image, Giambattista Vico ... established a contrast between intelligible universals (*universali intellegibili*) and imaginative universals (*universali fantastici*) in determining the aim of a new “scientific” research. By questioning of the aridity of the “rationality” of Cartesian thinking, he promoted a “mental glossary of images,” a thesaurus of intelligible universals embodied in meaningful theoretical images. Considering human institutions as the only possible source of human knowledge, the Neapolitan philosopher developed a new science, the science of imagination. The search for intelligible universals is described by Vico as the product of a rational, but soporific mind (the French: *esprit*), whereas the search for imaginative universals is seen as an outcome of a productive poetic mind (the Italian: *ingegno*)” (Frascari, 1990, p.11).²⁹

To many contemporary scholars of architecture, the true meaning of historical edifices become evident only if we go beyond mere “philosophical wisdom.” These critics agree that the aridity of the current status of architecture springs from a lack of poetic wisdom behind our architectural production (Pèrèz Gomèz, 1984). By embracing the notion that the two major sources of knowing, reasoning and imagination, are complementary rather than contradictory, practitioners can better appreciate Vico’s philosophy—namely that knowledge results from an embodied engagement with phenomena, often through making them. Additionally, by discussing his notion *scienza*, he essentially wedded knowledge to action.

²⁶ I believe that Vico here does not mean that humans are irrational, but perhaps transrational.

²⁷ Costelloe, Timothy, “Giambattista Vico”, *The Stanford Encyclopedia of Philosophy* (Fall 2008 Edition), Edward N. Zalta (ed.), forthcoming URL = <<http://plato.stanford.edu/archives/fall2008/entries/vico/>>.

²⁸ Costelloe, Timothy, “Giambattista Vico”, *The Stanford Encyclopedia of Philosophy* (Fall 2008 Edition), Edward N. Zalta (ed.), forthcoming URL = <<http://plato.stanford.edu/archives/fall2008/entries/vico/>>.

²⁹ Intelligible universals such as “ethic,” “sublime” are understood through our ability of critical thinking, while intelligible universals such as the “angelic images” in the Christianity carry imagery dimensions in them. They are often “imagined” rather than being understood through our directed purposive reasoning abilities.

In short, as a result of Vico's introduction of imagination as a productive means to create poetic mental images, we have a rebirth of the world of imagery as a means of sensing and interpreting the environment. This is what he refers to as "imaginative universals," a world by which the cosmos is portrayed in a poetic manner, a world that engages humans in their imaginative capacity—not merely to factualize, but to sense the world. Vico's insights have also been reaffirmed by contemporary philosophers.³⁰ Nevertheless, Vichian philosophy opens new horizons in art and architectural thinking and scholarship—much of which is associated with new perspectives in architectural representation.

Conclusion

Up to this point, I have briefly discussed two major view points: directed purposive reasoning, which is associated with Cartesian thinking, and in contrast, the non-Cartesian approach as embraced by Vico. We observed that according to Descartes, it is our directed purposive reasoning (*cogito ergo sum*) that becomes the dominant source of all understanding. Therefore, knowing becomes increasingly dependent upon our faculty of directed purposive reasoning, a faculty that mainly embraces the verbal as a home for its knowledge. In this view, drawing and imagery play second fiddle to what directed purposive reasoning faculty decides, conceives and determines. For example, starting the design process from a "verbal concept" and then attempting to translate that into the visual is a good indication of how "verbal" still owns primacy over "visual" representation. As such, an architectural drawing need not offer anything beyond that which has been conceptualized via our faculty of reasoning. Such a philosophical perspective does not admit that drawing and imagery in the architectural disciplines could meaningfully augment what is produced by purposive reasoning.

Conversely, we observed how an anti-Cartesian perspective can help to craft a world of imagery that is both valid and complementary. In such a philosophical perspective, knowing can also be attained through images that spring from our imaginative faculties. Moreover, this perspective advocates for a coherency of meaning and matter as it is an embodied world. Only through such non-Cartesian perspectives can we establish an understanding of architecture based on images.

The present study, therefore, embraces this non-Cartesian philosophical perspective, which is mainly based on Vico's idea of "imaginative universals." However, in part, this imagery is viewed through an analytical perspective. Thus, this twofold philosophical perspective mirrors the two-sidedness of the world of the imagery. In other words, the study will argue that while "drawing" belongs to the world of imagery, it should also be considered as a legitimate basis for scholarly inquiry in architecture.

³⁰ It is to be mentioned that Vico is not the only thinker who opposes Cartesian philosophy. Although not widely published, Donald Kunze (2005) reminded us that many of the contemporary thinkers such as Heidegger, Gadamer, and even poststructuralist such as Derrida and Deleuze have insights in common with Vico. Heidegger's writings on necessity in being engaged in poetic act and his comments on the origin of the work of art (association of truth with creation) certainly shares some fundamental beliefs with Vico's insights. And in the case of Derrida, although a different approach, the binary, a heritage from Cartesian duality is questioned.

III. DRAWING: REPRESENTATIONAL KNOWLEDGE

Drawing and the Architectural Discipline

Architecture must place its truths under scrutiny, particularly the truth of the tradition of architectural representation.

Peter Eisenman³¹

Architects and landscape architects have traditionally treated drawing as an essential and reliable tool. In fact, imagining architectural disciplines independent from the act of drawing is impossible. Eisenman's concern, as articulated above, is a valid point; a deeper understanding of architectural drawing is needed. I would argue, in effect, that we need to move beyond conventional view of architectural drawing, an enhanced view that cannot simplistically answer "yes" to questions such as the followings:

- Can we presume that an architectural drawing is merely the final product of a mental intention made graphic?
- Are architectural drawings only two dimensional graphics representing three dimensional spaces? If so, would not they be reduced forms of richer realities?
- Is it legitimate to treat the architectural drawing merely as a prescriptive document, a one-to-one graphic instruction, for a future site or building? If so, would not they be voided of any contemplative qualities?
- Would it be fair to follow the conventional view of the architectural drawing that considers it, at best, as a paradigm for architectural knowledge based on a visual relationship between an idea and a built work? If so, then how can a merely visual means create meaningful spaces?

We see that affirmative responses to these questions simply make architectural drawing largely dependent upon critical reasoning abilities as a means for producing the visual appearance of something that has its origins in the mind. Given this situation, if we consider how much the development of the architectural production, architectural knowledge and architectural education is indebted to the presence of these representational procedures (i.e., mainly drawing), then why hasn't architectural production and education been able to exist independently from visual representation?

Answering this question is key to a deeper understanding of drawing as a unique means of expressing and producing thoughts in architectural disciplines. Considering that representation is not a reduced or a less authentic form of something, rather "what is represented is itself present in the only possible way possible to it,"³² we can look back at the architectural drawing as original sites for architectural contemplation. In fact, following this view, many scholars such as Frascari indicate that "buildings are representations of drawings." (Quote from Frascari's Blog).

With Gadamer's insights on the notion of representation, we not only should consider drawing as the only possible way of making architecture tangible or visible, but also a way to enter an environment of representational knowledge. On the one hand, Gadamer tells us that architectural drawing can be the only possible way to represent architecture (or should we say the only possible way to present architecture), as

³¹ Quoted from Wood, Peter. (2002).

³² Hans-Georg Gadamer quoted in Vesley Dalibor, 2004. P.13

well as its associated knowledge (e.g. construction, spatial configuration, visual ratio, aesthetics). On the other hand, Vico's philosophy casts a new light on architecture and architectural drawings. Architecture, in this view, is human-made and therefore dependent upon language and the use of imaginative universals. "It is a mark of the radical nature of Vico's thought that he insisted knowledge is not just the province of objective fact but also a consequence of subjective "collective" elaboration of archetypal myth, that is to say an assembly of those existential symbolic truths residing in the human experience" (Frampton, 1997, p.528).

Architecture, and therefore architectural drawing, belonging to the realm of human experience is no longer a less authentic form of a "thought." Rather, it is "thought" in its only possible way, which also comes from "imaginative universals" rather than merely from intelligible universals. In the following discussion, drawing as the work of designers and its relationship with the designer will be discussed to further investigate the how the "drawing" as a means of understanding is related to the "drawer."

Drawing: The Work of the Architect and Landscape Architect

"Drawing is what we actually make." (Olin, 2008, p.141)

The contemporary history of architecture reinforces the key role that representational artifacts (e.g. drawings) have played in enabling architects to generate and mediate their ideas. The work of architects, at least in the past two centuries, has been integrally involved in making drawings. That statement is in many respects true for landscape architecture as well. The emphasis on drawing as what architects make is evident when we see that "very few architects in the last two hundred years have made their own buildings" (Perez-Gomez, 1982, p.5). Vitruvius, who advocated that the architect engage in a variety of branches of knowledge, indicated that the knowledge of making "drawing" is required for the architect as well. Therefore, for Vitruvius, drawing was an integral part of what architects should do. As indicated by Perez-Gomez, architects have rarely built buildings themselves. Instead, they supervised the construction of buildings which involved the labor of masons, carpenters, metalworker and so forth. Plato, in fact, held this view—that architects should have the knowledge to supervise the process of construction. This knowledge, of course, was demonstrated through the drawing (Frascari, Personal Blog), which is still important for the profession today. Therefore, architectural drawing becomes a means to translate thoughts into constructions (i.e. buildings and built-landscapes).

In order to become an architect, one needs to achieve minimum degree of knowledge of reading and producing architectural drawings and sketches. In fact, the architectural drawing plays a role both as the vehicle to conceive the future buildings and landscape and as the final product itself. The importance of the drawing as the seminal work of architecture and landscape architecture should also be reiterated in educational programs. Students should learn how to conceive a building by true engagement in reading and notating the drawing. In fact, they become engaged in knowledge that is mediated through a representational system highly depending on the image. "For Alberti drawing was perceived as the embodiment of architectural ideas, distinct from perspective that represented (in painting), the reality of a building" (Perez-Gomez, 1982, p.2). This distinction, obviously, helps us gain a better sense that the architectural drawing should be regarded beyond some pictorial image. It is Gadamer's insights on representation that makes drawing as "the embodiment of architectural ideas" easily acceptable. Also in this regard, it is Vico's imaginative universals, a thesaurus of visual thoughts, which make the drawing and its associated knowledge a unified whole.

