MAKING IS THINKING

Poetic Pursuits in Architectural Design

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I thank Peter Koorstra, my research tutor, for his kindness, when I needed it most and the freedom to pursue my passions.

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Abstract

This research is the culmination of philosophical and practical pursuits. It is my attempt to tackle the often-held view that intellectual thought is of superior motive to making. This has been a philosophical condition since the time of Plato, and evermore amplified by 'thinkers' such as Hannah Arendt, who's relatively recent work positioned that there are those that make, Animal Laborans, and those who think, Homo Faber—the former being he/she who know not what they make, and the latter being the judge of the *thing* made from material labour and practice.[1] With such a distinction came the advancement of the intellect, and the reduction of the poet, and in this shift human beings were denied the fullness of their corporeity.

Disassociated by philosophy, this research pursues that philosophy. I attempt to reposition making as very much part of the human being's capacity for thinking, that the two were once indissociable, not just in architecture, but all thinking. That making is the crux of thinking's origin and has the ability to be equally relevant to it's present. Regarding the notion that 'making is thinking', I owe credit to Richard Sennett, who coined the term in his book *The Craftsman.* His term became my title, and founded the essay presented here in part I.

Part II reconciles this essay with a series of making exercises, the crucial aim of which is the manifestation of those philosophical pursuits. These exercises, referred to as 'generative making', find precedent in my own previous experience in such exercises, in David Murrow Guthrie's book, *Cube,* and, ultimately, in the *Form and Modelling Studies* courses provided on TU Delft's masters track in architecture.

Though the two parts as presented may appear distinct, they constitute a complete research, the findings of which unfolded simultaneously, with the reading and writing influencing the making and vice versa. Presented as they are, in tandem, they best support one another. Together they form a research whereby making is thinking.

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Part I
Thinking

Introduction

One would think that architecture houses both the image of its maker and its thinker in equal measure, it is after all the art of the building, but unfortunately this is not so. For several hundred years or more architecture has been a discipline with a particular focus on man's ability to see. Vision, gifted to us through light, is a privilege of man's ability for perception and has been treated in high regard since Plato's theory of Emission. As such, vision is the primary sense for explicit kinds of understanding, which today we consider our true form of knowledge, but this is often to the detriment of our capacity for implicit kinds knowledge, relatable to the other senses, such as tactility. However, some architectural historians and philosophers believe there was a moment at the origin of architecture when explicit knowledge and implicit knowledge were one in the same. Indra Kagis McEwen, being one such historian, positions an argument through historical analysis in which making had to first occur before thinking could take place. It will be argued that this is the metaphysical origin, the ontological essence, of our profession and stands testament to the corporeity of our being and yet this phenomenon was short lived. No sooner did architecture gain its essence through its making did it then become subservient to its thinking. One of the primary arguments of this essay is that this essence, bound to the marriage of maker and thinker, is all too often absent or forgotten in the architecture of today. Historically architects and thinkers have tried to reconcile our metaphysical origin with the developments of vision with a symbolism to be found in what we now consider our 'traditional' representation, that is drawing. This lasted way into the renaissance, but in our post Cartesian world today, in Western culture, our essence, bound to the marriage of maker and thinker, is seemingly absent. Concurrently it has been argued that architecture itself is the mirror image of these developments, estranged from its essence, it is the product of explicit visual representation belonging to an overly intellectual and objective condition for building and this instrumentalised reality we live in today has caused further potential for the estrangement of the body of experience—our corporeity.

Today, in the twenty-first century, architecture is defined by all that proceeded these origins. It is a long, rich and deep history with consequences essential to the profession today that cannot be discarded. Architecture is obligated to the arts and the sciences in equal measure. It is important to understand that a history of architecture is a history of representation. Architecture is both itself a representation and the result of representation. Architecture is constructed, and always has been since the beginning of this history, through the mediation of representations and in turn a representation in itself. Thinking occurs, ideas are formed and making occurs to represent that which was thought and manifest this in a building —this is the typical progression of design today, whereby making is dependent on thinking. To defend the proposal of this research, that making is thinking, may appear contrary to our method of designing today. It is therefore crucial to investigate this history and position my arguments in acknowledgment of it.

The chapter, *The History of Representation* unfolds this history, arriving at our current situation and the fears that surround it. Following this history is a chapter that deals with the reconciliation of the image in a world dominated by the visual. The phenomenology of perception is explored, the core of which explores 'depth' as the true nature of our 'in between' perception, between the visible and the invisible—the depth of things which concern us and yet avoid direct statement. This chapter is titled, *The Reversibility of the Image.* The Chapter *Architecture as a Thing* follows, and positions architecture in the origin story of McEwen and answers some ethical questions regarding the profession and its "ontological essence". Ethical questions which rely on the appropriateness of our buildings to place, and the people for whom the building provides space—appropriateness which makes architecture a thing that provides for a sense of dwelling, and therefore a sense of being in the world. The chapter *Design as a Poetic Act* investigates the etymology of design and attempts to position it between the 'instrumental' and 'communicative' roles of architecture, between our tradition and our progression. The final chapter *Making as Poiesis* concerns making as the embodied poetic act of representation and its potential for transcending a haptic engagement to architecture itself—the tactile, the tangible and the near—in the design. Through this poetic act, an understanding of how to make a thing appropriate to itself may be learned, an invaluable lesson, I argue, for the practice of architecture in its current overly instrumental state.

Another primary concern of this essay is the nature of oppositions, between the visible and the invisible, the communicative and the instrumental, the poetic and the symbolic, the head and the hand, and between thinking and making. What follows works with those oppositions, agreeing with some and blurring others. It is a tactic that may appear fickle and contradictory, but I do so consciously to formulate arguments and the motive of which shall, I hope, become apparent. The 'depth' to be found between such oppositions is crucial to our being, and to this essay.

A History of Architectural Representation

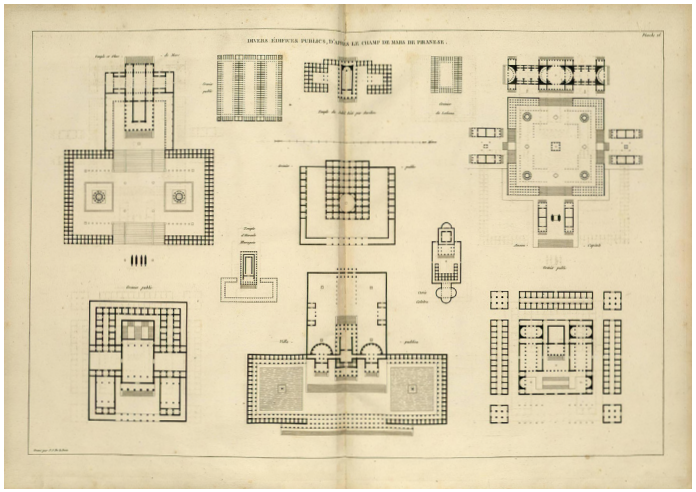
Alberto Pérrez-Gómez and Louise Pelletier, in their book *Architectural Representation and the Perspective Hinge* address the history of architecture and its representation in length. Though they argue that their endeavour is not to provide a historic account, they use it, in detail and its full richness, to illustrate their view that our tools of representation are never neutral and are ineluctably linked to the metaphysical and epistemological beliefs of a particular time and place. These tools, and therefore beliefs, "underlie the conception and realization of architecture". They assert that since the architecture of ancient Greece architects have not made architecture itself, but only the mediating artefacts that make "significant buildings possible". Furthermore, "for the architect concerned with ethics and not simply aesthetic novelty, who seek the realization of places where a fuller, more compassionate human life might take place, that these mediating artefacts and tools be appropriate is paramount".[1] Their historic overview, though not a chronological account, highlights key moments and figures, since the Medieval period, whereby there was a poetic translation of representation in the art of building—something the authors would wish to see restored in lieu of the current "prosaic transcription" of representation. They appeal for the recovery of meaning in architecture that can be found in human experience. Architecture itself is a representation of architectural 'ideas'.

Gómez' and Pelletier's critique is of the Cartesian origins of our contemporary vision—that is to say when there was a shift to a philosophical belief in the mind being wholly separate from the corporeal body. They disclose how the "observing" subject was subsequently estranged and eliminated from representational techniques—a distancing between the subjective and the objective, or rather, the "objectification of the subjective". Descartes' philosophy, according to the authors, caused a shift from an "embodied consciousness inhabiting the word", to a detached, "disembodied" observer, altering the very nature of the individual's relationship to the world. This has, ultimately and slowly but surely, reduced our process of designing today to a set of conventional projections, at scales which vary from site to detail, that are somehow capable of adding up to a complete, objective *idea* of a building. Projections are the plan, section and elevation we know today, developed today as diagrams to allow for little to no interpretation, black

lines on white paper they are the engineers contract. For the authors, these reductive projections are part of a dissected whole, expected to be ambiguous to avoid possible misinterpretations and act as efficient and 'neutral' instruments devoid of inherent value other than accurate transcription. To Gomez and Pelletier, this is, today, typically how many practicing architects see architectural drawing.

In *Architecture in the Age of Divided Representation: The Question of Creativity in the Shadow of Production* Dalibor Vesely also centres his arguments around representation, or rather for his purposes, its divided nature. This divided nature, as Vesely explains, is the partial quality of any representation, because, by its nature, representation is selective. Whether it be in painting, sculpting, drawing or making models, there are always some aspects that are excluded whilst others are included. This oppositional nature between exclusion and inclusion is mirrored, for Vesely, in the apparent tensions between the "instrumental and the communicative" values of architecture—between the technical and the creative; between qualities that result from scientific knowledge and those that result from a metaphorical and cultural knowledge, from the coexistence of imagination and appreciation of poetic principles. For Vesely this tension, between the productive and creative reality of architecture, can be better understood through the role of representation. This is his primary concern; to identify, through representation, historic origins of creativity in order to defend it against an overly instrumental preference.

Whilst Gómez and Pelletier focus their investigation on the history of representation to devise suggestions for new approaches to architecture, and its modus operandi, for poetic translation, Vesely searches the same history, and the divided nature of representation, to find examples of creative endeavours for appropriation in the communicative role of architecture. However, despite their differing explorations of the topic they still, ultimately, share the same historical path that eventually led to the root cause of their concerns—that concern being the unchallenged onslaught of technological advancement, with its ever-increasing effect on the representation of—and therefore the production of—and the tools to design architecture. For both, the root of this situation can be found in the historic shifting philosophical values in optics and geometry—which gave priority to the visual, over the other senses, as the true source of knowledge. This history is important to grasp if one wishes to understand the polemics of Gómez and Pelletier, and Vesely, who suggest architecture is in danger of losing its meaning, in its humanistic role, and consequently its fundamental role in culture. But furthermore, it is important if one



A plate from J.-N.-L. Durand's Précis des Leçons d'Architecture (1819).

Image Source:
Gomez and Pelletier. Architectural Representation and the Perspective Hinge. p.05

wishes, as I do, to suggest something contrary to convention, which as a *model* is representative of philosophical ideas, then first the reasons why we practice architecture the way we do now must be clear, but also must find precedent in the richness of past methods, which can be understood through their representative nature.

One of the defining moments for Gómez and Pelletier and is the idea that since the birth of ***theōria,*** in classical Greece, vision has been privileged over the other senses as *the* "vehicle of knowledge". The authors point to a corresponding model in western art, which went form an embodied participation, in ritual acts, to a vicariously perceived one through vision (and hearing) in Greek tragedy. This distance made many cultural, intellectual and philosophical progressions. They believe it made reflective thought, authorship and metaphysics possible and coincided with alphabetic writing and the objectification of speech. The authors point out that this "distance" does not anticipate perspective, nevertheless it is "a condition for perspective and perspectival epistemologies, that is, philosophical systems in which the "constituting ego reduces the presence of reality", in other words the reduction of a multi sensuous reality to that solely belonging to the visual. This distance made it possible for Greek scientists and philosophers to articulate the discourse of geometry and optics, whilst maintaining the "primacy of reality that is primarily a tactile and synthetic fullness". The discourse regarding distance, "a primary depth rather than perspective" remains crucial to the authors, for architecture in a world held by technology that aims to "close the gap between the body and the world".[2] The birth of theory and a distance the authors credit to Greek tragedy set in motion developments in art and science which are continuing today.

The "mystical and scientific imagery of light", that is nature's gift which allows for vision, can be traced back as far as Plato in his myth of the cave in *Republic,* where he states that a knowledge of eternal forms may be acquired from the imperfect material world by a process similar to vision. However, *Perspectiva naturalis,* being the discipline of optics or science of sight, was first fully elaborated by Euclid in the third century B.C.E. It was specifically related to mathematics and often used as a means of grasping the physical and metaphysical structure of reality, whose essence was believed to be similar to light. By the middle ages, stemming from ancient notions of light and knowledge according to Plato, theories of vision were firmly entrenched in Western tradition.

Euclid, who believed light travelled in straight lines, was the first to observe the geometric laws of reflections and refraction and demonstrate that the appearance of objects is a function that relates to an observer, but furthermore he was capable of expressing this through geometry accurately. For Euclid, the eye was an active participant in the phenomena of vision, rather than a passive receptor. He also revealed that what people experienced did not always coincide with what they saw. Plato's vision, included in *Timaeus*, was relatively undeveloped, yet was still a point of departure in Western thought. To Plato, light flowed from the eyes, a subtle fire like that of the sun, which, when combined with exterior light, luminosity is strengthened makes capable the perception of colours in visible objects. This can be seen as a metaphor of reality, that is neither a purely subjective construct nor an objective fact, but in-between, insofar as it suggests that humans partake in the light of heavenly luminaries endowed with eternal motion, and this communion occurs through vision.[3] Aristotle, however, objected to the idea that light emanated from the eye and argued against the corporeal nature of light, but did agree that the transparent nature of light allowed for motions (i.e, colours) to be transmitted to the observers eye. Despite these differences, all these theories emphasise that there being a medium, between the observer and the visible object, is a reality of visual experience.

Medieval writers were influenced by these theories, but were engaged in the polemics between intromission and extromission properties of them. Al-Hazan promoted the intromission theory, but related the phenomenon of vision to the passive observer—in his theory, the act of perception occurs in the human and not in the space between the object and the eye. In the thirteenth century, Roger Bacon, though he did not accept Al-Hazan's intromission theory but did extrapolate from his notion perception, explicitly merged the act of seeing with the act of being seen, arguing that a mirror image of one's face would be inconceivable unless "a species issued from the eye were returned to the eye". John Peckham, Witelo and Robert Grosseteste, the most important writers of *perspectiva naturalis* in the late Middle Ages, agreed with Bacon. They also shared a theological interest in *lumen* and *lux*, being divine light that emancipated throughout the universe.[4] Grosseteste marvelled at light as the supreme manifestation of God and held that its lustre, colour and mathematical properties culminated in a divine unity. This was based in the Neoplatonic metaphysics of light, where the sciences of reflection and refraction were

the beauty of truth as the lustre of God was manifest through analogy in the experiential world. Grosseteste saw light as the best of all proportions as it was proportionate to itself and this was the basis for the indivisible beauty of God, "for God is supremely simple, supremely concordant and appropriate to himself". To Grosseteste, the material world first appeared as light; its form, therefore, results from the radiation of light and since light radiates in straight lines, its gives the world a regular, geometrical shape; thus, poetry appears through form.[5]

Gomez and Pelletier make the point that "while *perspectiva naturalis* sought to clarify human vision, it was not concerned with representation, but with understanding the modes of God's presence". They explain that at this time humanity lived literally in the light of God, under a benevolent gaze. "This was the light of the golden heaven of Byzantine frescoes and mosaics, as well as the sublime and vibrantly coloured space of Gothic cathedrals, a light whose multiplicity…was the very condition for the unity of its metaphysical concordance". Followed with, "the concordant light [which] reconciled multiple colours into the harmony of the one and contributed to the geometric order of Heavenly Jerusalem on earth".[6] The connection made here between the theories of light at this time illustrates that in fact, despite vision having not yet made its mark upon our representational tools, the intertwined theological and geometrical beliefs of light were manifest in architecture and thus architecture came to represent those very beliefs.

Prior to Renaissance, architectural drawings were rare, certainly as we know them. During the Middle ages architects did not conceive of whole buildings and scale, as notion, was unknow. Gothic architecture, the most 'theoretical' of medieval buildings practices, was fundamentally a constructive practice that relied on applying well known modes of construction and geometry to the building. From the footprint of the building, construction proceeded through rhetoric and geometry. This raising of the elevations, through the mode of discussion, continued till the very end. For Medieval architects, they were in fact building their representation, "the model of city of god on earth".[7]

The notion of a ritual act of construction had not been entirely lost in the early Renaissance. The concept of a sympathetic universe, based on old Aristotelian cosmology, was dominant in the fifteenth and sixteenth centuries. However, whilst being dominant, it was increasingly open

to manipulation by magician architects, interested in ensuring a happy life, by emulating the order of the heavens. The "instrumentality" of the tools or drawings in this case, were a prophetic act. They were projecting the geometric physiognomy of a building or city and this was a form of conjuring and diving, not merely the personal will of the author. Architectural drawing were therefore not neutral artefacts that might be transcribed in buildings.

The concepts of *perspectiva naturalis* remained implicit in the emerging perspective of the early Renaissance, especially with its theological and gnoseological connotations of vision and the symbolism of light. Many writers on perspective and architecture attempted to reconcile their geometric constructions with traditional optics. An exemplary work was by Nicolas Cusanus during the fifteenth century, in his *De Visione Dei,* God's sight is all encompassing, but Humans do not share this with God for our sight is imperfect and so "aiming at perfection, the scared representation is not a construction the world as it is presented to the human eye; it is rather an all-encompassing mirror image of the world, made accessible by the vision of God". In Cusanus' more famous *De Docta Ignorantia* he gives the geometric definition of God as "a circle whose centre is ubiquitous" implicitly associating God with geometric infinity. Consequently, some Renaissance privileged works regulated by geometric forms were approximate to Gods perfection, such as centralised churches, temples, villas and cities. This *Scientia* of Cusanus' is a declaration of the importance of human knowledge, as the science of geometry applied to Christian dogma, was profound in distinguishing his work from previous medieval theology and became a basic framework for Renaissance art and Culture.[8]

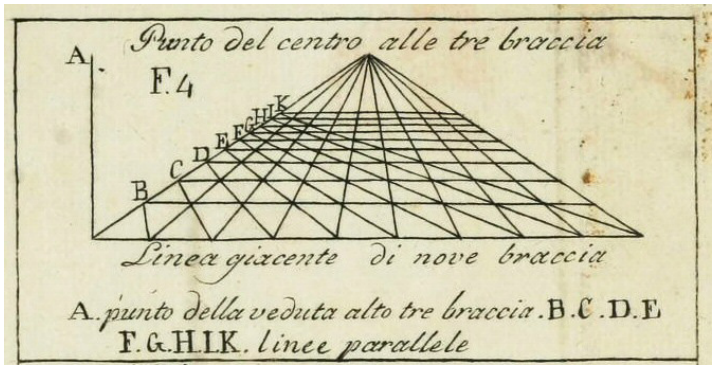
However, whilst this knowledge was true, during the 15th century writers and architects wanted to distance *perspectiva artificialis* from the tradition of classical optics in order to develop a more mathematical discourse in line with the liberal arts. The writers of this this repeatedly downplayed philosophical questions concerning the propagation of visual rays and the movement of the image form the object to the mind. Alberti was one these writers who disassociated the questions pertaining the origins of rays in light, which occupied the ancients, with the mathematical concerns of perspective. The question of perception did not change substantially from that of classical times, and so there is not notion of the 'vanishing point'

used in perspective drawing being linked with infinity, and its theological connotations. Alberti's own central point in his perspective construction is often associated with the 'vanishing point' but it is defined by him as the "countereye" on the "window", simply meaning the central point on the picture plane.

