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Pablo Pier Byass

A Miniature City Between Things

+

The Interhuman Apparatus

A Miniature City Between Things + *The Interhuman Apparatus*

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A Miniature City Between Things

This research project proposes that the practice of architectural-documentation is a unique form of creative apparatus, one that offers possibilities for analysis and proposition beyond those utilised within the discipline of architecture.

It is proposed that architectural-documentation can speak directly to and about human experience, from the qualia of the body, across social fields, cultural and political indices and to our histories, mythologies and creative outputs. It can analyse and propose creative interpretations and responses to a multitude of interactions within both the physical world and our internal topographies.

To test these propositions this project engages an interdisciplinary practice that utilises architectural-documentation as a distinct apparatus for *apparatic composition*.

The project consists of the following essay and a drawing set, together they locate the research and outputs of the project within an historical and conceptual framework. These frameworks are both factual and speculative, products of referenced source materials and a gathering of imagined possibilities based upon creative interpretations of the practice of architectural-documentation.

The essay consists of seven parts.

Part 1 *What is Architectural-documentation?* outlines a definition and use of architectural-documentation within the project, describing its essential components and qualities.

Part 2 *A Genealogy for Architectural-documentation*, attends to the origins and mythologies of architecture and drawing and the subsequent development of architectural-documentation.

Part 3 *The Apparatus*, proposes a reading and genealogy of the concept of *the apparatus* (dispositif) as developed by Michel Foucault. Locating it in relation to architectural-documentation and presenting an historical figure – *the appareilleur*, as embodiment.

Part 4 *The Diagram*, builds upon the preceding section, interpreting the adjunctive concept of *the diagram* as developed by Gilles Deleuze in response to the work of Foucault. This is undertaken specifically in relation to the practice of architectural-documentation *drawing*.

Part 5 *Conclusions*, locates the project in relation to the disciplines of architecture and art and provides an overview of the preceding sections, summarising the outcomes of the project, including further questions that have arisen.

Part 6 *The Drawing Set*, provides background to the elements of the drawing set. This includes a brief discussion of the essay *Useless Suffering* by Emmanuel Levinas, which is considered *as a site* for the apparatic composition described within the set.

Finally, Part 7 *The Interhuman Apparatus*, describes the propositional elements of the apparatic composition and their workings, as *a way through* the spaces and apparatus depicted.

Introduction

Architectural-documentation (*a-d*) can be both exquisite and utterly banal. When performed to describe architecture that is complex and imaginative it can also be transporting, creating experiences of intense proprioception. Often consisting of strictly formal techniques implemented with the flimsiest of materials, *a-d* is a surprisingly adaptable apparatus capable of offering up phenomena and entities far more substantial and expansive than itself.

When I first encountered *a-d* as an architecture student, my prior educational and professional backgrounds as an artist and craftsperson prejudiced my initial reactions. I was underwhelmed by the sheets of *a-d* drawings I discovered, the formally and materially restrained models and the straightforward renderings and notations accompanying them. They seemed coldly mechanical, formally and imaginatively inhibited – an assemblage of utilitarian techniques whose only real value was application within the larger discipline of architecture. The aesthetic and formal concerns within *a-d* appeared to me significantly under-developed when compared with contemporary art and craft practices.

As my studies progressed, I engaged more deeply with *a-d* within educational and professional settings and my views began to change, I began to see that *a-d* is in fact an expansive, complex and extremely

flexible apparatus possessing great formal and conceptual beauty. I also began to believe that it is wasted upon architecture and architects.

A-d is an apparatus that describes, critiques and invents the stuff of the world. It shares this ability with a number of other practices, including language. When language is transcribed through text it can be the droll prose of a technical manual or the unnerving lines of Mallarme, it can scream definite and life saving warnings about what we must not do or help us to question the universe through philosophy.

Similarly, *a-d* can perform a broad range of uses, it can describe precisely where sinks, toilets and power points should be placed within a building and it can invent, develop and describe architectural forms that purport to facilitate direct communication with deities, nature and the stars, potentially within the same instance of *a-d*. Like text, it is vehicular, a kind of *haulage*, it carries our thoughts and desires. It presents scaled simulacrums of the world, as drawings, images, models and notations, allowing us to measure, describe and imagine space and objects as well as plan and implement their production.

Remarkably, this implementation does not need to manifest in the world, *a-d* can stay as lines on a page, a small cardboard model, an image, a set of notations. It has an extensive and influential history as speculative practice, as a process that simply analyses and proposes without pushing itself upon the world. It can remain as simulacrums of other worlds scaled to the size of jewellery, ethereal and held in place not by mass and gravity, but through conceptual weight – through imagination and potentiality.

Utilising *a-d* within other disciplines is not a claim upon the territory of architects, *a-d* does not belong to architecture or architects. It is an apparatus, a gathering of requisites, that has been yoked to architectural practice to facilitate architecture's often fraught and questionable ends. This project is not a wresting away, but is instead a reclaiming, a reassessment, an opportunity for *a-d* to stretch its limbs free of its current strictures.

'In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province. In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations, who were not so fond of the Study of Cartography as their Forebears had been, saw that that vast Map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars; in all the Land there is no other Relic of the Disciplines of Geography.

Suarez Miranda, *Viajes de varones prudentes*, Libro IV, Cap. XLV, Lerida, 1658'¹

¹ Jorge Luis Borges, *Collected Fictions*, trans. Andrew Hurley (Viking, 1998). p. 325.

Prologue: A Miniature City

The practice and development of architecture is most commonly performed, communicated and understood through *a-d*. This unique assemblage of gathered elements also composes a network of artefacts and conceptual structures that describes and proposes spaces for us to inhabit both physically and imaginatively. When considered together these artefacts and structures can be imagined to construct a miniature city of scaled drawings, images, models and notations that exists between us and the spaces of the world.

Both substance and representation of this miniature city, *a-d* references our thoughts and the biological realities of our existence, it records the world as it is and as it has been and proposes to imagine it anew. A *speculative* city emerges from its artefacts and the spaces described as it traces and maps potentiality. Composed of deliberate, intuitive and accidental processes, it is static mnemonic structure and protean and malleable dimension.

The Miniature City is continually remade, the spaces we imagine and create are woven into it as garlands or inflicted upon it as wounds. Our subjective spaces are described within it through our bodies and the workings of our bodies as culture, it promulgates what we believe, imagine, formulate and discover. The complex and all-encompassing formations, both physical and conceptual that surround us are traced and mapped within The Miniature City as it seeks to translate the materials of the world into a dialogue of spaces, acting as demiurge² and warden.

An apparatus of composition and containment, its nature is succinctly, if rather glibly, revealed in Goethe's analogy 'architecture is frozen music'.³ This locates *a-d* as a 'score', a musical score begets music, *a-d* begets architecture. Goethe lets us imagine that architecture is the performance

² Paul Emmons, "Demiurgic Lines: Line-Making and the Architectural Imagination," *Journal of Architecture* 19, no. 4 (2014).

³ Eckermann Johann Peter, Fuller Margaret, and Goethe Johann Wolfgang von, *Conversations with Goethe in the Last Years of His Life*, (Boston: Hilliard, Gray and Company, 1839), <https://ezp.lib.unimelb.edu.au/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=edseur&AN=edseur..9200143.BibliographicResource.2000069306218&site=eds-live&scope=site>. Monograph. p. 282.

of *a-d*. A performance that also exposes the inherent contradiction within notational systems – their pretence to precise instruction.

Both musical and architectural notation cannot create the same thing over and over, instead they provide doorways upon an infinite dimension of approximation and variation. This is because, to paraphrase the architect Robin Evans, before we start, we can never really be sure of our outcomes.⁴ These notations pretend specificity while creating firmaments of infinite variation. Each performance of a score is different, if only subtly, because it is always encumbered more or less by the opportunities and problems inherent in translation, interpretation and realisation.

We can imagine *a-d* as a miniature city because it is a score that notates this variability as a process of articulation and performance of abstracted dimensional spaces, demarcated by materials, both real and imagined, that seek to contain and direct our bodies. It is an apparatus that defines as it divides, whilst also creating propositions, a quality it shares with musical notation. However, unlike music's transience, which seeks only to call up momentary and ethereal existences that appear and disappear in an instant, *a-d* convinces us that it proposes explicit changes to the world. This simultaneous analysis and proposition creates topographies of potentiality that connect our subjectivity and imaginations with the world around us, like the private rooms and public spaces of a city.

⁴ Robin Evans, "Translations from Drawing to Building," in *Translations from Drawing to Building* (Cambridge Massachusetts: The MIT Press, 1997), p. 182.

- Borges, Jorge Luis. *Collected Fictions*. Translated by Andrew Hurley. Viking, 1998.
- Emmons, Paul. "Demiurgic Lines: Line-Making and the Architectural Imagination." *Journal of Architecture* 19, no. 4 (07// 2014): 536-59.
- Evans, Robin. "Translations from Drawing to Building." In *Translations from Drawing to Building*, 152-93. Cambridge Massachusetts: The MIT Press, 1997.
- Johann Peter, Eckermann, Fuller Margaret, and Goethe Johann Wolfgang von. *Conversations with Goethe in the Last Years of His Life*. Boston: Hilliard, Gray and Company, 1839. Monograph.
<https://ezp.lib.unimelb.edu.au/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=edseur&AN=edseur..9200143.BibliographicResource.2000069306218&site=eds-live&scope=site>.

What is Architectural-documentation?

A-d is not a homogeneous entity, rather it is an assemblage of techniques, practices and concepts gathered from disciplines adjacent and adjunctive to the practice of architecture. It is the simultaneous use of these elements to manifest the description, division and manipulation of space through materials and the facture of building, that identifies *a-d*.

As an apparatus *a-d* can translate and incorporate concepts, information and processes from multiple sources transmuting them into architectural output. It traverses bodies of knowledge as diverse as the physical and documentary traces of human civilisation, technical and scientific disciplines, aesthetic concerns, mathematical concepts, analysis of human senses and beliefs, as well as the quotidian demands of human existence.

Theoretical discourses surrounding the practice of architecture utilise *a-d* for articulation, as means to critically analyse and propose readings and understandings of architectural projects and theories.¹ It is an essential part of architectural discourse, allowing discussion of existing buildings, but also those that have been changed, lost, destroyed, or simply imagined.

¹ Edward Robbins, "The Social Uses of Drawing: Drawing and Architectural Practice," in *Why Architects Draw* (Cambridge, Mass.: MIT Press, 1994). p. 4.

Today *a-d* is recognised as an apparatus of the discipline of architecture, however it is also utilised as a more general means of thinking.² What makes it appropriate for this task is also what connects it to surrounding disciplines and bodies of knowledge. Because *a-d* is an apparatus composed of familiar, standardised and accessible elements, it can be understood and implemented by a broad range of users as means of both discussion and direction.

When *a-d* is used in this way it becomes more than an apparatus for architecture. It is an apparatus that constructs, reinforces and ultimately makes visible through its artefacts, a complex of diverse networks and conceptual topographies that connect the practice of architecture to the social and cultural systems surrounding it.

Contradiction

A-d operates across a range of levels of precision, at one end are imprecise, expressive outputs produced to provide intuitive, emotive invocations of architectural forms.³ These outputs often share materials, techniques and aesthetics with art practices.⁴ At the opposite end are highly technical, precise and specialised outputs, created to convey how a built work will function, or be enacted.⁵ These outputs reveal the history and practices that *a-d* shares with engineering, stonemasonry, building, mathematics and adjacent scientific disciplines.

A-d is fundamentally multivalent in its techniques, connections and outputs, but crucially, it always transmutes its diverse influences and possibilities into a practice for the design, construction and analysis of *architecture*. This process of 'reduction' to architecture defines *a-d* and it is important to acknowledge this, for if this project is to have cogency we must accept that *a-d* is currently defined by the practice of architecture

² Paul Emmons, "Demiurgic Lines: Line-Making and the Architectural Imagination," *Journal of Architecture* 19, no. 4 (2014). p. 537.

³ Robbins. p. 2.

⁴ Robin Evans, "Architectural Projection," in *Architecture and Its Image. Four Centuries of Architectural Representation. Works from the Collection of the Canadian Centre for Architecture*, ed. Eve Blau and Edward Kaufman (Montreal, Canada: Canadian Centre for Architecture, 1989). p. 33-34.

⁵ Robbins. p. 2.

and that it is possible to simultaneously conceptualise it as a separate entity.

To begin to do this we can observe that although *a-d* exists within the practice of architecture it depends upon external practices and disciplines to enact itself, it gathers and utilises these elements within the constraints and intentions of *an apparatus*. We can see this clearly in its use of *a-d drawing*. Drawing is utilised across a broad range of disciplines, but it is conscripted to a very specific role within *a-d* – it describes buildings and spaces, with lines of specific types, utilising specific techniques. It does this not only to produce certain outputs but also to distinguish *a-d drawing* as specific to architecture practice.

Architecture practice constrains the use of drawing within *a-d* to specific methods of representation. In turn it is also influenced by the constraints of the drawing techniques it has adopted, this affects the architectural forms that may be described.⁶ Drawing is used to produce architecture, but this process changes the very possibilities of the architecture it *can* produce. There is a back and forth between the act of drawing and the act of designing, the practice of drawing, deliberately or otherwise, becomes an integral generative process.⁷ This reveals a potential within *a-d drawing* and *a-d* more generally, for influence and a subsequent adaptive re-use and re-interpretation.

When we accept that *a-d* is an apparatus composed of elements from surrounding disciplines and practices, the assertion that *a-d* can be practiced as a distinct entity seems less wilfully obdurate. We *intuit* that *a-d* is an apparatus of potential that may be adapted for other uses. This is further reinforced when we consider two obvious but often overlooked truisms about the practice of architecture:

- I. Architects do not make architecture, they make *a-d*.⁸

⁶ Evans. p. 20,21.

⁷ Ibid. p. 25.

⁸ Emmons. p. 536.

- II. *A-d* is never architecture, it is always only itself – a combination of drawings, images, models and notations that analyses and proposes architecture.⁹

These points clearly articulate a separation between the architect, the practice of architecture as *a-d* and architecture as built form. The architect operates rarely as a maker of buildings. Instead they conduct their business through the apparatus of *a-d*, in the space between what the human mind can imagine and what the human hand can make.¹⁰ I would argue that, *a-d* is *already* operating as its own distinct form, it is not architecture, it is not building, it is a gathered apparatus that works *with* and *upon* the architect, to enable the construction of architecture.

A-d is then *allographic*, it assumes the identity of the objects it describes, it is 'an intervening medium'.¹¹ The discipline of architecture is in fact one that advances its forms via proxy, with no implicit requirement to produce the physical outputs it proposes. This clear schism of ideation and facture, I believe, fully concedes the viability of an excision of *a-d* from the practice of architecture.

⁹ Robin Evans, "Translations from Drawing to Building," in *Translations from Drawing to Building* (Cambridge Massachusetts: The MIT Press, 1997). p. 156,165.

¹⁰ See Chapter VI, XVI: John Ruskin, *The Stones of Venice, Volume Ii (of 3)*, [Electronic Resource], Project Gutenberg: 30755 (Project Gutenberg, 2009., 2009).

¹¹ Evans. p. 156.

How is Architectural-documentation Practiced within this Project?

The small size of this project and the broad nature of *a-d* has necessitated a focus upon a single element as testing ground for the project's aims and intuitions. For this reason, I have selected the most salient element, whose techniques and outputs lend themselves to transposition and experimentation and which fully engages architectural history and modern technologies, this element is of course *a-d drawing*.

In addition to a focus upon drawing this project privileges digital drafting and its associated techniques and technologies. This is for two primary reasons. Firstly, the development of digital drafting has produced a new relationship between the body and the lines of *a-d drawing*, offering the possibility of a re-evaluation of this connection. Secondly, digital drafting can utilise an infinitely scaled space. This digital space has unmoored the lines of *a-d drawing* and by association the body that produces them. It casts them free of the traditional relations between drawing and object, the digital line exists in an abstract dimension of potentiality and ambiguous meaning, one innately available for experimentation.

The lines of *a-d drawing* within a digital dimension are fundamentally different to lines from a pencil or pen, they do not create a thickness of material in the world. Instead they oscillate between the weightlessness of the imagination and the weightlessness of digital space. When *a-d* is utilised as a *thinking* tool the techniques and technologies it employs extend the human body beyond its physical boundaries, its tools become limbic and sensory extensions.¹² Practiced within digital space *a-d drawing* is not bound by the physical world. It extends itself into a newly abstracted and conceptualised dimension and as it does this it creates possibilities for surveying new terrains and practices.

¹² Richard Menary, *The Extended Mind*, Life and Mind (Cambridge, Massachusetts : The MIT Press, [2010], 2010).

Line

The fundamental element of *a-d drawing* is line, it is through line that the boundaries of a building and the spaces it contains are described.¹³ Within *a-d drawing*, lines become a substitute for materials of a building, they are used to describe what is, what will be, how it will be arranged and where it will be located.