The drawing is the work of the architect. It is the procedure by which the discipline of architecture trains future practitioners as well as the inscription that professionals rely on, becomes an embodied of exploration and a demonstration of their thoughts and ideas. This eventually became true for landscape architecture and other design professions as well. Architects and landscape architects have traditionally treated the drawing as an essential and reliable tool—so much so that imagining both architectural disciplines independent from the act of drawing is impossible. Landscape architect Laurie Olin referred to Paul Ricoeur’s remark that “drawing is the work of designers” (Olin, 2008, p.141). In this sense, drawing could also be viewed through Vico’s indication of knowledge and (human) making...that drawing is a making process. It is also about *how to know to draw*; a knowing of how to represent ideas via drawing. For example, the know-how of using a compass in order to make both measurements and to create difference scales could be considered as an integral part of the knowledge of drawing. This, in fact, is very close to Vitruvius’s view of the knowledge of drawing. Considering that the use of drawing tools meant the use of (applied) geometry, one can see how drawing architecture was akin to performing construction procedures on paper, which is a persuasive indication that one’s knowledge of construction should be embodied in the drawing.

Drawing and the Body (the Drawing and the Drawer)

“When a painter, ..., paints a scene, the hand does not attempt to duplicate or mimic what the eye sees or the mind conceives. Intention, perception and the work of the hand do not exist as separate entities. The sole act of painting and its very physicality and materiality is both the means and the end.”

Juhani Pallasmaa³³

Drawing is a corporeal experience. We use our body to make a drawing. While the hand plays a key role, this experience is not merely limited to use of hand. Our eyes keep a close watch of what we draw; our gestures are also a vital element in the creation of the drawing. Drawing then becomes a practice. It is, therefore, comparable to other human actions such as making things, playing music, and even to some degree dancing. Drawing, in this sense, is dependent on one’s sensual condition. We may consider the drawing as “performance,” a performance of what is intended and what we know. Drawing and body, representing a unified whole, is an expression of something that is understood. In other words, when we engage in the practice of drawing, we use our body as a tool, which leads us to a corporeal awareness of the drawing. This multimodal experience (i.e. sight, touch, imagination, body gestures and movements) brings about awareness about the drawing procedure. It somehow creates an immediate understanding of the drawing action in the “drawer.” Take, for example, the act of touching a stone column while seeing it. We “know” about the column through a lived experience of it. That knowledge is immediate. It comes to us through a lived multi-sensual experience. In drawing that stone column, we record its exact visual appearance, but we can also incorporate nuances in that drawing that our other senses perceive. For instance, our memory of the sense of touch informs the drawing so that it can impart the texture of the stone or even its probable coldness. We see then how a lived multi-sensual experience could inform the drawing.

In short, the “drawer” can engage in a lived experience of the “drawing.” This experience not only is an attempt to bridge the separation between the drawing and drawer, but also offers us an immediate

³³ Quote from the manuscripts of Juhani Pallasmaa distributed in the School of Architecture + Design, Virginia Tech. on April 2009.

understanding about the drawing. This understanding is multi-sensual and gives us “knowing” about what we draw beyond what our vision captures.

Our body informs what we draw; for example, as we draw in scale we project our self into the drawing (Emmons, 2008). Or as we draw a landscape, our corporeal experience with the landscape can help us capture qualities that are invisible to our eyes. A good example in this regard would be a Persian garden—a green heaven, a shaded area that comforts the visitor who seeks refuge from a hot, arid, and sun-burning climate. Such a lived experience of the Persian garden demands that we integrate that corporeal understanding into the drawing of the garden. Here, I would argue that drawing is not a mere trace of our mental image of a thing or concept. Let us consider, for instance, the act of drawing a landscape in front of us. This experience can be performed in two ways. One is just to “trace” the view in front of us—in the same way that a camera captures a perfect image. The other way would be to engage the landscape (e.g. that Persian garden) in ways that can demonstrate aspects of it that reflect one’s personal experience with it. In the case of the Persian garden, that drawing might reflect a sense of comfort and pleasure. In other words, when we express our lived experience of a landscape in our sketches, that sketch becomes more than a pictorial representation of the landscape. Our drawing, through a muscular and corporeal memory, becomes a means to touch the landscape. This is evident in Pallasmaa’s outlook:

“As I sketch a contour of an object, human figure or landscape, I actually touch and feel the surface of the subject of my attention, and unconsciously I sense and internalise its character.”³⁴

This attitude reflects how one’s corporeal experience of the world could be recorded as memories in our body and then be recalled when we draw. This is the muscular memory that allows us, in Pallasmaa’s words, to “touch and feel the surface” of the subject of our drawing.

A sketch goes beyond a rigid pictorial depiction of a landscape when it incorporates a sequence of personal experiences with that scene. A sketch could invite the viewer to recall his/her (corporeal) memory of an experience with the place and also to imagine the before and after sequences as Pallasmaa reminds us: “A sketch is in fact a temporal image, a piece of cinematic action recorded as a graphic image.”³⁵ In this sense the seemingly graphic object, the sketch, functions beyond as pictorial.

This engagement, I believe, is both mental and sensual. It is mental when we thoroughly observe a place, attempt to understand its “contents,” and then accurately depict what appears before us. I might compare this careful examination with a survey of a scene when we try to understand the physics of the place, existing things such as plants or buildings, a sense of the scale and proportions, etcetera. This not only provides us with an understanding of the logic of the space, which means an understanding of the environment that would help us determine the quantitative aspects of that particular landscape, but also help us understanding some qualities of the “landscape-to-be-drawn.” I should note that part of these qualities deal with the visual aesthetics of the place, which depend both on a bodily experience of the place and a mental interpretation of the landscape.

On the other hand, this engagement with the landscape is highly sensual. As we walk in the landscape, our “non-visual senses” contribute to our experience. A multi-sensual engagement creates a new interpretation

³⁴ Quoted from Juhani Pallasmaa’s manuscripts distributed to the School of Architecture + Design, Virginia Tech. on April 2009.

³⁵ Ibid.

of the landscape. The fresh smell of the grass and flowers makes the air a “filled material” for us. Likewise, the smoothness of the flowers enhances our visual understanding of the landscape. Our body becomes a vehicle by which the landscape is experienced and understood more fully. In summary, when our sensual experience of a place becomes an important ingredient of how we understand it, the resulting drawing becomes as visual stimulus through which experience can be revealed..

Conclusion on Drawing and Body:

Whether we consciously intend to use our body or not, our corporeal experience with environments and drawing informs our drawings and helps us obtain knowing about what we draw. In essence, the totality of our body helps us capture some qualities of the environment that are non-detectable by sight. As a complete informing instrument; our body helps us understand a sense of “scale” and also a sense of “orientation.” It is the presence of our body, for example, in a narrow alley that brings a sense of awareness of what that alley feels like. Without physically being in that setting, capturing an accurate sense of scale is hard. Our orientation, especially with regards to gravity is also very important. Seeing a picture of a landscape or building upside down is very different from actually being upside down and seeing the place from that perspective. Thus, what I am advocating extends beyond a visual experience with a setting. Our body and its position as we draw is a vital tool that situates us in the place as we draw—and we draw with regards to such “situated-ness.” These qualities are reflected in our drawings and will lead to a better depiction of a given place.

Drawing in this sense expresses knowledge. In drawing an imaginary place (e.g. design drawing), for example, the scale of the drawing in front of us invites us to see different aspects of the space. For example a 1:100 scale (metric) of a landscape enables us to envision certain amount of detail in the space. Conversely, in a 1:20 scale drawing we can almost see and feel how we could sit under the canopy of an imagined tree. Again, by using proper scale in a design drawing we can project our body into the drawing and attempt to complete the space. In both of these drawing experiences, it is our body and our mind that injects some knowing into the finished product.

IV. THE FUNCTION OF THE DRAWING

Common Ground between Architecture and Landscape

The essence of a drawing depends on the rationale for creating it. Sometimes we draw an actual building or landscape, while at other times we draw buildings or landscapes that do not exist in the material world. Thus, it is important to distinguish between these two types of drawings due to their purpose: one that captures and one that casts. When the drawing is a recipient of the external world, it captures or catches qualities of an actual place. When the drawing is of a place that perhaps *will* exist, it can bring out ideas, thoughts, or sensations of an external world to that envisioned environment.

Architecture and landscape architecture include drawing both in their curricula. Students draw buildings and landscapes in order to learn from them. Then in the studio, students draw buildings and landscapes that do not yet exist. Speaking in a theosophical manner, one could compare this dual act of drawing with a narration of “the world in front of us” or “the world inside us.” That is, when we draw from real world, it is a visual narrative that we created from the world in front of us, and when we draw by engaging our imagination then the drawing represents what exists in us. The first method catches or captures, while the second projects or casts.

DRAWING *is* CAPTURING (CATCHING)

“Whether capturing masterworks, analyzing the archetypal, or travelling to see at first hand the great buildings and landscapes, drawings developed from critical observations coerce us to better understand the subject.”

Walter Hood (2008, p.58)

When we sketch buildings and landscapes that are in front of us, we initially deal with a “real” world. For instance, we see a tree. The tree has a root in the earth, a trunk towards sky, and branches scattered around. In the case of sketching a building; for example, we deal with actual appearance of a given constructed object. We can either sketch how the building actually appears to us (similar to what a camera does), or augment that capability by capturing certain qualities or properties of that structure. These properties could be visual (geometry or aesthetic), related to spatial configurations, related to constructional aspects (drawings that demonstrate the order of construction), or those that project our sensual interpretation of that building. In each of the above mentioned, there is embedded “knowing” that is expressed through drawing. Therefore, we can say that drawing and knowledge are related.

