

Title: The Sculptor-Architect: In Rêverie

Name: Daniel Wilkinson

Affiliation: The Bartlett School of Architecture

Keywords:

Sculptor-architect

Bozzetti

Disegno

Ceramics

Virtual Reality

Renaissance

Figuration

Colour

Abstract:

As an architectural designer who has also worked as a figurative sculptor, my practice-led research sees the bringing together of sculptural modelling techniques with the sculpting of architectural drawings. Taking a singular reference to a lost architectural treatise by Michelangelo as its prompt, this article considers Renaissance sculptural practice as offering an alternate disciplinary footing to the norms that developed around Alberti; to which the development of contemporary architectural practice can be attributed. Through a process which moves towards drawing by way of a historically informed adoption of clay sketching, which is used to develop and inform an experimental polychromatic ceramic practice and virtual reality modelling techniques, my activities as a sculptor-architect critique the corporeal dismissals which marked the codifications of the Renaissance. Central to this is the capacity of *disegno*, which as a term was paramount for the era's repositioning of

architecture, painting and sculpture as liberal arts, to suggest broader approaches to design than an immediate reliance on drawing.

Article:

Figure 1

The understanding of the architect that's commonly subscribed to today can be traced back to the codifications of Leon Battista Alberti (1404-1472). Referred to here as the architect-architect, Alberti tied his version of the practitioner to a mindset that looked to reify the intellect over the reality of the body, in line with an immaterial bent towards the design process, while relating to wider debates on the importance of *disegno*. Using a singular reference to a lost architectural treatise by Michelangelo (1475-1564) as its stimulus, alongside what's known about his sculptural-architectural methodology, this article is about a way of designing that offers a practice-based critique of Alberti's cerebral focus. By drawing attention to the sculptor-architect as an alternative, the architect-becomes just one version of what might have developed out of the Renaissance. By way of a design process that incorporates preparatory material processes and visceral response, as a sculptor-architect, I bring together sculptural modelling techniques with the sculpting of architectural drawings to establish a confluence between our contemporary moment and a lost tradition. In the taking of its cues from this alternate historical footing, this is an understanding of the architect that distances itself from the regular and contrasting returns being made to Alberti by current architectural thinkers (see: Carpo, 2011; Emmons, 2019), with the continued emphasis on his significance having been best summed up by Peter Eisenman's defining of the discipline as an ongoing game of capturing the flag of Alberti (The University of Belgrade, 2014).

Having become the first printed architectural treatise in 1485, Alberti's *De Re aedificatoria* (*On the Art of Building*) put forward a version of practice centred on the

inscription of ideas formed in the mind, and independent to issues of perception, presence and materiality (Hendrix, 2013: 22). In its promoting of orthographic proportion, this approach was presented through a Vitruvian reading of the body, which bypassed issues of movement and state in favour of fixed numerical guidelines. The study model's role within this was to test drawings that had been conditioned by this static conception of the body, as a device to determine whether additional drawings were needed to resolve any errors that were exposed (Smith, 2004: 26). With best modelling practice being a use of plain wooden sheets (Tavernor, 1996: 36), in short, *De re* was planar all-round. What follows is an approach that admits the waxing and waning of sensorial response and material transformation, through a different conception of the body being tied to a different concept of the model, while building on the ambiguity of *disegno* in connection to the physicality of sculptural practice.

Commonly translated as meaning drawing, this approach takes place within the term's capacity to infer; the literal act of drawing; drawings; and the drawing forth of ideas which, as a process, does not necessarily need to be bound to planar inscription (Hill, 2006).