It has been suggested that *perspectiva artificialis* can be seen, not as a progression towards pictorial naturalism, but as a method of architectural representation arising from a topographic technique for surveying. This makes sense and agrees with the early architects of the Renaissance who wanted to measure the worlds physical and cultural features. This was a crucial and novel act for architects such as Filippo Brunelleschi, Filarete and Francesco di Giorgio, who were driven by the search for truth and by the desire to reveal a measured reality in the world of experience. Essentially, they insisted on promoting painting, as perspective, to the liberal arts to give new dignity to vision as a means of acquiring truth.

Yet, "this growing fascination of painters with linear perspective did not lead to a geometric systematisation of pictorial depth, nor did it instrumentalise the process of architectural creation". Everyday experience still relied on qualitatively distinct places and poetic narratives that integrated the golden age of antiquity with the current cosmological order. In fact, some painters of the time also used mirrors as flattening devices to reveal the geometricized depth that could not be seen by the naked eye—thus revealing an underlying truth between optics and perspective. Brunelleschi, Alberti and Filarete all used mirrors to highlight the "truth" of perspective. The *costruzione legittima,* i.e. the proper way, of constructing a painting by Brunelleschi and Alberti was associated with architecture because the regular geometry of architectural subjects enabled perspective depth, "and less obviously because of the quasi-magical power attributed to mathematics and proportionality in revealing the secret nature of the cosmos". Perspective thus shared its geometric nature with the newly defined ***lineamenti***, the drawings that changed Renaissance architectures from a Medieval construction technique into a liberal art. For Alberti, these drawings, specifically in the plan and façade, allowed for the full geometric idea of the future building to be conceived in mind's eye of the architect.

Architects interest in perspective, during this time, and their ability to showcase "experiential depth" was testament to a "belief in the primacy of an embodied order over vision alone, and in the revelatory power of mathematical regularity, capable of demonstrating the presence of the



A diagram from Alberti's Della pittura e della statua. P.178

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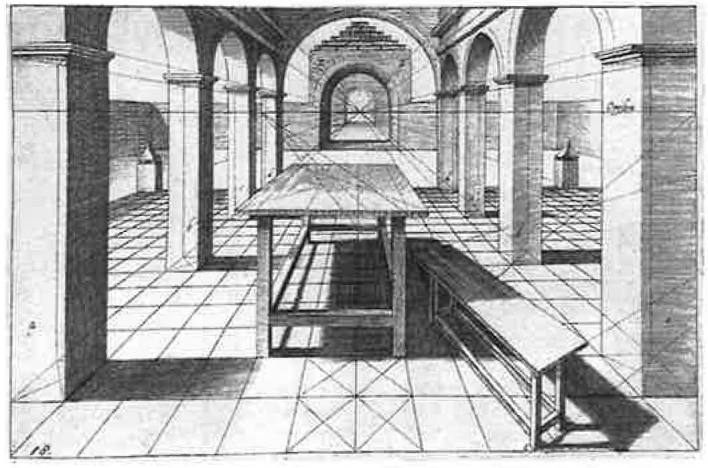


A plate from Jan Vredeman de Vrie's Perspective (1604-1605).

Image source:

Gomez and Pelletier. Architectural Representation and the Perspective Hinge. p.62

transcendental as it framed human action in the sublunary world". However, in retrospect, this new form of representation was clearly a first step towards a rationalised visual image, detached from the previous theocentric medieval universe.

At the beginning of the seventeenth-century a new scientific revolution was ushered in by the likes of by Johannes Kepler, cited often as a central figure, or in fact 'the' figure, in the revolution, who defined the first theory of the retinal image. He demonstrated that the projection created by a source of light passing through an aperture takes the form of the light source rather than the form of the aperture. In this experiment, he resolved an apparent contradiction that had existed since antiquity: light was traditionally, as explained earlier, thought to travel in straight lines, but when projected into a chamber through an irregular orifice, it would invariably appear as a circle and not the shape of the orifice. Kepler took a book for the source of light and interposed a template with an irregular perforation between the book and the floor. By linking several points from the point to the floor using threads through the aperture, he found that there was a projection not of the opening, but rather the outline of the book. Furthermore, Kepler employed the term *picture* to designate the inverted retinal image. Kepler's theory of vision was the first to postulate a *real* optical image within the eye, a picture that exists independently of the observer, "formed by the focusing of all available rays on a surface". Kepler still applied metaphysical beliefs to his new mathematically defined theory. For Kepler "the issue was not merely to describe light mathematically but to understand that its *nature* is mathematical, and that it is the ultimate vehicle of the *mathesis universalis,* the link between the corporeal and spiritual worlds".

It was in the seventeenth century, in a new mechanical universe, that perspective became a generative form of architectural ideation. "The inception of the Cartesian modern world and the epistemological revolution brought about by modern science introduced a tension between traditional forms of symbolisation and the mechanistic understanding of the world", and these changes precipitated radical changes in the realm of thinking. With René Descartes,[9] man became a subject—a thinking *I* rather than an embodied *self*—who confronts the world as an extension of his ego. This allowed perspective to become a model of human knowledge and eventually of a truthful and scientific representation of the infinite universe. Giving humanity this access to the infinite realm

directly contributed to the obsession in technological growth and the domination of eternal reality through reductive, instrumental means.

As post-Cartesian man began to consider himself autonomous from external reality, geometric perspective allowed him to construct and dwell in propitious places by changing the given reality of nature. Perspective, as an architectural idea, being implemented in lived space demonstrates how by geometricizing the world of humans could be a part of a new social and political order and marked the moment of an epiphany—a revelation of meaning through the God given geometric order of the world. Descartes' philosophy altered the nature of the individual's relationship to the world from an "embodied" consciousness inhabiting the world to a detached, "disembodied" observer.

Descartes was succeeded later in the seventeenth century by the likes of Girard Desargues, whose work provided the first system to endow representation with an objective autonomy, and Andrea Pozzo, with his treatise, avoiding the geometric theory of perspective all together but amounted to a collection of simple rules and detailed examples for construction. Since such developments our tools of representation have been considered nothing more than instruments to document an objective world.

As a response to this scientific world order a new professional class of scientists and engineers meant the need for a descriptive geometry. These successive movements eventually led to the new graphic formulas of the Ecole Polytechnique introduced after 1795, by Jean-Nicolas-Louis Durand who was suspicious of perspective viewing it as a "deceptive painterly technique". For Durand, these diagrammatic drawings were easily transcribed to clients and between architect and engineer, which since has been referred to as the "fall" of architecture—a systematic reduction of three dimensional objects to two dimensions, which whilst permitting the control and precision demanded by the industrial revolution, left the subjective viewer out of the process. Anthony Vidler surmises a widely-held view as to the root of this fall as being "representation, or more specifically, the too easy translation of the new graphic techniques used by the modern architect into built form". Expanding further, "architecture, that is, looked too much like the geometry with which it was designed and depicted. Geometry is thus seen as the underlying

cause of architectural alienation, the degradation of humanism, and the split between architecture and its "public"".[10]

This philosophical turning point, which reduced the subjective view and led to the objectification of our reality, consequently brought about the industrial revolution. The resulting architect was the avant-garde who compensated this new rationalised philosophy with what has been argued as an "arbitrary aestheticism", reducing architecture's ontological essence, as a cultural communicative force, to the overly instrumental—leaving no space for the invisible, and instead relying exclusively on the visible. These developments lead to the dogmatic mantras of "form follows function" and "reduce your ornament", which are the slogans of these philosophical changes and ultimately became the defining emblems of modernism. In disturbing the balance between the communicative and the instrumental, intellectualism is championed through logic and rational thought. Metaphors are stricken between diagram and building, program is key, and is extruded with the intention to give a building its meaning. But the programmatic is too easily transcribed into a programmatic building and architecture is too easily capable of estrangement from any sense of depth, the essence of its origin, and instead our buildings are explicit, intentional, purely visible realities with no regard for our embodied being. Furthermore, in this process the maker and the thinker have been systematically detached, no longer a beautiful symbiotic relationship, but severed and positioned as oppositional. The intellectual pursues ever more rational pursuits, powered by the explicit, instrumental and objective power of the world, and the makers, too often reduced to nothing more than a mediocre labour, are left devoid of any responsibility of thought and societal contribution. To conclude, rather reductively for the moment, as our corporeity is ever reduced, so are we ever estranged from our sense of dwelling in the world, and therefore our being in the world, but this shall be explored more thoroughly later. Before we can get there, we must look at the redemptive possibility of the image seemingly bound to its current course.

The Reversibility of the Image, Depth

One of Gómez' and Pelletier's own concluding remarks from this history, is that, "today the obsession with productivity and rationalisation that originated in the nineteenth-century has not abated. In conventional architectural practice, the process of maturation from the idea to the built work has been transformed into a systematic representation that leaves no place for the invisible in the process of translation". However, the authors go on to outline their own possible solution to the problem. For a poetic practice in the modern world they offer a process similar to early modern art, which concerned itself with the enigmatic distance between the reality of the world and its projection, a 'depth' which:

> …responded to the failure of a modern scientific mentality to acknowledge the unnameable dimension of representation, a poetic wholeness that can be recognised and yet is impossible to reduce to the discursive *logos* of science, while it no longer refers to an intersubjective cosmological picture. Artists since Piranesi and Ingres have explored that distance… between reality and the appearance of the world.[1]

They go on to highlight certain twentieth-century architects, including Le Corbusier, Alvar Aalto, Antoni Gaudí, Jon Hejduk and Daniel Liebskind, who took this 'distance', or 'depth', as their source of inspiration and used projections not as technical devices to manipulate, but instead as tools to discover something at once original and recognisable. This 'poetic wholeness' seems pertinent to the discussion of an 'ethical' approach to architecture and should be seriously considered.

Gómez and Pelletier find the philosophical framework for this depth in the thoughts/writings of Maurice Merleau-Ponty, namely his essay *Eye and Mind,* who sought to disturb the oppositional nature between the visible and the invisible. They argue that in today's world, the one we live in and accept, we can identify with both embodied and virtual realities (computer generated), and, by virtue of analogy, they propose therefore there is the capacity to "establish a critical distance through a phenomenology of ambiguity".[2] Essentially, for the authors, this highlights our capability of seeing differently and thus our capability to

One of Daniel Libeskind's *Chamber Works* drawings.

Image source:

https://libeskind.com/work/chamber-works/

act differently. They appropriate the term 'twilight', from Nietzsche, as being 'clear' because "it is neither pure light nor pure darkness". This 'in-between' is the fundamental property of depth belonging to things. Nietzsche's own example of this 'in-between' property was the revealing and concealing nature in the ancient Greek statues of deities, which he believed was the "divine image" in human artefacts. Contained in the peripteral temple, the *cella*, which is partly concealed by its canopy, the statue is concealed, to avoid direct visibility, but at the same time still revealed. This duality between revealing and concealing in the temple mirrors the image of the artefact itself whereby "in the incompleteness… of these figures there lies a dreadful holiness which is supposed to fend off any association of them with anything human. It is not an embryonic stage of art at which such things are fashioned… one thing was specifically avoided: direct statement".[3] Within this ambiguity lies the discourse of depth, in what Gómez and Pelletier term the 'reversibility' of the image. Reversibility, that is, which renounces the purely objective sense of visibility, an objectivism that stemmed from the historical events outlined above.

A reversibility of the image stands to correct those overly rational and productive values in representation, yet, though this depth should avoid direct statement, the image by its perceivable nature will always concern us. Gómez and Pelletier assert that whilst a reversibility must be well understood, "for architecture it is crucial to recall that without the "body of experience", pure visuality is a fallacy".[4] This means that in the certainty of the directly visual, a thing existing, there is participation in the invisible, in the body of experience—the other senses— and so the image concerns us. This distance, between the visible and the invisible, is where the image concerns us but also "where it also observes us", and "allows the work to set its own distance". This 'reciprocity' between the visible and the invisible, in the authors words, is "to accept that the work of art concerns us, that it is not self-referential—which is precisely the source of poetic, irrespective of the artistic medium". Depth then, or distance, is not the opposition between visible and invisible, but rather it is between the visible and the invisible, between the directly visual and the avoidance of direct statement, whilst still regarding us. That is to say that the meaning of a thing is not just in its presence, but nor is meaning "no more than momentary and arbitrary assignments of values to signifying variables" [5], or in other words, it is not exclusively dependent on symbolic

association. Depth, as meaning, lies in-between—a reciprocity between what can we see and what regards us.

Merleau-Ponty was particularly dismissive of Cartesian ideas of vision believing that sight was more than simply a matter of the mind. In *Phenomenology of Perception* he demonstrates how sight is part of the multi sensuous, that allows us to "make sense" of our experience in the world. "The senses translate each other without any need of an interpreter, they are mutually comprehensible without the intervention of any idea".[6] In reference to perspective, he believed that though it was not natural, in a perceiving sense, neither was it was it a mere cultural construction. His "significant distance" in works of art is what Gómez and Pelletier explain as "belonging to our tradition [it] has its roots in the philosophical history of Europe, burned into our collective memory". The authors go on to explain:

> Merleau-Ponty seems to retrieve the wholeness of this tradition when he recognises the primacy, though not the exclusivity, of the visual world in depth experience—along with the claims that depth itself is visible, that the body is "central" in this same experience, and that depth surrounds us and is directly perceivable—and, most important, when he rejects depth as a mere distance or interval, a barren "third dimension" equivalent to height or breadth. Depth is neither the prosaic interval between nearby and distant objects that one observes from above, nor the concealment of layered things that a perspectival drawing represents.[7]

The connection between these two views outlined above by Gómez and Pelletier is what Merleau-Ponty refers to as the "riddle of depth", as he explains "the fact that it is precisely because things disappear behind each other that I see them in place, [and] the fact that it is precisely because each is in their place that they are rival for my gaze". Between what we can see and what concerns us, depth is more than the Cartesian sense of a third dimension after height and width, depth contains all other dimensions. Through the reversibility of the image, we understand that depth is what allows for a perceptual cohesion between the visible and the invisible, where things can be mutually dependant and yet can be experienced mutually independent of one another. According to Merleau-Ponty "this implication of one in the other, this contraction into one perceptual act of a whole possible process, constitutes the originality of depth. It is the

dimension in which things… envelop each other, whereas breadth and height are the dimensions in which they are juxtaposed".[8] Depth is what gives human being perspective.

To accept Merleau-Ponty's notion of depth is to acknowledge that a thing in question should be appropriate, to itself and to the things that surround it. This has historically been referred to as 'context' in architectural discourse, but with a gradual acceptance that globalisation and technology are here to stay, it has been called specificity, commonplace, genius loci and critical regionalism. Despite their differing historical, theoretical or philosophical assumptions these terms, and context, all concern the appropriateness of a building to its place, which is often understood as a sense of place. Dalibor Vesely, who was introduced earlier in this essay for his similar investigation in the history of representation, terms it the 'continuum'. Vesely's subject is complex, but to put it simply, he proposes that in art 'references' take part in the continuum and references are what provide a continuity of 'situatedness', where "to situate also means to communicate". The communicative role of architecture, as we remember from earlier, is one aspect of the dualism in architecture where the instrumental role is the other. A primary source of references, though definitely not absolute, is what Vesely refers to as 'ground', which can be likened to the Greek word ***archē***, understood as 'beginning', 'origin' or 'source of action'. Ground is the point of departure from which it would become possible to uncover the basic structure of spatiality, yet it would not be an absolute source of understanding spatial reference. Vesely asserts that spatiality is found through searching, in the continuum of references at different levels of spatial understanding. Situatedness thus cannot be found in any one reference, but in this "stream of references". Architectures task of raising and building space concerns the fundamental condition of ground and allows for the phenomena of situation to take place. As Vesely states, "the unity of space… depends on the continuity of references which in our case is the continuity of embodiment understood not as the materiality of a particular art but as situatedness and participation in movement—culminating in the constancy of an ultimate reference to earth".[9] Movement for Vesely takes the form of an interaction in the world based on a 'prereflective' background. In other words, a pre-understanding based on the implicit knowledge concerned in movement. Referring back to the quote, this means that a reference of earth, as ground, is implicit.

Yet, in the appearance of space there lies the explicit embodiment of the art in its visual presence. This is what Vesely accounts for as the physiognomic recognition of space that is crucial to orientation, and thus also an epistemological, provisional nature of ground. The reality is in-between the implicit and the explicit; what Vesely refers to as "different levels of articulation". Between these levels of articulation, between a preunderstanding "background" (ground or ***archē***) and a given object is precisely what allows us to see the object and situate it within our world of experience. Vesely here, in his own words and vocabulary, has used Merleau-Ponty's depth, founded in his phenomenological perception, to describe a principle of place making. This continuum, the concern of arts responsibility, is a necessary condition for representation in the authors view. What is offered is a convincing connection between Merleau-Ponty's depth, a context and an articulated spatiality. However, whilst this connection is agreeable, it is important to highlight that for Dalibor Vesely, representation is 'symbolism', or at least the two are interchangeable. He is adamant about it in fact. "Traditionally the question of representation is described as 'symbolisation'. I have no difficulty with the term, but feel that because primary representation is already symbolic by definition, the description adds nothing".[10]

The explicit nature of the visible, tangible world is the most explicit form of embodiment we have, but it doesn't account for the rest of the world which is bound to the invisible—the implicit movement, the multi sensuous and our embodied experience. According to Vesely this is the reason the visible holds so much importance as a "symbolic representation" of our world, which, he believes, enables us to see and imagine beyond the visible. This would mean that we construe our 'knowledge' of the world largely on the basis of the invisible, implicit stream of references which are brought into the visible, explicit realm, symbolically. Vesely makes the connection to language by proposing that, like visual representation, verbal articulation has the power to emancipate us from the given world, and the freedom to convey any meaning. Therein lies the power of representation for the author—allowing it to go beyond the symbolic, establishing a tension between the instrumental nature and the communicative nature, or its "larger symbolic field". A communicative role of architecture can only be achieved through symbolisation for Vesely, which means the situatedness, which is constituted of the stream of references is an articulation of the symbolic, where the references are part of a symbolic continuum.