Invisibles Captured

As we draw a building, we can see that there are certain things that can be drawn which do not explicitly exist. For example, the geometrical order that relates all component of a building façade to each other (i.e. windows, balcony, porch, door, ...), is not necessarily visible in the final appearance of the façade. It is our drawing that can capture that invisibility and make it visible. Geometry, which is frequently used by designers, needs drawing as its holding medium to become understandable. As architects and landscape architects, when we go to sketch built environments, our drawing seeks some geometrical relationships in objects in front of us. As geometry is itself an essential knowledge, when we are able to capture the geometrical relationships of a place, we essentially are engaged in transcribing and interpreting that

knowledge through drawing. I should be reminded that this involves high mental activities requiring critical reasoning abilities in order to consciously examine visual relationships between elements. Drawing, in this sense, makes visible the invisibles of geometry that would be either impossible or hard to be communicated otherwise. In landscape architecture, however, some of the invisibles are referred as to temporal qualities of the landscape. The wind blowing through the leaves or the changing form of plants in the wind are landscape qualities that could remain invisible to us. A careful observation and a thorough visual representation of the temporality of the landscape could make visible certain movements and patterns that are essential in knowing the landscape yet were not palpable until then.

We must also seek to capture the essential aesthetic qualities of the environment in front of us. Let's imagine we see a beautiful landscape that we want to capture on paper. There are times when a visual composition must accurately reflect the vertical or horizontal elements of the scene to be beautiful. However, there are other times when the landscape in front of us needs to be seen through a filter, i.e., through a careful selection of critical elements. Analytical drawings, here, are helpful; through a process of selectively recording the landscape elements and discoveries among them, we reveal necessary knowledge about the landscape. Many of Lawrence Halprin's sketches are demonstrations of invisibles captured in the drawing. His studies of the movement of water are famous in this regard. Halprin, in fact, draws the movement of the water rather than what appears before our eyes. This is what makes his drawings distinct from painting or other forms of representing a final appearance of the material world.

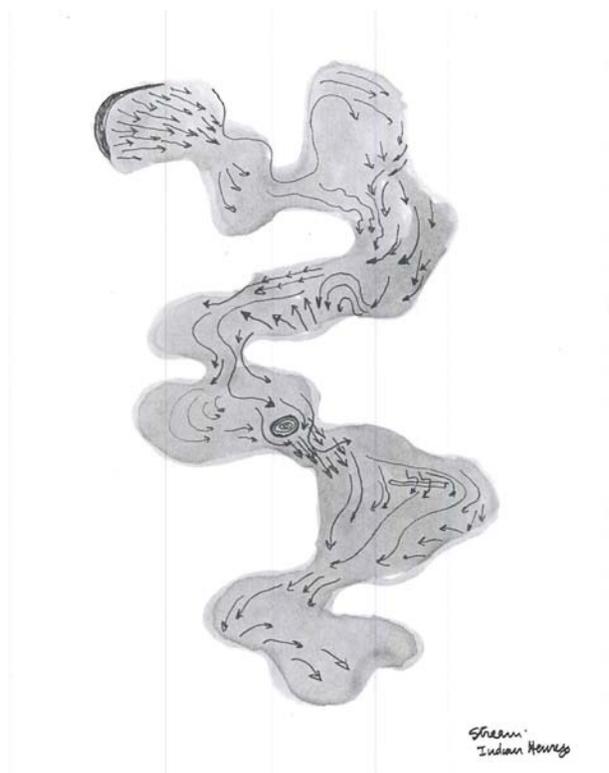


FIGURE.2. Halprin's careful study of water movement

The landscape architect Chip Sullivan (2008, pp.67-69) tells us from his experience:

“... we must first train our eyes to scan, filter, and select essential characteristics of what we see ... in organizing our visual experiences, we move from the general to the specific and isolate significant visual elements. ... Elements are interpreted and then reconstructed into meaningful compositions.”

Whether the invisibles captured on paper come to us through an analytic process or a poetic process of revealing imaginative universals, their presence on paper is analogous to a “birth,” since it is the first time they have found a presence in the real world of visibility. Keeping in mind Gadamer’s insights on representation, it would not be far to say that a drawing essentially creates an aesthetic understanding of a place. Those aesthetic qualities could be also informed by our glossary of “imaginative universals.”

Spatial Order Captured

Architects and landscape architects create and understand places based on some conception of spatial configurations. This is an essential part of education too. We expect our designs to express a clear spatial organization. Moreover, designer elements and spatial objects should show clarity in their relationship to one another and to the whole design concept. Without delving too much into spatial configuration here, I would like to concentrate on the role of drawing in the creation and understanding of this issue.

While some might argue whether the know-how of ordering space could be considered as knowledge or not, I would advocate that this knowledge is essential to the architectural disciplines—and to drawing. Issues such as order, rhythm, hierarchy of forms and spaces are all fundamental things in ordering spaces and must be presented in the imagery world of drawing as well. In other words, such issues as rhythm and proportional space are not separate from a visual realm, but rather belong to it. An example in this regard would be drawing a courtyard garden, a rectangular enclosed space that requires that its spatial elements follow a certain geometrical order. Whether we make a quick survey sketch or a perspective sketch of the place, we want to make sure that the relationship between the elements is drawn accurately. If captured properly, the spatial configuration of spaces, which are embodied in the drawing, contains essential knowledge of spaces.

Besides sketching places, axonometric drawing also could be considered an effective tool to reveal the spatial order of a space. Since the 1920s and 1930s, landscape architects have considered axonometry as a truly modern tool have employed it in their drawings. Axonometry was considered as an effective tool to depict and to certain extent to shape the contemporary landscape space (Imbet, 2008). Axonometry simultaneously promotes “the aerial view, the roof terrace, free space, and the interrelationship between indoor and outdoor” (p.125). Many modern pioneer landscape architects such as Garrett Eckbo, James Rose, and Dan Kiley have extensively used axonometry representations in their work. These drawings are an effective way to depict an existing landscape or building emphasizing the spatial order and even layers of design ideas.

Making Captured

Often times we draw to explain how a structure is built. For example, we draw a section of a wooden deck to explain how the deck and its hand rail are built. Although we do not see a cut section of the actual deck, we draw a section to explain it. We also might need to draw elevation, perspective, or plans to explain it. One might ask, therefore, what is missing in verbal explanations that requires us to employ drawing to communicate construction procedure?

Constructing a building or landscape demands knowledge of how to put things together. This means forms and shapes of building elements, dimensions, juxtaposition of materials, joints, and more. One of the older educational traditions among architectural programs is to send out a student to survey a building. By drawing the building the student can gain a deeper understanding of the building and the way the building was constructed. In most historic buildings, which are masonry and often feature load-bearing walls, vertical lines denoting engaged columns, for example, are also indications of construction. Or in the case of landscape design, for instance, when we read site drawings of a building in a given topography (as-built drawings), the changes on the contour lines as they get close to the edge of the building indicate the process of forming the land (i.e. cut and fill). This example simply shows that as-built drawings of a changed landform are beyond a pictorial representation but represent some essential knowledge of construction. Therefore, one can conclude that our drawings of given landscapes and buildings can capture some procedures of construction related to the landscape or building. As such, the drawing becomes a way of capturing knowledge.

Senses Captured

"The landscape is primarily a medium that irreducibly rich in sensual and phenomenological terms."

James Corner (2002, p.146)

Our physical relationship with an object defines what we see of that object, whether it is a building or a tree. For example, when we gaze at a tree, walk around it, sit underneath its shadow, and smell its fragrance we realize that the tree is more than an object. Our lived-experience of that tree tells us a different story than had we looked at it from a distance. In the first example, our bodily senses inform us of understandings that are not available through a more logical approach. The drawing, in this sense, is able to catch some invisible qualities and makes them visible. To draw also means to present what is caught, to demonstrate the "invisible" of the place. But what is the "catch?" It is something that has come to us through a mental-corporeal experience. It is to sense something more than what is immediately visible. The catch could be a multi sensual understanding of the place, and the drawing could be an attempt to give that catch a presence.

Stated a little differently, the catch is a kind of "knowing" or "understanding" that is not captured merely through our sense of vision. Nor is this knowing made possible only through a careful analytical examination of the building or the landscape. In other words, the "understanding" is a resultant of a multi-sensual understanding combined with mental perception, and even imaginative faculties of our mind. Let's consider the example of the tree again and see how drawing can capture a multi-sensual understanding of the tree, and by association how drawing can demonstrate knowledge. When we touch the trunk of a tree, we feel the rough texture of it. It is also through touch that we're able to distinguish between an actual rough surface and an area that might appear to be rough because of shadowing. Armed with that corporeal understanding, an accurate drawing of that tree would include an attempt to distinguish between the "real" rough areas and those that just appear to be rough. Regardless of how our drawing will creatively show such a distinction, the attempt is informing and the resulting drawing holds an understanding or "knowledge" of that tree, which has been augmented by the imaginative process of depicting the nuances of that object.

Therefore, the visual appearance of the drawn object or place does not necessarily lead to a Janus-like correspondence to the actual space. One's sensual and imaginative understanding of a space can result in the ability to "construe" a new place (in our example, a new tree) that holds some knowledge about it.



FIGURE.3. Halprin's careful drawing of a waterfall demonstrates various sensual

CONCLUSION on CAPTURING:

Drawing, Seeing, Learning

I want to see things, I don't trust anything else. I put them in front of me, here on paper, to be able to see them. I want to see, and for this I draw. I can see an image only if I draw it.

Carlo Scarpa³⁶

³⁶ Quoted from Frascari (1991), originally quoted in Los 1966, p.17

Whether we agree or disagree with Carlo Scarpa on the purpose of drawing, he raised several key questions on the scholarship of drawing. Drawing makes things visible and tangible before our eyes. Scarpa asserts that the being of things is dependent upon on how he interprets them on the paper³⁷. Clearly the term “see” in the above passage goes beyond sight and implies a sense of understanding. To see in this sense signifies a multiplicity of meanings ranging from: sight, discern, foresee, etcetera.

The etymology of the word see is very revealing. To “see” means to follow with the eyes. Used in M.E. to mean “behold in the imagination or in a dream” (c.1200), “to recognize the force of (a demonstration),” also c.1200, “often with ref. to metaphorical light or eyes” [OED], and “to learn by reading” (1426).³⁸ A review of the etymology of the term reveals that seeing has always been regarded as a way of learning, understanding, or even reading. This is also evident throughout history when sight and the visual endeavors of ancient astronomers and geometers were regarded as a means to increase their understanding from the world they inhabited. Drawing, in this regard, becomes a means for understanding or interpreting the “world out there” to humans. Moneo points out the relationship between drawing, sight, and knowing as following:

Drawing is, in fact, the discipline that connects sight and knowledge. The act of seeing, since it allows us to enter into knowledge of the world of things in which we live, is the first and foremost means by which we come to possess these things. To take this one step further, the connection between drawing and knowledge can be thought of as the natural extension of the relationship between sight and the outside world. It can be said, then, that drawing is knowledge. Therefore, there exists no better demonstration of our knowledge of the external world than the ability to draw it. Through drawing we strive to possess the world that exists outside us, and to make it part of ourselves.

Moneo, J. (1987, p.2)³⁹

Drawing is seeing in the sense that it shows us the “how-ness” of the appearance of things in the world. Through drawing, we’re able to recreate things in a visual realm and make them more understandable to us. The drawing is also seeing of “what-ness” of our imagined ideas. It helps us see what we imagined or are imagining. When we draw our ideas, we can see them before our bodily sight. We gain an understanding of how things are (e.g. their shape, their juxtaposition next to each other, etc. and an understanding of what our ideas are about (i.e. a clearer view of an imagined landscape or building). This is an understanding that becomes available to us through drawing.

To conclude, one can say that to draw, then, is to make a visual representation of a place by depicting some of its non-visual properties. This representation, being beyond a mere “trace” of the physical world, could reflect qualities of the multi sensual experience of the body, and the imaginary of the mind. Drawing, here, holds knowledge about the drawn place.

³⁷ This also shows that Scarpa does not take an “objective reality” position, a position that believes that considers things an independent from the observer. Rather, Scarpa takes a more “subjective” approach. In the “subjective reality” the world is dependent on how is interpreted by the human. Qualitative research is more associated with subjectivism and quantitative research is more with objectivism.

³⁸ see. (n.d.). *Online Etymology Dictionary*. Retrieved October 31, 2008, from Dictionary.com website: <http://dictionary.reference.com/browse/see>

³⁹ Quote adapted from Wood (2002).

DRAWING *is* CASTING

"Landscape architectural drawing is not so much an outcome of a reflection on a preexisting reality, as it is a productive of a reality that will later emerge."

James Corner (2002, p.145)

Drawing is an act of casting. We draw to cast our ideas on paper and into the material world. Design drawings are mostly of this kind versus those that capture actual environments. We draw something on paper which does not exist "out there." To draw, then, is to demonstrate the foreseen, or to make visible something that does not yet exist.

In examining the nature of this drawing process, we can see that drawing here is beyond "tracing" mental fixed design ideas. We do not employ drawing to transcribe what exists in our mind as fixed images. Rather, the drawing becomes an essential part of the procedure of making an architectural space. In other words, an architectural idea is simultaneously created, developed, and sketched by means of the act of drawing. When drawing becomes a means to develop an idea into an architectural space, then it is beyond a two dimensional graphic object that is pictorial. Rather, the drawing becomes a site of essential knowledge containing "symbolism," "ideas," "making," "imagination," "dreams," and more. In this sense, lines are beyond the touch of ink here and there on paper. Lines stand for something else—in the same manner that words represent ideas, actions, intentions, etc. In the following section, I will briefly discuss how drawing and representation as casting could contribute in bringing things that are intangible into tangibility and how this process involve essential knowledge.



FIGURE.4. Drawings of the Brazilian landscape architect Roberto Marx are examples of cast drawings.

Drawing | Idea : Symbol

In the final analysis, a drawing simply is no longer a drawing, no matter how self-sufficient its execution may be. It is a symbol, and the more profoundly the imaginary lines of projection meet higher dimensions, the better.

Paul Klee

"Concept drawings provide the framework for organizing our ideas. They are strategic representations that force the designer and viewer to discover additional possibilities."

(Walter Hood, p.58)

Drawing and visual representations can contain symbols and hold cultural values. By representing them in a visual realm, which sometimes is the only possible way for a symbol to be presented, they inform and increase our understanding. Whether we can call such drawings and visual representations “knowledge” by scientific measures, they do, in fact, contain essential knowing about a culture.

Let me bring an example from Islamic art and architecture and discuss how visual representation are key to translating and containing some essential beliefs that holds that art and architectural tradition together. From the Islamic perspective, the God, Allah, is the source of all creation. All of creation originated from Allah and belongs to Allah. Therefore there is a unity in the multiplicity one observes in the world. In Islamic art and architecture, visual representations of the union of the “Unity and Multiplicity” are elegant examples of casting a divine order onto a material world. Those are often expressed as geometric patterns used both in ornaments and in construction. I particularly refer to the ornamental patterns that are created in the glazed tiles used, for example, under domes or others that have been drawn with white gypsum over clay under domes and vaults. They are both drawings (i.e. colored drawings in glazed tiles, or drawings with gypsum), each using different medium. The complex geometry developed in a circular form meets at the center, which is a representation of unity in an otherwise diverse universe. These symbolic visual representations, in this view, are far beyond mere pleasing graphics. They stand for greater meaning and value in the Islamic culture. Interestingly, in many cases you will find that the final surficial drawing also meets an internal structure that holds the space together.

Drawing, whether embodying an idea or a symbol, could be considered as a means of communicating the embodied meaning to humans. Therefore, drawing becomes a means of scholarship that helps make more abstract knowledge understandable. In this sense, drawing should produce some tangible level of understandings of things or concepts. Studies of Paul Klee's natural elements represent elegant examples of ideas embodied in cast drawings. While not necessarily architectural, these drawings convey an essential understanding of natural elements or processes that are cast in a visual realm.



FIGURE.5.Rushing Water by Paul Klee. Klee's famous efforts in understanding natural elements such as the movement of water through visual representation led him to cast a series of drawings demonstration the idea of moving water.

Drawings are powerful conveyers of thoughts and ideas—ideas that perhaps cannot be easily conveyed through mere verbal representations. Such drawings, therefore, are beyond pictures. As Corner states:

“projective drawings are neither a picture nor a neutral set of information; rather they embody in themselves architectural ideas through co-similar and complementary projections which are ontologically conceived as being analogous to the symbolic intentions of the built work” (Corner, 2002, p.151).

One key element to be recognized in casting drawing is that the drawing is not a fixed image conveying a solid message; rather, it is a medium that invites us to interpret it in different ways. This is similar to the work of art or architecture in that the final work no longer belongs to the artist or the designer, but rather to society and its members who are then permitted to interpret it on an individual basis. Such is the case for casting drawings, which are also interpreted in diverse ways. As Corner mentions: “the power of demonstrative drawing lies in the fact that it is open to interpretation, both prior and after the built construct. Such drawing is an integral part of the whole artistic “project,” making visible what is hidden and prompting one to understand something at a higher level” (Corner, 2002, p.152)

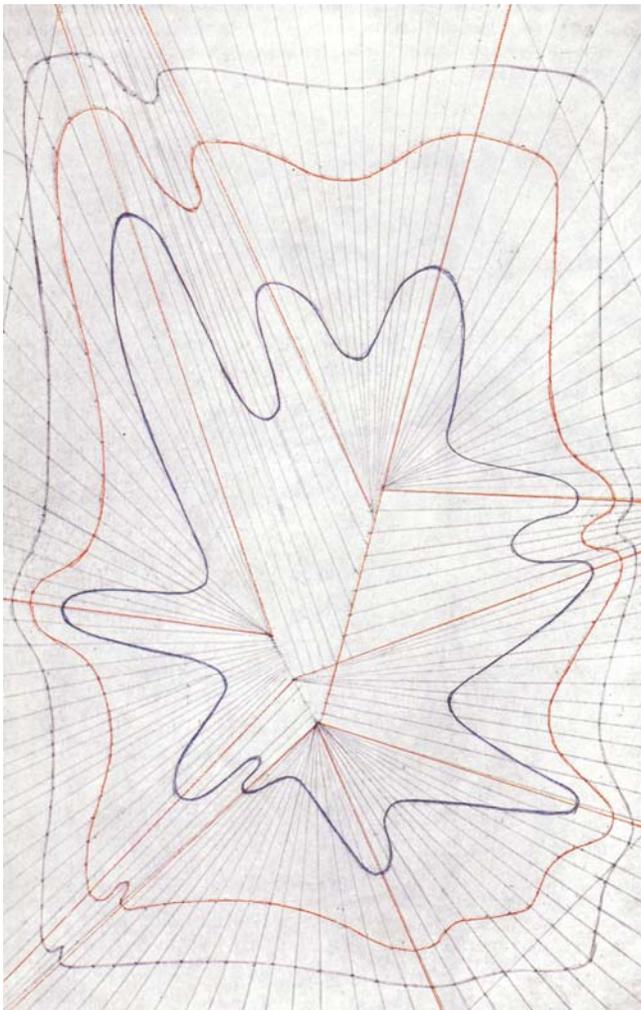


FIGURE.6. Study of the structure and form of leaves by Paul Klee.

Drawing | Making

*The painter sketches to paint,
The sculpture draws to carve,
The architect draws to build,*
Louise Kahn, 26 August 1962 ⁴⁰

The primacy of drawing in architecture has been advocated by numerous architects and scholars. Louise Kahn's statement reveals that the act of building is dependent on the act of drawing. It also implies that drawing is the beginning of architecture; in other words, by drawing we cast ideas into a more defined and buildable form. Additionally, by comparing architecture with painting and sculpture, Kahn also implies that the "pure" arts of painting and carving require some prior investigations or envisioning that is fulfilled through act of drawing. By extrapolating this notion, a building could then be considered as the representation of the drawing in the sense that a drawing precedes a building. Kahn, indeed, is not the only architect or designer who has emphasized the essential role of drawing to building.

Interestingly, the term "architecture" is derived from Greek. It is composed of two parts. "The first means principal or chief, and the second part fabricator or artisan" (Frascardi 1988). Therefore, the implied meaning is the "chief-fabricator" or the chief-maker. Also intriguing to note is that Plato tells us that the architect is not the person who crafts; rather, he supervises the craftsmen. [Plato, Pol. 259e-260a]. If we look into history, we find that architects are the chief construction leaders for all the artisans. According to Frascari (1988), as the architect supervises "he demonstrates, draws [disegna], distributes,...the role of the architect- the practice of architecture- is to demonstrate through drawing, giving commissions and orders, and controlling the works. The process of demonstration is a soft procedure at the basis of architectural production." Drawing here both foresees construction and also directs the act of building; thus, the drawing is essential for the act of construction.