The Lost Treatise in Conjunction with the Birth of Modern Figurative Sculpture

In a c.1670 interview with Charles Plumier (1646-1704), the French engraver Dominique Barrière (1618-1678) recalled seeing an architectural treatise by Michelangelo while working for the architect Francesco Borromini (1599-1667) in Rome. Of the slight recollection he offered, the treatise he had seen 'many times' contained 'many fine lessons in architecture' and concluded that 'the best lessons were those of the architect's own invention' (Downes, 2009: 265, 347-348). Despite no further sightings of the text having been recorded, its potential to have outlined a different version of the discipline, as indicated by the non-Albertian character of Michelangelo's designs, has propelled a personal conception of *disegno* for my studio. In this, an interplay between the model and the designer becomes a driver for drawing forth. With his reputation as a sculptor having been long-established by

the time of his first architectural commission in 1523, this is a way of designing that riffs on Michelangelo's documented use of *bozzetti* (clay sketch models) for the preliminary working of architectural figures, components and spaces. These studies would then be cultivated through further studies and drawings, as was standard for sculptural practice by the time of his arrival into the discipline. With much of his built work evidencing the forms and curvatures that clay readily lends itself to, I have adopted this preparatory stage for my own practice. In doing so, my studio uses the past as a resource for design and invention, despite Michelangelo's architectural *bozzetti* having been lost in the centuries between us (O'Grody, 1999: 14).

With a return to exploring the nude having marked the triggering of the Renaissance (Clark, 1976: 12), by the time of Alberti's resuscitating of Vitruvius sculptors were decades into a use of *bozzetti* for investigating the changeable states of the body, with the preliminary sketching of statuary in clay having been introduced by Donatello (1386-1466) around 1410, following a surprising absence of sculptural modelling in the preceding centuries (Arkles, 2018; Wittkower, 1991: 36). Unlike the Vitruvian measurements studied by Alberti, *bozzetti* had enabled a paradigmatic shift for sculpture through physical explorations of the physique. In the softness of this model-first approach, the figuring and disfiguring of preparatory studies had awakened an avid sense of form, with other mediums then being used to develop the fleshy drifts that were being found in clay (Tostmann, 2014: 103). With the orthographic correspondences between body and drawing in *De re* having been integral to the steady and cerebral architecture that Alberti was promoting, while being aligned within his immaterial approach to *disegno*, Michelangelo's use of the hands-on method that had just been used to reinvigorate sculptural standards led to the figuring out of a different kind of architecture. This volumetric and suggestive form of sketching resulted in distinct quirks, such as the sensuous, hectic and confined bulk of the Laurentian Library; a project which animates the

body in revealing its relationships and pressures. My design process considers the underlying approach of the library's idiosyncrasies as having offered an alternate trajectory to the norms that were settled on by Alberti's followers, the consequences of which can still be discerned within the general state of practice today.

A Sculptural Mode of Drawing Forth

Through using *bozzetti*, my work begins in the fluid and curious dimensions that come with clay. With the material's changing conditions going from an effortless accommodating of the whims of modelling to being as stubborn as stone once dried and fired, it's peculiar stuff. As its materiality shifts from the feckless to the implacable much goes on, with the techniques I follow this up with being an augmenting of what goes on in this going on.

Figure 2 starts to tell of what comes from this. While a bad habit of seeing mind and body as isolated domains had informed Alberti's intentions, a problem which has dogged an intellectual lineage dating back to antiquity (Batchelor, 2000: 12), this is an attempt at something different. Like the further examples that follow, the drawing has moved through the following stages; an aleatoric finding of its figures and components in clay; an experimental ceramic practice which looks to the sensorial effects of colour by way of material exploration; the digital capture and additional working of these studies within a 1:1 virtual architectural environment; the visual softening of the output of this process through a HMI. Each of these stages is understood as a binding together of material and response within an immersive design process. Through this, a material reverie occurs in which clandestine physiological systems become implicated by the serendipitous working of models and drawings, as I respond to the excitements that their changing states can trigger in the fleeting moments of this process. With my presence as a corporeal entity undergirding this, a bodily totality saturates my designs' development, with momentary specifics occurring impulsively

and according to effect and material behaviour. Importantly, by approaching Michelangelo as a fellow practitioner, I transgress his earlier output's contextual limitations.