Traditionally *a-d drawing* is dependant upon access to paper, drawing utensils and mediums, tools appropriate for the making and measuring of lines and the drawing techniques of orthographic projection.¹⁴ The precise date and location of these conditions first being met is uncertain, instead it appears to have occurred incrementally. In Europe, the period from the middle of the thirteenth century until the sixteenth century was the temporal locus for the development of modern *a-d drawing* practices.¹⁵

As paper production increased the traditional tools and processes of the stonemason were miniaturised, the stonemason's divider became the compass, the knotted ropes used to mark out a site became the ruler and dimension lines and the cleared site became the page.¹⁶ The movements of the builder upon the site were transcribed by the newly conceptualised figure of the architect into lines.¹⁷ Through this change of scale and location, the technique of orthographic projection was developed and refined until it became the dominant mode of architectural representation.¹⁸

¹³ Emmons. p. 536,540.

¹⁴ Franklin Toker, "Gothic Architecture by Remote Control: An Illustrated Building Contract of 1340," *Art bulletin* 67, no. 1 (1985). p. 70; Emmons. p. 538.

¹⁵ Ibid. p. 69-71, 87.

¹⁶ Emmons. p. 538.; "Size Matters: Virtual Scale and Bodily Imagination in Architectural Drawing," *ARQ: Architectural Research Quarterly* 9, no. 3/4 (2005). p. 228.; Antonio Averlino, *Filarete's Treatise on Architecture* (New Haven : Yale Univ. Pr., 1965., 1965). 177r.

¹⁷ John Evelyn, *Publick Employment and an Active Life Prefer'd to Solitude and All Its Appanages, Such as Fame, Command, Riches, Conversation, &C. [Electronic Resource] : In Reply to a Late Ingenious Essay of a Contrary Title*, Early English Books Online (London : Printed by J.M. for H. Herringman ..., 1667., 1667).

¹⁸ Toker. p. 87.

Most historical and contemporary *a-d drawing* utilises monochromatic lines that vary only by thickness and type – solid or broken. These lines do the majority of the work, assisted occasionally by tonal rendering or colour. By employing this limited range of possibilities within various conventions and the technique of orthographic projection, *a-d drawing* can describe complex and expansive assemblages of objects, systems, materials and temporal sequences within specific divisions of space.

Although simple, the lines employed by *a-d drawing* are never blank, they are imbued with meaning beyond architectural representation. They connect to the history of drawing and more generally to ancient practices of art and ornament. As Paul Emmons has shown, they are resonant with the natural world, drawing their qualities from phenomenon such as the movement of air (insulation lines), implied knowledge of what lies within or behind surfaces (the dashed line) and the projection of the body as graphic representation (flow lines).¹⁹

The lines of *a-d drawing* are iconic indices – their form is related to the objects they represent, as Emmons notes, they are not arbitrary, but neither is their meaning strictly conscribed.²⁰ The lines of *a-d drawing* require interpretation to produce meaning, they require engagement and an awareness of their implicit and potential histories and connections.²¹ They are purposeful, interpretative and inventive lines of representation and boundary that create links to complex systems of knowledge and are drawn from the natural world and the histories of human culture.

Scale

The lines of *a-d drawing* work as an integrated scalable device, they are always drawn to a scale, from 1:1 (full-scale) to any ratio that enables a practical depiction of the space or object being represented. This act of scaling reveals two fundamental qualities. The first is an ability to make space a *material* that can be manipulated – space becomes processable,

¹⁹ Emmons, "Demiurgic Lines: Line-Making and the Architectural Imagination." p. 545, 543, 548.

²⁰ Ibid. p. 539.

²¹ Ibid.

dividable and scalable. The second is that when we remake space in this way, we do it in direct relation to the fixed reference point of our bodies.²²

A sheet of *a-d drawing* is not just a space depicted in miniature, it has a consistent specific ratio to its object and it is these specific ratios that directly or indirectly relate to our bodies.²³ The history of the use of scales in *a-d drawing* reveals that the first drawn scales used during the sixteenth century were based directly upon elements of the human body.²⁴ Space is reduced by *a-d drawing* to the scale (and reach) of our hands, our eyes, our limbs, our comprehension – we bring the universe into the orbit of our bodies so that we can propose transformations.²⁵

Providing its own viewpoint, *a-d drawing* changes the connection between our real bodies in immediate space and the imagined body depicted within scaled space. We use the stable entity of our bodies to make sense of the relative sizes of the spaces and things around us and those depicted.²⁶ A fundamental condition of *a-d drawing* is its ability to connect and disconnect our bodies to real and scaled space, repeating this process as required to locate our-selves imaginatively.

Measurement

With scaling comes a requirement for measure, to measure we must use something present in the world as a ‘norm’ to compare against something else.²⁷ The first iterations of *a-d drawing* measured the physical objects and spaces of the world against our bodies. As Tim Adamson notes this was the Socratic intuition manifest in the facture of building – that all knowledge is based upon the presence of a standard against which things can be measured.²⁸

²² "Size Matters: Virtual Scale and Bodily Imagination in Architectural Drawing." p. 233.

²³ Ibid. p. 227.

²⁴ Ibid. p. 228.

²⁵ Ibid. p. 233.

²⁶ Ibid. p. 232.

²⁷ Tim Adamson, "Measure for Measure," *Ethics & the Environment* 10, no. 2 (2005). p. 177.

²⁸ Plato, "Timeaus," in *The Complete Dialogues of Plato*, ed. Edith Hamilton and Huntington Cairns (Princeton: Princeton University Press, 1971).

Our bodies are the centres of our measuring and our understanding. Maurice Merleau-Ponty calls them 'the measurant of things',²⁹ a fundamental norm to compare against the stuff of the world. This locates our bodies both between and within, nature and culture, able to act as measure in either direction, it allows the ambiguous, changing nature of our bodies to be reconcilable with both.³⁰

The body is thus more than a mere object, it has the power to remove and connect itself to and from things and like all measurants, to measure against and to be measured against.³¹ The body is both within the world and without, infused into it, this inescapable interaction, a constant state of *participation*, creates meaning.³²

Since Einstein's discoveries in relativity we have been confronted with the possibility that there is no universal datum point and consequently no objective measure from which we may begin our comprehension of the universe.³³ Instead we must create frames of measurement within local regions to gather meaning.³⁴ Unsurprisingly modern science does not locate our bodies as the immutable centre of our measurement systems. Resisting this view of existence, *a-d drawing* has stubbornly maintained the human body as central to its practice.

However, *a-d drawing* can oscillate between both viewpoints; the human body is still the primary datum point, measurant for the experiential qualities of architecture and the primary tool of creation, but it also reflects Einstein's discoveries, albeit in a localised manner. It always creates its own frame of reference – the site and building, through which all of its analysis and propositions are made. The units of measurement may change, depending upon locality and requirements, however the processes and performances within these are always measured in relation

²⁹ Maurice Merleau-Ponty and Claude Lefort, *The Visible and the Invisible : Followed by Working Notes*, Northwestern University Studies in Phenomenology & Existential Philosophy (Evanston [Ill.] : Northwestern University Press, 1968., 1968).

³⁰ Ibid.; Cited in, Adamson. p. 186.

³¹ Adamson. p. 188.

³² Ibid.

³³ Albert Einstein, *Relativity*, trans. Robert W. Lawson (New York: Wing Books, 1961).Cited in; Adamson. p. 181.

³⁴ Einstein.Cited in; Adamson. p. 181.

to one another and their boundaries, never against a distant or unrelated datum point.

This reinforces an important point – *a-d drawing* creates its frames of reference both with *and* within a local region.³⁵ In this way it adopts and develops arbitrary local measurements of a site and building which are vital elements in its process of analysis and proposition. At its core *a-d drawing* is a system of measurement and comparison of local elements against one another *and* against the measurant of our bodies. Together they ascribe, describe and create meaning from the seeming arbitrariness of the universe.

Orthographic Projection

We have seen that the primary production of architects is *a-d*, with *a-d drawing* as its most salient output. Within this practice the most consistently used system of representation is orthogonal projection.³⁶ Robin Evans argues that all *a-d drawing* contains an element of projection, all share a reliance upon various arrays of imaginary straight lines that pass from the drawing to corresponding parts of the thing represented.³⁷ The technique of orthogonal projection however allows for a particularly reliable transfer of information regarding shape and size, from two-dimensional representations to embodied objects.³⁸ This has meant it has become the dominant technique of *a-d drawing*, however, it has limitations, in part because it is a technique that as Evans succinctly notes, ‘it is easier to make things from than to see things with’.³⁹

The character of orthographic projection is not only description and transference of information, it is also one of abstraction. The process of architectural conception is by its nature abstracted both because of distance – the majority of decisions regarding architecture are made before construction, and through a reliance upon a highly structured process of design. This is evident within the process of orthogonal

³⁵ Adamson. p. 181.

³⁶ Evans, p. 21.

³⁷ Ibid., p. 19.

³⁸ Ibid. p. 21.

³⁹ Ibid.

projection when it reduces complex three-dimensional objects to abstracted sets of surfaces re-positioned parallel to the surface of a page.⁴⁰

In a classical conception of the architectural process the idea is fully formed in the mind of the architect before being transferred to paper and then to three-dimensions.⁴¹ The use of *a-d drawing* has instead engendered an imaginative and abstracted conception of architecture which requires that it be undertaken *in engagement* with the physical processes of creation and the conceptual circumstances it eludes to. The problem with engagement of this kind, as Evans notes, is that it makes the relationship between ideas and things mutable and inconstant.⁴² This mutability encourages experimentation which has allowed *a-d* and *a-d drawing* in particular, to become a prolific means of architectural speculation and conceptualisation.⁴³

The technique of orthographic projection provides for depiction and measurement of both real and imaginary things.⁴⁴ It is a mapping procedure that describes and locates things in the real or imagined worlds and can treat both locations as equally viable and plausible. In this way it is a form of knowledge generation about existence and its possibilities, a link between the abstract and mutable processes of the imagination and our pragmatic and mundane needs and imperatives.

Conventionally, orthographic projection consists of three drawings – plan, section and elevation (figure 1). This sequence of drawings has evolved as the fundamental ‘set’ to describe the exterior and interior of an architectural object, and its relation to surrounding space.⁴⁵ However, these views are partisan.⁴⁶ We can only trust that this set of drawings *is enough* – that they provide the correct information to truly describe what they propose.⁴⁷ Yet we intuitively know that any drawing set, even the most detailed, cannot provide complete information about the things they

⁴⁰ Ibid.

⁴¹ Ibid. p. 20.

⁴² Ibid.

⁴³ Ibid.

⁴⁴ Ibid. p. 24.

⁴⁵ Ibid. p. 22.

⁴⁶ Ibid. p. 24.

⁴⁷ Ibid. p. 25.

depict. The drawings inevitably inflect and control the process of translation, potentially obscuring and distorting what we can discern.

The dual nature of orthographic projection, on one hand making the real and imaginary transcribable and at the same time influencing and controlling our understanding of the things depicted, illustrates both its abilities and its shortcomings. Orthographic projection may be able to freeze vectors of directional projections, real or imagined, as complex structures of line, but it is always the observer's intellect and imagination that must make the final effort of translation to find meaning in what is presented.

Axonometric Projection

Axonometric projection shares the use of projections of parallel projectors with orthographic projection, but unlike orthogonal projection which focuses predominantly upon turning objects into discrete surfaces parallel to the picture plane, axonometric projection adds depth to projected surfaces (figure 2). It locates them within an abstracted infinite space and at the same time paradoxically offers the possibility of maintaining precise relational measurements with the real world.

Similar to orthographic, axonometric projection exerts control over the depictions and information it provides. When composed of lines only, it is continuously mutable, alternating its dominant surfaces and sense of direction.⁴⁸ This nature undermines its use as a technique for construction, with it open to mis-readings or mis-understandings. Axonometric projection is not bound by the fixed stares of perspective or orthogonal projection, instead it replaces these with an ambiguous, infinite space, one that can be deliberately or inadvertently, imaginatively abstract.

Although not part of the traditional set of *a-d drawing*, axonometric projection is a useful adjunctive technique. It has an extensive history, early manifestations ranged from representations of fortifications to

⁴⁸ Richard Difford, "Conversions of Relief: On the Perception of Depth in Drawings," *Journal of Architecture* 19, no. 4 (2014). p. 500.

industrial products.⁴⁹ However, it was only fully integrated within architectural practice during the twentieth century. The ambiguous nature of axonometric drawing was utilised to accentuate the modern schism with traditional practices, aesthetics and conceptions of pictorial space, eschewing the dominance of perspective in visual representation.⁵⁰

Axonometric projection is contradictory, it both records the object or site as it is – measurements and proportional relationships can be made correct in three axes – and yet it unmoors the object or site from the surface upon which it sits, floating it freely within an imagined void. It is at once a measurement of the ‘real’ and a documenting of that same reality as imaginative, conceptual abstraction. It provides a complete visualisation, but one that is astable, oscillating between abstraction, the usefulness of orthogonal projection and an ambiguous illusionistic potential.

The Drawing Set

It is the grouping of the plan, section and elevation that forms the basis of modern *a-d drawing*.⁵¹ The architectural object described within this set is a contiguous object projected and dispersed as a series of surfaces. This process does not produce a contiguous object like one held within the hand, instead it produces an object to be held within the eye and the mind. It requires a stitching together of at least these three drawings by the viewers imagination to conceptually construct the object for appraisal.

Although it is theoretically possible to describe in precise detail any architectural object with *a-d drawing*, this detail is always contingent upon the ability of the viewer to conceptually join the lines of the drawing set into a whole. This skill takes time to develop, not unlike the ability to read text. Text constructs meaning from letters and words, *a-d drawing* can be understood as a similar performance, but one that constructs meaning from line, scale and measure.

⁴⁹ Evans. p. 24.

⁵⁰ Difford. p. 484; Evans. p. 33,34.

⁵¹ Evans. p. 20,21.

As a set, the plan, section and elevation together provide the ability to describe, circle and gain access to, the imagined architectural object. The plan allows us to comprehend the layout of the architectural object, to understand its relations and relative spaces and to intuit its component parts, usefulness and amenity for the human body. The section describes the internal spaces but also potentially the structural, technological, and material qualities of a building – the ‘experience’ of the interior spaces and a description of the material qualities and structure of the walls, floor and ceiling that enclose those spaces. The elevation is the external surfaces of the architectural object and although they are not drawn to represent how we might see them, we can stitch together the outer skin of an object to envision a relationship of surfaces, to create a fully contiguous enclosure.

Considered together, these three drawing types not only describe and locate an architectural object in space, they also provide a proxy for temporal experience, allowing us to imaginatively navigate these objects in an abstracted space-time, broaching surfaces, connections and thresholds to produce an experiential sum. This experience is the object located in relation to the rest of the universe and to a sequence of time. The object represented within a drawing set is partially defined by our imagined movements and the relationships this creates with the spaces and surfaces. We can understand space as dimensions, but also as temporal sequences, our eyes and minds move through these abstracted spaces as our bodies would, negotiating and experiencing them subjectively through the proxies of our imaginations.

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The primary antecedent of architectural theory is *De Architectura* by Marcus Vitruvius Pollio, it is known in English as *The Ten Books on Architecture*. Written in the first century BCE, it is ostensibly a tribute to Emperor Caesar Augustus and his building works.¹ More fully, it is a personal summation of Vitruvius' life and work as an soldier, architect and engineer for the Roman Empire and a potent, if somewhat unrefined, argument for the consideration of architecture as a Liberal Art.² The *Ten Books* provides both an ancient source of Roman and Greek architectural history and conventions and a personal account of the practice of architecture coloured by the author's experiences, intuitions and beliefs.

This first document of architectural theory has come through history without its original illustrations.³ Like absent limbs, the missing illustrations preclude a complete comprehension of the body of the text, causing ambiguities.⁴ The text of Vitruvius' *Ten Books* not only begins a lineage within Western architectural theory, but also marks out a space for *a-d*, circumscribing a void where the lost drawings would be. Through

¹ R. D. Dripps, "The Origin of Dwelling," in *The First House: Myth, Paradigm and the Task of Architecture* (Cambridge: MIT Press, 1997). p. 4.

² Ingrid Rowland, "The Fra Giocondo Vitruvius at 500 (1511-2011)," *Journal of the Society of Architectural Historians* 70, no. 3 (2011). p. 286.

³ Ibid. p. 286.

⁴ Ibid.

absence, the fundamental importance that *a-d* and particularly *a-d-drawing* has for discourses of architecture is revealed.

Although Vitruvius' work is over 2000 years old, it was not until the early Renaissance that it came to occupy its central position within the practice of architecture.⁵ As the invention of the printing press dramatically increased the availability and range of written documents, access to ancient texts became more widespread. Vitruvius's work was translated and printed early in this process and was reproduced in a number of translations by the end of the fifteenth century.⁶ Consequently it was disseminated widely, ultimately becoming the pre-eminent work from which all architectural study began.⁷

Spread through these new printed translations, built architecture that took it as precedent and theoretical works that took it as model or source, Vitruvius' text influenced architectural theory and practice profoundly.⁸ It inspired many contemporary texts including those by Fra Giocondo, Leon Battista Alberti, Andrea Palladio and Sebastiano Serlio.

An important source text during the Renaissance, the *Ten Books* provided a direct connection to the ancient architecture of the Romans and Greeks. Its influence was profound and central to the Renaissance, clearly evident when we consider that the first popular translation of the *Ten Books*, which included 136 newly produced woodcuts, was published by Fra Giocondo who was also a colleague, mentor and friend to Raphael.⁹

As the Renaissance developed, the texts, documents and buildings by Giocondo, Alberti, Palladio and Serlio et al. provided a means to test, articulate and disseminate Vitruvius' teachings. This transmission of knowledge was made more accessible, precise, and noumenal, in part because of the use and development of the apparatus of *a-d drawing* in conjunction with Vitruvius' text.