In *De Re Aedificatoria* (written between 1443-1452), Alberti argued that design consists "in a right and exact adapting and joining together the lines and angles which compose and form the face of the building." Therefore, the role of the drawings was "to appoint to the edifice and all its parts their proper places, determinate numbers, just proportion and beautiful order" (quoted from: Perez-Gomez, 1982, p.2). Such clear indications of the role of drawing as a means to direct and regulate construction reveal that there is an innate relationship between the two. With respect to the significance of drawing to making, Laurie Olin (2008) asserted: "If you can't draw something, you probably can't make it." (p.155). He later stated that the making of something can be improved by a better drawing: "... the better you draw it, the greater chance it will be built better- and even possibly in the way you intend." (p.157). Olin, indeed, is among many designers whose believes that the act of drawing both demonstrates a scholarly and practical knowledge of construction and an attempt to improve it.

⁴⁰ Quoted from: Olin, L. (2008). *Drawings at work: Working Drawings, Construction Documents in Architecture and Representation*. Taylor and Francis Group. New York.

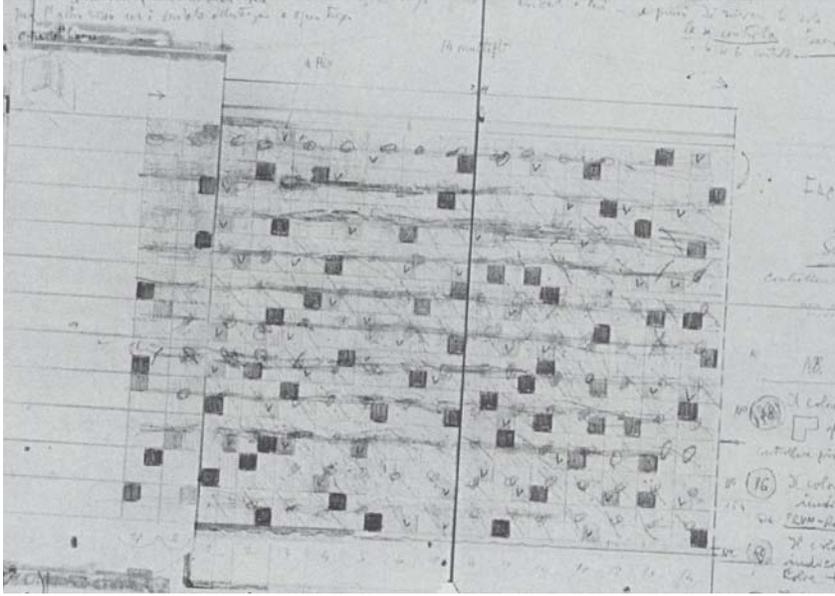


FIGURE.7. Carlo Scarpa's study for the external revetment in Castervecchio Museum

Drawing | Imagination

"... what is crucial in the consideration of architecture is not seeing but the apprehension of structures. The objective effect of the buildings on the imaginative being of the viewer is more important than their 'being seen.' In short, the most essential characteristic of the architectural drawing is that 'it does not take a pictorial detour.'"

Walter Benjamin⁴¹

Whether intended for landscapes or buildings, drawing can involve one's imagination. According to Vico, imaginative reconstructions can enhance our understanding of things. In such a way, one can see that the key role of drawing is in image making and the creation of new understandings. Imagination becomes a vehicle by which the given landscape or building is created for us. For me, this involves the act of interpreting landscapes in creatively constructed mental images of what is intended to be drawn. For instance, in my experience of drawing buildings of Iranian architecture, I noticed that a shift occurred in my drawing process. As I continued the drawing exercise, it occurred to me that I did not need to actually *look* at the object of my drawing as much in order to detect its visual aspects. Instead, after an initial first gaze at the building, I started spending more trying to understand what I was looking at. Then, through the drawing process, I used the mental image constructed in my mind to draw the edifice. This was, in fact, a process of interpretation which involved imagery as well. We should be reminded that imagination and drawing share one fundamental thing: "image." That is, imagination through a creation of mental images become integrated with the drawing and creates a final image on an external medium, e.g. a piece of paper.

I not only used imagination to create a mental image, but also to unify the discrete parts of my visual memory of the building. As Frascari indicated "imagination is the human faculty that keeps together what has been collected by different and discrete perceptions. This faculty has the gist of the Aristotelian *koine* aesthesis, also known as *sensus communis*, an internal sum of senses by which the complex

⁴¹ See Benjamin, W. (1988), pp. 89-90.

configurations of objects such as architectural culinary and alchemic products can really make sense."⁴² The power of imagination, or so to speak, image-making, puts architectural drawing in high status. Drawings introduce to us spaces that do not exist, spaces that can potentially expand our limits of understanding of built environments.

The drawing is also a tool that fosters imagination. It is the experiment of the drawing that triggers the imaginative abilities of a designer. Walter Hood (2008) believes that drawing pulls out the imagination. As he stated, "They [drawings] are experimental operations that stretch the imagination" (p.58). One could infer that the act of stretching is the same as casting imagination on paper. In doing so, we attempt to make our imagination as tangible as possible—in other words, to bring understanding from a tacit world to a more explicit status. Such an effort is essentially a scholarly practice made possible by drawing. Therefore, drawing, because it casts our imagination into a visible world, could be considered as inquiry that bridges our tacit and explicit knowledge. Once a drawing is cast in front of us, we can consciously go through it, analyze it, seek connections between findings from the drawing and our past knowledge.

CONCLUSION on CASTING:

The significance of drawing as casting is highly apparent when designers engage themselves in imaginative, conceptual and hypothetical drawings. The drawing, at this point, becomes a means to give birth to "invisibles" (what does this mean?) and even to "impossibilities" in architecture. By *invisible* I mean all things that or have not been realized before. And by *impossible* I mean those combinations (formal, constructional, or spatial orders) that are not easily achieved in reality. Yet; they are essential in the way they potentially introduce additional possibilities of architectural space to our understanding of architectural discipline. For instance, consider Micromegas or In-Chamber drawing of architect Daniel Libeskind. One might look at them as mere artistic expressions of an individual, since they don't outwardly seem very relevant to what we traditionally expect from an architectural drawing. Yet, we see that a few years later those drawings (especially the In-Chamber works) became the foundation for an actual architectural space, the Berlin Jewish Museum. This is an elegant example of architectural drawing as casting ideas forward and makes them more palpable for the audience.

⁴² (Frasconi, 2008, personal blog: <http://marcozibaldone.blogspot.com>)

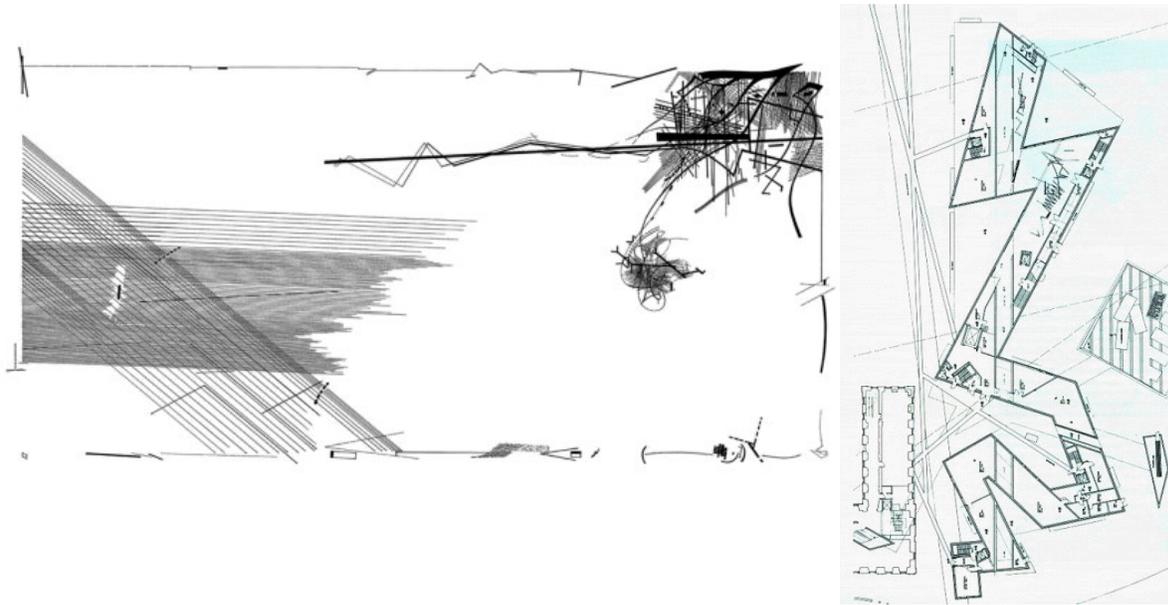


FIGURE.8. In-Chamber drawing series of Libeskind (left) and plan of Berlin's Jewish Museum (right)

In short, drawing as casting introduces additional possibilities to the architectural disciplines. These possibilities include introducing concepts and ideas in visual that might be hard or impossible in any other form, creating cultural symbols and bringing meaning to a more tangible state, demonstrating procedural knowledge of construction practices, bringing imagination to our actual world by presenting them in imagery with more tangible properties, and bridging between our and desires of imagined spaces and the real world. In each of these examples, drawing has played a scholarly role in linking the two realms of knowledge (e.g. an imaginative understanding of a space and a visual understanding of the drawn imagination), and in transforming understanding from a more tacit realm to a more explicit state of knowledge. Additionally, the act of casting generates interpretations, which in turn can raise important questions that may not have previously been considered.

V. THE LANDSCAPE DRAWING

"Given that most landscapes are open to the sky, with slopes, stepped, or folded landforms, a garden is more easily seen in plan than a building- and it is easier to read a plan of a garden in reality."

Marc Treib (2008, p.115)

While landscape drawings share a number of significant commonalities with architectural drawings, they differ in important ways as well. Throughout history, drawing dealt with landscapes intended for paintings, drawings of gardeners, or connoisseurs of landscapes. This tradition of drawing a landscape is recognized as separate and distinct from that of architecture. Depicting landscapes required different drawing tools than those required for architecture. For example, the Claude Lorrain Mirror, a slightly convex mirror made of black glass that produces a reduced, upright and virtual image of a scene, was a tool by which a painter could capture a landscape scene in a definite frame. It was also perhaps the first time that the painter or drawer could come back to the scene and draw it.