As a result of the relatively free engagement I use to generate suggestions, the intent for a study will often turn in unexpected directions. Sometimes, I'll start with the quick mashing of clay for the sake of its tactile joy, with the gratification that comes with this not being easy to put into words. In looking to find something that excites, I wait for intriguing avenues of exploration to appear as I goad and dredge its mush towards the shape of something fancied in the moment, such as a torso or a step. By tipping and turning these studies, they can often begin to allude to something utterly different from what had been going on in the moments beforehand. While certain moments in its gradual drying out can be crucial, the handling of clay is not an activity that takes possession of the intellect, with my thoughts generally being elsewhere, and often put on hold. With the starting points with which I begin being afforded a low level of anchorage in the reworking of forms at pace, things are free to change, as the suggestive protrusions that accompany abrupt applications of pressure can propel figures and components into ever more awkward and intriguing configurations. Evidencing the irregular success rate that comes with this way of working is the population of dried clay studies that I share my studio with, with countless serendipitous engagements having come to poppycock.

Figure 3 – Mrs Alberti

Through this briskness of adjustment, I take not knowing where I'm going seriously, with the material's ability to register its own handling being used to think through and with the medium. This developing of an intimate relationship with 'vile earth', as it was referred to by Michelangelo (Boucher, 2001: 4), has resulted in the arrival of a license in which my preparatory studies can be twisted and squeezed towards whatever feels right in the moment,

with the clay seeming to encourage its own reworking. Attempts at communicating the stream of responsive states that go into shaping a study, such as Mrs Alberti, can quickly stall, with the base excitements that propel the emerging of pleasing forms being at odds with attempts to intellectualise them outside of studio activity. With the restrictions of our vocabulary for articulating bodily feelings having led to their intellectual neglect (Leder, 1990: 128) and, perhaps, their absence from the canonical architectural treatises (Pollan, 2008: 248), it would be easier to give you a bag of clay so that we could manually discuss this in the hands. Through rotations and compressions, and the viewing of their effects from varying distances, *bozzetti* can be enlivened if they start to approach something that feels a little too normative, or tidy, with the arrangements I move away from leaving their traces at varying levels of discernibility. During this forming and reforming, compositional histories are swallowed and effaced by the tidal relationship that exists between the material and the hands. In being worked until they feel ‘right’, the resolving of my *bozzetti* takes place in the present tense of their modelling.

Sketching in this way offers distinct conventions to planar and inscriptive alternatives, with the bringing about of the specifics happening through the directing of a responsive feedback loop towards the production of images. The pink mannerist flab of Mrs Alberti tells of the frenetic finding of a fleshy terrain, with applications of matter having been smeared and budged towards the usual mammalian protuberances, once enough of a body-to-define had emerged. She doesn’t belong to the kinds of torsos that come with the setting the lines, or those drawn through a geometrical lens. Alongside having allowed the speeds and forms available while sketching in clay to pony up her character, the drawing’s other elements have also been found somewhere between intent and the diversions of the method used to explore them. Upturned and mounted as part of a staircase in Borromini’s cloister at San Carlo, the relationships of these elements were found and altered within a 1:1 virtual model of the

space; the only part of the project that Borromini saw completed, and presumably while in ownership of the treatise.

Figures 4 & 5 – Small examples of clay sketching process

With this near-automatic process of adjustment being preverbal, beyond knowing that I was looking for a body little of her had been decided in advance. Her initial roughing out was a physical affair in more ways than one, as the inner rushes and responses of my nervous system guided her manual shaping. With the nature of such responses occurring on discrete terms, the sculptural kinks of Mrs Alberti have been found somewhere between touch, vision and author's body's vicissitudes. Her flesh is a document of the countless motions and gestures which occurred across a myriad of slight iterations, each of which spontaneously evolved and receded towards what we have here. Drawing forth like this can be both productive and fruitless as it often leads to the overworking of models, with moments of frustration usually being resolved by the quick squashing of a study for the sake of starting again. In her drawn form, Mrs Alberti tells of a technique which has then been amplified in the stages that followed her initial shaping. Her mammillae (figure 6) were a quick addition after being digitally captured, with the working of her colour away from the chromatic lull of clay being tied to a sculptor's use of the kiln.