⁵ Ibid. p. 285.

⁶ Ibid.

⁷ Ibid. p. 288.

⁸ Ibid.

⁹ Ibid. p. 289.

The modern architecture discipline also owes much to Vitruvius' text for many of its fundamental concerns and practices.¹⁰ The reactive schism of Modernist architecture, a forceful, if somewhat inconsistent admonishment of historical architecture, is directed at least in part at the influence of Vitruvius' *Ten Books*.¹¹ For over five hundred years Vitruvius's text has been both a bridge to the ancient history of architecture, a foundation stone of modern architectural theory and a justification for starting inter-generational quarrels.

An Origin for Shelter

There is a short section in Vitruvius' *Ten Books*, Chapter One of Book Two, *The Origin of the Dwelling House*, in which Vitruvius connects human society and culture to the development of shelter. This origin story does not come from a single instance of divine revelation, but is instead, as Vitruvius freely admits, an assemblage of instruction, opinion and myth.¹²

Vitruvius' origin story occupies a conflicted space in architectural discourse, it is a space that has been described by Robin Dripps as 'precarious... between history and the timeless independence of myth'.¹³ It is as history that the majority of Vitruvius' *Ten Books* can be read and yet *The Origin of the Dwelling House* is undoubtedly a type of creation myth, defining the making of shelter, and by implication architecture and human dwelling as a primal practice that leads to human society and culture.

At the centre of the origin story is the discovery of fire and the cleared space it creates in the forest (figure 3). This clearing creates both a new site, a new type of landscape and marks those that inhabit it as changed.¹⁴

¹⁰ Ibid. p. 285.

¹¹ Carroll William Westfall, "Vitruvius as the Model for Modernist Architects," (2015). p. 4.

¹² Vitruvius Pollio, *The Ten Books on Architecture*, trans. Morris Hicky Morgan (Cambridge: Harvard University Press, 1914). p. 37.

¹³ Dripps. p. 7.

¹⁴ Pollio. p. 38.

'...it was the discovery of fire that originally gave rise to the coming together of [human beings], to the deliberative assembly, and to social intercourse. And so, as they kept coming together in greater numbers into one place, finding themselves naturally gifted beyond the other animals in not being obliged to walk with faces to the ground, but upright and gazing upon the splendour of the starry firmament, and also in being able to do with ease whatever they chose with their hands and fingers, they began in that first assembly to construct shelters. Some made them of green boughs, others dug caves on mountain sides, and some, in imitation of the nests of swallows and the way they built, made places of refuge out of mud and twigs. Next, by observing the shelters of others and adding new details to their own inventions, they constructed better and better kinds of huts as time went on.'¹⁵

This myth presents fire as not only the origin of discourse and culture, but also of critical analysis and invention. According to Vitruvius, it is not one type of shelter that is the origin of architecture but instead a multivalent collection of shelters produced through comparison and variation, with and against nature, that instigates technological and aesthetic innovation.

Vitruvius's story may be a mythic and literary assemblage, yet it exposes intuited truths. Discovering fire and its ability to clear and light the world must have dramatically altered our ancestors view of the world. The discovery of their ability to construct shelter would have done likewise, changing how they understood their bodies in relation to the world. It removed them (if only slightly) from the impact of its vagaries and dangers and let them begin to see that the world was malleable.

Interestingly, Vitruvius notes the particular shape and form of our bodies and its suitability for this new world. Our gaze upwards and outwards takes in the 'starry firmament', this view also makes horizons of open spaces, allowing us to see the topography of the land around us.¹⁶

¹⁵ Ibid. p. 38-39.

¹⁶ Ibid. p. 38.

Our tactile abilities, further developed through building, enhance our ability to be in the world. According to Vitruvius, we are able to contemplate a scale of experience from the scorched earth of a clearing to the infinite ceiling of the sky and our ancestors responded instinctively with a desire to remake what they saw.

A Temporal Form

For Vitruvius it is our 'imitative and teachable natures' and the process of sharpening these abilities by emulation, that makes us able to see the possibilities of the world around us.¹⁷ This is true he suggests for the development of the hut and subsequently architecture, but also for the development of 'civilisation and refinement'.¹⁸ Vitruvius clearly believes that building is the fundamental practice, from which he also believes, ultimately stems the other arts and sciences.¹⁹

In *The Origin of the Dwelling House*, Vitruvius describes an ancient landscape dotted with a panoply of huts in diverse shapes and materials, amongst this collection is one he gives a precise name, *The Hut of Romulus (Casa Romuli)*. Vitruvius describes its form as a 'reminder of the fashions of old times'.²⁰ This hut held a significant place in the mythology of Rome. Located upon the south-western side of Palatine Hill, it may have represented the hut in which, according to some origin myths of Rome, Romulus and Remus were raised by the shepherd Faustulus after being found within a she-wolf's nearby cave, known as the Lupercal (figure 4).²¹ The hut was seemingly used as a ceremonial structure into the 4th century, some eleven-hundred years after the founding of Rome.²² An anachronistic architectural memory, it was maintained in its original

¹⁷ Ibid. p. 39.

¹⁸ Ibid. p. 40.

¹⁹ Ibid.

²⁰ Ibid.

²¹ Samuel Ball Platner, *A Topographical Dictionary of Rome* (London: Oxford University Press, 1929). p. 101; Augusto Frascchetti, Marian Hill, and Kevin Windle, "The Twins," in *The Foundation of Rome* (Edinburgh University Press, 2005). p. 3.

²² Frascchetti et al. p. 16.

rudimentary form as a site for offerings, occasionally fire would damage or destroy the hut, when this occurred it was rebuilt exactly as before.²³

The human connection between land, fire and our dwellings is prosaic in its conspicuousness, yet these connections are deeply important, especially when we consider how intimately they connect us to our ancient ancestors.

The indigenous Latian people of the region upon which Rome is built and who were perhaps some of its earliest inhabitants are known principally through the archaeological remains of their tombs.²⁴ Significant amongst the archaeological remains of these Late Bronze-age people are beautiful pottery vessels that were produced until the 8th century BCE (figure 5).²⁵ These vessels are small funerary urns representing simple wattle and daub shelters based upon those that the deceased people occupied whilst alive.²⁶ The indigenous nature of these huts coupled with their temporal and physical locations makes them credible precedents for the form of *The Hut of Romulus*.

This basic form connects sites, bodies, mythologies and cultures over hundreds of years. It provides a cogent link between shelter as Vitruvian prototype, pragmatic and utilitarian, the outcome of environmental conditions and physical abilities and architectural form as shelter into the afterlife, a means of spiritual, physical and conceptual transference. The form of the hut becomes a crucial participant in the processes of mythic creation, ceremonial worship and place making.

There is an abstract purity to the Latian hut funerary urns – a single material, a single purpose, devoid of the comings and going of its larger, messier and more complex precedents. It is simply a dwelling place for the body, abstracted and released from the strictures of ‘full-scale’. It is a

²³ Dionysius of Halicarnassus and Earnest Cary, *Roman Antiquities*, Loeb Classical Library: 319, 347, 357, 364, 372, 378, 388 (Harvard University Press, 1937), Electronic document. p. 271.; Platner. p. 101.

²⁴ Tim Cornell, *The Beginnings of Rome : Italy and Rome from the Bronze Age to the Punic Wars (C. 1000-264 Bc)*, Routledge History of the Ancient World (Routledge, 1995), Electronic document. p. 49.

²⁵ Ibid. p. 50.

²⁶ Ibid. p. 51.

recalling and representation of the essentials of existence – life, death and a place to dwell.

Initially pragmatic and expedient, the hut is transformed through size and material into an intimate and funereal object no longer capable of sheltering living bodies, instead it is reduced to basic elements as is the body within it, to become a shelter for fragile remains. Through a process of *haulage* across spatial, temporal and conceptual space, the shelter is re-conceptualised, re-interpreted and re-made, it is used to generate new propositions within new narratives.

This particular form occupies a range of physical and conceptual sites, it can be at once solid and real, contemporary and ancient, tangible and mnemonic. It can be both small and large and at the same time speak about ancient, contemporary and mythical spaces. It is abstracted to its purest form, then able to change its material and scale but still maintain the collective memories ascribed to it.

When it is recalled as a full-scale ceremonial structure the hut loses its physical intimacy and simplicity but gains the complexity of memory and myth. However, as memory manifest physically it is still largely freed from its original amenity, it exists but can be replaced with different materials, rebuilt as need arises. It is not the specific materials that give it purpose and meaning, it is what it represents, the collective memories projected upon and through its *form*.

Haulage

My use of the term *haulage* is drawn from Robin Evan's essay *Translations from Drawing to Building*. It is used by Evans to explain and then admonish an essentialist instrumentality in regard to art practice. This instrumentality would 'have art be a form of haulage, transporting incorporeal ideas into corporeal expressions'.²⁷ In other words an essentialism that proposes art as passive receptacle for ideas in the physical realm.

²⁷ Robin Evans, "Translations from Drawing to Building," in *Translations from Drawing to Building* (Cambridge Massachusetts: The MIT Press, 1997). p. 181.

Evans draws a similarity between this 'transportation' and all similarly prefixed nouns - transfigure, transfer, transmogrify etc. He proposes these more fully describe *the space between architectural drawing and its object*, he argues this is because we are never really able to predict 'how things will travel and what will happen to them on the way'.²⁸ Evans believes this uncertainty is positive and able to be utilised by *a-d drawing*, to discover new outcomes even though it is often an unacknowledged quality of drawing practice.²⁹ These possibilities are not remarkable, notes Evans, instead they are innate potentialities of the medium and processes³⁰

It is perhaps presumptuous of me, but I believe there is some value in combining both of Evan's concepts and stretching them a little further, over not just the space between the drawing and its object, but fully across the divide between the idea and the physical object. Haulage I believe is an appropriate word for this, but one that must also be paired with words prefixed by trans. I agree with Evans, an essentialist conception of creative practice is not a complete process or description, it is only half at best. It is haulage plus the process(es) of trans(ference) through whatever apparatus is utilised that fills the gap between idea and object, that allows something to become something-else. A receptacle is required, a 'pure vessel' of haulage but this needs a process, or processes of trans(port). I believe this is an unavoidable consequence of crossing through spaces of potentiality and here I agree completely with Evans, the apparatus of *a-d drawing* is uniquely placed to make this space and this process, visible, accessible and malleable.

In this way haulage is the clean, blank receptacle of essentialism, but its sanguine expectation of purity is *always* sullied by the imperfect processes of moving an idea *anywhere*. It is also defined by the nouns prefixed by (trans) which may be used to roughly specify what happens during this process, to note the particular quality of 'spoiling' that occurs. The haulage still occurs, just never producing a like for like exchange, or process of perfect translation, instead it produces *potentiality*. This at times wanton process does not discriminate in its discoveries – it absorbs

²⁸ Ibid. p. 182.

²⁹ Ibid.

³⁰ Ibid.

mistakes and omissions just as easily as it does deliberate, purposeful decisions.

Although architects may sometimes profess a control of their designs more akin to essentialism, I believe *a-d drawing* is far more fraught, far more complex and far more laden with potential than that. It is never a mute accomplice. As we have seen previously, *a-d drawing* is stubbornly partisan, it exerts itself upon the processes of ideation, documentation and interaction whenever it is engaged.

An Origin for Drawing

In *Natural History*, Pliny suggests that drawing has an uncertain origin, but notes that most ancient writers believe its first enunciation was the outlining of human shadow.³¹ Pliny offers his own version of this parable that extends to the invention of three-dimensional relief sculpture. Kora of Sicyon, the daughter of the potter Butades, is the first to trace the outline of a shadow; she is compelled through sadness and impending loss, to trace upon a wall, the cast shadow of her loved one before he departs abroad.³² It is from this tracing that her father models in clay the first relief profile. This origin story both locates drawing as preparatory work for the creation of objects in three-dimensions and as aid and analgesia to Kora's memory and suffering.

Pliny's origin myth shares its shadows with another ancient parable, Plato's *Allegory of the Cave*. In Plato's allegory, a group of people are restrained within a cave and unable to see behind them. Consequently, they are both physical prisoners and prisoners to the shadows that are cast upon a wall in front of them. Behind them is a wall, a fire and people who speak and walk back and forth like 'puppeteers', they carry, move and arrange various objects, creating a show of shadows on the wall opposite.³³ What the prisoners see and hear they name and give meaning to, creating a world from their enclosure and the shadows.³⁴ Plato's allegory is

³¹ Pliny, *The Natural History of Pliny*, trans. John Bostock and H. T. Riley, vol. VI (London: Henry G. Bohn, 1857). p. 228.

³² Ibid. p. 283.

³³ Plato and C. D. C. Reeve, *Republic* (Indianapolis: Hackett Pub. Co., 2004). p. 208-209.

³⁴ Ibid.

employed to suggest we live in a state similar to the prisoners, seeing only the shadows of another reality, a simulacra, not the original.³⁵

As with Vitruvius' *Origin of the Dwelling House*, these ancient stories hinge upon fire and enclosure. They define the wall of the hut, house or cave as not only a reference point to locate the body in space and the world, but also as a surface upon and through which knowledge, culture, memory and meaning can be inscribed and read.

The architectural theorist August Schmarsow elegantly distilled these ideas when he suggested that 'Every spatial creation is first and foremost the enclosing of a subject'.³⁶ Kora of Sicyon draws the silhouette of her loved one both onto and into her own subjective space and in turn transposes the internal subjective space of her body and memory as both drawing and architecture. Plato's prisoners do likewise, but instead of adding to the surface of the wall opposite them, they draw meaning from it, imagining a bounded reality from what it reveals through the changing shadows upon its surface.

Drawing creates an elemental link between our bodies and our spaces, it traces and makes visible what we project into and read from, the world. This tracing also describes outlines and boundaries for our bodies and the spaces surrounding us. As we engage this process, we enclose ourselves, dividing space and further positioning our bodies in relation to these divisions. When utilised in this way drawing becomes a fundamental apparatus of our perception and one which we invariably use to generate, ascribe and articulate meaning.

A Definition of Drawing

Precisely defining the history and practice of drawing, its myriad inventions and possibilities is undeniably fraught, questionably useful and entirely surplus to the act of drawing itself. When we pause to consider

³⁵ Ibid. p. 211.

³⁶ August Schmarsow, "The Essence of Architectural Creation," in *Architectural Theory*, ed. Harry Francis Mallgrave (Malden, MA: Blackwell Publishing, 1893). p. 288.

the act of drawing it is at once utterly mundane and defiantly, magnificently *other*.

Appropriate then would be a definition that is both quotidian and extraordinary, both accessible and esoteric. We can find one, I believe, described by the artist and writer Deanna Petherbridge. She reimagines drawing practice in architectural and spatial terms. In *The Primacy of Drawing* she proposes that drawing practice is a continuum best represented by an architectural model of many interconnected passageways:

'In this pictorial metaphor, passageways and tunnels, light or dark, cramped or lofty, constructed or burrowed out are hollow vectors along which ideas are drawn slowly or at speed. Whether serpentine or straight, long or truncated, smooth-walled or interrupted by doors and windows, all the passageways connect, some intersecting at right angles, others spinning off at a tangent, or drawn into parallel paths – before finally meeting in infinity.'³⁷

This definition is expansive, it seeks to accommodate the full topography of drawing practice, not just as physical model, or conceptual concerns, but as a practice of marking out spatial and temporal experience. It includes not only any existing practices, but also – by invoking infinity – any *potential* drawing practices.

Petherbridge's model recalls Vitruvius' myth of the dwelling house, both models are built upon endless reiteration, comparison and connection. By aligning the practice of drawing with the description and construction of space, Petherbridge exposes the linearity of drawing as both two-dimensional – the line, the surface – and as nascent three-dimensional and temporal space. Petherbridge's description of drawing does not terminate at the end of its lines. It extends outwards in all directions as part of a continually evolving network that oscillates between the two dimensions of the line and the surface and the three-dimensions of the world. Like Vitruvius' description of the origins of the dwelling house,

³⁷ Deanna Petherbridge, *The Primacy of Drawing : Histories and Theories of Practice* (New Haven : Yale University Press, c2010., 2010). p. 19.

Petherbridge describes an endless process of analysis and proposition that allows us to describe, give meaning to, and make changes within the world.

The City and Architectural-documentation

According to Pliny, love, suffering and memory were the stimuli for the radical moment of inspiration that created drawing. This seems eminently plausible as we can tacitly comprehend drawing's ability to articulate things more substantial than its lines, things that are vitally important and are often located between one human being and another.

Figure 6 is a section of the *Forma Urbis Romae*, a 235 square metre inscribed marble map of Rome that existed from early in the third century CE.³⁸ Originally attached to an interior wall of a building now part of *Santi Cosma e Damiano* on the eastern edge of the Forum in Rome, the map was dispersed over time as its marble was cannibalised for other building work.³⁹ It is known today through fragments representing approximately one tenth of the original.⁴⁰

This carved map located important sites and buildings within the city and worked in a manner similar to the shadow tracing of Kora of Sicyon – it was a record both of how things looked, but also of what was important.⁴¹ It was a reminder of a hierarchy of spaces and the relationships of the people who inhabited those spaces. It literally carved into the fabric of the city a miniature network of abstract lines and intersections, to locate, define and remember. The *Forma Urbis Romae* did not just depict the city of Rome spatially, it also sought to give it meaning.