With regards to landscape architecture, Humphry Repton (1752-1818) is one of the key figures known to us whose drawings are distinct from architectural drawing. His design drawings of modified landscapes were intended to show people the various possibilities of envisioned landscapes. To help clients visualize his designs, Repton produced "Red Books" (named for the color of their binding) with explanatory text and watercolors contained within a system of overlays to show the "before" and "after" views of a landscape.

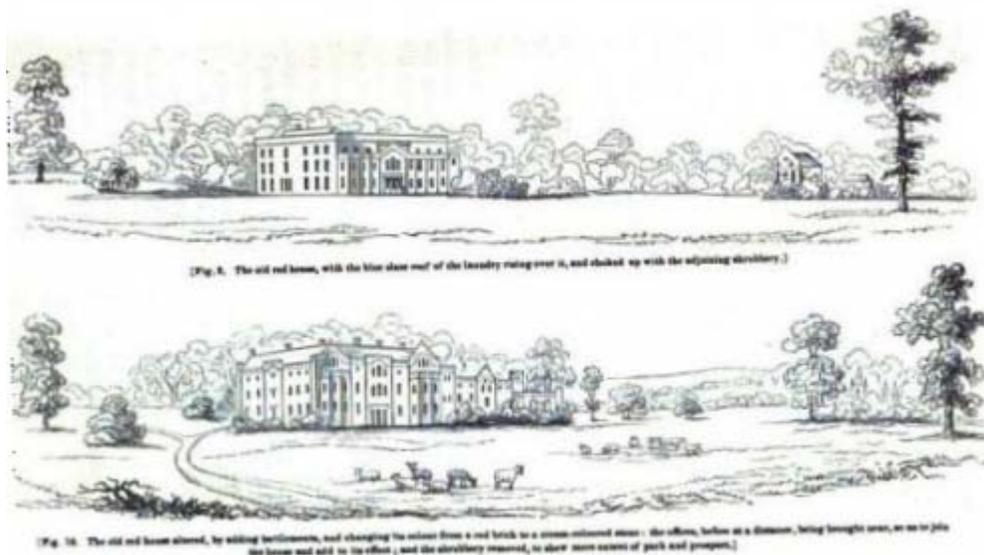


FIGURE.9. Sample of Repton's "before" and "after" drawings of landscape.

Certainly, there are distinctions between the two disciplines with respect to the scope of the work, the environments to be created, the tools needed to transform drawing to landscape or edifice, and the how the drawing is used either architecturally or for a landscape. While the scope of work in architecture is often limited to building scale, in landscape we deal with a vast area either in a more natural setting or as public spaces. The elements of the landscape architecture practice involve more natural elements (plants,

topography, climate), the social dimension (e.g. compared to architecture less strictly identified places and larger scale spaces), and typically less complexity in construction. Therefore, the representational process by which such places are conceived also experience some intrinsic changes from those in architecture. If divided by the scale of the landscape, the landscape drawing also could experience changes. For example, when dealing with larger scale of places, I assume that our lines convey planning decisions. Analysis and planning diagrams are examples in this regard. In these drawings, the drawing represents elements of directed purposive thinking. In this sense, the lines on paper and thus the drawing do not necessarily convey elements of imagination. There is also no tacit dimension there to be explicated through drawing. The function of the line and the drawing is to accurately represent what “explicit thought” meant.

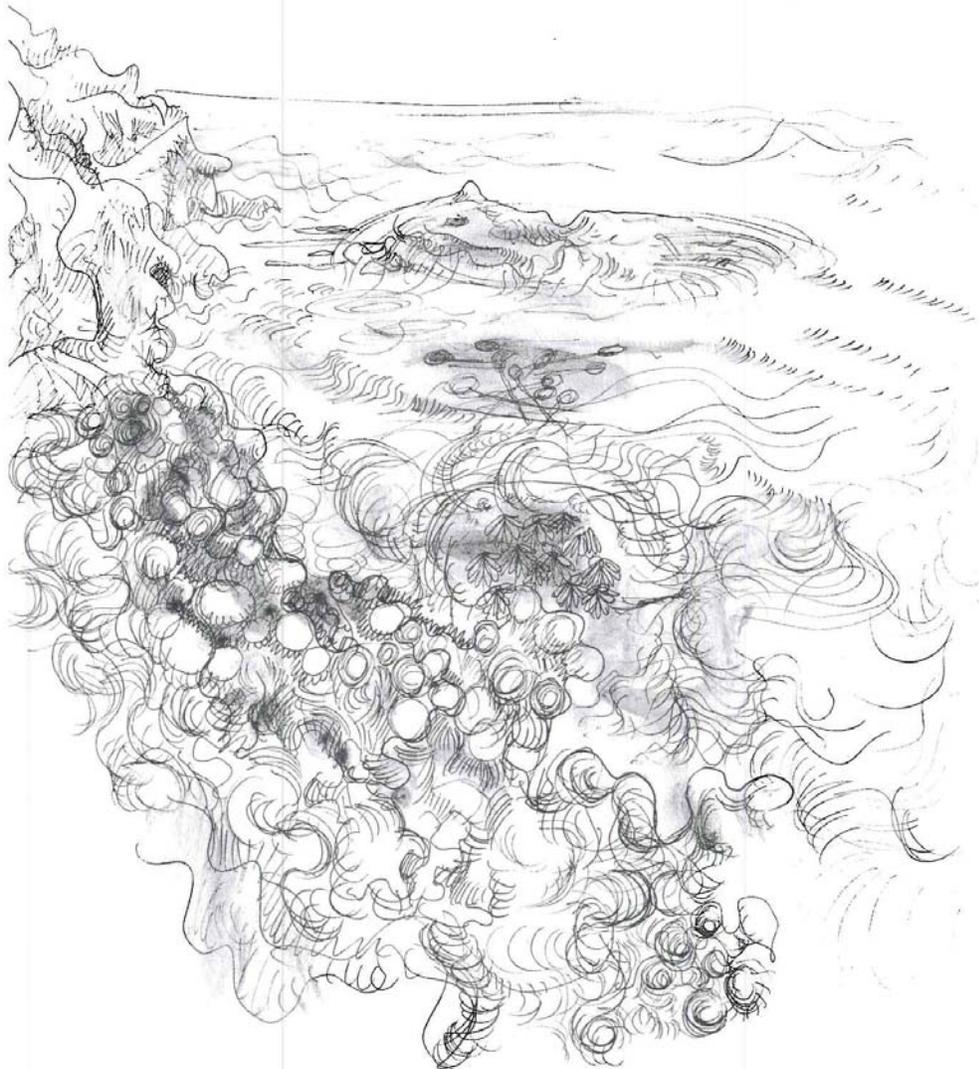
When dealing with site scale, it occurs to me that the process is very similar to the scale of building. There is just more room for imagination—in fact, degrees of imagination. This level of drawing is why some consider landscape drawing as “painting.” In discussions with landscape architect, Peter Walker⁴³, for example, he mentioned that landscape is about painting. And when I look at some of his work, I see proof of this idea. Many of his creations are actually miniature paintings using wood, concrete, and ground covers as mediums of drawing the landscape. At such a level, the drawing becomes an imaginative exploration.

When dealing with human scale, I feel that landscape drawing could also be highly multi-sensory oriented. When one captures a given landscape or casting an envisioned one, one’s senses are present in the drawing.

Place vs. Space

Landscape is primarily a place. It has an inevitable attachment to the place it occupies, which is somewhat different from a built structure. In architecture, only a portion of the built structure is tethered to the ground, with the other levels being free of ground contact. In a landscape, every design element is almost in direct contact with the ground. This means that a sense of place is very strong in the landscape. Such an understanding of the landscape impacts the landscape drawing as well. While many architectural drawings primarily address issues such as construction or forms, in the landscape drawing the drawing medium also deals with addressing “place.” In other words, knowledge related to the place is expected to be present in the landscape drawing. Halprin’s sketches of places he visited are favorites in this regard.

⁴³ I visited his office in May 2007.



at Pink's cabin -
Sept 4 - 1960
along coast

Everything in motion - water, rocks, sea weed.
air currents, birds great baroque
composition - all echoing each other

FIGURE.10. Halprin's sketch

Scale

There is first the question of "scale" itself: How can a drawing react to or reflect the issue of scale when it comes to landscapes⁴⁴. This is one important area that distinguishes the landscape drawing from the architectural drawing. That the landscape envelops humans is a quality that distinguishes it from that of architecture or building. "Landscape scale not only envelops the body, but also the imagination and the spirit. This all-enveloping nature of landscape space, its overriding bigness and sheer sense of scale, and its inevitable correspondence with the poetic imagination are peculiar to the landscape medium" Corner

⁴⁴ This was a question raised in my personal communications with Prof. Marc Treib in summer 2008, Berkeley CA.

(2002, pp.146-147). The issue of scale is something that exists in one's real experience of landscapes and can be investigated in a visual medium. However, the potential vastness of landscapes differs from the typical building project, where the scale is always much smaller and limited.



FIGURE.11. Halprin's sketch

Topography

With respect to topography, unlike architectural space that earns part of its character from the manner in which it touches the land in a restricted way, landscape spaces are all about the landform. Much of the landscape character depends on the natural landform that the designed landscape is intended to occupy. Based on this notion, questions such as "How does the landscape drawing follow the landform?" become important. This area would be also a distinction from architectural drawing. Section drawings could be a

way to address the landform and also a means to research the topography with regards to the design elements.

“The topographical experience of landscape obviously challenges the spatial instrumentality of Cartesian geometry and algebraic measurement that is so prevalent in the most contemporary representations of space” Corner (2002, p.147).

Thorbjörn Andersson (2008) gives example of Fredrick Mangus Piper’s ink and watercolor renderings as artistic impressions that could best reveal the importance of the terrain and “how the terrain itself can serve as a basis for design” (p.94). While technical drawings could capture and communicate some essential information regarding the topography, it seems that artistic drawings and loose sketches of landforms have long been regarded as informing tools for the landscape architect to capture characteristics of the landscape. This is an area of representation which mainly concerns landscape architecture rather than architecture.

Temporality

The question of temporality is important for landscape architecture. While architectural spaces seem to be a constant through the time (except for deterioration and weathering), landscape spaces experience a variety of changes – some of which can be expected such as seasonality and annual growth patterns—and some which are unanticipated such as plant disease, changes due to fires, flooding, etc. How the landscape drawing could reflect such characteristics of the landscape remain one of the areas needing more research.

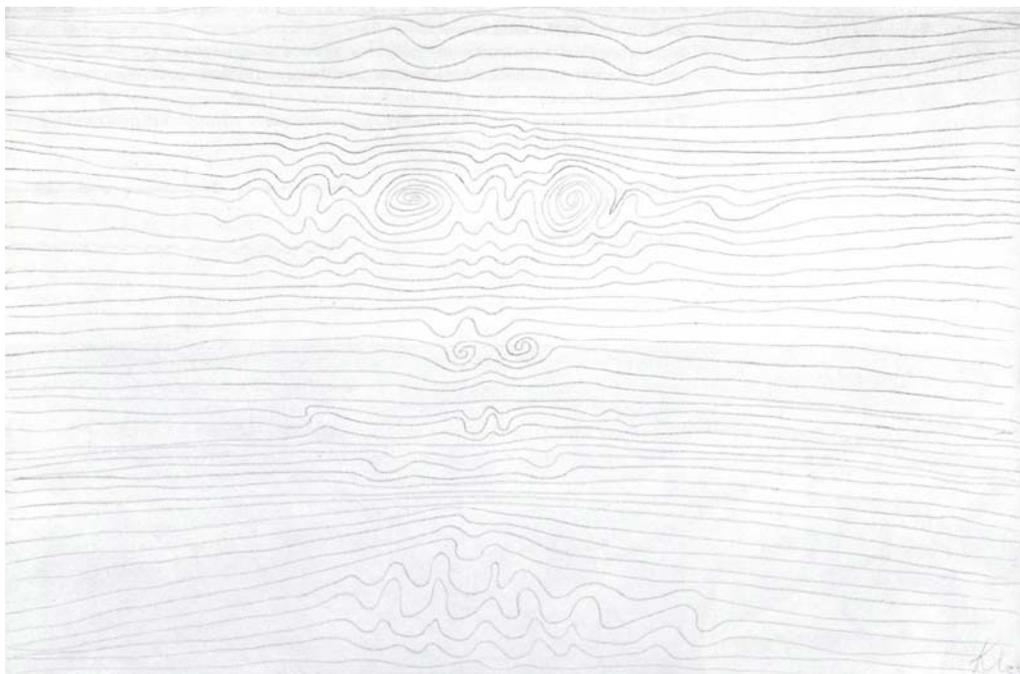


FIGURE. 12. Random Movement of Water, Klee, demonstration of the temporality of the element of water.



FIGURE.13. Halprin's study of the movement of water.

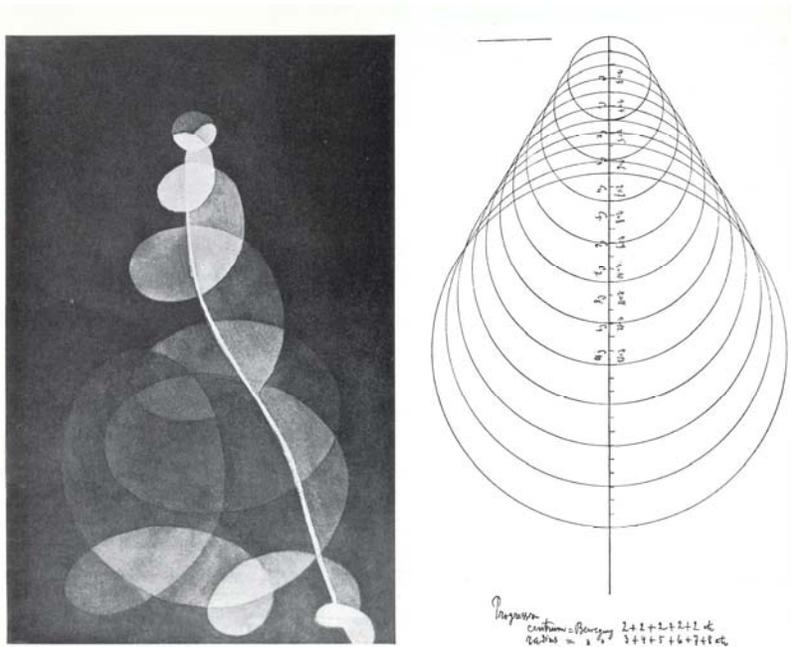


FIGURE.14. Growth and Progression is another element of the temporality in landscape. Progression by Paul Klee.

Planting

While the issue of planting is an aspect of “temporality,” I believe that there are considerations beyond that as well. The process of planting and the individual character of plants must be considered in the drawing. Conventionally, trees and plants have been treated as objects in architectural drawings. This tradition, unfortunately, is also very prevalent among landscape architecture drawing—although some include a minor consciousness of the shape of the selected trees in landscape architecture. I argue for a greater consideration of the ways to address plants in the landscape drawing as a means to better study the capturing/casting of a landscape. Tree drawings of landscape architect Garret Eckbo, while sometimes found in non-naturalistic views (e.g. axonometric), are informing examples of how the character of the tree and planting is essential in a comprehensive understanding of the space. Unlike many architect’s plant drawings, Eckbo’s plants are not objects; rather they are key living actors of the landscapes that inhabit the drawing. Eckbo’s plants embody knowledge by which the totality of the landscape architect’s drawing is dependent upon.

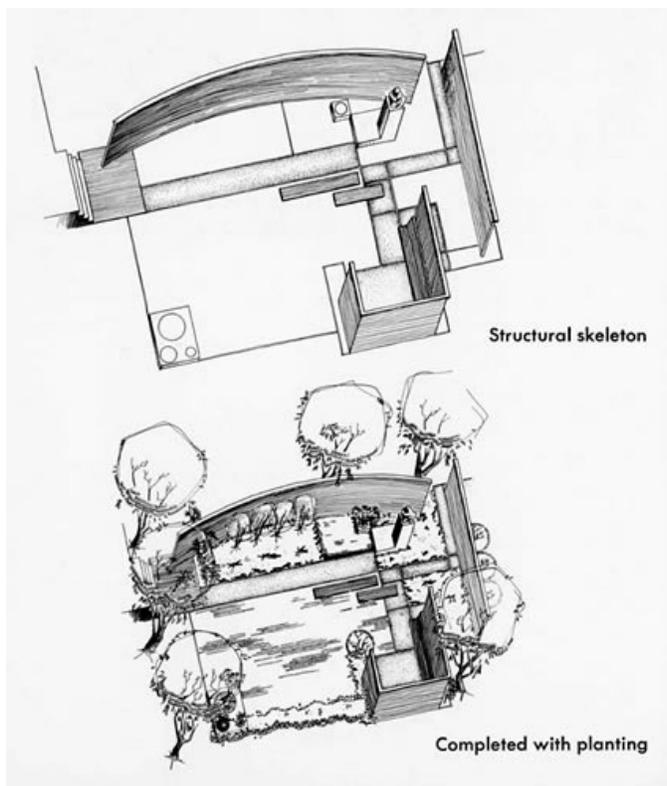


FIGURE.15. Axonometric drawing by Eckbo

Space Dynamism

There is no question: The dynamic of space is critical to a better understanding landscape architecture. In order to comprehend or more comprehensively experience a space, we are required to corporeally move within it. Chip Sullivan’s personal experience of drawing from the landscape and the way he learns through the process of seeing and drawing is an informing experience in this regard:

"... while visiting Villa Giustiniani for the first time, I sketched an image of the terrace wall encountered open entry to the courtyard. The main garden appeared to be located directly above the wall. ... By drawing "through" the space and by recording the individual clues of each scene, the design logic was slowly revealed. ... Measured architectural drawings of the Villa Giustiniani-the conventional plan, section, and elevation-are dimensions and rational but alone do not convey the dynamic experience of the space" Chip Sullivan (2008, p.69).

Sketch drawings of landscapes are among the better means of visual representation that could address the question of dynamic of the space. The looseness of the sketch allows the drawer to bring the experience of movement into the drawing. Having some indefinite figures and shapes of landscapes can correspond to the different appearances of shapes and elements as our distance from or spatial relationships to them change. That is why sketch drawings have such advantages over verbal depictions of a place, since they seem closer to the essence of natural environments and landscapes.

Colorful Landscape

Unlike in buildings where we deal with less variety of colors, landscapes are inherently colorful with flowers, greens, blue sky, and golden light. The element of color itself has served as one of the fundamental elements in distinguishing things, and thereby learning about them. In contrast, color cannot be reduced in verbal equivalencies. For example, the term "red" has no quality of "redness" in it *per se*. It stands for a visual experience of things. But in drawing and visual representations, every color exists without being reduced to any other thing.



FIGURE.16. Roberto Marx landscapes are examples of colorful designed landscapes.

The landscape drawing as discussed above seems to be a unique medium distinguishable in purpose from architectural drawing. We observed how certain qualities of landscapes are seen or come to be understood through visual representations of them—such as drawing. They are different from architectural drawing with respect to scale, color, temporality, and place. These issues are simply not as pressing for the architect of the built environment. The abovementioned issues are areas of greater significance for landscape architecture.

VI. EPILOGUE

CONCLUDING REMARKS: DRAWING AND THE BIRTH OF KNOWLEDGE

Drawing is a powerful tool for conveying knowledge of a built environment that would not otherwise be possible to express verbally. That knowledge, or perhaps one should call it *understanding*, belongs to the realm of imagery.

Whether we draw landscapes and buildings (i.e. capturing qualities of them), or we draw our ideas, thoughts, imaginations, and dreams (casting them on paper), we engage in highly mental-corporeal activities. Common to both is an effort to convey a clearer understanding about landscapes or buildings which either physically exist external to us, or reside in a non-physical form within us. It is when they are drawn that we can achieve a more explicit understanding of them. This is scholarship through drawing, which although involves semi-procedural processes, is different from an analytical progression that involves the critical and deductive reasoning faculties of the mind. In other words, the act of drawing is not exclusively guided by critical reasoning. Instead, the drawing should be a product of our imagination and our poetic reasoning abilities as well. In doing so, our use of poetic language and imaginative abilities to explain or to further articulate what is being drawn is critical to creating a more coherent and reflective drawing. And finally, our body also contributes to that process. Our sensual feelings, understood through bodily engagement with environments, trigger our imagination or even enhances our mental faculties to produce a more creative and yet mindful drawing.