The momentary ways in which I work become problematic when attempting to articulate them. My own body's sensorimotor capacities are crucial, yet they are never fully graspable for the intellect, or even under my conscious control. In the lively shaping that characterises my process, or even while typing this article, there is much of *me* going on beyond my immediate comprehension. As I probe and paw muddy masses through complex physical actions that come with ease, despite lacking any clear understanding of how I'm achieving them, vague sensations of response are taking place on their own terms to buoy up

and propel this engagement. Arriving from somewhere within me, felt waves of doubt can severely slow things down. This a tacit process in the most traditional sense; ‘I know more than I can tell’ (Polanyi, 2009: 4). I can only allude to the sensations of being immersed in the working of a study; when roughing out bodies, steps and assemblages the interrelated flows of my appendages and nervous system cause my models to meander and stutter as they are *felt* by both the hands and the body. While much scientific research has looked into the objectives of these elusive processes, and their contribution to our day to day existence, this knowledge changes little for experiential reality, as exemplified when ‘the physician still utilises his or her body in a tacit fashion while objectifying the body of another’ (Leder, 1990: 20). While the Albertian version of the body offers a stable framework for guiding the design process, my understanding of the sculptor-architect draws attention to the contingent one behind these drawings’ production

Fat Danny (**figure 7**) is a further result of these chance actions and process, with the main character of the drawing engaging in them himself. From impressing thumbs into soft masses to the coagulating of surfaces, a coming and going of different versions has been buried in the spills of his flab. The drawing contains two versions of the same figure captured digitally during its development. Their sizes here have been toyed with in the virtual; the relaxed body on the floor having been slightly bigger than my actual foot when working in the virtual model.

Ceramics and Renaissance Colour

In many ways, Alberti’s measured approach was an avoidance of the chance irregularities that my work relies on, with his ticking of the box for an architectural return to the body having left the inconsistencies of the material world to one side. Through chance material means, my use of colour is an oblique extension of the sensory factors at play in my

shaping of clay, with its exclusion from Renaissance sculpture having resulted from its ability to excite the senses, which were considered inferior concerns. While Alberti was pressing for the covering of architecture in white paint (Hall, 1999: 135), a codification of sculptural practice was being settled on which omitted chromatic experimentation. Informed, in part, by the misreading of antiquity as having been white that came with the digging up of weathered statuary, fears had developed in the decades after Donatello that the colouring of sculpture would arouse the fleshy passions of the viewer, as opposed to the intellect (Flynn, 1998: 116), despite his introduction of clay sketching having involved his own use of polychrome (Hall, 1999: 133). The tone of this avoidance can be seen as connecting to its experiential qualities falling outside of the strictures of language (Gage, 1995: 72), with the privacy of its impact being inseparable from the discrete character of bodily experience that has been regularly expelled from philosophical thought (Leder, 1990: 87).

In looking to expand their contributory role, alongside their position in critiquing an immaterial conception of the design process, submitting *bozzetti* to the ceramic process offers an engagement with polychrome that aligns with the material and physical factors that condition their initial modelling. Through the spectrum of states made possible by the glazing process, my practice relies on the use of a kiln to amplify the impact of my study models, while enabling my work to speak to, and of, a broader history of sculpture than the white statuary of the Renaissance.

Figures 8 & 9 – Pre-glazed/glazed examples

Ceramic glazing involves applying vitreous layers that fuse with their underlying clay body during the firing process. Due to its unpredictability, glazing is an inevitably experimental process, with its results being stubbornly open to chance deviations while fluxing at heat. Glazes require the mixing of three main ingredients which can then be

tweaked and coloured through the addition of oxides and stains. These ingredients are; glass-formers, such as silicon dioxide and boron which provide the glaze with a durability once fired; refractories, which are made from aluminium oxide and which stop the glaze from running off the surface of the clay during the higher temperatures of firing; fluxes, which come from a group of oxides to determine the melting point of the glaze. While firing my *bozzetti* to a maximum temperature of 1220 degrees Celsius, incredibly slight shifts in these powders' ratios can have drastic effects for their resulting colours and textures. After being slaked with water to create a slurry, applying a raw glaze to the clay study indicates little of what will come from its firing. Even when working with commercially produced glazes, an element of the uncertain remains, with their underlying chemistry being vulnerable to external quirks, such as kiln's specific performance.