Within the practice of architecture, the city is the ultimate performance of *a-d*. It is marked by qualities similar to Vitruvius' original shelter and Petherbridge's concept of drawing – it is a physical and conceptual structure in space, a network of memory and history and a mutable

³⁸ Liba Taub, "The Historical Function of the "Forma Urbis Romae", "*Imago Mundi* 45 (1993). p. 9.

³⁹ Ibid. p. 11.

⁴⁰ Ibid.

⁴¹ Ibid. p. 15,16.

continuum of potentiality. But, like the *Forma Urbis Romae* it is also constantly in a state of disintegration, being re-imagined and re-dispersed across and within itself.

The practice of *a-d* is at its most vigorous and complex when employed within a city because its techniques are fundamental to the processes of making and remaking urban space. From the shapes of buildings to the layout of the streets, the sewers, and the open spaces, these elements all exist both physically and as *a-d* or inter-related variations. Each change, each intervention, is drawn, pictured, modelled or notated, then documented and archived within the city as artefact or discarded within it as flotsam.

The city is an assemblage of subjective and collective lines, surfaces, forms and texts, overlapping and intertwining. It cannot help but be more than its physical structures. It is also a network of traced projections held in place by ideation, memory and the diaphanous abstract structures of meaning.

At the centre of this process is the apparatus of *a-d* utilised as an apparatus for thinking and imagining the city into being. This relationship is so close, so completely intertwined, that the forms of the city cannot help but promulgate *a-d* as *a-d* promulgates the city. The connection may be less obvious and less physically impressive than the *Forma Urbis Romae*, but the abstract function is undoubtably equivalent.

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I have considered the formal and promulgating techniques used by *a-d drawing* when applied to the design of architecture – it's *projective nature*.¹ But in addition to these techniques, I believe *a-d* and *a-d drawing* in particular, also analyse and propose architecture through two fundamental conceptual modes – as *apparatus* and as *diagram*. These two modes correspond to the terms as applied in common usage, but also to expanded definitions developed within the work of Michel Foucault and Gilles Deleuze.

In the following two sections I examine Foucault and Deleuze's concepts, both are somewhat fluid within the work of each writer, they are formulated as useful tools but engaged only sporadically and marked by instable definitions. This is not a hindrance to their use, instead these qualities have provided a useful latitude of delineation which in turn provides space for the processes of re-use and re-imagination appropriate to this project.

¹ Robin Evans, "Architectural Projection," in *Architecture and Its Image. Four Centuries of Architectural Representation. Works from the Collection of the Canadian Centre for Architecture*, ed. Eve Blau and Edward Kaufman (Montreal, Canada: Canadian Centre for Architecture, 1989). p. 19.

3

The Apparatus

Until this point I have deployed the term *apparatus* loosely, describing both *a-d* itself and its arrangement of components. This coincides with the common usage of the term as both the work of preparation or preparatory arrangement and the things ‘equipments, material, mechanism, machinery, material appendages or arrangements’ that are gathered together.² In this usage an apparatus is both an assemblage of items to perform a task and the act of preparatory assembly itself – a process that establishes and gathers requisites.

To define itself *a-d* gathers requisites to facilitate its enactment, it also gathers requisites in preparation for the creation of architecture. It is itself an *apparatic requisite* for the creation of architecture. By defining *a-d* as an apparatus we can intimate opportunities for alteration through a substitution of requisites or the utilisation of the existing apparatus for alternative purposes. This allows us to consider its requisites separately and to acknowledge that its constitution or enactment can be altered, providing inherent potential to transgress accepted modes of usage.

Interpreting the term apparatus in this way is sufficient for a consideration of *a-d facture*, however I do not believe it adequately describes the conceptual traits of *a-d* – how it works *through* its physical

² Oxford English Dictionary, "*Apparatus, N.*" (Oxford University Press).

requisites. This question can be more fully considered I believe, through an extension of the term as undertaken in the discourses surrounding the work of Michel Foucault. Foucault's apparatus is primarily a conceptual mechanism, preparing or gathering discursive and non-discursive elements to act within a critical philosophic analysis.

Foucault's Apparatus

The essay *What is an Apparatus?* by Giorgio Agamben provides a succinct but comprehensive guide to the genealogy and parameters of the term as Foucault has applied it. I have engaged Agamben's text and its sources to explore similarities between Foucault's apparatus and the apparatic qualities of *a-d*.

According to Giorgio Agamben, Foucault's use of the term *dispositif*, commonly translated as *apparatus* in English,³ can be traced through Jean Hyppolite's analysis of Hegel's term *positivity* or positive religion.⁴

Positivity, according to Hegel:

'encompasses the set of beliefs, rules, and rites that in a certain society at a certain moment are externally imposed on individuals'.⁵

Hegel's use of positivity is connected to early Christian use of the Greek term *oikonomia*.⁶ Originally describing strategies of housekeeping for the ancient Greeks, *oikonomia* was adopted by early Christians to describe an economy of 'redemption and salvation' by which humanity is to abide, as revealed by God through the Trinity.⁷

Foucault's use of the term *dispositif*/apparatus is then a contemporary manifestation within a lineage of terms denoting structural systems of control imposed by external powers.⁸ The difference between Foucault's use of the term and his precedents is, according to Agamben, that

³ Giorgio Agamben, *What Is an Apparatus? : And Other Essays*, Meridian, Crossing Aesthetics (Stanford, California: Stanford University Press, 2009). p. 1.

⁴ Ibid. p. 4.

⁵ Ibid.

⁶ Ibid. p. 12.

⁷ Ibid. p. 9-10.

⁸ Ibid. p. 12.

Foucault does not seek to impose, reconcile or even draw attention to inherent conflicts in these apparatuses. Instead he seeks to *analyse* the 'relations and mechanisms' of power within their implementation.⁹ Foucault's apparatus does not seek control, instead it seeks through *analysis*, to define, interpret and compare, measure and illicit meaning.¹⁰

In an interview from 1977, Foucault states:

'This is what the apparatus consists in: strategies of relations of forces supporting, and supported by, types of knowledge.'¹¹

Agamben apportions Foucault's definition into three components:

- I. An apparatus is a heterogeneous set that includes virtually anything, linguistic and non-linguistic, under the same heading: discourses, institutions, buildings, laws, police measures, philosophical propositions, and so on. The apparatus itself is the network that is established between these elements.
- II. An apparatus always has a concrete strategic function and is always located in a power relation.
- III. An apparatus appears at the intersection of power relations and relations of knowledge.¹²

Agamben's divisions create a critical spatial field, Foucault's apparatus co-occurs in the spaces around and between the elements of its 'sets', gathering them, bridging them and marking their intersections. Through this formative and active spatiality, it creates functions and relations and coalesces at intersections to develop its mechanisms of power and knowledge.

To this spatiality I would add another point salient to this discussion which draws upon Agamben's second and is outlined by Foucault in the same 1977 interview:

⁹ Ibid. p. 6.

¹⁰ Michel Foucault and Colin Gordon, *Power/Knowledge : Selected Interviews and Other Writings, 1972-1977* (Brighton, Sussex: Harvester Press, 1980). p. 194.

¹¹ Ibid. p. 196.

¹² Agamben. p. 2-3.

‘...I understand by the term ‘apparatus’ a sort of – shall we say – formation which has as its major function at a given historical moment that of responding to *an urgent need* [emphasis added].’¹³

This *urgent need* suggests Foucault’s apparatus is not only spatially manifest in relation to concrete strategic functions, it also encompasses a particular historical/temporal moment. In this way Foucault’s apparatus constructs a complete spatial and temporal frame of reference, one through which he is able to perform critical analysis and generate meaning.

Foucault’s Apparatus and Architectural-documentation

I believe *a-d* shares much with Foucault’s apparatus. It gathers heterogeneous elements within its spatial formation that are both discursive and non-discursive. These include a range of technical, cultural and social elements that are connected through highly scripted and conventionalised mechanisms denoting highly specialised bodies of knowledge. The apparatus of *a-d* articulates and delineates the practice of architecture and at the same time forms an apparatic network between its interior and exterior elements.

The concrete strategic function of *a-d* is to describe its form and purpose, both as apparatus for the creation of architecture and as apparatus of enforcement and maintenance of its hierarchical position within power relations in the systems of architecture and associated bodies of knowledge.¹⁴ The practice of *a-d* is not passive, the gathering of selected elements within its set dictate potentials within its practice, it is as we have seen previously, unquestionably influential and partisan.

Relying upon the interaction of its elements, *a-d* is composed of and utilised at, intersections of technical knowledge and power relations, within its own practice and within adjacent social and economic fields. It

¹³ Foucault and Gordon. p. 195.

¹⁴ Edward Robbins, "The Social Uses of Drawing: Drawing and Architectural Practice," in *Why Architects Draw* (Cambridge, Mass.: MIT Press, 1994). p. 8.

operates across networks that span from the quotidian demands of existence to abstract and speculative theoretical and aesthetic concerns. It works intrinsically to promulgate itself and the systems that surround and maintain it.

This is clearly evident when we consider that *a-d* is both a requisite for architecture and the articulation, discussion and dissemination of architecture. Its audience and users can include not only architects and builders, but also historians, philosophers, politicians and inquisitive neighbours.

In addition to its spatial character, *a-d* is innately temporal. It is guide to the sequential acts of construction through description and relation of the two primary temporal boundaries within its frame of reference – *before* and *after* (the existing and the proposed). This ability is central to its usefulness and its ability to respond to its own form of 'urgent need'. It compels temporal movement between *analysis* and *proposition* and through the conceptual acts of comprehension and embodiment, which are intrinsic to its use.

Consisting of physical requisites, *a-d* is an apparatus of drawings, images, models and notations gathered together to implement architecture and its adjunctive practices. It is resolutely spatial, physical and temporal in implementation and like Foucault's apparatus, *a-d* can also be utilised as an apparatus to produce, articulate and enforce conceptual relationships and meanings. It achieves this through a selective gathering of requisites and through implementation of these elements within specific networks of power and knowledge. This is succinctly demonstrated in the role *a-d* performs as fundamental instigator within theoretical discourses of architecture.

Agamben's Apparatus

After tracing the origins and providing a definition of, Foucault's dispositif/apparatus, Agamben proposes his own reading and a 'new context'. To do this he divides the world into two groups – living things

(or substances) and those which are not – apparatus – 'in which living beings are incessantly captured'.¹⁵

Agamben's apparatus capture but they also 'orient, determine, intercept, model, control, or secure the gestures, behaviours, opinions, or discourses of living beings'¹⁶. It is the apparatus, according to Agamben that controls the actions of living things in the world. It is also the apparatus that makes subjects.¹⁷

These apparatus are of course not accidents, to Agamben they are part of the very processes of humanisation.¹⁸ Like Vitruvius' social assembly borne of fire and our subsequent capturing in the apparatus of the dwelling house, apparatuses capture and alter the living beings within their thrall.

According to Agamben, the point at which the apparatus overlaps the living being is the point at which subjectification appears. In direct opposition to the singular nature of the 'ontology of living beings' multiple apparatus operate upon them so they are subject to multiple processes of subjectification.¹⁹ Agamben describes a relentless fight, one inevitably won by apparatus, a fight that ultimately separates living beings from themselves and from the surrounding world.²⁰

This process of humanisation produces a fracturing effect that is, according to Agamben, similar to that of the schism of the Christian *oikonomia* – a schism between God in being and God in the world.²¹ This fracture between ontology and praxis, between being in the world, and the tending to, or making of the world, is considered by Agamben a capturing to a realm of subjectification.²²

By applying Agamben's propositions, the apparatus of *a-d* is further revealed. No longer is it an apparatus implemented only by us to record or change the world, instead it becomes an apparatus that captures and

¹⁵ Agamben. p. 13.

¹⁶ Ibid. p. 14.

¹⁷ Ibid. p. 5.

¹⁸ Ibid. p. 16.

¹⁹ Ibid. p. 14.

²⁰ Ibid.

²¹ Ibid. p. 16.

²² Ibid. p. 17.

locates us within the spaces it describes. This redefines the forces that act upon the practice of architecture as both emanating from us and external to our being, charged with intentions beyond our own.

This is Robin Evan's partisanship and August Schmarsow's subjective divisions of space scaled to include the entire realm of apparatus and the entirety of existence. The early Christian use of *oikonomia*, which Agamben describes as:

'a set of practices, bodies of knowledge, measure, and institutions that aim to manage, govern, control, and orient – in a way that purports to be useful – the behaviours, gestures, and thoughts of human beings',²³

also convincingly describes the practice of *a-d* since its inception during the Renaissance.

However, there is a point of hope within Agamben's *oikonomia*, a way beyond our subjectification and that is the phrase 'purports to be useful'. It is this call to usefulness (whether genuine or not) that recalls Foucault's 'urgent need'. The apparatus of *a-d* is intrinsically imbued with formations of power and knowledge that both impose and control but are also, as we have seen, unavoidably structured to offer potential for re-use and re-imagination.

It is this capacity that defines my interpretation of the role of the apparatus of *a-d* and separates it from Agamben's. Where he sees a narrative of enslavement, I see the apparatus of *a-d* as holding potential for *something-else*. As Agamben himself admits there is no correct use of apparatus.²⁴ I propose instead an *urgent and useful use* of the apparatus of *a-d* which ensnare and impose upon us.

If Agamben thinks and writes with and within the discursive apparatus of language, technology, history and philosophy, it is his adoption and *urgent and useful use* of these apparatus that allows him to write, to analyse and to propose something-else. What is interesting to this project is not the struggle between apparatus and living beings, that fight was lost the moment our ancestors first gathered in Vitruvius' dwelling house.

²³ Ibid. p. 12.

²⁴ Ibid. p. 15.

Instead what is interesting, what is full of potential, is the possibility of disassembling, re-gathering, re-using and re-imagining the apparatus of *a-d* as it does the same to us, for use in other causes.

The Apparatus Embodied

As previously mentioned, *a-d drawing* is allographic,²⁵ an intervening medium,²⁶ a body acting as that of another. An *a-d drawing* produced by an architect directs the eyes, hands and bodies of the builders within a local, temporal space to perform an act of construction. The bodies of occupants are enclosed by the architects prescribed spatial dimensions which describe the actions they may perform and control their material sensations. As it describes, measures and divides space, *a-d drawing* works through and upon our bodies.

What makes physical and conceptual apparatuses influential in the world is not their constituent elements, rather it is the range of effects they manifest upon our bodies and the materials of the world. Agamben is correct to say these apparatus capture us and influence how we are able to define ourselves and interact within the world. They influence the spaces we occupy, the assignment of our roles and how those roles are performed and maintained.

The precise moment when the apparatus of *a-d* split from the facture of building is unknown, it may be that there have been many such moments throughout human history. The modern Western separation originated in Europe during the Gothic period, sometime around the middle of the thirteenth century. It was during this time that a simple form of orthographic working drawing was developed as adjunct to the physical skills of building construction.²⁷

²⁵ Nelson Goodman, *Languages of Art : An Approach to a Theory of Symbols* (Indianapolis: Bobbs-Merrill,, 1968). p. 113,221.

²⁶

Robin Evans, "Translations from Drawing to Building," in *Translations from Drawing to Building* (Cambridge Massachusetts: The MIT Press, 1997). p. 156.

²⁷ Franklin Toker, "Gothic Architecture by Remote Control: An Illustrated Building Contract of 1340," *Art bulletin* 67, no. 1 (1985). p. 70.

These early working drawings developed further into documentary tools able to provide a majority of the information required for day-to-day construction decisions.²⁸ However, the interpretation of these drawings, their implementation and sequencing of associated construction works was still reliant upon a translatory process undertaken by an on-site worker called an *appareilleur*.²⁹

Later French to English dictionaries from the seventeenth and eighteenth centuries variously describe the *appareilleur* as: 'A preparer, provider, trimmer up for, one that makes things ready for use, or show; a dresser, fashioner, seasoner'.³⁰ 'A marker of stones to be cut'³¹ and 'He who shows how the stones designed for building are to be cut, matched, placed.'³²

On the building site the *appareilleur* was a translator who fulfilled the role of head mason, supervisor and second in charge to the master or designer.³³ By combining early working drawings with the skills of the *appareilleur*, building masters (the proto-architects) were freed from the site, allowing them to develop multiple projects simultaneously.³⁴

The *appareilleur* interpreted the drawings, understanding both the symbolic functions of the lines and the practices of masonry construction they eluded to. Even at this early stage of development these drawings inferred movements, roles, outcomes and temporal and physical spaces.

²⁸ Ibid. p. 70.

²⁹ Ibid. p. 69.

³⁰ Randle Cotgrave, James Howell, and Robert Sherwood, *A French-English Dictionary. [Electronic Resource] : Compil'd by Mr. Randle Cotgrave: With Another in English and French. Whereunto Are Newly Added the Animadversions and Supplements, &C. Of James Howell Esquire*, Early English Books Online (London : printed by W.H. for Humphrey Robinson, and are to be sold at his shop at the signe of the three Pigeons, in Pauls Church-yard, 1650., 1650), Electronic document.