Having made his connections between representation, the symbolic, and the communicative role of architecture in the continuum, we find his advocacy of 'creativity' and 'imagination' which allows that 'freedom' to convey any meaning. Creativity, as we know by its definition, is related to, or invokes, the use of the imagination or 'original' ideas to create something. Vesely acknowledges this when he says, "undoubtedly architecture itself is shaped by abstract concepts, geometry and ideas, but never without mediation. It is difficult and somewhat problematic to realise a conceptual vision, diagram or abstract thought directly in a building. In design we automatically use a series of mediating steps, such as drawings and models".[11] These creative ideas, mediated through symbolic representations, are explicit in the fact that they are representative of an intended meaning. Therefore, Vesely's creativity and imagination is thus—the representational intent.

Vesely tries to align this creativity with his proposition for the reinstatement of a "poetics in architecture". He accepts that in its original sense *poiesis* meant 'making'. A "way of making in which the result preserves continuity with the conditions of its origin".[12] He tries to establish poetics as a way of making through symbolic representation. In his view "what characterises a way of making as poetic is the situatedness or the results in communicative space of culture" going on to say "because architecture is in essence a visual discipline, casual thinking can never fully grasp its true reality. We can better achieve such a grasp by accepting the role of similarities, analogies and metaphors in understanding the visual world".[13] What Vesely suggests here may be agreeable, but only if we are willing to accept his notion of poetics. Whilst the authors connections between the communicative role of architecture and depth are convincing, the argumentation for the symbolic as a form of creative making, and therefore somehow poetic, I find less convincing, and, even, contradictory.

Gómez and Pelletier dedicate sufficient time to the subject of phenomenological perception to present Merleau-Ponty's later thinking, which adopted a more 'poetic' language to discuss the questions of vision and reversibility. Reexamining the importance of vision, the philosopher no longer saw it in relation to a potentially subjective perception of the world, but rather a relation to a notion of reality as "flesh in the world". The flesh of the world is the 'hinge' of the visible and the

invisible, which cannot be observed from afar, nor could it be captured explicitly in a picture, it is the embodied experience of the world. As the authors explain, according to Merleau-Ponty "the worlds being appears as if it is inexhaustible, it's 'flesh' unsurveyable".[14] The experience of depth is dependent on this flesh of the world. Representation therefore, understood in a traditional, symbolic, sense in the arts, is not capable of "reducing" the flesh of the world. In other words, a traditional symbolic understanding of representation's reductive nature cannot capture the flesh of the world. In the philosopher's words "neither purely transparent nor completely opaque, the flesh is an interplay of dimensionalities, of light and shadows".[15] To Gómez and Pelletier this is where the role of art lies, to manifest the "very mystery of dimensionalities, of light and shadow".[16] Arts purpose is to make things that contribute to the flesh of the world.

Flesh, as articulated by Merleau-Ponty, is the reality of the world and complimented his earlier thoughts on depth and reversibility. Art mirrors this 'interplay' in the experience of being in the world through depth. For the philosopher this is a "question of finding in the present (and not in the past), an 'ever new' and 'always the same—a sort of time of sleep". It is important to grasp that for Merleau-Ponty our being in the world involves our corporeity of consciousness. "In so far as I have hands, feet; a body, I sustain around me intentions which are not dependent on my decisions and which affect my surroundings in a way that I do not choose". This being the case allowed him to postulate on the nature of things and their relationship to being. "That is that things have us, and that it is not we who have things. That the being which has been cannot stop having been. The 'Memory of the World'".[17]

Appreciating a fuller understanding of Merleau-Ponty's thoughts of a phenomenological perception seems to indicate that Dalibor Vesely's adoption of this thinking is only partial. As we saw earlier he uses this thinking to develop his notion of the continuum, and architectures role in it, but by selectively bypassing the fundamental role of things in this thinking he slights his own arguments. Where his notion of the poetic is a making through symbolism, or as I termed it earlier, the representation of intent, Gómez and Pelletier, accepting the fulness of Merleau-Ponty's thought have accurately referred to depth as a "poetic wholeness", keenly accepting the role of things in the orientation of our being. The question

of the poetic wholeness in being might most aptly be investigated through the phenomenology of dwelling according to the likes of Martin Heidegger, but for now, to put it simply, consider the words of Peter Zumthor when thinking on the poetry of William Carlos Williams he realised that to the poet "there are no ideas except in things themselves, and that the purpose of his art was to direct his sensory perception to the world of things in order to make them his own".[18] This is certainly the depth as we have been investigating it. A poetic understanding of depth suggests a very different role for art, one of an act as opposed to intent. Finally, then we come to the nature of a poetic practice in the making of art. While a creative ambition in the making of art belongs to what I referred to as the representation of intent, to Vesely's symbolism, rather a poetic sensibility, accepting the fullness of Merleau-Ponty's thinking, towards the making of art, might be better understood, in my own words, as a representational act.

Depth recovered by Merleau-Ponty's phenomenological perception, and other philosophers of his time, disrupts the often accepted interconnective dependency between vision and thinking. As we saw earlier, it was depth that allowed Greek philosophers to find a balance between explicit and implicit perception. It allowed them to speculate whilst still taking part in being. However, in the earlier historic outline, we saw that knowledge, assumed as being explicit by the nature of sight, has been synonymous with our capability of thinking since the time of Plato. In the meantime, the other senses have been systematically reduced to "remnants with a merely private function".[19] Whilst this depth allowed a philosophical shift in archaic Greece, it was also a condition for the transgression from a harmony in all the senses which gave us a sense of being, to the dominance of one (or two if we also consider hearing which is often considered as equal to vision in human culture—Music). As Juhani Pallasmaa points out, "the invention of perspectival representation made the eye the centre point of the perceptual world as well as of the concept of the self. Perspectival representation itself turned into a symbolic form, one which not only describes but also conditions perception".[20]But as we saw earlier, it was an understanding of depth that gave human beings perspective. Readdressing depth then, as Gómez and Pelletier did very convincingly, by pursuing their poetic wholeness, seems appropriate in the salvation of an overly objective and explicit view of architecture and its representation. A view which suppresses the 'body' of experience,

inclusive of all senses, and allows for a thinking that only accepts the implicit form of knowledge. To seek depth is an ethical concern. One which addresses man's true capacity for perception. Our embodied reality is between the visible and the invisible, the explicit and implicit, and therefore to contribute to this through artworks with depth contributes to a sense of being in the world.

Since Plato, and the consequent birth of theory given to us by the power of light, vision has been prioritised over the other senses and our architectural tradition has been based within it. The essence of our primary representations in architectural design is based on this history. The image, given to us by our ability to see was ultimately, and rather naturally, the cause of developments in painting, drawing and perspective, and the root of our projections today. It is logical that these two-dimensional representations could be seen to best capture the image, especially with the corresponding philosophical structures of each era. It is no surprise that Gomez and Pelletier, and Vesely, continue to place the questions surrounding our representation in the domain of the visual. And whilst they wish to see the embodied experience of architecture restored, it is therefore no surprise that they find precedent for the depth in the image of artworks in representations which belong to the two dimensional—namely drawing and painting.

Architecture, a Thing

The history of architectural representation, as outlined earlier, makes apparent that architecture has always been understood as the ever-faithful mirror image, or the representation, of culture and the aligning philosophical moments at a given time. Our history of representation shows that things, when derived from and demonstrating these intellectual moments, are deemed subordinate to other modes of activity such as thinking, philosophising and other larger, more general, theories of history. This might certainly have been true since the time of Plato, but what if architecture, as a thing did indeed come first? What if, as Pallasmaa seems to suggests above, representation was once something other than symbolic? What if architecture inspired, rather than reflected those developments and conceptual structures? Essentially, what if through the very experience of architecture, philosophers were provoked to imagine their world in a new way? Exploring this idea might better shed a light on the notion of architecture that Dalibor Vesely presented as the "corporeal foundation of culture".

A reversibility of the image finds its model with the provision of depth, but as Gómez and Pelletier rightly remind us "for architecture it is crucial to recall that without "the body of experience", pure visuality is a fallacy. This gives rise to complex ethical questions that hinge on our correct understanding of the question of origins of human reality". Furthermore, we have understood that depth lies beyond the arbitrary aestheticised intentions of our contemporary objectified situation. In this sense Pallasmaa echoes the authors above when he says "every art form needs to be reconnected with its ontological essence, particularly at periods when the art form tends to turns into an empty aestheticised mannerism".[1] Indra Kagis McEwen, in her thought provoking *Socrates' Ancestor: An Essay on Architectural Beginnings,* sets out to do just that, to understand the question of origins and outline architectures ontological essence. The central thread to her essay is that artefacts had to first exist, as a source of knowledge, before the possibility of theory could be established. McEwen's recurring point is that ***techne*** (craft) as the act of "making things visible", allows for the discovery of ***kosmos*** (order) through the very process of making *it* visible. The ***dēmiourgoi*** (craftsman) had brought human

being out of the bestial, and into the civilised state. From a convincing etymological investigation McEwen identifies the word ***dēmiourgoi*** as stemming from ***dēmios*** (public), belonging to the ***demos*** (people and land/territory), and ***ergon*** (task/work), which is the same as the modern 'work' as both the thing and the process. These arguments are formed, rather convincingly by etymological analysis to propose a 'mytho-poetic' origin of architecture, and consequently of Western thought, in the peripteral temple. The building which replaced the earlier sacred groves, and where the early Greeks engaged in religious acts and housed their divinities. McEwen asserts that in this respect, architecture is, and always has been, "built metaphysics", but furthermore "not only metaphysics, but all of Western thinking was first grounded in architecture".[2] Through making, ***kosmos*** was discovered in the process of making it visible, and therefore man was allowed to philosophise. In this pre-theoretical world, two kinds of ***episteme*** (knowledge), the skilful kind (crafting of artefacts) and the seeing kind were one in the same.

McEwan's argumentation starts with **daidala**—stemming from the legendary Daedalus, whom Socrates, son of Sophroniskos, a **lithourgos (**a stone mason or stone carver), claims was his ancestor—which, she explains, in its most primitive application is the "cutting up" or the "cutting out" of either wood or metal. These primitive applications were complimentary to the more sophisticated application of the term, ones which had more to do with works of carpentry and ship-building. The ancient Greeks, seemingly indifferent to the speed or ease of construction, were more concerned with the painstakingly crafted mortise and tendon joints in their carpentry and ship-building, with the word for this precision, an extremely old word the author explains, being **arērōs**, meaning the "well adjusted" and the "perfectly fitted together". **Arērōs** is the etymological and experiential root of "the whole notion of **harmonia**", but as McEwan explains, in Homer's *Iliad* time **harmonia** was "a ship-building term with a special reference to joints… [and] only later, in the classical period, does it become the notion that would be forged, link by link, into the *Great Chain of Being*, one of the most persistent images of cosmic harmony in the whole history of Western culture". [3]

Daidala in the *Odyssey*, typically regarded as a later translation to the *Iliad,* are increasingly used with the notion of **arērōs,** to mean "cunningly crafted" and "curiously wrought"**,** in the art of textiles. For textiles to be **daidala**, McEwen explains, they must be tightly woven possessing "**arērōs**, like a ships joints", continuing to explain that textile **daidala** are often

described as **poikilon**. **Poikilon**, whilst often translated as embroidered, Frontisi-Ducroux argues "that the iridescent coloured patterns which made a cloth **poikilon** and **daidalon** were not embroidered, or applied over a pre-existing surface, but were actually woven into the surface of the fabric itself".[4] Having established this translation McEwen goes on to say "if [this is] so, the pattern would have appeared with the surface of the cloth",[5] an activity which would have required "great skill and a highly complex pattern of movement of shuttle over loom".[6] McEwen translates the word **hyphainein** as the word for plying the loom or weaving, literally meaning to "bring to light" or "make visible", and the word for plying a surface and its appearing as **epiphaneia**, which is, rather obviously, the etymological origin of the modern word epiphany.

Anaximander was the first philosopher to develop a cosmological 'model', as McEwen calls it. Anaximander made an "image of the **kosmos**, whose constituent parts were a celestial sphere, a map of the world, and a sun clock (**gnōmōn**, "hour-indicators", equinoxes and solstices). The overall image, pieced together from the sources, was of a spherical heaven made up of circular bands for planets, fixed stars, the moon, and, at the outer limit, for the sun. The earth in the shape of a column drum hung suspended at the centre. This flat cylindrical earth, with a diameter three times its depth, stayed at the centre by virtue of symmetry and balance, its equidistance from the outer edge preventing its fall in any given direction".[7] The investigation McEwan provides into this cosmological 'model' is deep and thorough but there is little need for the details here, except to say that, for the author, this model, as an image, was the first time **kosmos** was presented as a spectacle, as a **theōria**. In reference to Anaximander's model in the description above, "like Odysseus' boat, must, as I have imagined it, have been **arērōs**, in the oldest sense of the term".[8] It was precisely because it had **arērōs**, she advocates, that "Anaximander's construction was able to reveal all that other unseen harmony".[9]

There is only one surviving fragment of Anaximander's book (DK 12B1), or simply, as McEwen refers to it, Anaximander B1, which has undergone millennia of interpretation. The author asserts her own, erudite, translation, after a discussion on the differing translations previous to her own, which transpires as follows:

> The **archē** (beginning) of all the elements is not one of the elements themselves, but some other boundless nature (**hetra tis physis apeiros**), from which all the heavens arise, and the **kosmoi** (orders) within these heavens. And out of these **kosmoi** is the generation for, not of, existing things, and into these things destruction takes place according to what needs must be, for they (existing things, **onta**) make amends and give reparation to one another for their wrongdoing according to the order of time.[10]

This passage stimulates connections to Vesely's continuum, fed by a stream of references, but for now what is important is the acknowledgment of "some other boundless nature" (**hetra tis physis apeiros**), that is key to the authors point made regarding **arērōs** of the model earlier. **Apeiros**, the boundless, which is the source of the heavens and the **kosmoi** (orders) in them—McEwen explains using Aristotle's definition—is thought of, in navigational terms, as steering, guiding or acting as helmsmen for all things (***kubernein*).** Simply put; some other boundless nature, the source of heavens and orders in them, steers all things. This ***apeiros*** (boundless) then must also be the helmsman of the ***arērōs*** belonging to ***daidala***. Remember, ***arērōs*,** is the etymological root of ***harmonia***, and so too then the root of "unseen harmony" in Anaximander's cosmological model according to McEwen. But let us not forget that whilst the notion of ***arērōs*** (well made) belongs to ***daidala***, so do the specific notions of ***hyphainein*** (make visible) and ***epiphaneia*** (a surface and its appearing) in textiles. **Harmonia** then**,** a consequence of **arērōs** belonging to **daidala** houses the image of the 'well-made', but also the 'made visible' and these notions are accordingly thus to Anaximander's cosmological model. Because Anaximander's model possessed the qualities of **daidala**, it was able to demonstrate the cosmos. It is this which gives McEwen her assertion that "craft was the revelation of kosmos"—through the making of the visible and the well-made, the ***kosmos***, the source of ***apeiros*** (boundless), was revealed.

Establishing these etymological analyses, McEwan is later able to construct her later proposition that **techne** (craft), specifically ***daidala*,** the craft of carpentry, ship-building and textiles, and the artefacts made-well and visible through such crafts, are the founding images upon which the Greek temple was conceived. The image of the vertical loom of ancient Greece, the embodiment of time consuming work which allows a surface to appear (allows ***epiphaneia*** to occur) stood testament to the "longevity" and "self-sufficiency" of the Greek dwelling. Similarly, the hearth, an essential constituent of the Greek household, was a way of "setting up" the dwelling place, one which took a confidence in its

longevity. The loom would have been one of the first things a baby saw in the cradle, and an integral part of the household, whose occupants were citizens of the **polis**, the city. The weaving of textiles is one of the few activities "compatible with simultaneous child watching", an image, I would suggest, lives on at least until the twentieth century (as depicted in the paintings of the Dutch painter Jozef Israëls or later in the American paintings of Mary Cassatt). McEwen quotes the Hymn to Hephaestus to illustrate her connection between craft and dwelling. "sing clear-voiced Muse, of Hephaestus famed for skill. With bright-eyed Athene he taught men glorious crafts (***erga***) throughout the world—men who before used to dwell in caves in the mountains like wild beasts. But now that they have learned crafts through Hephaestus famous for his art, easily they live a peaceful life in their own houses the whole year round".[11] For the archaic Greeks the **dēmiourgoi** brought people out of the cave, and craft therefore had a special, public role in the city. As McEwen states "people wove their cities to make them visible. Their goddess of weaving was the goddess of the city". The author asserts that the loom and the hearth (**hestia** and ***hista*** respectively) share the same etymological origin in the notion of setting up, or making fixed (***histēmi***) of their dwellings.

The loom of ancient Greece—its verticality distinct from the horizontal loom of other ancient civilisation's looms, such as the ancient Egyptians—is the most basic form of a trabeated structure, which for the ancients was familiar since birth. And so, just as when the ***oikistēs*** (colonizer/city founder) was to establish a new public hearth lit with the fire, carried from the metropolis from whence they came, as the place of worship from which the city unfolded, so then it is possible, the author argues, to conceive that the ***oikistēs*** was setting up the ***pteron*** (wings) of the peripteral temple—the looms form which the city unfolded. The association between craft and community, between the loom and the ***pteron***, weaving and city, and their notions, were not distinct to early Greeks. In this way, in the act of setting up their temple, the Greeks were making visible the looms, the artefacts from which the city was woven.