When looking at *Hairy Vessel* (**figure 10**), a vague recollection of its making comes to mind. Put together using rolled slabs; the study curves and folds in alluding to the body without directly depicting one. Its intricacies and depths reveal themselves in orbit, with its surfaces being clammy or dry depending on whether they were glazed or not. To achieve *pinkness* was a field of research in its own right, with the failures that glazing lends itself to having resulted in many other *bozzetti* being turned into the most forgettable and brownest of browns. The final mix arrived at was tuned and tweaked over multiple firings, with small adjustments having had a more significant effect than what seemed reasonable. For reasons that still don't quite make sense, the attempt at a red for the rear strands turned seaweed green while melting.

Space Rocky (**figures 11 and 12**) uses glazing in a more experimental and sculpturally ambitious manner. While the previous example shows the standard application of a glassy sheen, the inclusion of unusual ingredients has flustered the firing process while triggering more peculiar effects. A non-oxide ceramic called silicon carbide, commonly used

in the production of components expected to survive repetitive impact, was found to make coloured masses swell by starving the kiln of oxygen. The addition of magnesium carbonate, an insoluble salt extracted from magnesium, was used to decrease melt mobility, which has resulted in certain glazes pulling apart from themselves into small pools of the colour determined by the reactions of oxides and stains to extreme temperatures. Using these materials allows the colours of my glazes to take on a dimensional quality through being prepared to bloat, crawl and blister over multiple firings. At the time of its photographing the study had been fired seven times, to temperatures ranging between 1100 and 1220 degrees Celsius. The pulls of its yellows, oranges, greens, reds and greys (which are actually overfired reds) continue the exchanges between softness and the uncertain which determined the working of the underlying form they obscure, the brilliance of their hue being set against the whiteness of the scorched clay. This chromatic bulging results from a precise mixing of ingredients towards the most imprecise of effects. Producing ceramic drawing prompts such as these quickly changes the studio, with shelves, and then more shelves, having been acquired in recent years for the hoarding of various powders and minerals. Two kilns are in regular use, with one often clicking and expanding as it starts to heat, while the other cools.

Figure 13 – Assembled relationships

The Large-Scale Virtual Studio

The conditions found through this extended adopting of *bozzetti* make their way into my drawings in various ways. Digitised by way of photogrammetry, some arrive directly as elements within an architectural assemblage while the colours and textures of others are switched and shared between different surfaces and components, including the modelling of digital *bozzetti* as a response to the material ones which have been carried into the virtual studio, their language being an extension of the forms I had already been working on. In the final twofold digital stage of this process, I work with models at 1:1 using an HMD (head-

mounted display), before conditioning the renders which result from this into a soft visual state using a graphics tablet as an HMI (human-machine interface). This is a finish which, along with the chromatic runs found in the kiln, looks to recall the clay's earlier malleability.

Figure 14 – Further virtual example

While the history of virtual reality is often considered as having begun with 19th-century stereoscopic viewing devices, other research has suggested relationships with the development of perspective during the Renaissance (Baltrušaitis, 1977: 4). Following a tumultuous commercial development across the mid to late 20th century, the first HMD which did not require being tethered to a desktop computer was released in May 2019 by Oculus. Considered as a breakthrough moment, the device allows for full and free movement limited only by the space in which it's being operated. With this, my practice oscillates between physical and virtual studios, with the preparatory studies which populate my shelves also forming a digital catalogue used while working with virtual modelling programmes. The virtual studio enables, with ease, a 1:1 modelling process in which I can use *bozzetti* as prompts for further modelling, and for the assembling of architectural states in a manner which pre-empts an act of occupation through its taking place at scale. In this assembling, which is redolent of how I got here, scanned ceramic studies are composed and recomposed at speed into assembled states, before being responded to with further digital studies. In short, these are drawings which have been occupied at a crucial stage of their drawing forth.