³¹ Lewis Chambaud, *Chambaud's Dictionary, [Electronic Resource] : French and English and English and French. Containing the Signification of Words, with Their Different Uses; the Terms of Arts, Sciences, and Trades; and the Constructions, Forms of Speech, Idioms, and Proverbs Used in Both Languages: The Whole Extracted from the Best Authors, Compared with the Dictionary of the French Academy, Dr. Johnson's English Dictionary, &C, and Carefully Abridged by Mr. John Perrin* (London : printed for A. Strahan; T. Cadell, and P. Elmsley, in the Strand, MDCCLXXXVII. [1787], 1787), Electronic document.

³² Deletanville Thomas, "A New French Dictionary in Two Parts," (1794).

³³ Toker. p. 69,70.

³⁴ Ibid. p. 69.

Simple but highly functional, these drawings worked with the *appareilleur* to instigate and conduct the construction process.

Early *a-d drawing* mirrors the development of ancient musical notation systems, whose forms utilised the *neume*, an incomplete instructive notation which required a knowledge of the basic melody to translate.³⁵ Systems of music that employed the *neume* were a mixture of written elements and oral/aural traditions. It was not until *Guido of Arezzo* developed his notational system early in the eleventh century that the note was able to be written in a fully symbolic language, separate, independent and translatable without prior knowledge of the notated music.³⁶

As with the *neume*, the early working drawings of the thirteenth century required a prior knowledge of the context, structure and ‘melody’ of the building being constructed, as well as a figure to translate, direct and make legible an overall vision. The *appareilleur* fulfilled this role, conducting the design with their bodies, through knowledge, language and action. Embodying the schism between design and facture, the *appareilleur* acted as both fulcrum and intersection for distinct but related agents and as bridge and fence for the gathering and implementing of each body of knowledge.

The French word *appareilleur* shares its origin with the word *appareil* – *apparatus*. A direct translation of *appareilleur* can produce *device their*, *device them*. The English word *apparatus* – the most commonly utilised translation of Foucault’s original *dispositif*, is a broader and more encompassing word for Foucault’s purposes than the direct translation *device*. By passing the term *dispositif* through a Foucauldian prism it becomes the English *apparatus* illuminating its connections to a broader, more useful descriptor and the history of *a-d* that includes the translatory and *apparatic body* of the *appareilleur*.

The *appareilleur*’s body is both agent for and conductor of, the mechanisms of *a-d drawing*, but also its victim. Consigned to a kind of demiurgic haulage, it becomes a vessel controlled by a ‘higher’ entity.

³⁵ Ibid. p. 88.

³⁶ Ibid.

Influential but constrained, it is utilised within the apparatus of *a-d* to manipulate the stuff of the world as both master and servant.

The appareilleur was ultimately subsumed into the history and practices of architecture, entirely captured by the apparatus of *a-d*. At its naissance it was the body of the appareilleur that spanned and connected the discursive and non-discursive elements of *a-d* and its interactions with the world. But their role declined as both the role of the architect and the apparatus of *a-d* developed. The appareilleur may have come to be seen as a potential intruder upon the architect's territory, it is after all only a small leap from interpreting to composing – even a single mistake will do.

Although now submerged within the apparatus of *a-d*, the appareilleur still resonates in its gathered requisites, its strategic functions, its enforcement of disciplinary boundaries and assemblies across social and cultural fields and in its call to a sequential temporality. But the appareilleur is most clearly visible within architecture's use of *a-d* as a tool of *urgent and useful use*. This is because it operates almost exclusively through a capturing and directing of the potentials of the human mind and body.

- Agamben, Giorgio. *What Is an Apparatus? : And Other Essays*. Meridian, Crossing Aesthetics. Stanford, California: Stanford University Press, 2009.
- Chambaud, Lewis. *Chambaud's Dictionary, [Electronic Resource] : French and English and English and French. Containing the Signification of Words, with Their Different Uses; the Terms of Arts, Sciences, and Trades; and the Constructions, Forms of Speech, Idioms, and Proverbs Used in Both Languages: The Whole Extracted from the Best Authors, Compared with the Dictionary of the French Academy, Dr. Johnson's English Dictionary, &C, and Carefully Abridged by Mr. John Perrin*. London : printed for A. Strahan; T. Cadell, and P. Elmsley, in the Strand, MDCCLXXXVII. [1787], 1787. Electronic document.
- Cotgrave, Randle, James Howell, and Robert Sherwood. *A French-English Dictionary. [Electronic Resource] : Compil'd by Mr. Randle Cotgrave: With Another in English and French. Whereunto Are Newly Added the Animadversions and Supplements, &C. Of James Howell Esquire*. Early English Books Online. London : printed by W.H. for Humphrey Robinson, and are to be sold at his shop at the signe of the three Pigeons, in Pauls Church-yard, 1650., 1650. Electronic document.
- Dictionary, Oxford English. "Apparatus, N." [in English]. Oxford University Press.
- Evans, Robin. "Architectural Projection." In *Architecture and Its Image. Four Centuries of Architectural Representation. Works from the Collection of the Canadian Centre for Architecture*, edited by Eve Blau and Edward Kaufman, 18-35. Montreal, Canada: Canadian Centre for Architecture, 1989.
- . "Translations from Drawing to Building." In *Translations from Drawing to Building*, 152-93. Cambridge Massachusetts: The MIT Press, 1997.
- Foucault, Michel, and Colin Gordon. *Power/Knowledge : Selected Interviews and Other Writings, 1972-1977*. Brighton, Sussex: Harvester Press, 1980.
- Goodman, Nelson. *Languages of Art : An Approach to a Theory of Symbols*. Indianapolis: Bobbs-Merrill,, 1968.
- Robbins, Edward. "The Social Uses of Drawing: Drawing and Architectural Practice." Chap. 1 In *Why Architects Draw*, 4-49. Cambridge, Mass.: MIT Press, 1994.
- Thomas, Deletanville. "A New French Dictionary in Two Parts." 1794.
- Toker, Franklin. "Gothic Architecture by Remote Control: An Illustrated Building Contract of 1340." *Art bulletin* 67, no. 1 (1985): 67-95].

Adjunctive to Foucault's *apparatus* as both companion and extension, is Gilles Deleuze's concept of *the diagram*. Sharing similarities in both description and origin, Deleuze first articulates his concept of the diagram in *Écrivain non: un nouveau cartographe* (*A New Cartographer*, 1975) an essay composed in response to Foucault's *Discipline and Punish*.¹

The concept of the diagram is employed regularly within Deleuze's work from this point, however it is elusive, from its first to its final enunciation the diagram changes shape as it is invoked.² This lability pauses briefly when Deleuze dedicates an entire volume to Foucault's work, *Foucault* (1988). This is as clear and final a definition as Deleuze offers and yet even at this point it maintains a dual and astable configuration.³

To employ Deleuze's concept of the diagram I believe it is important to accede to its imprecise nature. Rather than being a hindrance, this quality provides potential to develop and rework the concept aligning it with the intuitions of this project. Specifically, I propose that there is a resonance between Deleuze's concept of the diagram and the practice of *a-d drawing*.

¹ Jakub Zdebik, "Introduction: What Is a Diagram?," in *Deleuze and the Diagram*, Continuum Studies in Continental Philosophy (London: Continuum, 2012). p. 1.

² Ibid. p. 2.

³ Ibid.

There are two moments in the development of Deleuze's diagram that are of particular interest to this project, the naissance of the concept, as Deleuze first engages Foucault's text and the bifurcated final definition developed within *Foucault*. These two moments describe a useful working description that can be aligned with the practice of *a-d drawing*. To help articulate this I have engaged original texts by Deleuze and Foucault and an essay by Jakob Zdebik, *What is a Diagram?* as guide and genealogy for the term.

The Illustrative Diagram

Like *apparatus*, the word *diagram* has a common usage. A diagram is most commonly understood as an illustrative figure that does not represent the exact appearance of objects, instead it displays an outline of general schemes and consists of a 'set of lines, marks, or tracings which represent symbolically the course or results of any action or process'.⁴ In this form it often utilises drawing and language and is illustrative, descriptive and relational.

This *illustrative diagram* makes use of its elements to convey meaning, the meaning is not the diagram itself, it is the sum of its parts understood in context. For the illustrative diagram to work properly it must forgo its elements and become a transfer of meaning from the elements of the diagram to the viewer, it must behave similarly to Robin Evans concept of *haulage*.

The illustrative diagram must also haul consistently, one of its defining features is a lack of ambiguity, it must transfer specific meaning via the strict parameters of its abstracted modality of display. As a result, the illustrative diagram is contradictory in character – it must provide specific meaning about objects, actions or systems but never manifest them directly, it is thus also *allographic*.

⁴ Oxford English Dictionary, "*Diagram, N.*" (Oxford University Press).

The Conceptual Diagram

I would like to begin my interpretation of Deleuze's concept of the diagram at the 'final' bifurcated definition provided in *Foucault*. In this work Deleuze defines the diagram as both a *new informal dimension* and a *display of relations of pure functions*.⁵

At first glance these definitions seem disjunctive – one a spatial entity, the other describing a network like conceptual structure. Yet we can discern a relationship. A network needs a topography, a dimension in which to form connections and to articulate itself and a dimension must have points marked within it to be described, whether they are physical, mental, or conceptual. It is the relationships between points that allows us to distinguish and trace a dimension. Taken together these two definitions can be understood to describe *a space of potentiality made visible*.

As New Informal Dimension

The new informal dimension is described by Deleuze through the relationship between discursive and non-discursive practical formations.⁶ The discursive formations are statements, they are articulable, the non-discursive formations are environments, they are visible. Each can determine the other, but for them to connect abstractly they must be heterogeneous, they must have no 'direct causality or symbolisation' – they cannot represent one another in any specific way.⁷

It is when these systems are abstracted into *functions* or *traits* that they find similarity.⁸ The two heterogeneities intermingle, they 'seep into and steal from one another'.⁹ It is as abstract functions/traits that they are able to do this and Deleuze suggests this is due to our ability to conceive of 'pure matter and pure functions'.¹⁰ We can then both abstract formations to this state and connect them using the same process.¹¹ The connection

⁵ Zdebik. p. 2.

⁶ Ibid. p. 2-3.

⁷ Ibid. p. 3.

⁸ Ibid.

⁹ Gilles Deleuze and Seán Hand, *Foucault* (Minneapolis :: University of Minnesota Press, 1988). p. 33.

¹⁰ Ibid.

¹¹ Zdebik. p. 4.

happens within a space of 'unformed and unorganized matter and unformalized, unfinalized functions'.¹² This space of interaction is the conceptual diagram *as new informal dimension*.

Deleuze proposes that because we can abstract systems to their functions/traits, they can be linked across social fields without having to display similar forms, this allows them to maintain their own discreet abstract functions according to their own assemblage.¹³ The conceptual diagram is a new informal dimension precisely because it allows the connection of heterogeneous systems or practical formations/traits across social fields. It makes them irreducible through a process of abstraction to pure form or matter and it does this not only to trace connections but also to generate new ones, Jakob Zdebik believes it manifests as 'a virtual map behind' these heterogeneous formations.¹⁴

This map according to Deleuze is composed of lines, they connect the abstract functions/traits:

"What we call a 'map', or sometimes a 'diagram', is a set of various interacting lines (thus the lines in a hand are a map). There are of course many different kinds of lines, both in art and in a society or a person. Some lines represent something, others are abstract. Some lines have various segments, others don't. Some weave through a space, others go in a certain direction. Some lines, no matter whether or not they're abstract, trace an outline, others don't. The most beautiful ones do. We think lines are the basic components of things and events. So everything has its geography, its cartography, its diagram."¹⁵

These lines mark out the astable topography of the conceptual diagram, oscillating between the physical and conceptual, between things and events, both discursive and non-discursive, between statements and environments. By visualising the conceptual diagram in this way, the new informal dimension adopts a connective nature, it is a *cartography* and it is these lines and maps that educe Deleuze's second definition.

¹² Deleuze and Hand. p. 34.

¹³ Zdebik. p. 4.

¹⁴ Ibid. p. 5.

¹⁵ Gilles Deleuze, *Negotiations, 1972-1990*, European Perspectives (New York: Columbia University Press, , 1995). p. 33.

The diagram first appears for Deleuze within Foucault's analysis of Jeremy Bentham's prison architecture, the *Panopticon*. Foucault describes it as 'the diagram of a mechanism of power reduced to its ideal form; its functioning, abstracted from any obstacle, [emphasis added].'¹⁶ It is this use that Deleuze takes up:

'What can we call such a new informal dimension? On one occasion Foucault gives it its most precise name: it is a 'diagram'... It is defined by its informal functions and matter...'.¹⁷

The conceptual diagram as a display of relations of pure functions is the content of the diagram, its functions/traits within the new informal dimension, *displayed*.¹⁸ The Panopticon is a salient example and also exposes the conceptual diagram's architectural origin. Although it is not a diagram itself, the Panopticon functions, as Zdebik notes, as a 'structure of surveillance' it displays the interactions between guards and prisoners.¹⁹ This particular relationship once abstracted and displayed as diagrammatic functions/traits can be transferred through the new informal dimension to other social fields, situations and environments.²⁰

The Panopticon reveals a display of relations between *forces* which constitute power within the Panopticon.²¹ According to Foucault it is 'a point of exchange between a mechanism of power and a function', it makes power relations function within a function and simultaneously makes a function through these power relations.²²

This circular exchange reflects the origin of the word *display*. It consists of two elements – *dis*, from the Latin *dia*, also the prefix in diagram, which means *through, apart, between* and the second syllable which comes from *ply* or *fold*.²³ Zdebik proposes that to display is to unfold, the conceptual

¹⁶ Michel Foucault, *Discipline and Punish : The Birth of the Prison* (New York Vintage Books, 2nd Vintage Books ed., 1995). p. 205.

¹⁷ Deleuze and Hand. p. 34.

¹⁸ Ibid. p. 36.

¹⁹ Zdebik. p. 5.

²⁰ Ibid.

²¹ Deleuze and Hand. p. 36.

²² Foucault. p. 206-207.

²³ Zdebik. p. 6.

diagram is then a folding of abstract relations of functions/traits/forces which can then be unfolded within another system or mechanism.²⁴

The conceptual diagram makes visible the abstract elements at play through concrete consequences in each environment or system it occupies and as it does this it forms an abstract map of relations of pure functions/traits/forces.²⁵ Folded, the conceptual diagram offers up potentialities it can then unfold to create new systems. It is a display of relations of functions/traits/forces that exist and that also *may* exist.²⁶

The Diagram, Architecture and Cartography

Drawing a link between the conceptual diagram, architecture and cartography is a useful means to visualise the conceptual diagram's astable nature.²⁷ We can visualise the 'new informal dimension' and 'display of relations of pure functions', suggests Zdebik, as unformed, unorganised subterranean topography marked by architectural structures as functions/traits/forces.²⁸ It can be ascribed spatial qualities, visual organisation and processes of discovery. However, it works not only within physical space but is also coextensive with conceptual spaces.²⁹

Architecture

Within the practice of architecture, the *illustrative diagram* is utilised to carry value or meaning, it performs its *urgent and useful use*, as explanation (analysis) and generation (proposition). It can both explain what exists and perform as a working tool to generate 'real space and time'.³⁰ Within *a-d drawing* the diagram is a gathered requisite of its apparatus, articulating relationships and processes hidden amongst the projective lines of its drawing techniques. It displays qualities of an architecture that are not visual or structural, but are instead conceptual or

²⁴ Ibid.

²⁵ Ibid. p. 7.

²⁶ Ibid.

²⁷ Ibid. p. 7-8.

²⁸ Ibid. p. 7.

²⁹ Ibid. p. 10-11.

³⁰ Peter Eisenman, *Written into the Void : Selected Writings, 1990-2004* (New Haven: Yale University Press, 2007). p. 88-89.

relational, it does this by carrying specific values and meanings within the context of the architectural project.³¹

The conceptual diagram as new informal dimension and display of abstract functions/traits/forces, can also work as both explanation and generation, however it does not intrinsically carry value and meaning.³² Through abstraction it is free from the requirements of representation and this provides a greater freedom of movement to bridge or even widen the gaps between formations, allowing it to connect disparate formations or extend outwards into other spaces.³³ However, like the illustrative diagram, it marks points of coalescence and relations, but it does not do this through representations of elements or assignments of value and meaning, instead it simply displays (folds and unfolds) the pure abstract functions/traits/forces within its social field.

Cartography

By invoking cartography Deleuze makes the map a metaphor for the potentiality, organisation and discovery inherent within the conceptual diagram, it invokes our desire to organise space and its corresponding mental geographies.³⁴ The conceptual diagram is cartographic through a process of generation, Zdebik describes 'new vistas' of connections, new topographies, as naturally as it displays connections that already exist.³⁵

Cartography connects the conceptual diagram with the lines of a map, it draws lines between heterogeneous functions/traits/forces to trace and generate connections. As the conceptual diagram traces connections it also suggests potentiality and as these maps are stacked one upon the other it constructs a new informal dimension.³⁶ In this way the conceptual diagram can be both a tracing, a defining or display of connections *and* a mapping, a multiplicity of potential. It is continually folding and unfolding as new topography. These two processes, as Zdebik notes –

³¹ Ibid.

³² Zdebik. p. 9.

³³ Ibid.

³⁴ Ibid. p. 10-11.

³⁵ Ibid. p. 11.

³⁶ Ibid. p. 12.

tracing and mapping – performed *together* can momentarily reify the conceptual diagram's astable form.³⁷

The conceptual diagram is dimensional as connective tissue, an architectural and cartographic substance, laid over, under, through, flowing from one static formation to another irrespective of form. It consists of abstract functions/traits/forces, not as representations of values or meanings, but instead as abstract ideation and lines. This is the duality of Deleuze's conceptual diagram, it can be both architecture and cartography, structure *and* space.

The Diagram and Architectural-documentation Drawing

It is straightforward to locate the illustrative diagram within a practice of *a-d drawing*, it is after all composed of many of the same elements and has been taken up by *a-d drawing* as a viable and useful 'gathered requisite'. I believe that where we see the illustrative diagram within *a-d drawing* we also discern connections to Deleuze's conceptual diagram.

The lines of *a-d drawing* trace and map space, materials, relationships and the potential functions of these elements in relation to the body and architecture. Both linear and spatial, *a-d drawing* can *illustrate* through representation and abstraction what may not be visible upon the surface or within the structure of buildings. It reinforces these functions through its means of production, its utilisation within systems of construction and through manipulation of the beings it captures. We see this clearly in Foucault's *apparatus* and Bentham's *Panopticon*.

The potential of tracing and maps, their nature and experiential qualia is connection through lines, to the boundaries and edges that they describe. They create meaning via traversal, Deleuze writes:

'Maps...are superimposed in such a way that each map finds itself modified in the following maps, rather than finding its origin in the preceding one: from one map to the next, it is not a matter of searching for an origin, but of evaluating displacement.'³⁸

³⁷ Ibid.

³⁸ Gilles Deleuze, *Essays Critical and Clinical*, trans. Daniel W. Smith and Michael A. Greco (London: Verso Books, 1998). p. 63.

Intrinsic to the lines of *a-d drawing* is an awareness of this displacement.³⁹ They trace displacement of space and the displacement of drawing as allographic medium projected into and upon the world as built material or speculative proposition. These performances utilise tracing and mapping to compose a frame of reference between the acts of drawing and the acts of construction – a potential displacement from two dimensions to three. This process not only notates and transcribes displacement, but also inherently provides possibilities for it.

As we have seen it is the acts of tracing and mapping performed together that momentarily make the conceptual diagram visible.⁴⁰ This concurrent performance is an analogue to the practice of *a-d drawing*. It is fundamentally a tracing/analysing, mapping/proposing apparatus. When laid upon the drawing sheet, *a-d drawing* is analogous to the conceptual diagram, it traces and maps connections within existing networks of space and materials while imagining and proposing new ones. It not only assesses displacement of its own elements but can record, define and propose displacements beyond itself.

It performs this displacement through abstraction – the abstraction of space and material to lines. Each drawing is both at once a precise tracing and a map, possessing a dimensional potentiality extending along, through and outside its lines in every direction to other spaces and other moments, as Deleuze notes:

'Not only does the open house communicate with the landscape, through a window or a mirror, but the most shut-up house opens to a universe'.⁴¹

This potentiality can be seen most clearly within a single reoccurring line utilised by *a-d drawing*, the 'ground' line (figure 7). Shown most commonly as a thick, solid line within an elevation or section, the ground line locates the architectural object within a particular space in relation to

³⁹ Robin Evans, "Translations from Drawing to Building," in *Translations from Drawing to Building* (Cambridge Massachusetts: The MIT Press, 1997). p. 156.

⁴⁰ Zdebik. p. 12.

⁴¹ Gilles Deleuze and Félix Guattari, *What Is Philosophy?*, trans. Hugh Tomlinson and Graham Burchell, European Perspectives (Columbia University Press, 1994). p. 180.

the surface of the earth. It represents the ground upon which the architectural object will sit, hover above or extend into. In a plan drawing the ground line is coextensive with the surface of the page, the sheet becomes the line extruded through its dimensions. At the same time the page becomes the surface of the earth, abstracted.

The ground line is at once line and surface, tracing and map. It both displays and creates a new abstract dimension for architecture to manifest upon, across and within. Implicit in the representation of the ground line is its circularity, its unfolding to enclose the world. If one was to extend a ground line, to unfold it, in elevation or section through its complete trajectory, it would meet precisely and exquisitely, with its opposite end. Similarly, if one was to extrude the line as surface of a page, it would eventually describe an abstracted planar world, one which would meet on all sides of the drawing.

The ground line reveals *a-d drawing* as both tracing and map of connections and relations and an abstracted topography from which new formations may emanate. It is the surface of the earth abstracted to its pure function/trait/force – a support to underlie, to allow a dimension and moment for, the urgent and useful use of *a-d drawing*.

It is also important to note that the ground line is transposable, it is not restricted to being only an abstracted conceptual map of the world. It can conceivably function as an analogue for other worlds, as an *under-line* for other spaces, other topographies. Its abstracted nature allows this, it can, like Deleuze's abstract functions/traits/forces, be another surface, a temporal surface, a textual or conceptual surface. It can describe topographies composed of anything, physical or conceptual.

This *under-line* which provides a direct connection to the conceptual diagram is able to fill the gaps between formations, to unfold itself within other systems. The conceptual diagram as ground line exposes the innate potentiality within a practice of *a-d drawing*. It reveals an apparatus that abstracts the world of materials, architectural formations and systems to lines that immediately and comprehensively make the world available as abstract elements – as 'pure' functions/traits/forces to be traced, mapped, displaced, *analysed* and *proposed*.

As it reveals what *a-d drawing* does, Deleuze's conceptual diagram also reveals what it *can* do. Like Deleuze's diagram, *a-d drawing* can be both architecture and cartography, both a dimension and a display of the functions/traits/forces within that dimension. The potentiality of *a-d drawing* is revealed as an intrinsic ability to transpose its gathered requisites and its 'pure' abstracted lines, to other expansive and heterogeneous topographies.

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5

Conclusions

I am convinced *a-d* is a viable and distinct practice beyond the discipline of architecture. I believe I have shown that *a-d* can be re-used and re-imagined as an apparatus of analysis and proposition for the creation of *apparatic compositions* that respond to heterogeneous spaces, both physical and conceptual. These are the fundamental conclusions of this research project.

Two questions represent the broader aims of the project, these are:

- I. What histories, processes and conceptual structures define and articulate *a-d* (*drawing*)?
- II. How can the practice of *a-d* be re-interpreted across spatial systems other than architecture?

These two questions have shaped my research, loosely defined, the first question is engaged within this essay, the second within the following drawing set.

Locating the Project

As a practice we have seen that *a-d* has existed at least since the Renaissance.¹ Its influence upon and importance to, architectural design practice is difficult to measure but undoubtedly complex and significant. It has been fundamental to the practice of architecture, both as design process and means of thought and discussion.

During this time *a-d* has maintained clear parameters for its pragmatic use, this is because it is the primary apparatus through which architecture operates. However, the urgent and useful use of *a-d* to perform this task has meant that its parameters have not, in my view, been thoroughly interrogated, even when engaged experimentally.

Many contemporary architects and architectural theorists produce work in speculative or experimental modes, known somewhat ironically as *paper architecture*. Their work often extends and questions what *a-d* can be and what it can do as a practice for the ideation and construction of architecture.

Early in this research project I sought to find projects and texts within experimental practices of *a-d* that engaged it as a distinct practice. I was unable to find a single text or project that sought to consider *a-d* in this way. To my mind this made compiling a literature review untenable. Even though there are a great number of speculative paper architecture projects being produced within universities and private practices throughout the world, these works are overwhelmingly embedded within the discipline of architecture and the possibilities it entails.

For this reason, I adopted a strategy of strictly avoiding mentioning specific works or practitioners of paper architecture in this essay. I did not want to compare these essentially architectural works with or within this project. This may appear excessively pyrrhic considering the expansive

¹ Arguably, examples of speculative architectural-documentation can include not only contemporary work whose purpose aligns with a theoretical or speculative practice, but also any drawing, image, model or notation that refers to unbuilt, lost or destroyed architectural projects. Unsurprisingly the history of architecture is richly littered with such examples.

and varied work being produced within this sub-discipline. However, I feel strongly that a concrete refusal to engage work of this kind was required for proper consideration of *a-d* as a distinct and viable practice *in itself*.

As much as I do not wish the outputs of this project to be understood as paper architecture, neither do I wish them to be art. To these ends I have marked out a space that resists ownership by either discipline. I have done this by carefully choosing the institutional context in which the project was undertaken, but also through the processes I have engaged and the outputs I have produced.

This research project has been undertaken within the context of an art school, more specifically, within *The Centre for Ideas* (CFI) at The Victorian College of the Arts. The CFI is a highly respected intellectual and creative space that deliberately offers possibilities for *interdisciplinary* practice. This term is most often understood to mean *both*, as in art *and* architecture, but can also, I believe mean *neither*, i.e. the space *between*.

If this research project had been undertaken within an architecture school, I would certainly have been required to apportion a great deal of this essay to locating the project in relation to practices of paper architecture. I strongly believe that this would have been counter-productive.

To fundamentally alter the processes of *a-d* I have made the site for this project a *text*. Texts are often cited as impetus for architectural projects, as means to generate architectural design decisions, but a *text as site* is of course entirely impractical as a procedure for built architecture and renders the possibility of construction absurd.

I have located the propositional response to this 'textual site' within the infinite space of an axonometric void that includes the text as both site *and* material. This provides a hybrid physical/conceptual space within which proposition takes place freed of the constraints of physical materials and interactions.

The drawing set that forms the analysis and propositional response has been included with this essay, considered together they act as complicit and partisan companions. I do not believe this is ultimately necessary for *a-d* to function clear of the confines of architectural practice, however in this instance it is an effective means to counter demurrals and make visible and comprehensible this other space for *a-d*.

Formally the drawing set does not properly function as architectural design documents even though visually they are alike. They are deliberately plausible at first viewing but quickly declare themselves otherwise. The drawings are not correct, what they describe is too little or too much – the gathered requisites are not suitable for architecture.

In addition, the drawing set is not easily located as art. Although not an architectural set it is still too close to be free of this association, it's formal language, construction and technology of manufacture are not *of art*. This is also partly because the drawings are resolutely allographic and must be considered as a set. They must be examined both relationally and sequentially to be comprehended.

The drawings are also aesthetically ambivalent, considered as a secondary concern, the aesthetics of the individual drawings are subsumed within pragmatic and systematic compositions. What is of primary importance is not the individual drawing and how it arranges itself upon the page, instead it is the contiguous whole that the set describes.

These deliberate tactics should be considered indicative of my strong intent to remove *a-d* from the strictures of not only built architecture but also paper architecture and art. My hope is that by turning its back upon the, at times overwhelmingly bright light of these practices, the shadows, outlines and potentials of *a-d* as a distinct practice can more fully be traced and realised.

Further Questions

A-d requires that *it is done*, as an apparatus it must constitute itself in the world, if only as lines upon a page (or a screen). It is unsurprising then that further questions have appeared whilst undertaking the work of the drawing set. In particular there are two that I believe are urgent for a continued practice of *a-d* as a distinct apparatus of apparatic composition, these are:

- I. How is the essential character of *a-d* maintained when removed from architectural practice?
- II. In what space(s) can the outputs of a distinct *a-d* practice operate most effectively?

Essential Character of Architectural-documentation

My intuitive response to the first question is that when *a-d* becomes a distinct practice of apparatic composition, that renders space, be it physical or conceptual, visible, credible and malleable, *a-d* simply *behaves as itself*. However, I also acknowledge that to enact and then maintain this state *a-d* must adopt a number of specific practices.

Firstly, *a-d* must remain *spatial*, this means it must operate dimensionally, either within an abstract dimension – similar to Deleuze's new formal dimension, it must trace and map to both analyse and propose, abstractly. Alternatively, it can propose to operate through physical space, but it must also do so abstractly. It must abstract its apparatic elements to the roles of gathered requisites for an apparatic composition that proposes interactions between physical space, materials and beings, importantly these interactions *do not* require that they are plausible or physically possible.

This educes a second essential quality that must be sustained, for *a-d* to maintain its essential character it must operate through and upon bodies. I am not yet convinced that these must be human bodies, but I am convinced there must be bodies called upon to interact with the apparatus of *a-d* to enact its propositional nature.

Therefore, to maintain its essential character; *a-d must create apparatic compositions that are spatial, abstracted and propose to act upon and through bodies.*

As a practice *a-d* must also maintain its formal processes of facture. It must operate allographically through scale and measure to produce objects that only ever *stand in for*. It must also work within a set, requiring that it be considered and then comprehended through a combination of separate elements. Finally, it must continue to use its formal techniques and technologies, both historical and contemporary, to distinguish its working forms from the disciplines it is gathered from, this is so that it can remain as a distinct apparatus – accessible, viable and discernible.

As I propose this, I feel it is important to re-iterate that the gathered requisites of *a-d* do not belong to architecture. They exist elsewhere as practices which may develop and intermix on their own terms. This is perhaps how I see *a-d* continuing to maintain a relationship with architectural practice. But I would hope that it is one that is no longer subservient. Instead the distinct and partisan apparatus of *a-d* would be acknowledged as free to interact with architectural practice as a separate discipline, one that is obligated first and foremost, with its own discourses.

Appropriate Spaces for Architectural-documentation

As I mentioned in the Introduction there is a banality to *a-d*, even when otherworldly it has a fundamental inability to circumvent the mundane. I believe this stems from the fact that the haulage of *a-d* is always incomplete, it does not end, there must always be *more effort* to bring what is depicted into the world, to ‘spoil’ it further. As we have seen this is essential to *a-d*, it is allographic, it is not the thing it depicts. It is a miniature city between things that we traverse when trans(ferring) ourselves from some-thing, some-where, to something-else.

This quality of *a-d* and especially *a-d drawing* is for me simultaneously compelling and frustrating. I do not necessarily want what is depicted by *a-d* to be real, but I want what is depicted to *feel* real, whatever that may mean. This is the contradiction of *a-d*, it *must* suggest alternatives, but

must not insist on those alternatives *actually existing*. It can only ever offer up mirages of possibility.

This can be difficult to accept, but conversely it also provides a credible answer to the second question. This quality means that the outputs of *a-d* are free to operate across any space, because they can *only ever* analyse and propose. They are of the world and its *things* but not bounded by it, so are free to analyse and propose between, across and within any space or any temporal moment. This allows *a-d* to be agile, available and anywhere that an apparatic composition can be *imagined* to exist.

As a practice *a-d* relies upon a complex and heterogeneous gathering of requisites to enact itself. Overwhelmingly it has utilised these requisites for *urgent and useful use* in the creation, discussion and analysis of architecture.

Within the broader apparatus of *a-d* the specific processes and practices of *a-d drawing* have defined, reflected and promulgated how *a-d* operates more generally. It has worked to both aid and influence the creation of architecture, as a powerful and obedient apparatus of design and enactment and as one that is quietly partisan whilst capturing both us and our topographies. The essential elements of *a-d drawing*, line, scale and measure, together with its projective nature, have allowed it to project not only what can be seen but also what can be imagined, both upon the page and into the world.

These projections release and confine us, from its naissance *a-d drawing* has deployed itself through and upon our bodies. Initially requiring a transitory body to enact itself within the world, this ultimately became yet another gathered requisite, subsumed into the apparatus of *a-d*. We can still discern this body however, in the basic elements of *a-d*, its scaling and measuring of the world, which defiantly occur in relation to our bodies and subjective experiences.

As *a-d* has gathered us to it we have remade the world through its projections of our-selves. In *a-d drawing* we have found an apparatus that has helped us utilise the simplest and most ethereal of materials – the line and the page, to aid and guide these changes. Our dwellings and cities have grown in complexity through linear and conceptual constructions enacted via the apparatus of *a-d* and especially *a-d drawing*. At the same time *a-d* has gathered itself in these same spaces, transcribing our constructed meanings into and upon the accumulation of materials surrounding us.

This transcription has not only allowed us to analyse and propose interventions but also describe temporal sequences. Both *analytic* and *propositional*, *a-d* is a combination of processes that captures within it

temporal possibilities. Both urgent and useful, *a-d* shows us what is, so that we may imagine what may be. As it does this it provides us with the apparatus required to plan, implement and occupy new worlds, whether as real or imagined abstracted space and time.

It embodies its abstract qualities through complex mechanisms of *analysis* and *proposition*, abstracting whilst also tracing and mapping. Intrinsic to its projections into the world is the ability to displace both its own elements and those of the world. Through abstraction it folds and unfolds itself across real and imagined, physical and conceptual dimensions of nascent potentiality.

We can see in the fundamental line of *a-d drawing*, the ground line, that *a-d* has encircled the entire earth and everything connected to it. It encloses us in walls of our own subjective space as easily as it makes a window through the walls – all it takes is four lines. This powerful apparatus enables us to cast our shadows across the entire world, allowing us to re-imagine it, making it comprehensible and putting it all within the reach of our bodies.

This insubstantial and neglected *miniature city between things*, this *apparatus of gathered requisites*, this combination of *drawings, images, models and notations*, has placed itself between us and the stuff of the world. It is so mundanely and exquisitely composed that it can make of, even our strangest and most elaborate imaginings, compositions that seem plausible, viable and full of meaning.

The Interhuman Apparatus

6

The Drawing Set

To attempt to wholly disentangle *a-d* from the extensive histories and practices of architecture in one research project, seems in retrospect, both wonderfully ambitious and embarrassingly naive. The drawing set that follows this essay is a genuine, if cumbrous, first attempt at the use of *a-d drawing* for the production of an apparatic composition and as such it is undoubtedly flawed.

The hold that architecture has upon *a-d* is considerable, some would argue they are inseparable, perhaps even the same entity. I believe the relationship is more akin to that between parents and a child.

Architecture has begotten the apparatus of *a-d*, it has gathered requisites about itself and formed this other thing that is definitely not architecture and yet until now has been completely defined by architecture.

No matter how fraught and difficult this relationship has been, *a-d* has followed architecture quietly and obediently for hundreds of years. It will take time and much work to fully discover, coalesce and articulate possibilities for *a-d* as its own distinct practice.

The Site

The essay *Useless Suffering* by Emmanuel Levinas (1982) is a phenomenological study of the experience of human suffering. It provides a summation of the experiential causality and effects of suffering, as means to locate it within the qualia of human experience.¹

This research project does not attempt to critically analyse Levinas' essay in relation to the discipline of philosophy. Instead, Levinas' text is used as means of generation to test and experiment with *a-d*, to better understand it as apparatic practice.

Levinas' essay is considered *a site*, providing and proposing elements of its own conceptual and experiential *topography*. The fact that Levinas engages a central experience of human existence so thoughtfully and eloquently has been valuable to this project but is not crucial to its ultimate aims. Rather, my interest in this text arose during the development of the project.

As a first testing site I chose to use a text for two principal reasons. Firstly, because of the inherent connectivity within texts, I could consider, manipulate and connect the chosen text as if it were a territory connected upon all sides to a broader landscape of texts. In this way it operated as a portion of 'space'.

Secondly, the text provided a significant disjunction between the text as space and the common usage of texts within architectural practice. Even though texts are often adopted by architects as conceptual impetus and rationale, they are not generally understood as locations in themselves. To consider a text as a site is problematic for an apparatus typically used to engage specific physical locations. For me this satirised architectural

¹ I have engaged only the first four paragraphs of *Useless Suffering*. This is because within Levinas' text only these paragraphs deal specifically with the experience of suffering. The second part of the essay concerns theodicy and although there is an obvious connection between these topics, it was not a discourse into which I wished to plunge. This is due in part to the obvious difficulties, but also because the first four paragraphs more fully relate to any human being regardless of beliefs.

practices by seeming to follow a very well-worn architectural path, whilst actually helping to cast the apparatus of *a-d* adrift.

The texts I initially considered were related to political philosophy and the experiential qualities of space. When I discovered *Useless Suffering*, it seemed to obliquely draw from both these topics. Additionally, I was drawn to the use of language within the essay, the two English translations I have used are slightly different, but both are pleasingly awkward. The text is not easily understood at first reading, at least by me, and there is something *other* about it, as if the text requires further translation to reveal its meaning. It is in short, a little difficult.

Suffering is, a central experience of humankind and Levinas acknowledges this within his essay. It is also something that is difficult to articulate and describe, this difficulty and ambiguity, so beautifully voiced by Levinas, subsequently became a tactic for the project, suggesting a creative disposition.

There is for me one notable shortcoming to the essay that I feel I should briefly mention, not because it is actually problematic but because it also influenced the tone of the drawing set. It is that *Useless Suffering* treats the experience of suffering as a singular entity.

Although this is a credible and useful strategy, to me it falls short of lived experience. Suffering is, at least to my mind, profoundly, unresolvedly and confusingly complex, layered and mixed with other sensations such that it is sometimes difficult to discern its edges moment to moment, this is only incidentally suggested by Levinas.

I propose that this perceived shortcoming may exist because Levinas was overwhelmingly affected by the suffering of the Jewish people during and after the Holocaust. It would be entirely unsurprising to me if this incomprehensible manifestation of human cruelty had cast a shadow across his thinking about the subject, such that finer details could be lost in its darkness. My assessment of this may or may not be true, but my sense of this greatly affected me and how I responded to the text. I found it appearing a number of times during the drawing out of my response.

This approach I believe is neither correct nor incorrect, instead it simply illustrates one way in which the text assembled its own dimensions, requirements and amenity, its own *topography*.

The Set

The drawing set consists of two parts. Part One, *Analysis* is composed of drawings that survey a hermeneutic of Levinas' essay, it's meanings, layout and structure within the first four paragraphs. Two English translations are analysed, compared, separated into constituent parts and re-assembled as a single entity to be considered anew. This process is to comprehend the text formally, as a sequence of ideas strung together, like marking points or regions of a map, but also informally, as means of departure for a creative process of transformations and connections.

Part Two, *Proposition* takes place within the abstract dimension of the axonometric. It consists of four stations – *Blast Furnace*, *Reading Room*, *Serlio's Doors* and *Stereoscope*. Each station is part of a continuous, endlessly repeated sequence. To maintain this repetition the stations are located upon circular tracks, there are two sets of tracks which together describe a figure 8, meeting at and sharing the station *Serlio's Doors*.

At first glance the drawings of the proposal may seem to describe architecture, they do not, none of the objects or spaces described in these drawings are architecture. Instead they describe gathered requisites within an apparatic composition, scored for and performed by, human bodies.

Like Levinas's essay these drawings do not step outside the experience of the human body. Every act is for a body, but bodies transformed, transfigured, transcribed. Each part of the apparatus describe actions for the body according to the requisites of the larger composition.

As we have seen this is not unusual, we engage apparatus in the world in this way, they are designed to capture us and orient us in relation to their or other external needs. In this apparatic composition I propose an apparatus of *urgent and useful use* that offers a response to suffering and the 'call for aid' so poignantly described by Emmanuel Levinas.

The Drawing Set is an apparatic composition and *an offering of analgesia and the interhuman*. The intent of which is to educe in some small way the possibility of human connection, consideration, compassion and a momentary respite from suffering.

Included within the set is a Gantt chart, frequently used to describe the stages or elements of the construction process, these charts are typically pragmatic documents. The Gantt chart in this set more closely resembles a score – as means to describe possibilities of temporal and sensory relationships between apparatic elements and bodies. Like any score it requires an effort of translation. However, it should be noted that this chart is resistant and abstruse to allow for ambiguity, mis-steps and a multiplicity of readings.

The next section provides extracts from the re-assembled text of Levinas' essay mixed alternately with a sequential description of the apparatic composition described within *Proposition*. It may be useful to consider it alongside the drawings; in the same way a Specification may accompany a traditional *a-d drawing* set.

“*What is a divine mind? The reader will perhaps inquire. There is not a theologian who does not define it; I prefer an example. The steps a [human] takes from the day of [their] birth until that of [their] death trace in time an inconceivable figure. The Divine Mind intuitively grasps that form immediately, as [we] do a triangle. This figure (perhaps) has its given function in the economy of the universe.”¹

¹ Jorge Luis Borges, "The Mirror of Enigmas," in *Labyrinths, Selected Stories and Other Writings* (Suffolk: Penguin, 1970). p. 247.

The axonometric space in which this proposal occurs is a dimension of infinite space manifest as *a-d drawing*. By virtue of its infinite bounds and astable composition the dimension may embody anything – it is pure abstract allographic space. In this apparatic composition it becomes a response to the experience of human suffering and the inter-human as described by Emmanuel Levinas in his essay *Useless Suffering*.²

Suffering is, of course, a datum in consciousness, a certain "psychological content," like the lived experience of color, sound, contact, or any other sensation. But in this 'content' itself, it is in-spite-of-consciousness, unassumable.

...-it is as if suffering were not only a given refractory to synthesis, but the way in which the refusal opposed to the assembling of

² The two English translations are:

Emmanuel Levinas, "Useless Suffering," in *The Provocation of Levinas. [Electronic Resource] : Rethinking the Other*, ed. Robert Bernasconi; Robert Wood (Routledge, 1988). p. 156-167.

Emmanuel Lévinas, "Useless Suffering," in *Entre Nous : On Thinking-of-the-Other / Emmanuel Levinas ; Translated from the French by Michael B. Smith and Barbara Harshav*, European Perspectives (New York : Columbia University Press, c1998., 1998). p. 91-101.

givens into a meaningful whole is opposed to it: suffering is at once what disturbs order and this disturbance itself.

Each traversal begins at *Blast Furnace*, this station uses Levinas's essay as a reducing agent, to smelt suffering, this process is not destructive, instead it is additive. Upon the furnace stands a body transformed into an apparatus of hearing. This apparatus gathers Levinas' 'calls for aid', the cries of need and calls for help from *the other*. These calls are directed through tuyères to fire the furnace. The calls and *Useless Suffering* make the suffering hotter, more urgent, producing an abstract suffering which may become any form. Most often it becomes a skeleton for the body that traverses the apparatus. The flesh that covers the skeleton to make a complete body within the apparatus is composed of *slag*, the residue from the smelting process.

The furnace is tended by an unknown body wearing The Analgesic Suit. It is protected from heat and the pain of suffering by the suit which is composed of a golden thread. The suit captures, concentrates and then reflects the heat and suffering back into the furnace, as it does this it creates a radiance that falls and reflects upon and through *Blast Furnace*. This allows the unknown body to tend the apparatus in a state beyond suffering – as a *something-else* to the endless suffering of the two bodies that traverse The Interhuman Apparatus.

Is not the evil of suffering--extreme passivity, helplessness, abandonment and solitude--also the unassumable, whence the possibility of a half opening, and, more precisely, the half opening that a moan, a cry, a groan or a sigh slips through--the original call for aid, for curative help, help from the other me whose alterity, whose exteriority promises salvation?

Egress

At the level of the tracks *Blast Furnace* has two apertures, one is an entrance, the other an exit. It is this second aperture, the egress, that is the beginning of a traversal.

The two bodies that traverse the tracks are The Interhumans. When re-composed each is clothed in The Interhuman Dressings – a covering of used, unwashed hospital linen with circles removed for the head and arms and pockets added for chalk. The undergarments of each Interhuman are of cotton gauze, stained and soiled. They are dusty with erased chalk from the blackboards at the station *Serlio's Doors*. Over their heads each wears a pillowcase of linen, coarse woven and undyed.

In one hand each holds a conch that has been pierced at the closed end to allow it to be sounded. Apart from the sound of the conch each Interhuman remains silent.

*It is precisely an evil. It is not, to tell the truth, through passivity
that evil is described, but through evil that suffering is understood.
Suffering is a pure undergoing.*

At the start of each traversal the body is de-composed as the skeleton and the flesh. The skeleton is laid upon a trolley to be pushed by the flesh along the tracks to each of the stations. The Interhuman Dressings are balled up and placed, by the flesh, beneath the axis and the atlas of the cervical spine of the skeleton. The flesh howls as it pushes, it is in service, in *mal*, every movement causes more or less suffering.

The trolley pushed by the flesh is of riveted iron, it is ugly and evil – a replica of the trolleys used to consign bodies to the crematoriums of Auschwitz. It starts each traversal hot and painful to touch, cooling only as it is pushed along the tracks.

Upon the veil of the trolley is a tank filled with the oils of *Lavandula stoechas*, *Citrus aurantium* and *Syzygium aromaticum*. It is tapped with a burner that is continually lit. The scent is somnolent and consoling but also acrid and overbearing, it gives fleeting moments of relief, pleasure and revulsion to the flesh in its labours.

Within The Interhuman Apparatus the trolley is an instrument of haulage that grinds. The sound of its iron wheels turning accompany the howls of the flesh. In addition to this labour, each flesh upon the apparatus must

alternately carry The Interhuman Cabinet, a requisite for the station *Serlio's Doors*, they must, with no aid, strap it upon their back.

The passivity of suffering, in its pure phenomenology, abstracting from its psychophysical and psychophysiological conditions, is not the other side of any activity, as would be an effect correlative to its cause, or sensorial receptivity correlative to the "ob-stance" of the object that affects it and leaves its impression on it.

The not of evil is negative right up to non-sense. All evil refers to suffering. It is the impasse of life and of being--their absurdity--in which pain does not just somehow innocently happen to "color" consciousness with affectivity. The evil of pain, the harm itself, is the explosion and most profound articulation of absurdity.

Reading Room

The station *Reading Room* follows *Blast Furnace*, it makes of Levinas' essay a tactile entity. At this station the words of Levinas' essay are *danced* by the body as they are read. Translated into braille and cut into suspended crystal sheets, Levinas' words become both a miraculously floating document and a fragile collection of transparent surfaces.

The surfaces are danced by the body re-composed and transformed into an apparatus of touch. The head and limbs extend tactile appendages which allow the body to *perform* the room, touching and describing the words.

The room takes El Lissitzky's *Proun Room* as it's model, a room designed to be an 'interchange station between painting and architecture.'³ It is re-made internally imploded and lucent, its surfaces reflecting and pushing in upon themselves. Within The Interhuman Apparatus it is a station between idea and object, available as both textual and tactile perception.

³ Henk Puts, "El Lissitzky (1890-1941). His Life and Work." in El Lissitzky 1890-1941: Architect, Painter, Photographer, Typographer (Eindhoven; Municipal Van Abbe-museum, 1990), p. 17. Quoted in M. Tupitsyn et al., *El Lissitzky: Beyond the Abstract Cabinet : Photography, Design, Collaboration* (Yale University Press, 1999), p. 9.

*Pain can become the central phenomenon of the diseased state.
These are the 'pain-illnesses' where the integration of other
psychological states does not bring any relief but where, on the
contrary, anxiety and distress add to the cruelty of the hurt.*

The Sugar Blower

The Sugar Blower is an interloper on *The Interhuman Apparatus*, they can move along the tracks to any of the stations and between sets of tracks via the swinging panels at *Serlio's Doors*. Their function is *to make visible the spaces between things*. The Sugar Blower does this by blowing hollow sugar forms between objects, moments and qualia. These forms take the shape of the void between adjacent things, making the spaces visible and edible. The sugar forms are analgesic, but sickly and addictive. The Sugar Blower places these blown sugar forms randomly at and between the stations as sustenance and analgesia for *The Interhumans*.

*For pure suffering, which is intrinsically meaningless and
condemned to itself without exit, a beyond takes shape in the
inter-human.*

Serlio's Doors

The station *Serlio's Doors* follows *Reading Room* and is the site of *The Interhuman*, at this station the trolleys of each track converge. Upon arrival the skeletons and the flesh re-compose into *The Interhumans*, clothe themselves in their dressings and stand upon opposite sides of the station. Once standing each blow into their conch to call to *the other*.

The station is comprised of *The Interhuman Cabinet*, a cabinet of doors, surrounded by blackboards, bulletin boards and surfaces used for marking, numbering and recording. Upon arriving at *Serlio's Doors* the flesh carrying the cabinet places it within the void.

The openings within the cabinet are scaled reproductions of the doors depicted in Sebastiano Serlio's *Libro Estraordinario*. There are fifty doors upon each side, no two are alike and each allows communication from one set of tracks to the other.

...the suffering for the useless suffering of the other, the just suffering in me for the unjustifiable suffering of the other, opens suffering to the ethical perspective of the inter-human.

The Interhumans each place a hand into a door within the cabinet, when they do this there are two possible outcomes – they will choose unconnected openings and miss the opportunity of connection, or they will touch. It is this physical contact within the cabinet, within the space of two separate and distinct openings that composes The Interhuman. The touch produces a miniature flicker of connection that educes compassion and understanding within each of The Interhumans, each becomes for a moment *the other*, each feels what *the other* feels.

After experiencing The Interhuman, the bodies withdraw to record their experience on the surfaces surrounding the cabinet. This is not scripted or controlled, instead each mark is added, removed and changed as each body desires. A transitory record in coloured chalk is created as imperfect analogue for the qualia of interaction.

The bodies then de-compose and the flesh that carried the cabinet to *Serlio's Doors* leaves first pushing it's skeleton and trolley. Once gone the other flesh removes the cabinet and straps it upon their back before also leaving.

The passivity of suffering is more profoundly passive than the receptivity of our senses, which is already the activity of welcome, and straight away becomes perception. In suffering, sensibility is a vulnerability, more passive than receptivity; an encounter more passive than experience.

Stereoscope

The station *Stereoscope* follows *Serlio's Doors* and is the station at which Levinas' essay is seen by the body. Transformed into an apparatus for seeing, it kneels upon the viewing platform and combines in turn, two paragraphs of Levinas' essay, overlaying and transforming the words into a stereoscopic *figure*.

Each of the four paragraphs are arranged around a circular mirror that allows all combinations to be compared. For each change to be made the apparatus for seeing must rotate the panels. Slowly the stereoscopic figure of suffering becomes transmuted as *topography*.

This constructed topography makes visible suffering as a site within a larger site, a map within a larger map and a space within a city of spaces, that can be traversed and understood by the eye.

When suffering has been explored and perceived, the apparatus of seeing realigns the paragraphs of Levinas' essay to their original positions. It then de-composes into the skeleton and the flesh and proceeds towards the station *Blast Furnace*.

Thus the least one can say about suffering is that in its own phenomenality, intrinsically, it is useless, 'for nothing'.

Ingress

After leaving *Stereoscope* the body travels to the ingress of *Blast Furnace*. It becomes again an apparatus of hearing and climbs upon the furnace to gather more 'calls for aid' into the tuyères. It then de-composes outside the second aperture.

The skeleton pushes the trolley into the furnace, at each immersion the iron of the trolley is made hot again. The flesh passes the oil bottle and burner, The Interhuman Dressings and if it carries it, The Interhuman Cabinet, to the unknown body who places them at the egress. The flesh then re-enters the furnace, this is the end of one traversal and the beginning of the next.