It is important here to also recognize whether we are involved in “capturing” or “casting” forms of drawing, we begin to be engaged in a process of understanding a “reality” or “ideality.” Then through drawing them, we engage in a plurality of mental-corporeal activities, some of which include observing, thinking, analyzing, imagining, dreaming, and feeling. We are also continuously engaged in a process of interpreting the first understanding and re-interpreting that into a higher level of understanding. It seems that the casting drawing and capturing drawing are in a cyclic relationship to each other; that it, they inform each other and are converted to each other as they progress. For example, design drawings are wonderful examples in which we continuously cast ideas on paper, then interpret them and capture more things. This cycle of interpretation and re-interpretation, which in part is also analogous to a hermeneutical cycle, integrates “casting” and “capturing.” Nevertheless, the final drawing demonstrates a higher understanding of a reality or ideality that has been produced through a highly interpretive mental-corporeal process. Let’s call it scholarship!

In this scholarship, we “construe” spaces that either exist in the actual world or have the potential to exist. These drawn spaces hold qualities and spatial properties that were not available to us before on paper. They become present on paper and available to us through lines, dots, and stains of the pen. Each of these graphic marks stands for something else. Like in semiotics, the drawing in this sense becomes a story, a narrative that tells us things and increases our understanding of the space (drawn) in front of us.

To me, it is the hidden wisdom embedded in the drawing. Drawing is scholarship, of course.

The Limits of the Drawing:

"The maker of these gardens would never have used a plan because plans do not capture the essence of the idea."

Marc Treib (2008, p. 120)

While drawing appears to be a strong medium by which landscapes can be studied and investigated, they have limitations too. Many landscape architects such as Mc Harg expressed "no interest in designing landscapes in accord with any formal plan" (Treib, 2008, P.113). A number of reasons could be involved in not having a congregational interest among landscape architects in using the drawing in all their tasks. One of those is that a drawing cannot totally replace the corporeal experience of the landscape. James Corner discusses this issue:

"Today's fascination with the visual image, the pictorial, makes it all the more important to recall how the greater part of landscape experience belongs to the sensorium of the tactile, the poetics of material and touch. A bogland for example can be quite monotonous or uninteresting visually, but it can be appreciated completely different way through bodily and tactile experience—the muttering squelch and lisp of water underfoot; the springy return of the spongy ground; the dampness of cold, gray, windless air; the peaceful *softness* of it all. Obviously, drawing is as limited here as it is in the realms of space and time. While a drawing can perhaps signify qualities, it cannot reproduce or represent the actual qualitative experience of materials which constitute the tactile landscape. Thus, the phenomenological qualities of landscape space, time and material present unsurmountable difficulties for drawing and representation. First, the flatness and framing of the graphic presentation fails to capture the all-enveloping quality and sheer scale of landscape space. 'What is presented is a picture, a flat frontality approached from a distance as an object. Second, the drawing is autonomous, equally at home in a gallery or book. It is not situated as are places and locations, and remains unaltered when estranged from the complexity of life-situations. Third, the drawing is static and immediate, meaning that it is quickly decoded as the eye scans the image from a totalizing and singular point of view. Landscape experience, meanwhile, is received in moments, glances, and accidental detours, kinesthetically unfolding through rambling and habitual encounters over time. Fourth, a drawing is made of its own materials—it has its own substance, and is therefore unable to reproduce and actualize the sensuous and tactile experience of the corporeal landscape, even though a drawing may oftentimes possess the power to make humans more cognizant of a landscape's attributes. Fifth, and perhaps most significantly, the drawing is experienced optically, with rapt and full attention being paid to the image whereas landscape is so much more, experienced as much if not more through the body than the eye. The subject in the landscape is a fully enveloped and integral part of spatial, temporal, and material relations, and nothing can reproduce the meaning that comes from this lived experience, no matter how accurate or skilful is the representation in other mediums." James Corner (2002, p.149)

Many landscape architects have been fascinated by the use of photography and filmography in their studies. Photographs are also used in combination with collage techniques in order to give more dimensions (temporal, tactical) to the visual medium. With the emergence of digital technologies, visual representation is stepping into a new era, an era in which landscape representation could lead us into exciting new directions.

VII. Appendix:

Essay on Learning to Draw

When I began my studies of architecture, I was told never to be without a drawing pad and pencils. Even though I have been in the field for more than a decade and a half,⁴⁵ I was challenged to think about drawing in a different way. When I began to study architecture, the challenge was “How to draw?” But now it is more a question of “Why to draw?” and “How do I know what I draw?”

Let me discuss how my long school-long fascination with drawing has relevance to my current study. Throughout a period of 5-6 years, I used to carry my little drawing toolkit with me as I traveled to visit new places, most of which were important historical sites and buildings. This experience forced me to draw what interested me. In reflecting upon that process, I can see now that there were certain stages involved in drawing—starting with mastering the technical skills and continuing with examining epistemological questions of drawing.

The Novice Body

The Untutored Hand: As I noted, in my drawing infancy it was more a matter of learning the proper techniques of drawing, seeing well and capturing the right proportions. It was certainly experimental in nature; I was exploring different drawing materials, unfamiliar techniques, and even gestures of my body while I was drawing. Early on, I struggled with how to draw proportionally, how to show depth, or how to hold my pad and graphite pencil in order to attain the best possible visual quality in my drawings. In essence, marking illustrative lines against paper was still a challenge.

The Neutral Eye: As I progressed through my drawing adolescence, the subjects that attracted me were amorphous in what they were suggesting; some included a scene with aesthetic charges while others were about meanings that could be easily inferred from the view. My eyes and hands were open to almost every view they could capture—from portraying iconic structures from history to representing the more mundane in my immediate neighborhood.

Seeking the Desire

As my drawing skills and confidence grew, the impetus to draw practically any given place in front of me decreased. Instead, I limited my representational wanderings only to what really intrigued me. But as I spent more and more time finding places worthy of my time and skills, I realized that the places I sought implied a search for what I desired. I gradually came to understand that “I was drawing what I desired to see;” desire, drawing and seeing in essence converged.

Contemplating the Desire

⁴⁵ My uncle, who is an architect in Iran, was my inspiration to enter the field of architecture. Through his works, often drawings of school projects, I learned about architecture. Today, I can see that my fascination with architecture had its beginnings in his drawings.

Once an awareness of what I wished to draw emerged, the procedure of seeing also evolved. As highlighted in my book, *Dirinehkhaneh: Sketches from Iranian Architecture*, there are different types of “seeing” that transcend just representing the external built environment. I started to ponder the meaning behind the architecture, which inevitably involved imaginative processes. For lack of a better phrase, for me it involved a state in which my eyes were “attached-and detached” to the building or the scene I was about to draw. I was involved in a process of scrutinizing the place (attached eye), while at the same time envisaging (detached eye) it. The latter process involved a creative exercise by which I was able to relate what I saw to what I liked to see.

Desire to Draw vs. Drawing the Desire

The most significant stage of the experience was the moment of starting a drawing; I had to draw what I intended to draw first in my imagination! The first “draw” (i.e., to pull or to infer something) was what I wished to see, while the second “draw” (i.e., the actual sketch) was more of a trace of a mental image. At this stage the process of drawing became a calculated practice of understanding (the place), re-interpreting (a mental construct of the place), and imposing (a newly create imago unto paper). In fact, this cyclic understanding—similar to the Hermeneutical circle—enabled me to engage in a learning process in which my body was the physical enabler of my imaginative faculties. For me, drawing went beyond capturing an accurate image of the building—it became an interpretation of a desired structure.

Drawing as Building

The culmination of this process was when the drawing no longer resembled the edifice in front of me—the drawing entered an imagery world. Although one could still discern a level of likeness, the drawing had become untethered from its brick and mortar moorings. The drawing in this sense was not a careful trace of the building, an act that could be achieved with a camera in a most perfect way. Rather, the lines and marks on the paper, instead of being vis-à-vis representations of the building, also included traces of an imaginative mind and expressions of the sensual body. Ultimately, the drawing (on paper) became the architecture. It was the architecture that my corporeal body was initially attracted to, but which was then re-interpreted with “eye of mind or imagination.”

Reflec(x)tion:

The Wisdom of the Drawing

In reflecting upon these experiences, I now embrace an inexorable relationship between desire, imagination, and drawing. I argue that we draw what we wish to see. Drawing is a performance, a ritual of the unity of mind and body. Drawing is also a manifestation of desire, a desire to change the reality in front of us:

“Drawing architecture means to bridge the gap between the desire to modify reality and the resistance of reality to change. Drawing is the formative act of architecture since it is about how buildings are erected, have been erected or will never be erected. Drawing and architecture were present before building took place since the drawing of architecture can tell stories of edifices that exists, that existed, that will be and that will never be. Architectural drawing commenced when humans found a support and began to trace lines

to figure out, or better, to construct their cosmologies by making visible what is invisible in oral storytelling.”⁴⁶

As drawing bridges the two worlds of physical reality and imagination, other possibilities for architectural space emerge. In other words, the marriage of our corporeal eye with our imaginative imagination enables the hand to transform a physical building or landscape into a more perfect place, thereby creating an understanding of the visual realm that is not present in an oral mode.

“Architecture” vs. “Place”

One other element that should be included in the reflection section is my concentration on building and “architecture” rather than “place.” As an architectural student, I was more fascinated with the buildings’ spatial configuration, tectonic and construction, and visual appearances. I was less concerned about drawing “place.”

I believe in attempting to draw “place” we more deal with a lived experience of the place through our multi-sensory stimulus. Then the natural environment where the building is located could also have influences on our drawing. This topic, indeed, would be an area which requires attention of the future research.

⁴⁶ This quote is taken from Prof. Marco Frascari’s blog at: <http://marcofrascari cosmopoiesis.blogspot.com/>

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