The experiential scales available when working with a HMD are communicated by **figure 15**. Arriving within the drawing in a relatively direct manner, in terms of its form and its fired colour, *Hairy Vessel* has been bred, through duplication, into a piled exaggeration of its fired state. The multiple scales at which this revamped condition was understood in the virtual studio is indicated by its adjacent sculptors. While working in this way may be a step towards an immaterial approach, what's lost is offset by the physicality that's enabled. In the

mobilising of the body required to view models that appear at this size, virtual modelling falls far from the clicking of the mouse while sitting in front of the screen. In preparing for its drawing, **figure 16** is a space in which I have roved and resided while adjusting its momentary iterations. An earlier version of Mrs Alberti is cartwheeling in, with the fleshy lemon situated north of her having been aligned while I stood between the two. A shifting of virtual scales is registered by the duplications of my shoes that have been left on the landing. To the upper left of the image, a blistered ceramic branch leans in, with its pockmarks being the results of an overfiring of its glaze back in the physical studio. While stood beneath this virtual version of the branch, as a conversion of smaller ceramic study into data and light, the history that it picked up in the material world had been amplified through this change in size. The good thing about the kinds of glazes I've been making is that, generally, their textures and ruptures can be scaled up by increasing the ratios of my nonstandard ingredients, meaning that we're not moving far from what would be achievable with a bespoke kiln (Gregory, 2005).

While the virtual studio is not a fully corporeal way of working, through being a predominantly visual experience, it's a more corporeal way of working due to the mobility it affords. Despite the significance that my version of the sculptor-architect puts on the presence of the body, my own disappears from sight while wandering through these large-scale models, with a muscular knowledge of my now unseen movements being used to gauge heights and distances; an invisible leg often being lifted to where it feels like it aligns with a tread. In its own way, this disappearance of my body is an extension of the receding character discussed for the earlier stages of sculpting in clay. While being mobile in both the actual studio and the visual display of the HMD, I design through a manoeuvrability that is only known through its practice, the ease of these weighty movements having been acquired through effort long ago. These motions occur in an unconsidered fashion, such as the lurching

enabled by the hinge of the ankle and the longitudinal and transverse curving of the foot that provides it elasticity (Todd, 1997: 194); a curving that I'm unlikely to consider while utilising on it. It's through this tangle of unattended physical habits, intuitive decisions, spontaneous actions and whiskery feelings that I give preparations made in the material world a speculative spatial significance.

From the rudimentary shaping of *bozzetti* to these concluding moments of the process, designs are drawn forth in present tense and according to the capacities of sudden edits to captivate or repel. I don't recall or acknowledge each change, with the taking place of this in-the-moment approach relying on a tacit physiological control, as volitional actions are driven by reactions that can be both vivid and vague, and which are felt by the body. In its leading towards the visual softening of the views which are rendered out from these models, this ambulatory technology changes the possible relationships that a sculptor-architect can have with their *bozzetti*. At a reduced scale of manoeuvre, a motoric plasticity continues to be relied on during this visual softening through the graphics tablet, which avoids celebrating the aesthetic which is picked up by the digital stages of this process. With the sways of the shoulders and spine being in concert with the pulls of the wrists, the hard lines and edges acquired within the digital are smudged and smeared according to the pleasures of drawing, by way of motions which are caught by the HMI. Slight drifts continue to occur with this, as edges bleed and relax into one another, just like they did in clay. Some images can require multiple days of adjustment, with their treatment being indebted to the malleability of an earlier stage and the chromatic displays offered up by the ceramic process.