- Borges, Jorge Luis. "The Mirror of Enigmas." In *Labyrinths, Selected Stories and Other Writings*, 244-47. Suffolk: Penguin, 1970.
- Tupitsyn, M., L.M. Lisickij, M. Drutt, E. Lissitzky, M. Pohlmann, U. Pohlmann, K.E. Göltz, et al. *El Lissitzky: Beyond the Abstract Cabinet : Photography, Design, Collaboration*. Yale University Press, 1999.

I do not believe that there will be many people interested in this little research project, in fact I would be surprised if its audience is greater than *one*. I suspect my resistance to the disciplines of architecture and art are at least partly an attempt to ameliorate this state of affairs by allowing me to claim another territory, in a sense my own, for my audience of one. It conveniently frees me from the comparisons and validations that would be required from engagement with this project's wealthy and imperious neighbours.

This work may only be interesting to me, but for me it has been utterly transforming. The particular use I have made of *a-d drawing* has opened an entire world of possibilities for new work, work that is complex, challenging and eminently viable and accessible.

Nevertheless, I must also admit relief at concluding this research project, it has been extremely difficult. This has not been because of the work, which has been both deeply enjoyable and satisfying. Instead what has made this project difficult has been the ongoing obstructions I have experienced in my life beyond this work.

As I have been undertaking this research, obstacle upon obstacle has been placed in front of me, the specific details of which will mostly remain

private, not least because I am keenly aware of the discomfit caused on hearing of another's anguish.¹ I will instead describe briefly only my most recent difficulty in some detail, not because I am seeking pity, consolation (or aid) but because it is pertinent to this project.

The most recent difficulty I have negotiated has been my first ever experience of chronic pain, specifically a debilitating headache that has continued unrelenting for approximately six months, the origin of which is as yet unknown. Not only has this made my life more difficult than I would have liked, but it has also made completion of this project challenging.

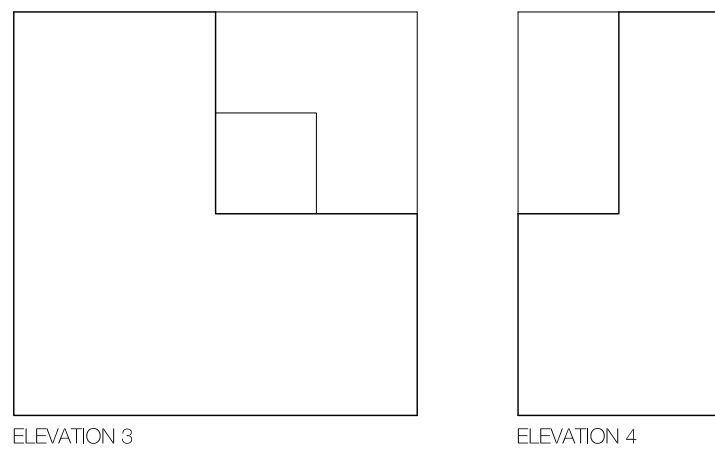
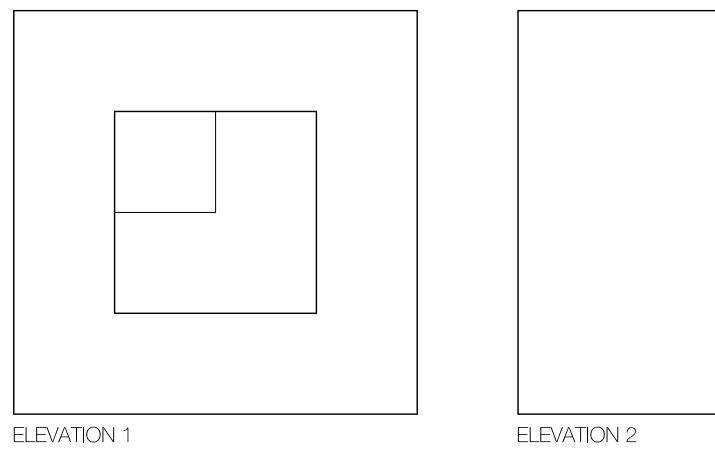
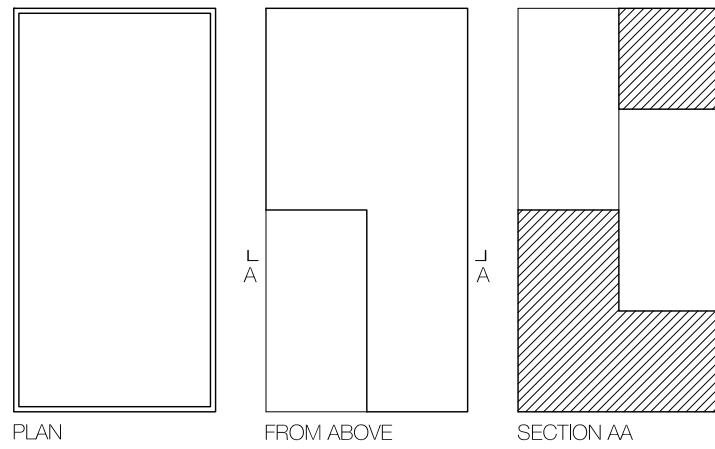
The irony evident in this situation when considered alongside the subject of my first apparatic composition is not lost to me. My experience of continuous pain has inevitably brought into sharp focus not only Emmanuel Levinas' essay, but also my response. For me, Levinas' words have bled into my day to day existence and although this has been difficult it has also provided solace of a kind.

My experience of suffering is manifest within the apparatic composition I have created to respond to Levinas' essay. It is plainly visible when I look through it and I believe it is decipherable. For me this could be no greater validation of my original intuition regarding the possibilities of *a-d*.

This is the decisive success for me – I can clearly see an ongoing body of work that utilises the apparatus of *a-d* as a distinct creative practice free of the strictures of the discipline of architecture. It has become a means to make sense of and engage the world in a way that is, to me at least, profoundly meaningful and innately imaginative. How that is assessed by surrounding disciplines is in a very real sense, extraneous.

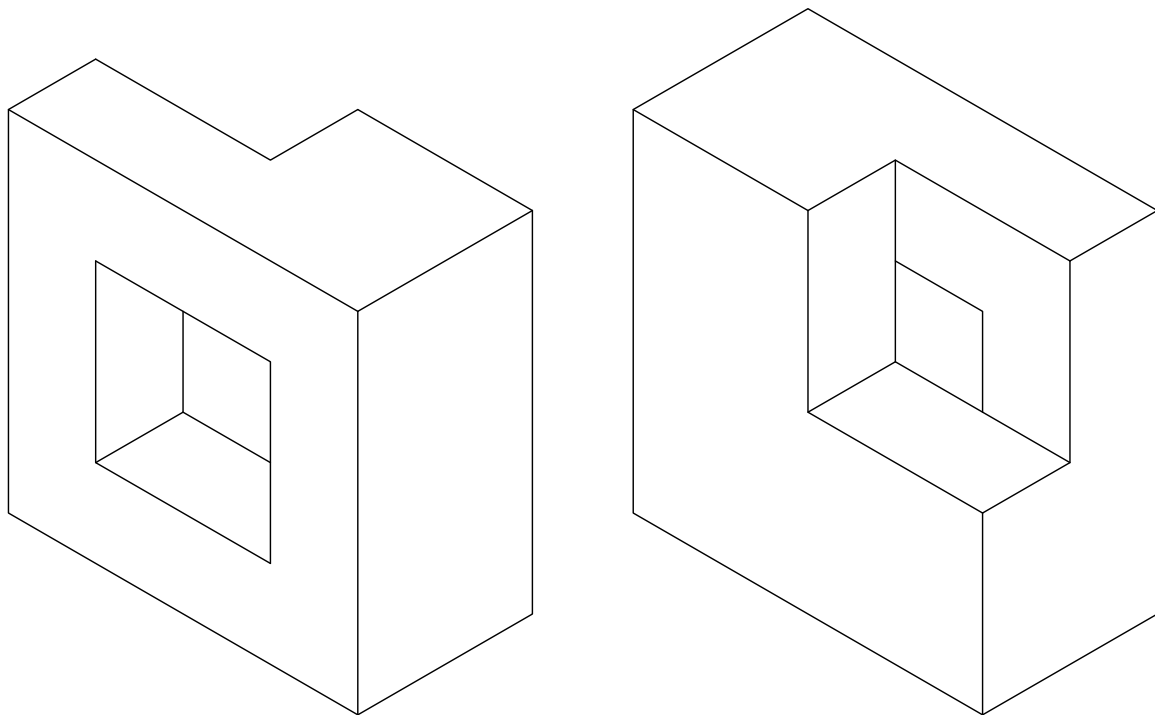
¹ especially so when considered against the overwhelming suffering being inflicted by the virus currently making its way across the planet.

Figure 1



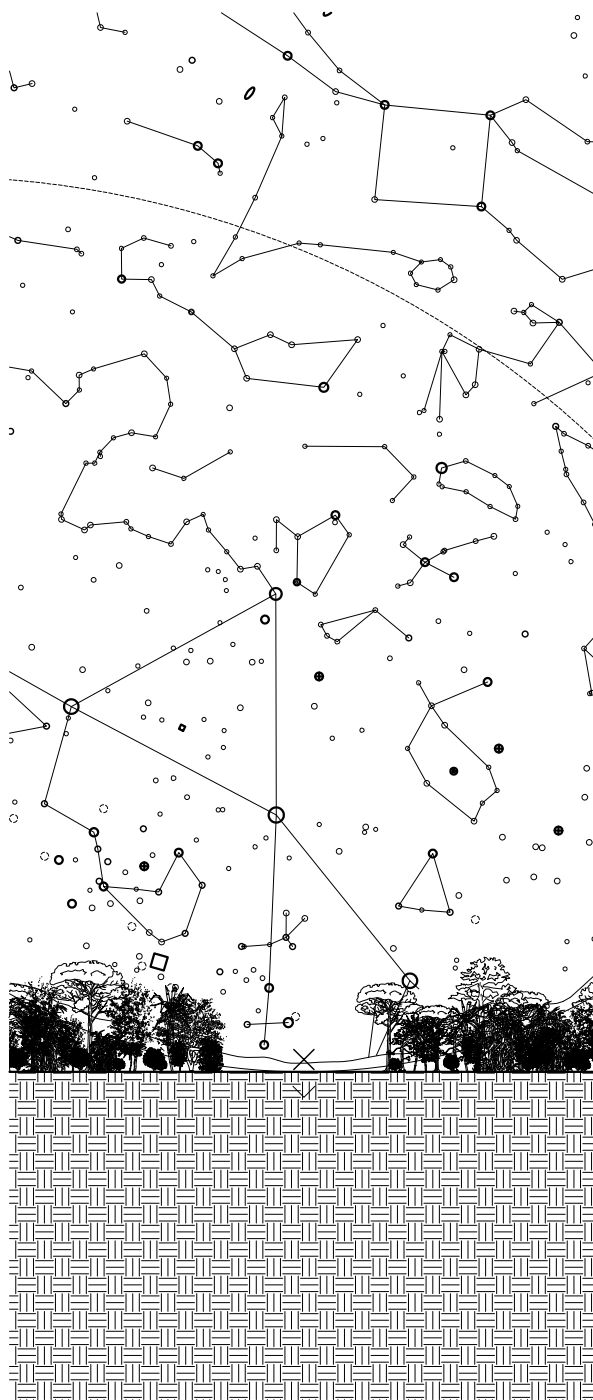
Orthographic Projection

Figure 2



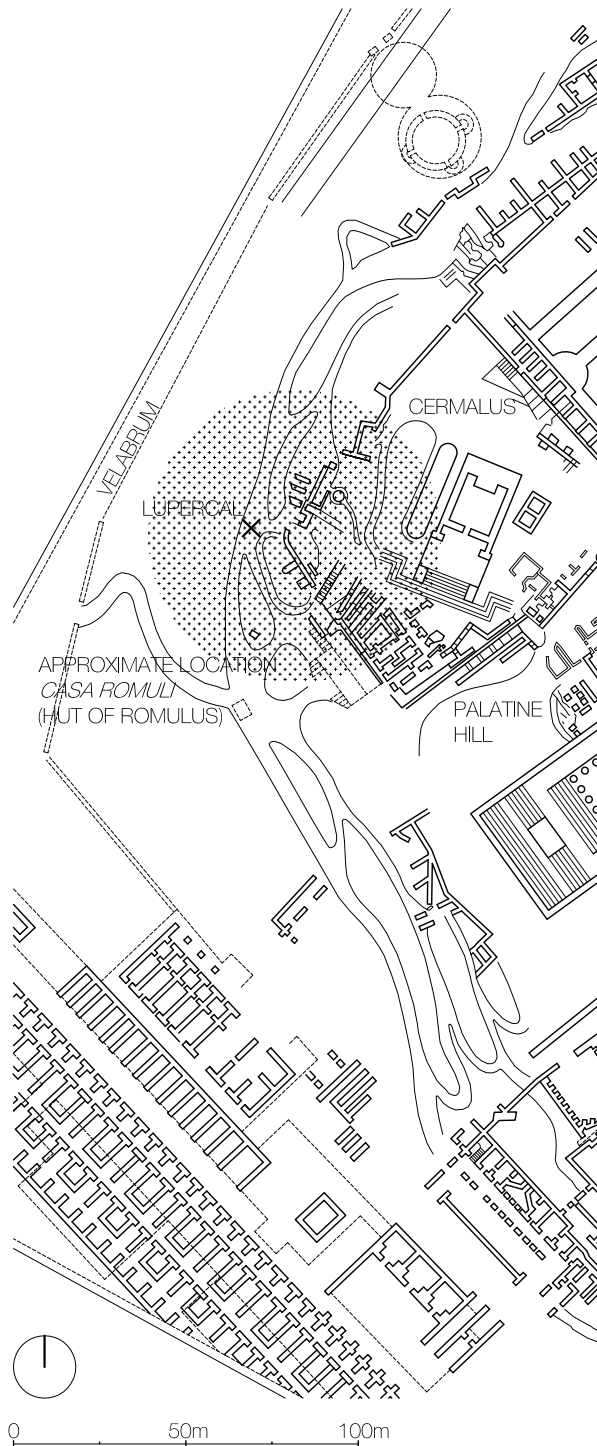
Axonometric Projection (Isometric)

Figure 3



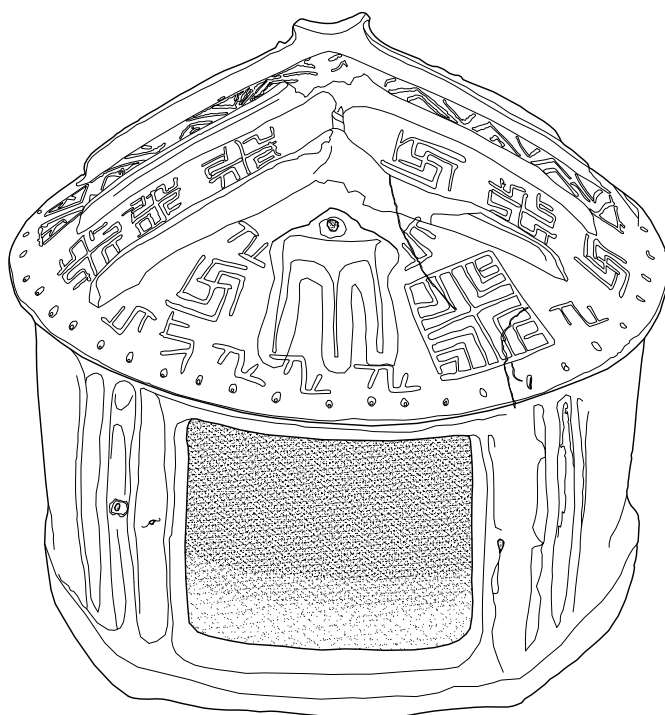
The Vitruvian Clearing

Figure 4



South-western side of Palatine Hill, Rome
The Topography and Monuments of Ancient Rome
Samuel Ball Platner, 1911

Figure 5



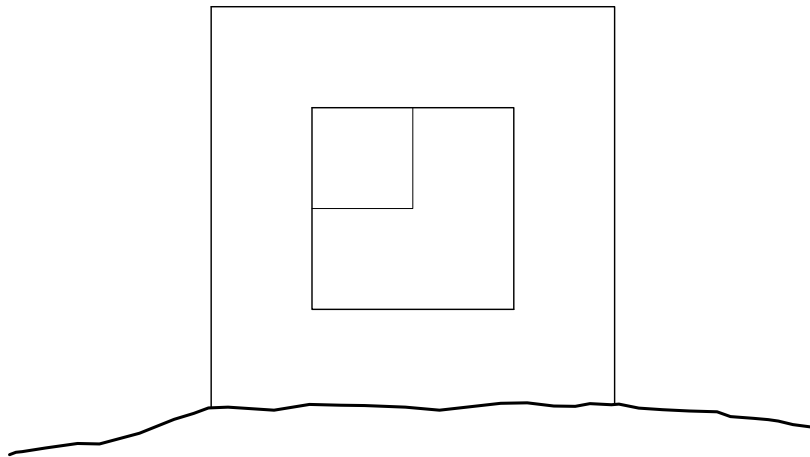
Hut funerary urn, 900-850 BCE. beginning of Latium Phase IIA
Vatican Museum, Rome. h270mm, base 290 x 300mm. Impasto

Figure 6



Forma Urbis Romae fragment: *Stanford 11d* or *PM1960 607*

Figure 7



Elevation - The Ground Line