As was explained earlier, textiles share the same ***daidala*** as ship building. It is therefore why McEwen tells us that similarly to the notion of looms being the **pteron** of the temple, there is nothing at odds with the oars of the Greek ship being considered as the wings of the temple—the columns. The author explains that many theoreticians have established connections between columns and people and goes on to say "oars are

Mending the Ntes, by Jozef Israëls

Image source:

https://mydailyartdisplay.wordpress.com/2015/01/14/jozef-israels-part-1-the-plight-of-the-fisherman/

Young Mother Seweing, 1900. By Mary Cassatt

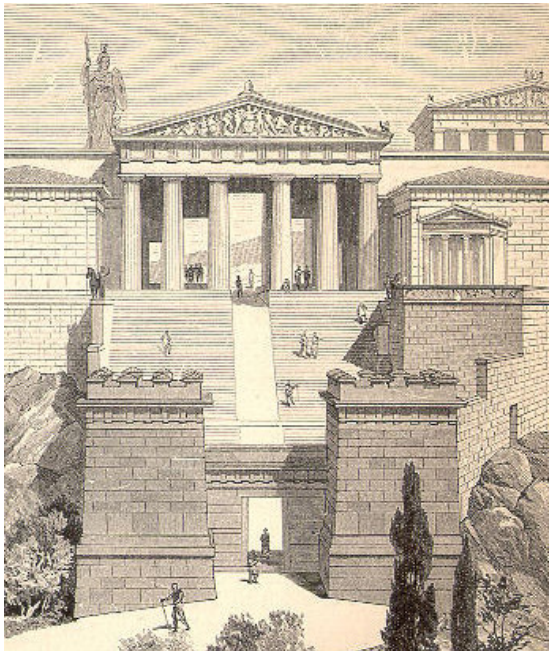
Image source:

https://www.art.com/products/p602652722-sa-i4021341/mary-cassatt-young-mother-sewing-1900.htm

A photo of an ancient Greek Vase which depicts the vertical loom.

Image Source:

http://www.histoiredelantiquite.net/photos-grece-2/nggallery/grece/vases-grecs/page/4/slideshow



A peripteral temple. The Temple of Athena Nike.

Image Source:

https://en.wikipedia.org/wiki/Temple_of_Athena_Nike#/ media/File:Propylaea_and_Temple_of_Athena_Nike_at_the_Acropolis_(Pierer).jpg

set in motion by oarsmen equally spaced, like their oars, around the ships periphery, and it is only when the oarsmen ply these oars together, keeping time to a rhythm that is of no single man's making, that the boat can properly take flight".[12] In other words, regarding the temple, without community, provided by the ***dēmiourgoi***, and without the craft of ***daidala*** (fine carpentry) containing the notion of ***arērōs*** (well made), there would be no temple. Working in reverse with this interpretation of the temple, we can see the connection in **daidala**, between ship building and textiles.

Etymological analysis allows Indra Kagis McEwen to assume the metaphysically grounded thinking of pre-classical Greece. Craft and community were inextricably linked in this archaic cosmological order. In this early Greek civilisation ***Sophia*** (wisdom) was in ***daidala***, complimented by ***techne*** (craft) in making it visible, letting ***kosmos*** appear (***epiphaneia***) and this was, "a divine revelation". This is the ontological essence of architecture—founded in the early Greek thinking which brought about the image of the temple—a metaphysical origin which continued well into the middle ages and beyond as the earlier historic outline makes apparent. Such an origin story would be the origin of our continuum, or at the very least a very early stage of it. It is no wonder that Johann Winckelmann—an eighteenth century German art historian, often titled as the 'father of art history'—fell helplessly in love with ancient Greek architecture and artefacts, insisting that we much make in "the Greek spirit"[13]. We should remember that Winckelmann's time was still not too far removed from a cosmological order, still in a pre-scientific era, and the now rational, objectifying and instrumentalised reality we live in today had not quite taken shape. Winckelmann may not have speculated on the notion of depth in art works, but, I would argue, the metaphysics of Christian theology, based on Greek cosmology, was still fresh in the memory of the continuum and it is therefore no surprise that the historian wrote "the one way for us to become great, perhaps inimitable, is by imitating the ancients"[14]—imitating referring to his notion of making which is in the "Greek Spirt".

But I would like to expand upon the meaning of that 'Greek spirt'. The connection between craft and community, and all of the associated notions, are certainly a part of it, but it has consequences beyond simply the presence of the temple. In order to house the image of their deities,

whose nature it was to be concealed and at the same time revealed, the Greeks manifested their notion of dwelling, and consequently, whilst making the image visible, and in the appearing of their temple, they revealed the ***kosmos*** and ultimately the temple became an image in itself. This interpretation of the temple is reminiscent of Martin Heidegger's thinking on the Greek temple in his book *The Origin of the Work of Art* which when considered alongside McEwen's thinking is convincing. The philosopher states:

> A building, a Greek temple . . . stands there in the middle of the rock-cleft valley. The building encloses the figure of the god, and in this concealment lets it stand out into the holy precinct through the open portico. By means of the temple, the god is present in the temple. This presence of the god is in itself the extension and delimitation of the precinct as a holy precinct. The temple and its precinct, however, do not fade away into the indefinite. It is the temple-work that first fits together and at the same time gathers around itself the unity of those paths and relations in which birth and death, disaster and blessing, victory and disgrace, endurance and decline acquire the shape of destiny for human being. The all-governing expanse of this open relational context is the world of this historical people. Only from and in this expanse does the nation first return to itself for the fulfilment of its vocation.[15]

In the above text what Heidegger is saying is that the Greek temple is a dwelling for the image of a god and by concealing that image it is allowed to exist there. The presence of this god makes this place a holy area, however that is not the full meaning of the temple. It is the act of constructing the temple—making it visible—that gives the Greeks notion of being its meaning—through setting up a dwelling for their gods. The relationship between the image and its making is that which gives these people their world, ***kosmos***. In this way, this "nation" (civilisation) returns itself to its origin; an origin that we know lies in the well-made artefact. The philosopher goes on to say:

> Standing there, the building rests on the rocky ground. This resting of the work draws up out of the rock the mystery of that rock's clumsy yet spontaneous support. Standing there, the building holds its ground against the storm raging above it and so first makes the storm itself manifest in its violence. The lustre and gleam of the stone, though itself apparently glowing only by the grace of the sun, yet first brings to light the light of the day, the breadth of the sky, the darkness of the night. The temple's firm

> towering makes visible the invisible space of air. The steadfastness of the work contrasts with the surge of the surf, and its own repose brings out the raging of the sea. Tree and grass, eagle and bull, snake and cricket first enter into their distinctive shapes and thus come to appear as what they are.[16]

Heidegger at this point has moved on to a poetic description of the temple and its steadfast presence atop the acropolis. The treacherous rock on which it sits has been mastered. The temple defiantly braces a storm and because of this makes a storm appear all the more raging. The stone radiates the light of the sun and stands out both at day and night. It is alone and stands out in the open space of the sky. It's restful, firm grounding contrasts the waves of the sea and resists its power. The temple, perceivable, is part of its place.

The philosopher concludes this passage by writing, "The temple, in its standing there, first gives to things their look and to men their outlook on themselves".[17] There is surely no better description of the depth in an artwork than the words Heidegger presents here. In the epiphany of letting the temple appear, by making it visible, the ancients made present an artwork which certainly had presence, but also concerned them, giving them their metaphysical understanding of the world, of being in the world, and the orders in it. The temples meaning is thus; in-between its presence and what concerns us. The temple could be perceived explicitly in its visual presence, but equally its meaning relied on the invisible implicit knowledge of its construction and sense of dwelling. The poetic wholeness of making in such a way, as the Greeks did their temple, as an act, is certainly not representative of any clear symbolic intent; a symbolisation of references had nothing to do with it. They were not representing their houses, but rather setting up their notion of dwelling, of the hearth and loom. They were poetically making, as a representational act. They took form the things around them and made them their own. Furthermore, the corporeity of there being, in their notions of what it is to dwell, manifests itself in the architecture, and the architecture gave them back their corporeity. They were setting up the place for their deities to dwell, acting poetically with the things that surround them, and in return a place was made with a sense of dwelling, in the fullness of the embodied material act of constructing. And lastly, just as ***techne*** (craft) brought man out of the cave and into the dwelling, so did it bring the cult deity out of the grove and into the temple, housing it between the revealed and the concealed; it avoided direct statement.

Though Heidegger does not provide an origin story from which to base his meaning of the Greek temple, and nor does he use the term depth, in his description of the temple, and its meaning, and understanding the philosopher's notion of dwelling, it is clearly depth, as we understand it from Ponty, which he describes. Though the method is different, the meaning is symbiotic with McEwen's notion of dwelling, and craftsmanship, in the temple. It seems perfectly apt then to interpret them with regard to one another as above. In understanding Heidegger's notion of things, and McEwen's notions the making of the temple, a clear depth is apparent. A depth, in this case, which did not stem from later Greek developments in tragedy as Gómez and Pelletier might have us believe, but that originates in the very act of making the temple. It seems quite telling that by positioning their arguments in the realm of the visual Gómez and Pelletier found answers in the intellectual logic of the visual to find the origin of their depth—I guess it's a matter of perspective.

Despite this contrary origin of depth, I believe that we can now rightly come back to Gómez and Pelletier's "complex ethical questions… of origins of human reality". The essence of the ethics in architecture do not, I believe, lie in political or intellectual realities, but in its ability to provide a sense of dwelling, which is the essence of our being and in turn our ontological essence—our origin. In making their temple, people directed their sensory perception to the things around them and made them their own. Things were their 'stream of references', constituted not just of the loom, and the ship, and the hearth, but also the nature of things which makes them things. The notions of the made well (***arērōs***), the made visible (***hyphainein***) and its appearing (***epiphaneia***) is the nature of artefacts and constitutes part of the stream of references equally as much as the things themselves. In this sense the temple was nothing short of 'situated'; in the Greeks world of experience, of their notion of dwelling and so their being, and a sense of place was defined. The temple was made well, made visible and thus appeared as a continuity to the situation and the things which defined it. The temple then, can be best described as being appropriate to the continuity of things which are the source of its origin. Our ethical questions, I believe, rely on the question of this appropriateness. The ethical question is what is appropriate to the continuum of our tradition, to its place and the people for whom it provides space and their being? This is the phenomenon we can understand from such an origin story of architecture. In making things their own, acting poetically, the Greeks made a work of art with extraordinary depth and in turn a thing, which is now part of our continuum, and is part of our tradition. In building their temple, the Greeks contributed to the

flesh of the world. The temple was ***daidala*** because of it making which reveals the 'boundless nature' of things which is our ***archē***.

Crudely summarising Heidegger's thinking; a thing is defined as that which provides for a sense of nearness to a place. This, I believe, coincides with a notion of the temple as a thing. Because a thing is situated, it is near. If we accept architecture as a thing, then in its appearing, which should be made visible and made well, the thing has tangibility and it communicates. This is where I place the communicative role of architecture; to situate its people by means of depth and provide a sense nearness to place. Architecture communicates when it is appropriate, as it did when the temple was appropriate to the cosmological order (***kosmos***) defined by things and their nature. The tactility of the Greeks understanding, through an embodied poetic making, ***poiesis***, craft, was reflected in the appearing ***kosmos*** of the temple and in turn the temple provided for the corporeity of being. If one accepts this, then one can now comprehend, I believe, McEwen's argument that architecture, in its origin, is itself "built metaphysics", but also, a thing that only once built allowed man to think, and which would certainly precede a depth given to us in tragedy. In this sense architecture did not follow philosophy but is a form of philosophising in its own right. As Pallasmaa states in *The Thinking Hand,* "architecture… is a mode of existential and metaphysical philosophising through the means of space, structure, matter, gravity and light. Profound architecture does not merely beautify the settings of dwelling: great buildings articulate the experiences of our very existence".[18] As a thing with depth, architecture disturbs the oppositional nature between the visible and the invisible, between the tactile and visual. And so too, as an origin of philosophy, and a philosophy in its own right, it disturbs the mirroring oppositions between the head and the hand, between thinking and making.

Design, a Poetic Translation

In such a mytho-poetic origin story as provided by McEwen lies our ontological essence, our background or "ground", our ***archē***, which answers ethical questions of appropriateness in the communicative role of architecture—that role which situates architecture in the continuum. In this myth, architecture communicates through its depth as a result of its making. Making is what gave man his dwelling and his corporeity, and thus architecture could attain Vesely's status as the "corporeal foundation of culture". Whilst the origin of architecture, and the consequent birth of ***theōria***, may differ from Gómez and Pelletier's account, our history of representation tells that they were correct when they said "since the inception of Western architecture in classical Greece, the Architect has not 'made' buildings; rather her or she, has made the mediating artefacts that make *significant* buildings possible".[1] This we call design. Like work, design denotes both the thing and the process, and just as architecture which is a thing must be appropriate, so must the tools to design be appropriate.

Importantly however, it must be remembered, from the investigation of Vesely's writing undertaken earlier, that ***archē***, whilst our primary source in the continuum, is not the sole source of a 'stream of references'. In as much as ***archē*** is the primary reference of architecture, so are the developments that proceed it contributing to the stream of references. It is those developments that also bring about the instrumental role of architecture. And so, rather metaphorically, just as the notion of depth finds its meaning when it disturbs the opposition between the visible and the invisible, between explicit and implicit knowledge, so must design find its meaning between the communicative and instrumental roles of architecture. To accept our origin is to accept the entirety of our tradition, and here may be an appropriate notion of design in the twenty first century, but first it seems prudent to briefly study design.

It is quite reasonable to suggest that every architect, or designer for that matter, has their own interpretation and or application of the term design. For many it is a leaned practice, a craftsmanship learned

through practice and education, which later assumes an intuitive level. It is also, to many, the 'creative' from of architectural ideation. To Kostas Terzidis, in his article *The Etymology of Design: Pre-Socratic Perspective,* published in the journal *Design Issues*, "… design is a conceptual activity involving formulating an idea intended to be expressed in visible form or carried into action. Design is about conceptualisation, imagination, and interpretation".[2] This is a rather typical, progressive, view on the process of design. Ideas are formed, tested and executed, primarily through the aid of sketches, which turn to drawings and the occasional model. Though typical, it does not exclude the instrumental, but it's a notion of design heavy on the creative self, the supplier of novel ideas. By contrast, Donald A Schön, in his article *Designing: Rules, types and worlds* published in the journal *Design Studies,* likes to "treat designing not primarily as a form of 'problem solving', or 'information processing', or 'search', but as a kind of *making.* On this view, design knowledge and reasoning are expressed in designers' transactions with materials, artifacts made, conditions under which they are made, and manner of making"[3]. It's an enticing proposition, seemingly agreeable with the proposal of this research, but as I have tried to make clear, our history is bound to our tools of representation, our modus operandi, which cannot be dismissed. Whilst thinking of design in this way may see to tick the 'poetic' check box, it does so in lieu of the dependable instrumental process. Design, its process and by extension its result, must be found between the communicative and the instrumental.

Etymologically, design stems from "Middle French ***desseign***, "purpose, project, design", and from Latin ***designare*** "mark out, devise, choose, designate, appoint," from ***de-*** "out" (see de-) + ***signare*** "to mark," from ***signum*** "identifying mark, sign"".[4] This definition, as it appeared in the sixteenth century, has progressed from its original poetic, Greek, meaning which had more to do with approximation and anticipation, but shadows the architectural treatises of the era. In the previous century Alberti reflects on the ***lineamenti***, the newly established drawings of the plan, section and elevation. "The appropriate place, exact numbers, proper scale and graceful order for whole buildings" he claims, can be determined by lines and angles only. Going further to say "it is quite possible to project whole forms in the mind without any recourse to the material, by 'designating' and 'determining' a fixed orientation and conjunction of the various lines and angles". The dependency of design

on this new and instrumentalised way of drawing in the fifteenth century and architectural ideation is thus seemingly apparent.

Both of the contemporary views on design presented above are clearly in response to Alberti's treatise, whose definition of design has carried on in our tradition since. While they choose to appropriate the term, it cannot be dismissed that design and the instrumental thinking behind architectural drawing share a similar history. Design, by this definition and its etymology, is easily connotative of the rationality in architectural production, and the ultimate root of the concerns of Vesely, and Gómez and Pelletier. The fears of the overly rational, the prosaic transcription of representation, and the resulting building that looks too much like the rationalised, objective drawing from which it was conceived. What we face then, is a question of how to reconcile the corporeity of the communicative with the dominant visuality of the instrumental?

The conundrum mirrors a question posed by Kenneth Frampton in his paper *Towards a Critical Regionalism: Six Points for an Architecture of Resistance.* He opens his essay with a quote from Paul Ricoeur who addresses the unstoppable progression of globalisation as an advancement of mankind whilst simultaneously contributing to "subtle destruction of culture". Essentially, he says, we are becoming monotype in terms of our civilisations and this causes loss of variety and traditional culture. Yet, it is absolutely necessary to become modern in order to take part in, "scientific and political rationality". As Ricoeur exclaims at the end of this passage, "There is the paradox: how to become modern and return to sources; how to revive an old, dormant civilisation and take part in universal civilisation".[5] In direct contrast to the role of the avant-garde in the proceeding century and a half, he proposes the ***arriére-garde*** which "has to remove itself from both the optimization of advanced technology and the ever-present tendency to regress into nostalgic historicism or the glibly decorative". And to help ground ***arriére-gardism*** he adopts Critical Regionalism, the fundamental strategy of which is "to mediate the impact of universal civilisation with elements derived *indirectly* from the peculiarities of a particular place."[6] What Frampton offers is more than an analogy to the positioning of design, he highlights the vey problem. His universal civilisation is our instrumental, and the old, dormant civilisation is our ontological essence, our ***archē***—our communicative. Similarly, Critical Regionalism strikes the balance between the two civilisations, just as design must endeavour to straddle the two roles of architecture.

Designing in architecture requires mediation too. Vesely puts it plainly when he says "in design we automatically use a series of mediating steps, such as drawings and models". But consider again Gómez and Pelletier's statement, when they say that since ancient Greece "the architect has not 'made' buildings; rather he or she has made the mediating artefacts that make significant building possible". What is made, these 'artefacts', are our representations, and in their making they are what we wish to, or what act as, that which is communicated. Making then, as we have understood it so far, is not design in its entirety, but a part of it. To suggest so, especially glibly, rejects the continuum to which architecture must endeavour to belong. A question in search of a precise definition, or a theory, of design is not offered—it would be a thesis in itself for one thing—as it is, ultimately, a question that cannot be definitively answered. However, if one accepts, as I have, the appropriateness of architecture as outlined in the last chapter, then it is important to give an overview of the endeavour of design as a process of mediation. During this mediation, what is most crucial is that we do not lose the communicative to the instrumental in the process, otherwise the potential arises for architecture to become part of that global arbitrariness and not fulfil its essence and provide for the corporeity of being—it would reject our ethical duty. Gómez and Pelletier best describe this when they advocate for "architecture as a poetic translation, not a prosaic transcription of its representations". Design, as a 'poetic translation' of what we make, is the ambition of depth, which is necessary of architecture as a thing which belongs to the continuum. In allowing the clear and explicit to dominate through instrumentality, supplanting the implicit, the 'in between' nature of depth is lost. Furthermore, it would be wise to suggest that depth itself must be sought, becoming the objective of our modus operandi, and its representational value in design today.