As a result of the stages in which it was played out, **Figure 17** has been a testbed for the divergent ways that *bozzetti* can arrive within the planar realm. With its distribution of bulk resulting from the author's circulatory efforts, my limbs, flab and organs have been active in corresponding to the palpitations of my sensorimotor apparatus. The elastic

propulsions of myself have driven a protean engagement with form and space, through a feedback loop of response, which has been concerned with arresting the magnetic swells of form and experience. While aspects of the relationships between sculptural practice and architectural design have been touched upon by historical scholarship (Payne, 2014), these historians haven't had to get their hands dirty. They also haven't had to fill their workspaces with warm fumes and ceramic dust clouds towards the production of objects. In finding a different way to work, I've repositioned a historical example as a concern for a form of design research that questions the Renaissance's dismissals, for both sculpture and architecture. The sculptural-architectural mode that I have briefly outlined does not subordinate the contingencies of materiality and experience to the intellect. Instead, it uses them to condition the drawing forth of architectural drawings.

Figure 18

References

Arkles, Jason. 'Donatello An Introduction'. The Sculptor's Funeral. Nov, 2014. (Podcast). Available at: <http://www.thesculptorsfuneral.com/episode-02-donatello-an-introduction> Accessed October 3rd, 2018.

Baltrušaitis, J. (1977), *Anamorphic Art*, New York: Abrams.

Batchelor, D. (2000), *Chromophobia*, London: Reaktion Books.

Boucher, B. (2001), *Earth and Fire: Italian Terracotta Sculpture from Donatello to Canova*, London: Yale University Press.

Carpo, M. (2011), *The Alphabet and the Algorithm*, Cambridge: MIT Press.

Clark, K. (1972), *The Nude: A Study in Ideal Form*, Princeton: Princeton University Press.

Downes, K. (2010) *Borromini's Book: The 'Full Relation of the Building' of the Roman Oratory by Francesco Borromini and Virgilio Spada of the Oratory*, Wetherby: Oblong Creative.

Emmons, P. (2020), *Drawing Imagining Building Embodiment in Architectural Design Practices*, Abingdon: Routledge.

- Flynn, Tom. (1998), *The Body in Sculpture*, London: W&N.
- Gage, J. (1995), *Colour and Culture: Practice and Meaning from Antiquity to Abstraction*, London: Thames and Hudson.
- Gregory, I. (2005), *Alternative Kilns*, Philadelphia: University of Pennsylvania Press.
- Hall, J. (2009), *The World As Sculpture: The Changing Status of Sculpture from the Renaissance to the Present Day*, London: Chatto & Windus.
- Hendrix, Shannon J. (2013), *The Contradiction Between Form and Function in Architecture*, Abingdon: Routledge.
- Hill, J. (2006) 'Drawing Research', in *The Journal of Architecture*, Volume 11, 2006.
- Leder, D. (1990), *The Absent Body*, Chicago: The University of Chicago Press.
- O'Grody, J. (1999), "*Un Semplice Modello*": *Michelangelo and His Three-Dimensional Preparatory Works*, PhD thesis, Case Western Reserve University, Cleveland.
- Payne, A. (2014), "The Sculptor-Architect's Drawing and Exchanges Between the Arts", in Michael Cole (ed.). *Donatello, Michelangelo, Cellini. Sculptor's Drawings from Renaissance Italy*, Boston: Isabella Stewart Gardner Museum, pp. 57-73.
- Polanyi, M. (2009), *The Tacit Dimension*, Chicago: The University of Chicago Press.
- Pollan, M. (2008), *A Place of My Own: The Architecture of Daydreams*, London: Penguin.
- Smith, A. (2004), *Architectural Model as Machine: A New View of Models from Antiquity to the Present Day*, Abingdon: Routledge.
- Tavernor, R. (1998), *On Alberti and the Art of Building*, London: Yale University Press.
- The University of Belgrade (2014), *Peter Eisenman – Session 4: HISTORY: ALBERTI, PALLADIO (Part 2 of 2)*. Available at: <https://www.youtube.com/watch?v=NvI7WQNjy2g>
Accessed: Jan, 2018.
- Todd, M. (1997), *The Thinking Body*, London: Dance Books.
- Tostmann, O. (2014), "The Sculptor as Draftsman: A Motif in Florentine Portraiture", in Michael Cole (ed.). *Donatello, Michelangelo, Cellini. Sculptor's Drawings from Renaissance Italy*, