

# Lamenting Fingerprints—Thoughts on the Passing of the Hand and Mind

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## INTRODUCTION

The experiences of becoming an architect are littered with anecdotal recollections, fragments that offer testament to who we are as individual designers while also providing some definition to this collective endeavor we call architecture. While my own reservoir of memories is quite extensive, there is one from my early years of internship that stands out when the issue of drawing is brought up.

The firm I was with had been working on renovations of the Colorado State Capitol, bringing the century-old building up to current life-safety codes. Though the design work preceded me by several years, the firm was in the process of preparing a monograph and I was asked to make several ink-on-mylar drawings for publication, mostly redrawing site plans, sections and details of the egress stairs, complete with the decorative stone moldings, balustrades and iron filigree used to blend the new with the old. Though familiar enough with professional expectations to have proven my worth, I was still rather green in demeanor, sporting the self-confidence common to so many interns ready to conquer the work. I recall being quite pleased with my work, certain that my mastery of drawing could measure with the best of draftsmen. A few years later, one of the representatives from a local copy house drifted into the studio, quietly oozing excitement about a bundle of drawings he was carrying. Apparently a few rolled drawings had been found in the bowels of a state archive and were handed to him to be copied. He knew of the firm's previous experience with the capitol and thought that we might enjoy a quick viewing before they were returned. As we gathered around a large layout table, he

proceeded to unroll a six-foot long drawing of the dome section of the capitol building, drawn in ink on linen, completely noted for fabrication by the various trades. The group admired the drawing for a few minutes, commenting casually about its numerous qualities, with a curious interest in the notes, which seemed as if drafted from an entirely different language than the technical jargon of contemporary construction sets. Interest gradually waned, and the group returned to various tasks, save myself. I was entirely consumed with the drawing, marveling at the intricate line work and detail, the absolute consistency of the lettering, the subtle hints of shadow that allowed the drawing to recede ever so slightly into the fabric. After several minutes of careful looking, I found myself noticing delicate repairs, the ghosted residue of errors and corrections upon the most unforgiving of drawing mediums, the first ephemeral traces of the individual draftsman that I was able to find. The number of these traces increased the more carefully I looked, tributes to the labor and craft involved in the production of just one drawing, itself a mere fragment of the much larger construction set. My eyes finally grew weary, and though still entranced, I withdrew to collect my set of plots, stunned not only by the startling brightness of the white bond, but also by the impersonal sterility of the information contained on it, perfect in every way and yet inherently vacant of life. Though I have since become more seasoned, I still find myself humbled by that experience, the briefest of moments that so quickly tempered my self-confidence while also steering much of my future interests towards the fully invested act of drawing, which seems increasingly destined to be shelved with other outdated tools and techniques, displaced by the expediency and seductive power of the digital realm.

The preceding memory perhaps sheds some light onto my attentiveness to drawing in architecture. To me, and a number of my colleagues, the value of drawing is inextricably linked to the ideas of design pedagogy and process. I could offer any number of quotes and aphorisms about drawing's value, citing names far more notable than my own, though this does little to highlight the larger concern about drawing's increasing marginalization in design. Both analog and digital drawing techniques take residence within our discipline and frame much of the internal wrestling to which we have all grown accustomed, though this tension is also curiously noted within the markets and forces that orbit our periphery. Tod Williams and Billie Tsien offer a concise demonstration of this in their essay *Slowness*, capturing in prose the struggles of finding a preferred drawing lead that was discontinued by the manufacturer, lamenting that "People apparently do not draw enough anymore to make it worth their while."<sup>1</sup> Williams and Tsien do not directly indict digitization as the culprit, though they hardly need to, given its ubiquity in both practice and teaching.

My own training and subsequent career has bridged much of the transition from hand-crafted methods of drawing to their digital counterparts, and having a foothold in both aspects I must express some amusement about the recurring debates over which method is best for teaching design. While these debates are generally collegial and necessary, they do have a tendency to erupt into high-spirits contests that are, in all honesty, largely overblown and result in little if any consequential actions, overlooking the shared pedagogical concern of how the final rewards help the student. Far be it from me to suggest that drawing has vanished completely, but given the current state of design pedagogy and its accelerating fascination with digital methodologies, I feel compelled to ask the simple question *why*? Has our ability to use drawing as a means of capturing our creative sparks become so tiresome, exhausted of its usefulness, that it is no longer relevant to the design process? The instinctive answer is obvious, though I suspect this abrupt reaction overlooks the hidden depths of this question, which is perhaps less about the significance or insignificance of drawing in design, but rather about the growing confusion regarding design as an act of making or thinking.

This too is a rather dubious assertion, this notion that architecture's long-cherished *disegno* has transformed into an unbalanced division of physical and cerebral acts. The tradition of designo was fundamentally rooted in drawing, the action and artifact of that action speaking the same voice. As Peter Schneider so aptly states on the origins of designo in the 16<sup>th</sup> century, "the rapid spread of architectural drawing established *disegno* as the singular technique that was – and still is – the defining practice through which the architect legitimizes and defends his/her symbolic contract with the general public."<sup>2</sup> Schneider offers a compelling argument about the role of drawing in the discipline and his assertion that *disegno* is still the primary means of architecture's conveyance stands true, albeit in a radically different format than the *disegno* of old. The traditions of design through hand drawing provided a direct linkage from the mind of the architect to the masses through the hand itself. It is this connection of mind and hand vis-à-vis the drawing that offered the hints to its meaning, a visual script with clues for its reading that was unmediated by rhetoric. Schneider cites Roland Barthes on this point, noting drawing's connotative character, to which implicit readings or "codes" are inextricably linked, born of the manner in which drawings are crafted.<sup>3</sup>

For Barthes, the act of drawing and the subsequent engraving of meaning occur at three levels, the first being defined by "a set of *rule-governed* transpositions."<sup>4</sup> While Barthes calls out the historical conditions of perspective, the two-dimensional modes of drawing so common to architecture are equally well-suited to this sort of transformative encoding. I bring this point to the light because the two-dimensional drawing, regardless of its specific orientation, carries the strongest of representational biases. The limits of two dimensions, whether done in plan, section or elevation, fundamentally accept the removal of an entire spatial axis, such as the height of a volume represented in plan, or the corresponding depth of a room shown in section. This spatial reduction or flattening allows for a more careful consideration of elements presented within that view, testing spatial organizations, alignments and relationships that might be more difficult to visualize within the complexities of three-dimensions, while also exposing the privileges of any one representation as fundamentally incomplete. This potent com-



Fig. 1 Pencil on hot-press paper. Drawing of Palladio's Loggia del Capitaniato. Student work by Tim Hoefft. The drawing was completed from site measurement, sketches and observations

bination of effects warrants attention, particularly given the dilemma of representational strategies and ambiguities inherent within media.

"Representation has many virtues. Innocence and neutrality are not among them. Each work of architecture carries the mark of the means of representation by which it was created. Surely it would not be possible to avoid analogic models in the creation of buildings. It is not a question of avoiding being conditioned by media. What we should do is be conscious of the existence of media conditioning."<sup>5</sup>

The idea of media conditioning offered by Alfonso Corona-Martinez is in many ways a rephrasing of Barthes' encoding of the image, though with a more direct concern for the implications on the creative act. For Corona-Martinez, conditioning refers to the inherent biases and weaknesses of any one mode of study, as well as our frequent neglect to address these biases, perhaps because we consider them apparent to students, but more likely because we have grown so accustomed to them that we fail to consider their impact. In discussing the architectural project, Corona-Martinez goes on to state "Each architectural conception, every architecture we can imagine, will be a prisoner of the medium we use for imagining. The prison will not be architecture itself; it is in the representation."<sup>6</sup>

This dilemma of representation is at the crux of drawing's demise, though not in a manner that is immediately obvious. Just as Barthes gives us insight into the idea of drawing, so too does he offer insight into photography. According to Barthes, a photograph is a device that is "a message without a code," having gone through no similar transformations like those of drawing.<sup>7</sup> This follows in line with the earlier writings of Walter Benjamin regarding the photographs of Eugène Atget, which dissuaded "free-floating contemplation" like one might expect of painting or drawing, and to which "captions have become obligatory."<sup>8</sup> It is this idea of captions that causes a stir, the realization that the photographic image is devoid of coding, reliant upon text to guide the mind first for the eyes to follow. In this instance, the mechanization of process severs the image from its intrinsic meaning, redistributing the priorities of the eyes not to search for encoded messages within the image, but for words to explain to the mind what the eyes should be seeing. Though digital imagery is far more complex than photography of the 19<sup>th</sup> century, it is also cast of the same technological mold, thus serving as a natural extension of the camera's mechanical filter. This extension, when aligned with the growing division between the analog and digital, forces a reconsideration of *designo* that can account for the experiential character of each technique rather than abstractly collecting all methods under the device-neutral umbrella of representation.

The difficulty of accepting the experiential influence of drawing is mirrored with an equally difficult challenge of attempting to consider representation outside of the devices at play. Patricia Boge and Jim Sullivan wrestle with this notion of device neutrality, offering five aphorisms by which the idea of representation and design inquiry can be collected without bias to either digital or analogue means. Though their overarching ideas on the habit of thought and inquiry have merit, even they reveal the eminent pitfalls that litter the digital/analog debate of drawing in that "a single line, if done thoughtfully, can describe a thing in its entirety, and within the thickness of a pencil line, there exists a multitude of things not drawn."<sup>9</sup> The poignancy of this simple observation, given its posture as avoiding media bias, exposes the inherent distinctions of the two mediums and means of making. Their brief depiction of the hand

drawn line as bearing “a multitude of things not drawn” acknowledges that the hand drawn line is encoded beyond the line itself, carrying a sense of tactility and expression to which the precision and uniformity of the digital line can never fully match. Even the colloquial nomenclature of *hand drawn* suggests an attentiveness and concern for craft that has somehow been displaced within the digital realm.

The nature of this displacement of craft is fundamentally a product of the sensory conditions of making, the phenomenal disparities between each idiosyncratic stroke of the pencil and the matching barrage of undifferentiated mouse clicks. Michael Benedikt comments on the variances between the pencil and CAD, offering “the plain-as-day fact that the compositional tools of CAD software cannot match the fluidity and serendipity and delicacy of hand-guided pencil on molecularly noisy paper.”<sup>10</sup> Benedikt notes even the ideas of the sound of drawing, highlighting this most subtle of stimuli as affecting the act of thinking and making. The recognition that the physical interface with the tool influences the manner by which we design does little to clarify the accelerating digital/analog dispute. Much of my own work follows Benedikt’s critique, exploring the notion that hand drawing is inherently phenomenal in nature, a synchronous collecting of the hand, the eye and the mind into one purely authored, deliberate and irreproducible act. To draw by hand is to fully engage the drawing at its first and final scale, and the varying degrees of detail and energy are exhibited within the drawing itself and the physical action required to make it. The sweeping arcs and gestures of figure drawing are distinct from the regimented character and control of orthogonal drawing, but in either case the lines of each drawing are pregnant with the weight and tempo of hand, and with it the position of the arm, shoulder, body, eyes - and through these the mind. Jose Saramago pushes this connection even further, suggesting that the hands and fingers of the sculptor have, if you pardon the cliché, a mind of their own.

“Anything in the brain-in-our-head that appears to have an instinctive, magical or supernatural quality – whatever that may mean – is taught to it by the small brains in our fingers. In order for the brain-in-the-head to know what a stone is, the fingers first have to touch it, to feel its rough

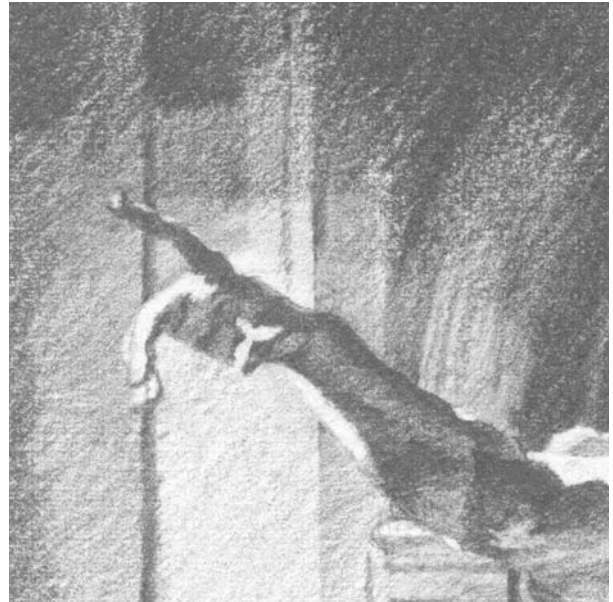


Fig. 2: Graphite on Arches, by the author

surface, its weight and density, to cut themselves on it. Only long afterwards does the brain realize that from a fragment of that rock one could make something which the brain will call a knife or something it will call an idol.”<sup>11</sup>

Saramago summarizes with great eloquence the essential character and influence of understanding materiality that can only be measured through touching, implying that our intellectual skills alone are inadequate to fully comprehend how a material needs to be considered in the process of making. This sentiment is equally expressed in the mythical stories of Kahn’s immortal conversation with the brick, questioning this most common of building materials what it wanted to be. It is this sense of tactility, the essential understanding of making through the senses that hand drawing provides and to which the digital realm can never fully realize.

To be fair, the relationship of the hand to the computer through the mouse, keyboard and screen also offers sensory stimuli, albeit heavily reliant upon a rationalized viewing as the primary source of navigation, information and critique. The actions of the hand are filtered through the prosthetics of mouse and keyboard, anonymous actions within the drawing itself as the mouse clicks and keyboard strokes offer no way to record any specificity or expression of the action. To even

consider drawing in the digital realm requires the queuing of the command first, cloaking the initial instinctive act of making beneath an assortment of procedural steps, sequences, icons and menus, rationalizing with an unavoidable immediacy the essential, unexplainable, intuitive line. To this end, the drawing of a line is indistinguishable from the drawing of an arc, both requiring only the click of the mouse to define a starting and ending. The body itself remains relatively motionless outside of the modest movements of wrist and finger. Scale is simulated in its fullest form, conceived as if to be prepared for construction at the onset of drawing, though the interface is itself restricted to the limitations of the screen. This shift in logic requires additional zooming and panning within the virtual environment, a constant oscillation between finite joinery and the immensity of an urban context, all of which is accomplished with the same unanimated gestures as the digitally drawn line.

Further compounding influences include layering strategies and layout pages, line types and thickness accounted for only through plotting, which itself incurs one more incremental step between the drawing process and its artifactual presence. The accumulation of these commands creates a separate inner monologue chanting not the intrinsic ideas of drawing, but of the numerous verbalized procedures that must precede the idea. One cannot arbitrarily draw a line or curve, or modulate between the two without consciously deciding through words that this action must occur. The ease of edits, adjustment and erasures have provided the digital realm one of its most potent strengths, though an unfortunate byproduct of this attribute is the discarding of the histories of making. The hand drawn image carries with it the remnants of its construction and development, burdened with the residues of erasures, misalignments and mistakes that offer a glimpse into the process of thought of the author. These visceral apparitions do not exist in the digital realm beyond the accumulation of discarded plots and the requisite array of precautionary back-up files.

It should be of little surprise that the arguments for the phenomena of drawing by hand have found their counterpoint with the champions of the digital realm. Brian McGrath and Jean Gardner flip many of my assertions on their head in their defi-

nition of drawing in the digital age, framing the traditions of hand drafting as labored and restrictive, entrapped by the limitations of the drawing board, the requisite tools and the finality of representational scale. They offer a persuasive argument that highlights how the digital interface informs the process.

"On the drawing board we were limited by the size of the sheet of paper to a particular scale of working. The smaller computer screens usually frames just a detail of the drawing we work on, so we zoom in and out and pan and scroll around the drawing of a potentially vast breadth of scale