Making, ***Poiesis***

It seems safe to claim that the instrumental criteria of architecture are sufficiently addressed in design. Our way of 'technical' drawing is the primary way of designing. The necessary ideas or concepts are created, in response to a brief or function, as guiding principles and objectives, and one sketches or diagrams the results. Through multiple permutations, and scales, the most objective, rational option is achieved fitting to the program dependant on the buildings function or according to the architect's ideas. However, as the several authors addressed in this essay have suggested, our buildings are evermore the products of an overly objective and rational logic. Buildings which are estranged from architecture's ontological essence that belongs to man's corporeity—the bodily experience of things—and is therefore inappropriate to man's true capacity for perception. Depth is the ever-elusive dimension and consequently a facilitation for a sense of dwelling is distinctly lacking. A typical process of design is, of course, the result of intellectual and scientific developments still championed today. What has been attempted thus far, in this essay, is a positioning of the poetic in architecture which provides a distance to these overly intellectual habits, capable of restoring a comprehensible image of architecture that lies in between these more explicit developments, and a more implicit mythical origin—***archē***. Crucially, the aim is to combat the snobbery towards making, as the poetic act, from the typically more favourable intellect and symbolism. However, it is a rather bold suggestion, one which Gaston Bachelard, in his seminal book, *The Poetics of Space*, rightly questions. "To say one has left certain intellectual habits behind is easy enough, but how is it to be achieved"?[1] It's a vital question: one which prompts further questions; How can one act, representationally, and not succumb to the indulgences of the creative, intentional, self of which the result becomes direct statement? And how can one approach design poetically? Furthermore, why should we endeavour to do any of this at all?

Traditional representation, that is the projective drawing, that emerged from the Renaissance as architecture assumed the status of a liberal art, was regarded as the symbolic intent of architectural ideas.[2] These drawings were assumed to reconcile the Medieval theological orders with this newly defined liberal art, considered an activity of the intellect, more

akin to geometry and mathematics. We know, from our history, that this shift is the pivotal moment which lead to the hegemony of intellectual and instrumental pursuits, the reduction of meaning to the "truth of reality", and "the mathematization of human needs and values".[3] That said, consider what Alberto-Perez Gómez said, in an essay which precedes his book by some fifteen years, and reflects the history of architecture outlined earlier. "During the 18th century reason became a powerful but never excluded myth. The natural philosophy of Newton, prototype of all knowledge, was ultimately motivated by the possibility of the revelation of God through a better understanding of His works. Art, poetry, and science therefore, were not contradictory. All disciplines were envisioned against the same epistemological horizon dependent on a belief in a harmonious, rational cosmos, revealed to man through the perception of Nature".[4] This is the theoretical nature of traditional representation, the symbolic intent, that certain architects and theoreticians propose to recover in our contemporary times in lieu of the often considered 'reductive' nature of architectural drawing—that is to say, the modern belief that drawing is simply a reduction of a building. Gómez, in his essay, refers to the idea of reductive drawing, as that which cannot hold the meaning of a building. "The true architect's concern for meaning cannot be properly embodied in a drawing whose explicit or implicit role is the reduction or "picture" of a building. Drawing must serve as the expression of a symbolic intention in the form of architectural ideas". In other words, the author believes that the essence of drawing, in architectural design, as symbolic representation, should seek to translate meaning to a building.

For the past two centuries architects, and theoreticians, have strained to reconcile the split between art and science in architecture, but they have done so consistently accepting the shift in practice. Drawing, that is, is widely accepted as the architect's modus operandi. However, attesting to the incapacity for architectural drawing to capture the entire reality of building, Vesely advises the architect not to concentrate on the limits of drawing, but to find the potential for a transcendence of symbolic meaning. "The discrepancy between the a priori representation and the result—the inhabited space—is even more apparent in the concrete experience of a particular space. We do not need specialized knowledge to see how markedly the experience of a space transcends what has been established beforehand. The scale of the space, the texture of materials,

the presence and movement of light, the plenitude and simultaneous presence of everything that is visible in the space—these are some of the elements (phenomena) that cannot be directly represented and yet constitute the very essence of any particular space".[5] Instead, the author suggests that the architect better familiarise his/her self with the "situational conditions of everyday life" which can become part of the continuum through architectural articulation and which can be elicited symbolically. Similarly, Robin Evans, in his essay *Translations from Drawing to Building*, admits, in his own, well versed words, to the seemingly limited aspects of drawing, specifically in architectural ideation. His suspicion being "the peculiar disadvantage under which architects labour, never working directly with the object of their thought, always working at it through some intervening medium, almost always the drawing, while painters and sculptors, who might spend some time on preliminary sketches and maquettes, all end up working on the thing itself which, naturally, absorbs most of their attention and effort".[6] In light of that revelation, Evans sets out to understand, in spite of never working on a thing directly, what the purpose of architectural drawing is. His conclusion: a tool for geometric experimentation and the ideation of architectural, abstract, ideas.

Acknowledging these disadvantages, inadequate for the experience of a building's material, formal and tactile essence, they are better suited, Vesely argues, to their transcendental nature for a symbolic order, or as Evans argues, to the generation of abstract ideas and geometry. Both views, similar for their position towards architectural ideation, position drawing as better suited to the revelation of meaning in building. Implicit or explicit, the architect's drawing is the fundamental vehicle for design—it is the means of narrative through symbolic intention, and at the same time, its mode of construction. Architectural drawing embodies both forms of communication; as the contract between designer and client, they are the instructions for execution, but at the same time they represent the idea for translation into built form. These views of the writers are what they believe reconcile drawing with the metaphysical ground of representation in earlier times, that is, the Greek cosmological order, and the adopted cosmological order of Christianity which proceeded. However, without a clear guiding order of what that symbolic intent should be today, or an architect's capability or willingness to adhere to one, then it is too easily manipulated to serve creative, indulgent self-expression of the avant-

garde of whom we are so cautious. To their credit, Vesely, Evans, and Gómez and Pelletier, have all considered this problem considerably and convincingly, but their subjects require so much intellectual capacity that they are, inevitably, the sermon falling on deaf ears, whose congregation vacantly nod in agreement only to resume their own sinful ways away from the judging eyes of God. A silly analogy perhaps, but the best I can think of for the tendencies of creative ego. The fear is that as a 'product' of self-expression, of creative processes founded in symbolic metaphor, or even an agreeable, guided and ethical symbolic intention, the work becomes statement and assumes that this statement, as meaning found purely in its visible result, is the absolute equation to "good" architecture. Briefly, to assure the connotative relationship between vision and symbolism, consider Vesely's words. "There is no doubt that visible reality is the most important domain of symbolic Representation".[7] That is that something's symbolic meaning, considered as its representational quality, can be 'read' by its explicit visual presence, like 'text'. And so, whilst Gómez defended the drawing against the reduction to the 'picture' of a building, the potential for a building to be reduced to text persists.

This comes back to the question of an artwork's essence which lies in depth, between the visible and the invisible, explicit and implicit understanding. But, for the sake of avoiding repetition, consider the rather simple but congruous words of Bart Verschaffel in his article, for OASE #90, *What is Good Architecture?*, "…architecture does not simply dissolve in the meanings it carries. It never become 'text'… It always remains something that exists in itself, more or less. It therefore *confines* everything that human beings think up and experience. And precisely because of this it makes their reality larger than their 'interior world' or their 'environment'. Therefore: architecture is 'good' when it—each building in its own manner—does what it has to do: permits and carries the occupation with meanings and the strengthening of life, at the same time detaching itself from these—until, by doing so, it becomes an 'event' all by itself".[8] The idea that architecture is its symbolic intent, or reduced to text, is what I find so troubling. Not only does it invite the dominance of vision for its perception, it becomes a spectacle that reduces the reality of the world to explicit intellectual capabilities.

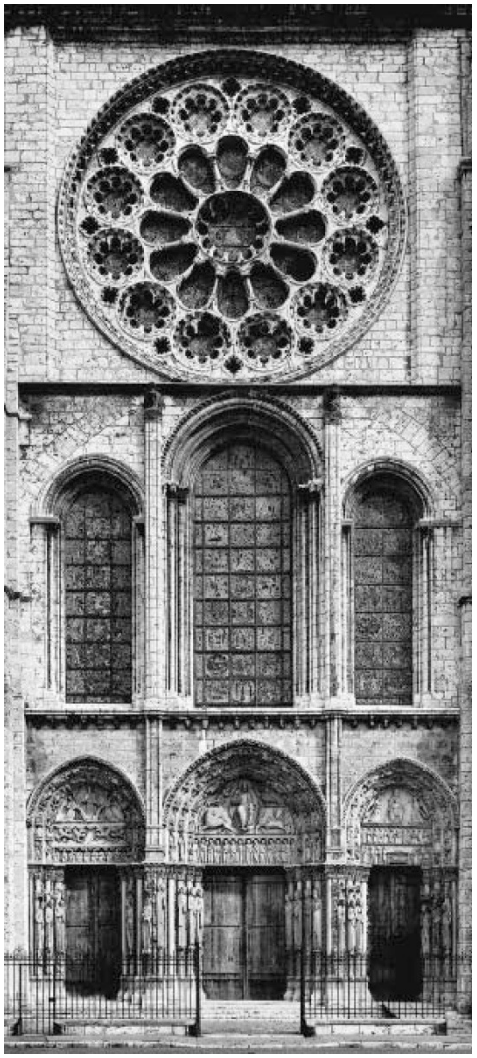
So, what can tip the seemingly current imbalance of architecture and its representation to an appropriate in-between? Well, making—but not

as Vesely or Gómez refer to it, as the making of symbolic drawing, the represented intent. Making, positioned here, is the physical assembly of material parts, and the resulting form and space, as the poetic act—as its etymological Greek origin, ***poiesis***, meaning literally 'to make', but in a more articulated sense to bring something into being that did not exist before. Or better yet, in Heidegger's usage, as the 'bringing forth'—the physical consequences of which opens up the world and shapes our existence within it.[9] Making is ***poiesis,*** and the result of it is a thing made, which in architecture's case is a material, formal and spatial result. Earlier, the appropriateness of architecture, as an ethical concern, was discussed as a thing, one which belongs to its place as understood from the myth of architecture's origin in the Greek temple and the nature of its making. The poetic act is dependent on this appropriateness. Yet there is a duality to making. What I would now like to propose, and what the quote from Verschaffel's quote hinted towards, is that making has the potential to allow a thing to be appropriate to itself. To begin the course of this thinking, Vesely's own example of Chartres Cathedral shall be used.

Making use of the work of philosopher Arnold Geheln, Vesely talks of ones 'lower' and 'higher' functions—those which are the primary experience and those which require the intellectual interpretation of the primary experience, respectively. "In everyday experience we do not perceive things in their entirety; instead, in the course of our development the perceptual field becomes largely symbolic. In this shift, we concentrate increasingly on the more conscious, intellectual functions that represent the primary experience only suggestively".[10] Later going on to say, "Only in symbolic articulation are we informed about the richness of events that take place in the depths of our human situation and experience".[11] In the authors opinion then, only a symbolic articulation, or in other words representation created symbolically, through intellect, can reveal the essence of our being. Affirming this view, he talks of one's ability to draw a plan of a building which does not yet exist, an ability which is "quite clearly a symbolic operation", but one that is dependent on a complex "background", which is seemingly given to us in our perception of experience, culture and life. The background which "decides how rich and how the content is and how it is structured by its possible translation into more articulated levels of experience and meaning".[12] To illustrate the articulation of a background and its resulting embodiment

he talks of the symbolic narrative of the Chartres Cathedral in biblical text. The rose window, which dominates its west façade, summarises the iconographic program and overall meaning. The "primary theme", Vesely explains, is the Last Judgment of Christ in his Second Coming, the final stage of his coming which "began with the incarnation of the word, continued with his descent into death, and will end in the resurrection and the outpouring of the light that completes the transformation of the world".[13] Reflecting the emerging tendency in the scholasticism (in 1194 at the start of construction) to make visible the "mystery of light", Vesely explains, the last Judgement narrative in the rose window was elevated to the upper part of the façade and so it was incorporated with the "solar symbolism" of the cathedral. A number of observations follow by the author, a sequence where one relies on the next, but all reflecting back to the biblical text and the use of light and its symbolic meaning. Crucially, he says, "what is more important is that the body of the cathedral provides a background for the articulation of the more explicit meanings visible in the physiognomy and iconography of the sculpture and colored windows". Followed by:

> The light that penetrates the colored glass reveals the different levels of the articulation most clearly. On the highest level, light is the visible manifestation of its invisible source (lux), which is closely linked with the intelligible meaning of Scripture. In a less elevated sense, light shows itself in the luminosity of the terrestrial elements and as a mystery of incarnation. Finally, on the lowest level, light demonstrates the ambiguity of shadows and the disappearance of light in the impenetrability of matter. The relationships between these levels of articulation and their equivalent modes of embodiment are brought together in the east to west movement of the sun, the visible source of light, which culminates in the sunset. The correspondence between the Last Judgment in the rose window and the sunset illustrates very beautifully the link between the invisible phenomena of death and resurrection, their visible representation in the window, and their embodiment in the hierarchical structure of the cathedral, animated by the movement and light of the sun. The crucial observation at Chartres is how the body of the cathedral, itself abstract and silent, is capable of revealing and supporting a very subtle and highly articulated meaning of salvation—a meaning that can be brought down to earth tangibly and concretely.[14]



A photo of the façade of Chartres Cathedral showing the rose window and the entrance below.

Image Source:

Architecture in the Age of Divided Representation,

by Dalibor Vesely. P. 65

This is the crux of the symbolic argumentation from the likes of Vesely—one which I gather lies in the tendency to find more validity, for its abstract and privileged nature, in the intellects 'articulations'—a background made up of symbolic meaning which can manifest itself (granted, through mediation) to a complete material, tangible and concrete thing, but most frustratingly, one which is seemingly capable of this independent of its making. The example of Chartres cathedral seems to begin and end with its symbolic, narrative, intentions and bears no mention of the fact that it was, like all cathedrals, the material and tangible result of fastidious and finely-tuned craftsmanship.

Stone masons, like all other craftsman of the Medieval guilds, were, though substantially less so than in McEwen's account of early Greece, respected members of a community and its culture, and makers with immense skill. These masons, leading nomadic lives taking them from town to city and other, European, countries, were incredibly well versed in their craft and were the supplier of knowledge and practice without which any symbolism of the cathedral could not exist—in addition to churches and castles. Richard Sennett, in *The Craftsman,* referring to the skill of such people tells us that "their craftwork changed slowly and as the result of collective effort".[15] Giving us just one example of the Salisbury cathedral, but representative of all cathedrals, he explains that Medieval architecture was a collective result of its builders, who, with no drawings to guide them, made the building based on their shared knowledge, and skilful problem solving. "There was no single architect; the masons had no blueprints. Rather, the gestures with which the building began evolved in principles and were collectively managed over three generations. Each event in building practice became absorbed in the fabric of instructing and regulating the next generation".[16] It was typical of the architect, if indeed there even was one, to simply guide, as master mason, the construction of the building based on "well established traditions and geometric rules that could be directly applied on site" [17] and they accepted that the architecture would come to exist as a result this collective effort. Following on from this, Gómez and Pelletier explain that "the various expressions of Gothic cathedrals were the result of different generations and diverse methods applied by itinerant bands of stone masons who migrated around Europe to work on various projects". And go on to directly reference Vesely's example and thus highlight its dependency on its makers. "Multiple styles, as in the Cathedral of

Chartres… were regarded not as an inconsistency but as a layering of different responses to structural or symbolic problems that arose during the course of construction".[18]

Let me pose the question: what survives today, the symbolic intent or the workings of the craftsman? There is no doubt that the cathedral is the result of constructive practices, whose masons, as poets dedicated to their craft and material, 'made well' and 'made visible' an artwork that represents, not only an assumed symbolism, but the act of building a thing, that materially, well-proportioned, detailed, lasting and beautiful we can still appreciate today. Concepts and ideas are fine when used appropriately, as they were in cathedral building under the scrutiny of masons. Then they constituted the orders that guided and spurred on its masons, but it is the architecture itself, in its ontological essence, its appropriateness and depth, which survives. If such religious buildings are symbolic, then they are so of their wider, cultural significance, rather than a specific text. They have become symbolic of philosophical, religious and cultural images of a particular time and place. They are emblematic relics of their history to be adored without a full comprehension of their meaning as text. But crucially, it appears to me at least, they are symbolic of the incredible nature of their making which have allowed the cathedral and church to transcend their narrative and become things appropriate to themselves, whose program is no longer bound to religious acts—the many appropriated churches of the Netherlands today, which have become bookstores and the like, are testament to this fact. They are an 'event' caught between the visible, explicit and symbolic image and the other invisible, implicit and poetic workings of its making.

This emblematic quality stems from the very tradition of craftsmanship in the Medieval era. Sennett tells us that the practice of these craftsmen changed slowly, and with caution, and only after a multigenerational inheritance of knowledge, and yet they did find expression within those limits. The typology was strictly defined as the church, but the type of stone and the location, context and place, were considered each time, which gave cathedrals and churches across Europe their distinction. They are now 'events' in themselves, that have depth, thanks to the longevity of material practices which could make visible any intent, but transcend that intent as an appropriate thing with an appropriate material and formal result of its making. This is the poetic nature of a things making,

Selexyz Dominicanenkerk in Maastricht. The Dominican church was converted into a book store by Merkx + Girod.

Image source:

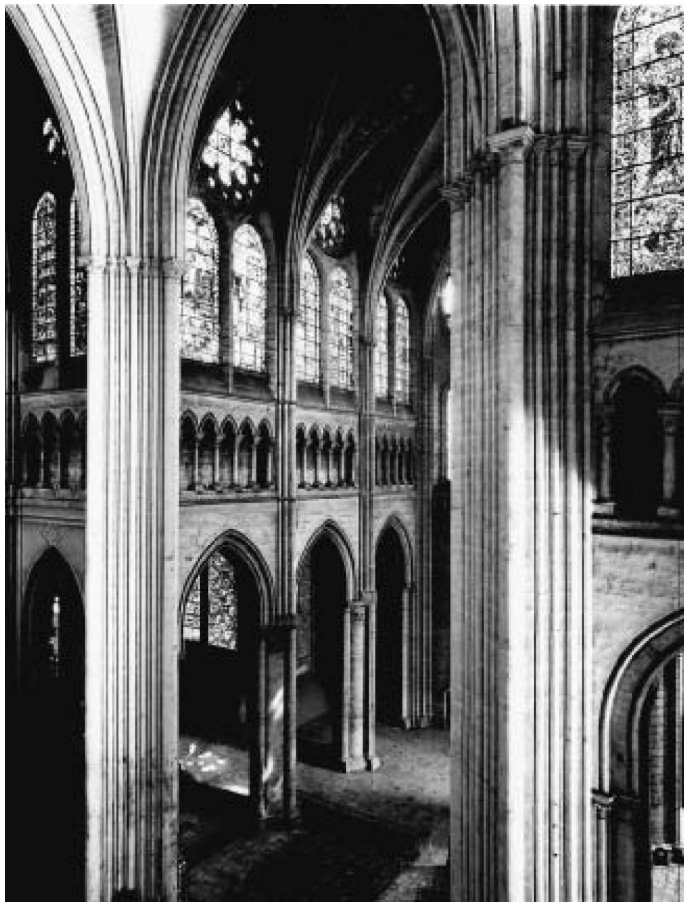
http://www.105nl.com/blog/2012/03/merkx-girod-selexyz-dominicanenkerk-in-maastricht/

its appropriateness to itself, materially, embracing implicit knowledge, but also, crucially, as we saw earlier with the Greek temple, to place, and this (for me least) is the ultimate endeavour of the architect, which has a positive, ethical, consequence. The design may have been guided by the Catholic order of the time, but the lasting image of the church lies with fact it was made, and made well and made visible, of stone, and so it speaks the language of stone.

> That which gives to things their constancy and pith but is also, at the same time, the source of their mode of sensory pressure—color, sound, hardness, massiveness—is the materiality of the thing. In this definition of the thing as matter form is posited at the same time. The permanence of a thing, its constancy, consists in matter remaining together with form. The thing is formed matter. This interpretation of the thing invokes the immediate sight with which the thing concerns us through its appearance. With this synthesis of matter and form we have finally found the concept of the thing which equally well fits the things of nature and the things of use.[19]

The quote above is taken, again, from Heidegger's *The Origin of the Work of Art.* What the philosopher highlights here is that matter, its materiality, is what provides for form. This form giving matter is also what gives a multi-sensory perception of the thing, but the material must be allowed to do so. As with the masons, the stone guides the maker and this material understanding is what allowed the thing its appropriateness. This is the mastery of the mason, not to master the material, but to work with it as a matter which dictates form. Making gives things their appearance, and this visibility concerns us the philosopher tells us, however it achieves a depth because it avoids direct statement. And yet, making also gives as much to a thing's invisibility, and as much as any symbolic intent. That sensory perception is what makes the thing tangible, tactile and therefore it possesses a sense of nearness. These combined sensory-dependent experiences are what Juhani Pallasmaa refers to as a building's "haptic" qualities and are the embodiment of poetic making—they are the properties of working with matter which transcend the making to the thing itself and so it is appropriate to itself.

Stone masons made the cathedral as a thing in itself. Heidegger's quote attests to this reality of making. The cathedral was situated in the order of the time. Its builders made a thing that was materially and formally, and



An interior view of Chartres. This image depicts quite well the language of stone. An elegance and articulation that could only be achieved through he material and the stone masons knowledge of it.

Image source:

Architecture in the Age of Divided Representation, by Dalibor Vesely. P. 67

therefore haptically, appropriate to itself. It was part of the continuum because of their practice which was in keeping with what came before. These buildings are situated because they are part of that continuum, and because they are appropriate, and therefore they communicate. They allow for dwelling in this appropriateness.

Even if necessarily ambiguous, things have a material reality. As both the temple and the cathedral do. Nobody, nor any amount of intellectualism can deny this material reality. Of course, ambiguity, in part, is dedicated to evading the overly explicit, but a material reality is not explicit, rather it is tangible. All things should have tangibility to be meaningful, a building more so as the things which house people. Yet not all buildings are tangible. It is a property awarded to the appropriate, the well-conceived and well executed thing that is the product of its making. When made, possessing the balance between the visible and the invisible, tangibility facilitates dwelling through a sense of nearness to place from a thing situated. Reciprocally dwelling then allows things more, albeit subjective, meaning and such is the case of the Cathedral, and is equally true of the temple.

It is only after navigating the varying 'concepts' behind things in his essay that Heidegger comes to the definition of things as formed matter. The quote below directly follows on from the one above, where the philosopher goes on to say:

> *This concept of the thing puts us in a position to answer the question of the thingly in the artwork. What is thingly in the work is obviously the matter of which it consists. The matter is the substructure and the field for artistic formation. But we could have proposed this plausible and well-known conclusion at the very beginning. Why did we make the detour through the other concepts of the thing? Because we also mistrust this concept of the thing, the representation of the thing as formed matter.*[20]

What Heidegger says here speaks volumes of the issue with which this essay took its root. We have become so intellectually conditioned that we do not allow ourselves the simple fact that the thingly is defined by the haptic and formal reality of its making. Though the narrative of Chartres is very rich, at least as Vesely describes it anyway, it is not

what makes the building a thing, which is part of the continuum. It was simply the architect's muse for design. What is admired lies in the material consequence, and this applies to any building. If the cathedral belonged solely to that symbolic order, it would no longer be relevant. Architecture has to strive to be, as Verschaffel rightly calls it, an event in itself. Concepts and ideas, once translated become subservient to the whole, the finished thing—the design itself. They are mere tools for such a purpose. In such regard, the 'order' that guides the architect may be of any epistemological framework providing it can result in appropriate building.

In a pre-enlightened, but post Platonian world, at the time of construction at Chartres, representation was always under the benevolent gaze of, and in accordance with, God. Though it varied with time, and opposing beliefs, a shared, Christian epistemology was the order of the world and the artworks in it. Since the enlightenment, with the passing of the scientific revolution and a fleeting scientific order, and the passing of industrialisation, modernism and postmodernism, what is the epistemological belief that orders architecture today? There does not appear to be a unifying order anymore, rather architecture, and all the other arts, seem to align themselves with any number of epistemologies. Peter Zumthor, mirroring the idea of a building as an event in itself, still believes in "the self-sufficiency, corporeal wholeness of an architectural object". And mirroring the question above he asks, "Yet how are we to achieve this wholeness in architecture at a time when the divine, which once gave things a meaning, and even reality itself seems to be dissolving in the endless flux of transitory signs and images"? For the architect, the answer lies in the "reduction in the contents to real things". Expanding on this answer the architect begs "why, I often wonder, is the obvious but difficult solution so rarely tried? Why do we have so little confidence in the basic things architecture is made from: material, structure, construction, bearing and being borne, earth and sky, and confidence in spaces that are really allowed to be spaces—spaces whose constituent materials, concavity, emptiness, light, air, odor, receptivity, and resonance are handled with respect and care". [21] Wondering, like Heidegger before him, why we cannot accept the simply reality of things which lies in their matter, Zumthor here speaks of the very essence of poetic endeavours, which find their order in things that make architecture a thing—an order which belongs to an epistemology based on the corporeity of our being.

An honest material result at Thermal Vals
by Peter Zumthor.

Image source:

https://www.stylepark.com/en/news/
nothing-but-water-light-and-stone

Like ancient Greek craftsmanship, the poetic makes visible the things that architecture is made from and reveals them without the need of intellectual justification. Making is ***Poesies***, and a process which deserves respect because of it.

Pallasmaa expresses a similar sentiment when he asks that the architect today should endeavour to "reconnect his/her intellectualised world and thinking with the source of all true knowledge: the real world of materiality and gravity, and the sensory and embodied understanding of these physical phenomena".[22] The haptic, consisting of the tangible, the tactile and therefore the near, are the qualities of appropriate making. These qualities are directly relatable to the material consequences of light, form, material, gravity and such physical phenomena which Pallasmaa highlights. They are visible when the architect acts poetically. These qualities are what the architect may discover and work with, with their own hands, and as such these qualities are also the embodiment of making.

So how can the architect today make without calling for the return to master craftsman, which is neither necessary nor wanted for architecture to continue its role in the scientific modern forum to which it now rightfully belongs? Through the material, formal and haptic consequences of making as architectural representation. A rethink about making, and not just as the representation of ideas and concepts, but as the poetic process whereby discoveries are made through the act itself, which take direct inspiration from the place, through the things that belong to it, and as a process to compliment the instrumental dependency on drawing. In its most basic sense it would be to highlight the value of the architectural model, but models which are not limited to the category of re-presentation (simply conveying something) or diagram. Rather the architectural models as sketch, prided for ideation, and those which explore materiality, form, space and detail, at varying scales, and have the potential for representational value in themselves. However, to place the emphasis of representational making exclusively on the model as we know it would be reductive for its full potential. Making can occur at any stage, in any form, it is the maker's prerogative. As the poetic, representational act, it may achieve results other than, and yet still complimentary to, the architectural drawing, and the provision for a balance between the instrumental and communicative roles of architecture is maintained. In

opposition to the grievances and limits which Vesely and Evans placed upon representation, making thought of in this way, can be the very act of working on a thing itself, embodying haptic and material properties, and though not the building itself, the lessons from such an act are undoubtedly valuable.

Through making, the architect poet takes from the things that surround him and makes them his own and they are appropriate to place. And when the resulting thing is made, whereby the material guides the poets making, they are appropriate to themselves. Acting, poetically in this way, allows the thing to be representational, symbolic if you like, whilst leaving room for the instrumental role in design. Architecture then, thought of as a thing, may become symbolic without the need for symbolic intent as such, navigating any reductive possibility of creative indulgences and direct statement. This depth is not just manifest poetry, it is the meaning of a thing to be found between what is visible, materially and artistically, but also what is invisible—that which has not been said or referred too and yet is present. Like early Greek craftsmanship, which was the made-visible and the made-well, the invisible properties of architecture can be revealed, and without the need for overly intellectual justifications, so that they may have such depth—making can be the very provision of depth.

A specific method for making could find precedent in Gottfried Semper's writings on stereotomic and tectonic expression, or the more recent work of Kenneth Frampton, who draws influence from Semper to suggest these architectonics are the poetic. However, I do not offer any such specifics for the method of making. It has to be the outcome of personal will, intuition and imagination. The only condition is for it to be appropriate, to which the philosophy outlined in this essay may be the basis. Making must be the endeavour of discovery, through haptic engagement with material, form, light, gravity, odour, emptiness and resonance. It must be the result of a relationship between the head and the hand, which Richard Sennett describes as the habit where one "conducts a dialogue between concrete practices and thinking [and] this dialogue evolves into sustaining habits, and these habits establish a rhythm between problem solving and problem finding".[23] And this, to the author, allows access to what is 'good' in the world. Such habits may lead to a form of craftsmanship, but not in the traditional, artisanal sense, rather in a well-

versed sense, that any person may endeavour to become. Though I do not offer a formula, such relationships and experiences, which are materially driven, are studied in part ii of this research with a small collection of things which I have made alongside this essay as the practical exploration of the ideas presented. What I have hoped to convey, is my belief that depth can be found—as the true image of architecture between the visible and invisible—in a shift in mentality towards the current imbalance of making and thinking. I believe the overly instrumental tendencies of today, propagated by architectural drawing, may be counter balanced by the communicative of the poetic, through making.

Making is Thinking

Gómez and Pelletier make an observation about Plato's ***chōra***, which is "responsible for an ontological continuum, a "ground" itself inexplicable through reason yet undeniable to experience". Analogous to depth, ***chōra*** is a mysterious space, hard to grasp, but it is where human perception finds meaning between the intelligible and the unintelligible. "***Chōra*** connotes a mysteriously dense space-time, the depth of art and architecture that has become transparent and seemingly irrelevant only after the hegemony of applied science began". [1] My own observation from writing this essay is that the scientific revolution also denotes the beginning of the reduction in craftsman, of making. The "thinking hand", denied, could no longer facilitate depth, and ***chōra*** escaped us. Julian Young, commentating on Heidegger's essay *The Origin of the Work of Art* tells us that for the philosopher, modernity cannot facilitate for artworks of the magnitude that was the Greek temple and the Medieval church. Those 'enigmatic' artworks, as Heidegger refers to them. These buildings, as great artworks to the philosopher, strike the perfect balance between the poetic and the symbolic. Young points out "the kind of art he [Heidegger] seeks is art which avoids 'supernaturalism' without thereby lapsing into 'naturalism'"[2] which both the temple and church balance so well. They are artworks which allow the "enigma to come to presence as the enigma and will not transform the unknown and unknowable into the natured and the known".[3] This is a fortuitous application of the temple and church, as my own arguments did not stem form Heidegger's but have come to mirror his own. Some might think it reductive to suggest that with the fall of craftsmanship came the decline of an 'enigmatic' architecture of depth? Well, I argue it is only as reductive as placing the meaning of a building solely in its intellectual justifications.

Alongside drawing, making, firstly as the poetic act, but secondly as an exploration of material and form, and the haptic essence which belongs to them, has the potential to align architecture with its origin and its ontological essence. Making brings to the forefront of the design process the ethical concern to situate human beings and contribute to the continuum. McEwen's origin story of architecture was fundamental to this essay and the arguments formed. That is that things constitute the continuum, and they are always made, and that making may have even had to occur before thinking could happen. Yet, my endeavour was not

to resort to a 'chicken or egg' squabble of architecture's origin. It would serve no purpose. What I have attempted to do is move beyond any opposition between these two modes, to illustrate how making has been, and ultimately still can be, thinking in its own right. Actually, the reality that McEwen's analysis evokes is the interconnected dependency on the two modes, and sets up, not just a precedent, but an mytho-poetic origin which captures the very essence of the human condition—that is to say between the intellectual and the poetic, between animal Laboran and homo faber, one's head and hand, thinking and making.

To choose McEwen's myth, over, say, the tried, perhaps more obvious, myth of the primordial hut, was in the avoidance of falling into that very primordial argument, which may succumb to an overly 'naturalistic' argument and cannot facilitate for the developments of mankind. The primordial hut, though no doubt a result of finely tuned making, may say more about survival than the cultural and philosophical beliefs of mankind. The temple comes as close to that primordial situation without falling into its regressive image. It is a very fine and detailed mythical origin of an artwork that is the result of communal beliefs and effort, which, dare I say it, though not through intention, is symbolic of their culture. It is a myth of a public building, not the single dwelling made of individual necessity—it is unquestionably an origin of architecture itself. McEwen's suggestion of the loom and its connotative relationship to the Periperal temple's columns is a beautifully poetic suggestion, that similarly shifts the focus from man's survival to his mothers artistic endeavours. The process of making the weave was the thing of man's poetic inspiration, which he made his own and more importantly still, it was the shared experience of all mankind. The beauty of such a myth can be found in Dalibor Vesely's words. "The deeper we move into history, the more situations have in common until we reach the level of myth, which is their ultimate comprehensible foundation. Myth is the dimension of culture that opens the way to the unity of our experience and to the unity of our world".[4] This is the myth of the birth of depth in an artwork that allowed its community to have a sense of dwelling, in relation to their things, so that they had a sense of being in the world.

If making really is such an integral part of our ontological essence, in architectures origin, then it is as much a part of our continuum as the methods and orders that guide us today. The oppositions referred to and formed into his essay, between our intentions and acts, our intellectualism and corporeity and the poetic and symbolic, in fact are not so oppositional. The reality of the world lies in metaxy. This is the

contemporary situation which has to acknowledge its tradition whilst accepting an ever changing, technologically advancing world.

Lastly, but crucially, it should be mentioned that the architect alone is not capable of building and that whilst the making of our representations can align us with our poetic sensibilities, it must be remembered that we rely on craftsmen to execute construction, and as such our relationship with those craftsmen is of vital importance. Carlo Scarpa was an architect who encouraged his builders through constant dialogue with them. Allowing them to share their knowledge with him he learnt from them the material realities which resulted in beautiful, highly refined forms and details. In such architects we may find a precedent for such communicative relationship with other in the architectural profession. Incidentally, I would claim that Scarpa was an exceptional poet.

When one picks up a pencil, or rather nowadays clicks their start menu shortcut, to begin architectural drawing, there is a reflexive rational and instrumental objective which reflects our intellectual developments and, to some degree, this is rightly so. But what many are concerned about, as the writers and architects addressed in this essay have said, is an image of architecture which too easily succumbs to its overly intellectual, rational and instrumental role, denying it's ontological responsibility and our corporeal, embodied being. The communicative role of architecture may well be explored again through drawing, appropriately, as these authors have suggested, but the beauty of making lies in its unadulterated nativity; making has not been systemically worked into anything that has become doctrine in architectural practice or academia. As such it may flourish as a poetic, intuitive, imaginative process of discovery, whilst simultaneously allowing a connection between the head and the hand. But perhaps most importantly, it is the ambition to work with the real, material, things that constitute the communicative aspect of architecture, whereby the architect learns to work on a thing itself, where making may be recovered to equal thinking—once again.

Part II
Making

The Representative Model

The truth be told, the point of departure for this research, my 'fascination', was based on the notion of 'generative making' as a source of ideation. This notion was influenced by past experiences in architecture school, at TU Delft, but specifically I choose to reference *Cube*, a book by David Morrow Guthrie who sought to enlighten his students through the direct working of materials at a 1:1 scale—an act he felt was often absent in the modes of representation in the typical academic architectural studio. The ambition was to investigate whether 'making', the poetic act of physically assembling materials, had the ability to generate *ideas* for the architectural design process. This ran contrary to the typical order of ideas or concepts that are proceeded by the made objects, conventionally in the form of architectural models, as representations of them. The essence of this fascination has not been lost, but what had been intended as a research led by prolific making soon gave way to the philosophical endeavour addressed in part I. The subject matter of this research stemmed from a fundamental belief in the material, poetic and communicative role of architecture, which could be facilitated through making. It very well may have been a mere "good hunch". This is why the research gave way to a larger, philosophical questioning, which became the justification for the making exercises, with specific ambitions. However, that said, this small collection of made things had a great impact on the essay, and the essay on these things. They occurred simultaneously and enabled one another. In this sense what has been formed in this research is a model, but not in the typical architectural sense.

Marx Wartofsky refers to the model as that which is more than the imitations, diagrams and scale versions of something, and, even, more than the prototypes, plans, and hypothetical constructions of various sorts that serve as a guide to action—these are "at best what models may look like, but not what they function as". [1] Pertinently, Wartofsky refers to a model as a "mode of action" whereby thinking, unbound to an "intellectual activity in 'in the mind'", results in "action in the world". Making addressed as has been in the essay runs contrary to the standard progression of, and the tools used in, architectural design. The things made, as results of the model were, aside from being a deviation from the norm, representations with a particular focus towards a haptic engagement in architecture. They are the representational acts of poetic discovery and appropriateness, and they are the exploration of the thingly which makes a thing. These making exercises, the results being representative of poetic endeavours, are what Wartofsky described as an "embodiment of purpose and, at the same time, an instrument for carrying out such purposes"[2].

Generative Making

> You cannot make what you want to make, but what the material permits you to make. You cannot make out of marble what you would make out of wood, or out of wood what you would make out of stone [...] Each material has its own life, and one cannot without punishment destroy a living material to make a dumb senseless thing. That is, we must not try to make materials speak our language, we must go with them to the point where others will understand their language.[3]
>
> *Tapio Wirkkala*

In *Cube,* Guthrie introduces the work of his students at Rice University, who he sets the task, each year, of constructing a 400mm cube out of readily available materials. This exercise is given in response to what he refers to as "typical architectural abstractions", those abstractions being methods of production, such as drawings and models, which he acknowledges are useful tools, but have two limitations; scale and materiality. These typical abstractions are representative of the triumph of the image as a tool to develop conceptual endeavours. But these concepts cannot be encountered for their spatial and behavioural properties through these typical abstractions alone. To counter these concepts, he uses the cube making tasks to promote an awareness of basic construction methods and additionally the use of the more basic materials in the construction industry; namely 2x4's, ply wood, and plasterboard. This process of making allows for one to be directly engaged with the material as opposed to a "representation" of it. The direct manipulation of the materials is essential, to arrive at the outcome, not through projections or computer models, but through the process of making and understanding what the material permits one to make. The idea behind this is not in the pursuit of a return of master craftsman as architect, nor to turn architecture school into a school of craft, but help close the gap between conceptual speculation and material reality. It offers the chance, so often denied to architects, to fully resolve a thing by means of the exercise and material that defines such a thing.

Chad Schwartz teaches his students of Southern Illinois University a process founded on Guthrie's cube exercises, yet takes the ideas further with a more concrete theoretical framework. Schwartz defines a process of "Critical Making", as a form of experiential learning, which promotes making as the generative source of ideation. 'Critical making' is a term first coined by Matt Ratto[4] to describe his workshop activities that linked conceptual reflection and technical making. Schwartz has since appropriated the term as a potential process for architectural design who describes it as such, "Critical making is positioned at the intersection of the 'scholarly' work of thinking and the material work of making; it serves as a catalyst for design, embedded in a process of craft, material and exploration".[5]As an alternative to the standard progression of architecture projects, macro to micro, critical making engages both critical and lateral thinking to explore materials without the constraint of a preconceived idea. As quoted by Maurice Merleau-Ponty in part I, "the senses translate each other without any need of an interpreter, they are mutually comprehensible without the intervention of any idea". This is not a description of a mindless task, but rather a mindful one. It is to suspend judgement or correctness in favour of opening up other possibilities. It is a meditative task that serves to sustain habits and generate ideas to inform the next task. However, if we remember Sennett's definition, and let's not forget Pallasmaa's writing on the subject, of things made well, for their own sake, then in fact it is only through the well-made that such sustaining habits are evolved. It was also the well-made artefact that allowed the ancient Greeks to theorise in McEwen's account.

As discussed in part I, architecture is bound to experience, as the corporeal foundation of culture, beyond just the visual. There is a compulsory obligation to a haptic engagement in architecture for the architect who believes in architectures capability, as the things in which we dwell, to allow for such a corporeal existence. Schwartz promotes such a capacity in the process of critical making which is, as a process, by its nature, an exercise in the tactile, the tangible and the near. In essence, it is a multi-sensory experience introduced to the design process of architectural conception with the intent to transcend those multi-sensory properties to the architecture itself. In this sense the things made, or better yet in my own application, as well-made as my skill could make them, are in fact representations as they have been understood historically and accounted for earlier in part I. The things made are the manifest representations of the belief and obligation towards an embodied experience in architecture.

Guthrie slighted this aspect of these exercises when he said "of course, working through this iterative process of direct contact is impractical

for architecture of any scale".[6] The lesson learned from these exercises is not as a process for a simultaneous design and build methodology, but rather as a source of ideation for material consequences upon detailing, lighting, acoustics, touch and the ability for those qualities to transcend into the design itself. The objects generated form critical making are not projective tools for the transcription of a building practice, as Guthrie might have inadvertently suggested, but rather they are used to translate, poetically, the haptic realities of architecture and make them appear. Here I would make reference again to McEwen's recurring point in her essay that ***techne*** (craft as the making of well-made things) is the letting of "making things visible" which allows for ***kosmos***, order, by the very act of making it visible.

The theoretical components of the critical making exercises, as defined by Schwartz and briefly mentioned earlier, are reliant on the combination of 'critical thinking' and 'lateral thinking'. Critical making is the process of actively linking thoughts together in a way that allows one to believe one thought provides support for another. This process can be seen for example in the construct of this very essay. Lateral thinking, on the other hand, helps break down normative thinking patterns and to realise new opportunities. A method by which the thinker "poses different approaches, concepts or points of departure into a given problem; it is a process of exploration". Whilst critical making is analytical in nature, lateral thinking is provocative. In the process of critical making however, the two modes of thinking are used harmoniously for problem solving in the act of making. Lateral thinking, in this case, is used to be open, to deter any pre-defined ideas or concepts and allow a haptic engagement with the material to guide the process. Critical thinking is then used for reflection on the outcome of the making process, to analyse the process and the outcome to carry forward lessons into the next task. For Schwartz, the generative process should be iterative, meaning ideas are translated from one thing to the other thing. However, despite my earlier ambitions of proflic making, the generative property has a greater, fundamental meaning. It is the generative process of making the haptic qualities of architecture. Later in the design phase of this thesis, it will be the poetic translation of those generated 'ideas' to the design itself.

This in combination, as mentioned several times previously, is contrary to the typical progression of ideas to things during the architectural design process. This typical linear process is what Robin Evans referred to as "the peculiar disadvantage under which architect's labour", the problem being they are "never working directly with the object of their thought, always working at it through some intervening medium, almost always

the drawing, while painters and sculptors, who might spend some time working on preliminary sketches and maquettes, all ended up working on the thing itself." The hope is that the critical making exercise should, as the source of ideation, but also being representative of the importance in the embodied existence within architecture, possess the opportunity, contrary to Evans' observation, to engage with the very essence of the thing itself. The things should be capable of existing in their own right, as abstractions, in addition to being models (in the Wartofsky sense) for design. It is a direct, hands-on, practice that deals with very the haptic qualities one may wish to express in the building itself. Furthermore, through the endeavour to make it well the object made may become a thing in itself whilst heightening the learning curve of the process. And lastly, the process of critical making, which positions the making as the vehicle of ideation to design, is the embodied practice of making is thinking.

Cubes

The cubes made as presented here, these things, were burdened with the responsibility of providing the framework for the making of this research. In essence they were the context—the source of ideation. As mentioned in part I, our modus operandi in the creation of architecture, or any art form, is never a neutral act if, as designers, we wish to be ethically bound to our profession. It is therefore that these made things are the manifest representations of making and its agenda in the context of this research. As such the definition of these first made things was crucial.

It was with this in mind, and with complete transparency, that the cubes here borrow directly from the very sources of the generative making exercises. Like Chad Schwartz, the inspiration for this first generation of made things comes from the building exercises outlined in Guthrie's *Cube*. In reference to the use of the cube as the defining shape of his exercises, Guthrie writes pertinently and without the need for further elaboration:

> When I first decided to use the cube as the formal vehicle for an exercise, I didn't fully grasp it's potential. Intuitively, it seemed like it would make a clear and neutral datum. But like all fundamental things, the cube is deceptively simple. It is stable, absolute, indestructible – yet hardly inert. Because of its immutable ratio – an idea, not a thing – the cube offers a fixed frame of reference. It is a resilient palimpsest for experimentation with ideas related to materials.[7]

The cube, as a shape, provides a 'fixed frame of reference', a restriction. For his exercises, Guthrie emphasises the importance of restrictions, not as limiting, prohibitive authorities, but as context defining sources of inspiration – much like in the design of architecture itself. In addition to the shape, which is imitated directly in my cubes here. Guthrie provides a dimension 16" (400mm) and a set material palette of 2 x 4's (50 x 100mm partition timbers), plywood and drywall (plasterboard). These making exercises of this exploration were also defined by restrictions, which though same in nature, were different in their reasoning, that is of course, with the exception of cube.

Guthrie's dimension was conceived through trial and error. He found 16" to be the goldilocks dimension, "because of the way it engages the body". Similar in height to a chair and mass of the body, he explains, the dimension provides an intimacy to an otherwise abstract object. His prescribed readily available building materials act as a learning tool to develop an awareness and appreciation of standard modes on construction within the industry.

The dimension of the cubes made here were dictated by the general preconditions outlined in the objective of this research. There is a slight oxymoron of things being made well (for their own sake) and within a limited time frame. This is, in part, the reason for a reduction in scale to 200mm cubes. Existing for their own sake meant that the made things had to be more than a sketch. They are things, abstractions, and fully resolved in order to elevate the learning process. This was also the reason for more refined and challenging material choices and their more object like dimensions, which together, provide the necessary requirements of intimacy through engagement. A further restriction, or guiding principle, was applied in the form of a clearly identifiable design 'theme' or 'expression'. The theme was established only once the making had commenced and through exploration of the material itself, its qualities and its properties which, together, could allow for a tangible thing.

The following made things, the cubes, are the manifestations of this reasoning and these restrictions. They are not for applying function, though unavoidably people have tried, but stand as the first abstractions of, and representations for, the wider exploration of generative making and its potential to transcend embodied experience to things.

One of the cubes by David Morrow Guthrie's students.

Image source:

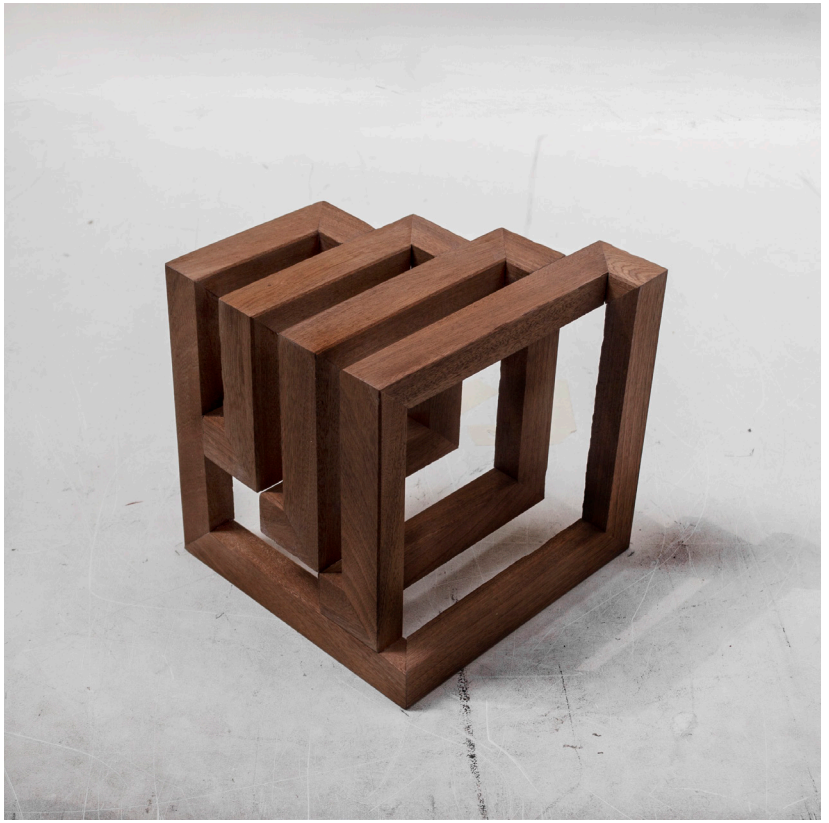
Cover image of *Cube* by David Morrow Guthrie.

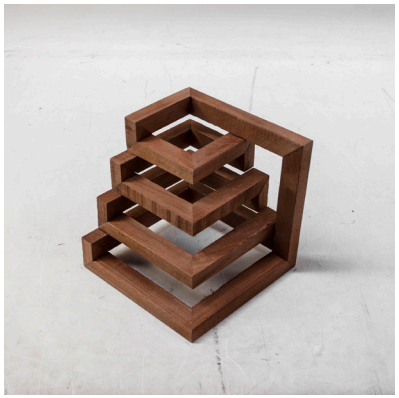
Mahogany
Loop

Timber, manufactured wood, comes in many forms of varying shapes and dimensions. Wood becomes a material for construction once it is timber. The material value of these lengths of mahogany, to me, is in their condition and dimensions as they come off-the-shelf—their ordinary-ness. Though this cube was the fist exercise, timber is perhaps the most familiar material to me. And so the unfamiliar task was balanced with a familiar material. A familiarity with material comes with notions of how to put it together. Hence the first thought was to experiment with the joint. The mitre joint seemed most appropriate for its ease and speed. But, like the picture frame, things made from the mitre joint only ever contain four of them. Could a connected and three dimensional form be achieved through the use of the mitre joint alone? There I set out to attempt a continuous loop where the timber's end would meet its beginning—all the while exclusively from the mitred joint.

To pursue the loop I found it necessary, during construction, for the timber and form to support itself, and the result is, on two sides, the clash of one direction of grain meeting another. What is made is a looping, staggered, converging and stepping cube. Form was neither an aesthetic nor conceptual expression, but formal expression as a consequence of the material at hand which dictated the consequent decisions in its joining.

The choices made and the properties of the timber and its dimension dictate form, and thus also dictate other qualities of the cubes. The material, and the break in the cubes elevations has an affect on light. The grain in the wood and the form gives an emanating effect, which in turn heightens the warmth and glow of the wood. The stepped looping form also suggests a focal point—an invitation to come to a point or moment, and an intimacy and engagement with the cubes is not only visible, but invites a tactility and movement and which becomes enhanced by said qualities of light.





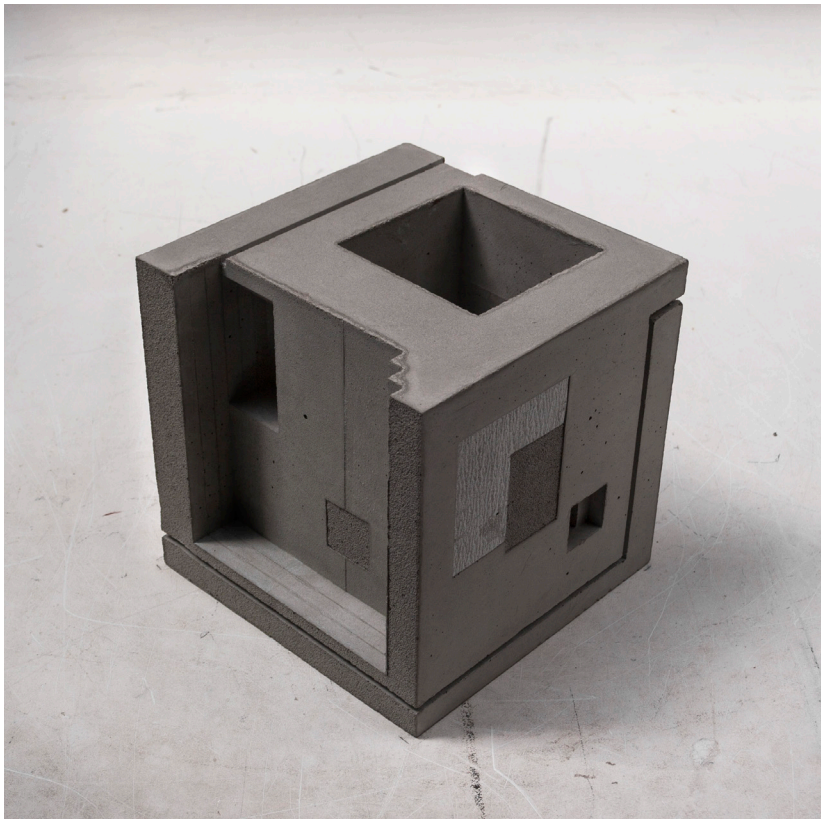
Concrete
Relief

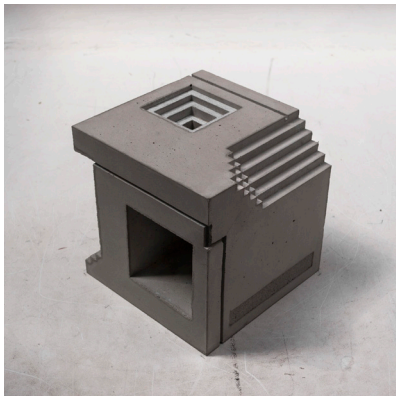
The defining property of concrete, as a building material, is in its transformational ability to go from a fluid to a solid— from the temporary, to the transient, to the permanent. The heavy, massive end result is the commonly perceived state of concrete, but its earlier sate is what allows it its form. To give this material form requires a mold. It is a method of addition to achieve subtraction, but concrete requires a certain amount of mass to retain its structural properties. As such its massiveness is the inherent essence of the material and it demands an adherence to it.

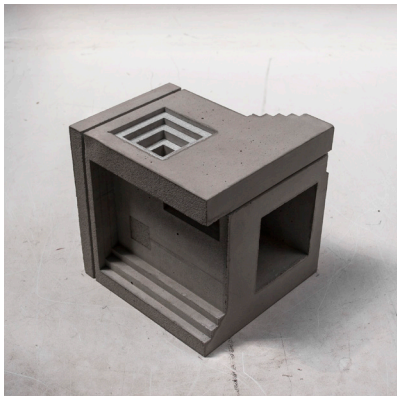
It occurred to me to ask whether that definitive and massiveness and heaviness could find relief without destroying the nature of concrete?

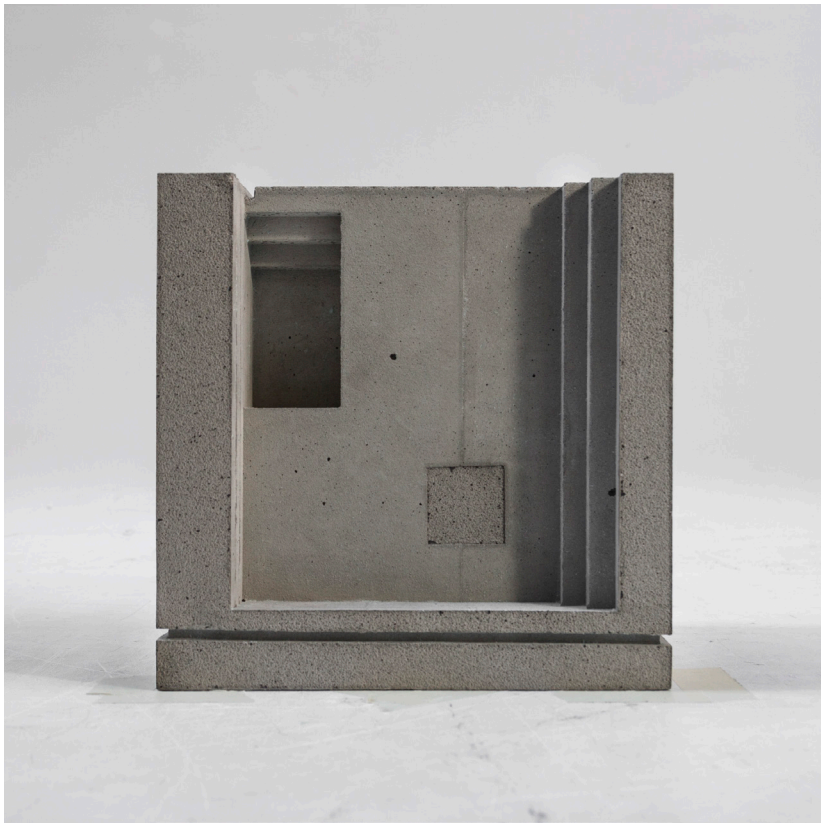
A dimensional depth is achieved through the composed void made from blue foam in the mold. Whereas varying grits of sandpaper in the mold add a subtle, textured relief to the elevations. Where the coarser sandpaper left only texture, the finer sandpaper left the imprint of its colour and pattern from the water in the concrete. The white and grey pigment impregnated the concrete which could have been wiped off, but it was left as a nod to the nature of the process and of concrete in its liquid, transient, form. Light has an effect on the 'depth' of this cube and produces areas of light and shadow that amplify these qualities and exaggerate the direction of inside to outside. Together these elements break the massiveness of the concrete cube.

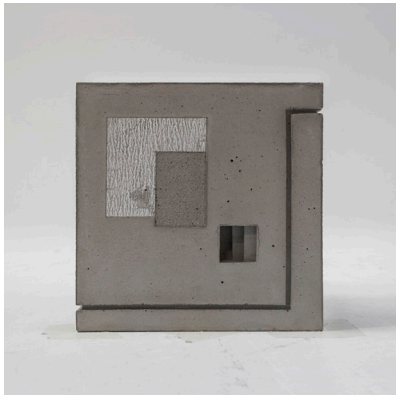
A single penetration from one side of the cube to the other adds a spatial quality to this cube, otherwise an experiment in surface. The overall process of making this cube in concrete was, as with the others, a dictated process by the very properties of the material. The formal and textural language of this cube is dictated by the material and can easily be read visually in the thing itself. Traces of the process and material used to create depth are visible too.









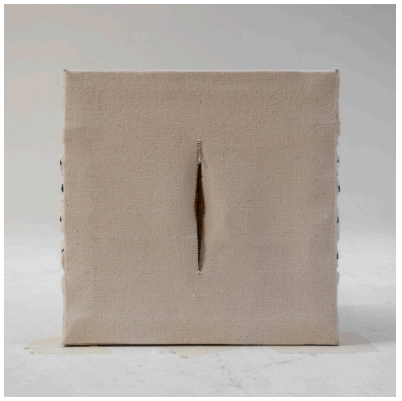


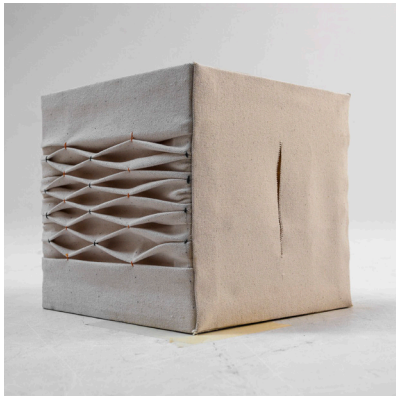
Canvas
Rigid

The initial endeavour with the canvas was to explore a natural rigidity of the canvas through folding, sewing and wrapping so that it could support its own form. It was a material unknown to me in this sense, and so ripe for experimentation. However, early explorations turned out unfruitful. The form was unrefined and too abstract without showing a proper command of the canvas. So the decision was made to first familarise myself with a technique appropriate to textiles and clothing. A frame was introduced and rigidity was explored through pattern making. The traditional honeycomb smocking technique was used.

The result manipulates the elasticity of the canvas to bring a structure and rigidity to the cube. As a product of mathematical pattern the cube is rather 'precise'-- a word many others use to described it. This mathematical and precise form was dictated by the necessity to learn a technique. That is a dependency on the appropriate working of a material.

Whilst precise and mathematical, the cube does not forbid tactility. The material itself posses a grain with is visibly tactile in itself, and the pattern invites touch. Through this tactile invitation one is inclined to pick it up, and almost all those who saw it did, and there is discovered an acoustic property of the cube. It absorbs the sounds of its immediate environment, and its bearers inevitably talk into it. In this particular cube the visual and formal properties greatly mirror its tactile and acoustic properties.



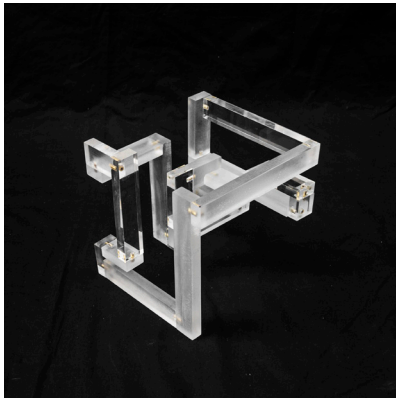


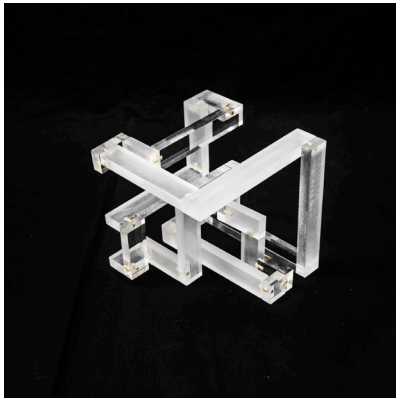
Acrylic
Opacit

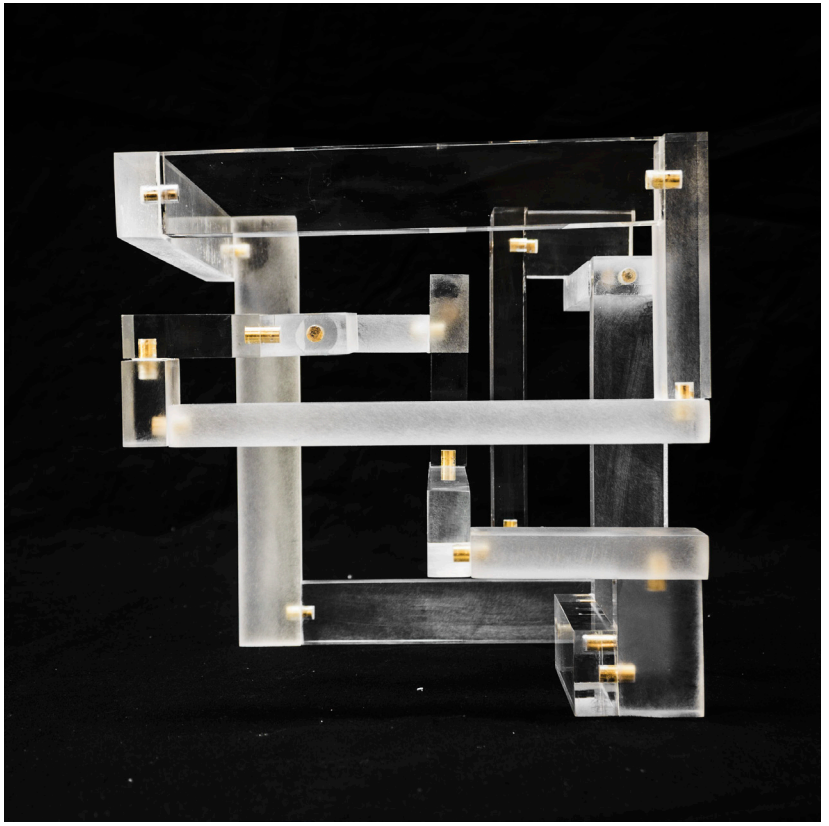
Acrylic was easily the hardest and most labour intensive material of the cube exercises. Similar to the timber cube, it was a question of joining elements, only this time elements made, and finished, from a larger sheet material. Joining acrylic with glue, strongly, is a challenge and often a weak joint. To strengthen it, pins were made to sink into each element. They were made of brass as to highlight the dependency on a mechanical joint.

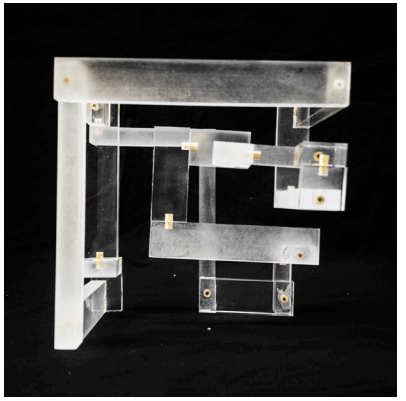
One of the primary properties of this material is that its surface may receive varying finishes which vary its opacity. It may be polished and transparent, or sanded, with a very fine grain or very coarse, to varying levels of translucency. From this inherent property a rule was developed. There were three degrees of opacity from transparent to translucent and then one nearing opaque, this variation achieved through polishing and sanding. The transparent bars were completely polished. The translucent were polished on three sides and lightly sanded on the other three. The nearing opaque was achieved by hard sanding all sides. The rule meant joints where connections went from polished to polished and a sanded to sanded. What followed was an exercise in composition. I simply joined each piece in a way that was judged, subjectively, for its composition by eye. This happened until I simply ran out of patience and decided to finish it. Initially, the intention was to have many more tuns and a tighter composition, making a denser cube, but this was a very time consuming and labour intensive method. More crucially however, the weight of the material and the joint used resulted in a lot of tension being created. As a result larger, more stable, bars were made as supporting arms and legs, for a more structural and stable form.

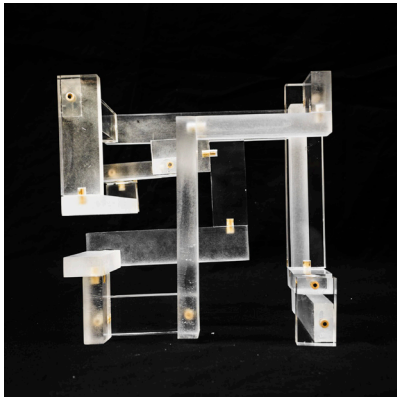
Tension is clearly visible in the construction of this cube which is a product of the definitions given by my knowledge and the material itself. The process of sanding and polishing affected the shape and form of the bars which resulted further potential for tension in the joints.
With hat said its optic qualities are successful. Reflections, refractions and degrees of opacity along with the composition have a beautiful effect on light.











Reflection

Whilst this paper is technically a research, I believe it to be more than that. It has become my fist attempt at a manifesto. This paper has been the result of many years of practice and learning, making and thinking, which I have finally been able to accumulate into something which I believe approaches some coherency. It is in Explore Lab that I found the potential for such an endeavour and for that I am truly thankful.

With that said it is very much a research, especially when considered alongside the design thesis. Though I have avoided such an explicit question as I wanted the research to be capable of standing alone, if I had to present a question it would be something along the lines of; what role does making play in the design of architecture? The result of that question would be a model for a poetic approach to architecture. One which has been explored through theory and practice with equal dedication.

I have been honest in saying that the making itself gave way to the philosophical pursuits of the essay, as a result of justifying my endeavours. Yet that does not mean that this paper is any less about making. It has come to mean more than material and formal pursuits. Making is, for me at least, the embodiment of ethical ambitions in architectural design, ones which I was not able to articulate before the opportunity to write this paper.

The cubes are the manifestation of those pursuits, and though I wish I could have made more things, the lessons learned, and as reflected upon in the previous pages, was invaluable. A further study would have been to make two more things which combined two of the materials of the cubes, whilst also refining their construction, detailing and joints. This would have taken the research that mush closer to architecture which is rarely the result of a single material—especially in our modern instrumentalised world. However, I do believe that on the whole the cubes have been made well and poetically enough to make them appropriate.

Ultimately this research has not been finished as such, but nor would I intend for it ever to be. Most immediately this study will continue through the design process of my thesis *Moments for Repose: Making along the Pennine Way*, but furthermore, it will carry my ambitions for a lifetime.

Endnotes

Abstract

1 Arendt, Hannah. *The Human Condition.* Written just after WW2 the philosopher questions the motives of abiding scientists in the Nazi regime wo did not think about the consequences of their work. They were in fact labourers of evil who facilitated the motives of others. This is the human condition which splits them into two distinct categories.

A History of Architectural Representation

1 Gomez-Pelletier. *Architectural Representation and the Perspective Hinge.*

2 Gomez-Pelletier. p.11

3 Gomez-Pelletier. p.14

4 Gomez-Pelletier. p.15

5 Gomez-Pelletier. p.15

6 Gomez-Pelletier. p. 15-16

7 Gómez-Pelletier. p.08

8 Gómez-Pelletier. p.18

9 Rene Descartes developed the idea of a system for specifying the position of a point or object on a surface, using two intersecting axes as measuring guides. The Cartesian coordinate system specifies each point uniquely in a plane by a pair of numerical coordinates, which are the signed distances from the point to two fixed perpendicular directed lines, measured in the same unit of length. This same system is used to locate any point in space with the use of 3 coordinates. This is called orthographic projection and comes from the Greek orthos (= straight) and graphē (= drawing).

10 Vidler, Anthony. *Diagrams of Diagrams*. P.08

The Reversibility of the Image, Depth

1 Gómez & Pelletier. p.86

2 Gómez-Pelletier. p.330

3 Gómez-Pelletier. p.331

4 Gómez-Pelletier. p.335

5 Gómez-Pelletier. p.333

6 Merleau-Ponty-Maurice. *Phenomenology of Perception.* P.273

7 Gómez-Pelletier. p.334

8 Merleau-Ponty. p.308

9 Vesely, Dalibor. *Architecture in the Age of Divided Reason*. P.366

10 Vesely. P.72

11 Vesely. P.90

12 Vesely. P.384

13 Vesely. P.386

14 Gómez-Pelletier. p.335

15 Merleau-Ponty, Maurice. *Eye and Mind.* P.172-173

16 Gómez-Pelletier. p.336

17 Merleau-Ponty, Maurice. *The Visible and the Invisible*. P.53-68. Taken from Gomez-Pelletier. *Architectural Representation and the Perspective Hinge.* P.336

18 Zumthor, Peter. *Thinking Architecture.* P.27

19 Pallasmaa, Juhani. *The Eyes of the Skin.* p.*16*

20 Pallasmaa, p.*16*

Architecture, a Thing

1 Pallasmaa, Juhani. *The Thinking Hand.* P.54

2 McEwen. Socrates Ancestor. P.00000000

3 McEwen, Indra Kagis. *Socrates Ancestor*. p.51

4 Frontisi-Ducroux. *Socrates Ancestor*. P.54

5 McEwen. *Socrates Ancestor*. P. 54

6 McEwen. *Socrates Ancestor*. P.54

7 McEwen. *Socrates Ancestor*. P.20

8 McEwen. *Socrates Ancestor*. P.51

9 McEwen. *Socrates Ancestor*. P.51-52

10 McEwen. Socrates Ancestor. P.13

11 McEwen. *Socrates Ancestor*. P.72

12 McEwen. Socrates Ancestor. P.120

13 Irwin, David. *Winckelmann, Writing on Art*. P.49

14 Irwin, David, *Winckelmaan, Writing on Art,* 61

15 Heidegger, Martin. *Poetry, Language, Thought*. Trans. Hofstadter, Albert. New York: Harper & Row, 1971. Pages 40 - 41

16 Heidegger, Martin. *Poetry, Language, Thought*. Page 41

17 Heidegger, Martin. *Poetry, Language, Thought*. Page 42

18 Pallasmaa, Juhani. *The Eyes of the Skin*. P.19

Design, a Poetic Translation

1 Gomez-Pelletier. p.07

2 Terzidis, Kostas. *The Etymology of Design: Pre-Socratic Perspective*. In *Design Issues: Volume 23, Number 4 Autumn 2007*. p. 69

3 Schön, Donald A. *Designing: Rules, types and worlds.* In the journal *Design Studies.* P.182

4 https://www.etymonline.com/word/design

5 Ricoeur, Paul.

6 Frampton, Kenneth. *Towards a Critical Regionalism: Six points for an architecture of resistance.* p.21

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1 Bachelard, Gaston. *The Poetics of Space*. P.3

2 Perez- Gómez, Alberto. *Architecture as Drawing*. JAE, Vol. 36, No. 2. P.2

3 Perez- Gómez. P.05

4 Perez- Gómez. P.05

5 Vesely, Dalibor. *Architecture in the Age of Divided Representation*. P.44

6 Evans, Robin. *Translations from Drawing to Building and Other Essays*. P.156

7 Vesely. P.85

8 Verschaffel, Bart. *Simply Good*. OASE #90. P.46

9 Ferrari Di Pippo, Alexander. *The Concept of Poiesis in Heidegger's "An Introduction to Metaphysics"*. P.33

10 Vesely. P. 63

11 Vesely. P.63

12 Vesely.P.63

1 Vesely. P.64

14 Vesely. P.65-67

15 Sennett, Richard. *The Craftsman*. P.70.

16 Sennett. P.70.

17 Gómez-Pelletier. P.08.

18 Gómez-Pelletier. P.08.

19 Heidegger, Martin. *The Origin of the Work of Art.* Trans. Julian Young & Kenneth Haynes. *Off the Beaten Track.* P.08

20 Heidegger, Martin. *The Origin of the Work of Art.* Trans. Julian Young & Kenneth Haynes. *Off the Beaten Track.* P.08

21 Zumthor, Peter. *Thinking Architecture.* P.32

22 Juhani, Pallasmaa. *The Thinking Hand.* P.69

23 Sennett, Richard. *The Craftsman*. P.08

Making is Thinking

1 Gómez-Pelletier. P.337

2 Young, Julian. *Heidegger's Philosophy of Art*. P.134

3 Young, Julian. Heidegger's Philosophy of Art. P.40

4 Vesely. P.368

Part II
Making

1 Wartofsky, Marx. *Models: Representation and the Scientific Understanding.* P.141

2 Wartofsky, Marx. *Models.* P.142

3 Wirkkala, Tapio. In *The Thinking hand,* by Juhani Pallasmaa. P.55

4 http://criticalmaking.com/matt-ratto/

5 Schwartz, Chad. *Critical Making. p.01*

6 Guthrie, David Morrow. *Cube.*

7 Guthrie, David Morrow *Cube*. P.7 Every good craftsman conducts a dialogue between concrete practices and thinking; this dialogue evolves into sustaining habits, and these habits establish a rhythm between problem solving and problem finding.

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