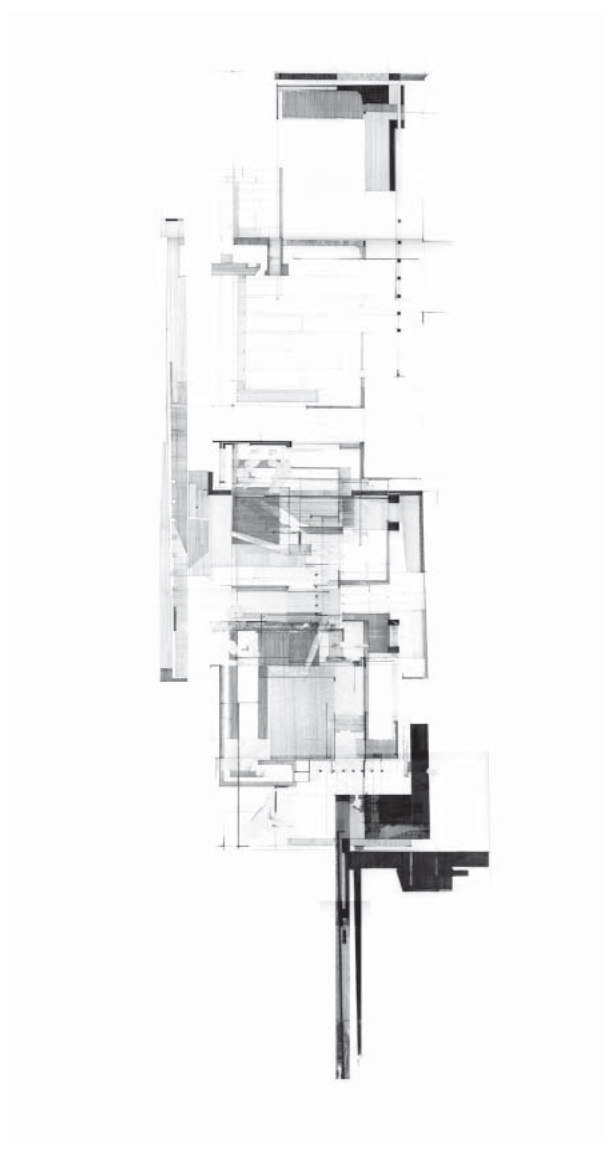


Fig. 3 Mixed drawing media on arches. Student work by Will Zajac.

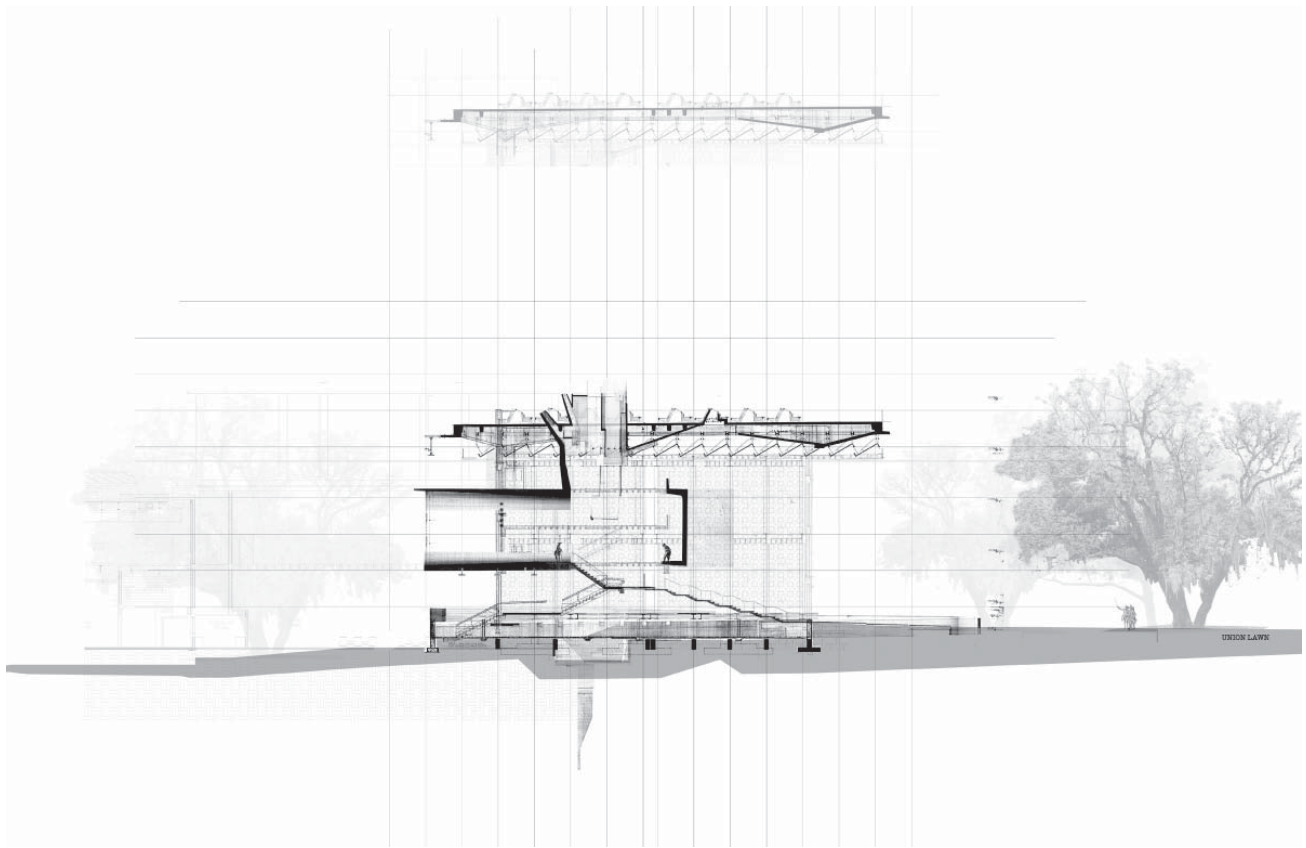


Fig. 4 Mixed drawing media on arches. Student work by Will Zajac.

and depth of information. How has 'zooming' and 'scrolling' changed what we mean by drawing? We quickly jump from details to overall drawing and switch layers on and off. The digital act of drawing is marked by more constrained movements of your body, but an intensification of concentration. When directing the frame of the computer screen like a camera, we are scanning as well as marking, which stimulates very different responses from us."<sup>12</sup>

McGrath and Gardner's statement provides much fodder to this debate, offering a glimpse into their larger arguments for reconsidering drawing as a process in our digitally saturated culture. To them, digital drawing is uncoupled from the singular restrictions of the hand drawn artifact. "Just as the act of drawing has fundamentally changed, the digital drawing produced is no longer a single crafted artifact, but a body of data from which innumerable drawings can be electronically transmitted, projected or reproduced."<sup>13</sup> They continue with the commonplace arguments about collaborative work, the advantages of unlimited scale, and

ease of transmission, to close with the following assertion that the "digitally produced drawing does not exist as an artifact but is a dynamic stored set of information that can be altered and continually updated electronically."<sup>14</sup> This charge is perhaps the most provocative challenge to the traditions of *designo*, consciously and deliberately shifting the act of design exhibited through the making of artifacts to one perceived not as a thing, but as a "set of information," to which a brief moment of pause, let alone stasis, seems impermissible.

This does perhaps bring us full circle, returning to the observations that Williams and Tsien offered in *Slowness*. Much of the essay attempts to explain their approach towards design and their reticence of departing from the traditional tools of the design process. Their case is straight-forward and insightful, unfettered by digital fashions and resounding of a holistic appreciation for design that never mistakes any one step or iteration for something other than itself. Their work is often compared with that of Peter Zumthor, with both practices renowned for the high craft and mate-

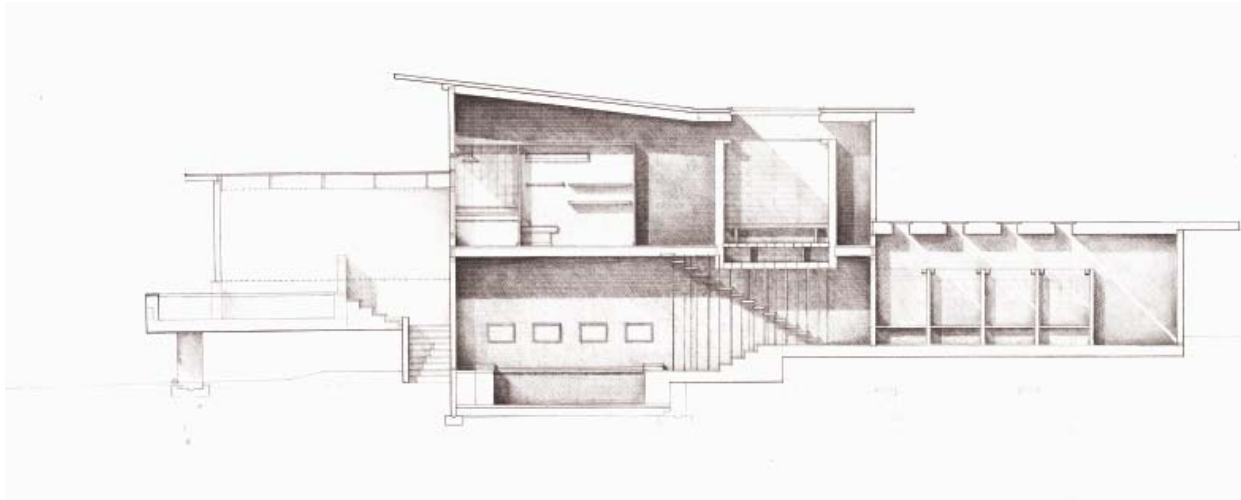


Fig. 5 Pencil on Arches. Student work by Christina Nguyen.

rial concerns that resound in each project, setting them apart from other offices that have embraced different philosophies of design and making. Zumthor writes of Herzog and de Meuron, saying that for them “architecture as a single whole no longer exists today, and that it accordingly has to be artificially created in the head of the designer, as an act of precise thinking.”<sup>15</sup> Zumthor does not pursue the theories which Herzog and de Meuron use to define their work, though he does question their assumption that “the wholeness of building in the old sense of the master builders no longer exists.”<sup>16</sup>

The notion of the older *designo* in many ways aligns with Zumthor’s wholeness, and can be understood in the work of both Zumthor and Williams and Tsien, given their shared avoidance of fleeting digital fashionability. For both Zumthor and Williams and Tsien, drawing as an act is critical to the design process, indispensable to understanding the origins, development and resolution of the architectural idea that is completed only in the finality of construction. As Zumthor writes, “Design drawings that refer to a reality which still lies in the future are important in my work. I continue working on my drawings until they reach the delicate point of representation when the prevailing mood I seek emerges, and I stop before inessentials start detracting from its impact. The drawing itself must take on the quality of the sought-for object.”<sup>17</sup>

It is Zumthor’s thought on the “drawing itself” that I will use to conclude these musings. His ideas on drawing are clear and concise, offering in explicit terms the drawing’s obligation to the thing which it represents. It is understood in its finality as a thing, but only in its incompleteness of the real thing it attempts to portray, a critical distinction cannot be underestimated. Unlike hand-drawing, digital design in its most advanced state considers the thing and its digital representation to be synonymous, undifferentiated, as if completely knowable through representation alone. This degree of verisimilitude that can be achieved in the virtual realm is so complete as to be confused for reality, overlooking the unknowable aspects of representation that preserve its relevance as a critical part of the design process. As Zumthor states, “if naturalism and graphic virtuosity of architectural portrayals are too great, if they lack “open patches” where our imagination and curiosity about the reality of the drawing can penetrate the image, the portrayal itself becomes the object of our desire, and our longing for its reality wanes because there is little or nothing in the representation that points to the intended reality beyond it.”<sup>18</sup> This perhaps offers the strongest justification of preserving drawing as a critical aspect in design education, for hand drawing can maintain at least a small fragment of tactile appreciation in the design process, an element that, like drawing, has become equally isolated to the margins.

Thus I draw to a close with one last quote, again from Zumthor, with the hope of tying the loose ends that I have undoubtedly unraveled. Though his words do not specify medium or technique, they cast the shadows of the hand and mind in the act of drawing. "These sorts of drawings enable us to step back, to look, and to learn to understand that which has yet come into being and which has just started to emerge."<sup>19</sup>

## ENDNOTES

1. Tod Williams and Billie Tsien, "Slowness," *2G International Architectural Review*. No. 9 (1999): 130.
2. Peter Schneider, "Design: On Drawing Out of Architects," *The Journal of Architectural Education*. Vol. 61, No. 1 (2007): 19.
3. Roland Barthes, "Rhetoric of the Image," *Image-Music-Text*. Trans. Stephen Heath (New York: Hill & Wang, 1978), p.17.
4. Barthes, "Rhetoric of the Image," in *Image-Music-Text*, p. 43.
5. Alfonso Corona-Martínez, *The Architectural Project*. (College Station: Texas A&M University Press), p. 34.
6. Corona-Martínez, p. 36.
7. Barthes, "Rhetoric of the Image," in *Image-Music-Text*, p. 17.
8. Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," *Illuminations*. Trans. Harry Zohn (New York: Schocken Books, 1969), p. 226.
9. Patricia Boge and Jim Sullivan, "Hand|Hardware: Five Aphorisms for Device-Neutral Representation," *Journal of the Design Communication Association - Representation 2005-2006*. (2006): 47.
10. Michael Benedikt, "Less for Less Yet – On Architecture's Value(s) in the Marketplace," *Harvard Design Magazine*, Winter/Spring (1999): 12.
11. José Saramago, *The Cave*. (Orlando: Harcourt, Inc., 2003), p. 68.
12. Brian McGrath and Jean Gardner, *Cinematics – Architectural Drawing Today*. (Great Britain: Wiley-Academy, 2007), p. 15.
13. McGrath, p. 16.
14. McGrath, p.17. Emphasis is part of the original text.
15. Peter Zumthor, *Thinking Architecture*. (Boston: Birkhäuser – Second Expanded Edition, 2006), p. 32.
16. Zumthor, p. 32.
17. Zumthor, p. 13.
18. Zumthor, p. 13.
19. Zumthor, p. 13.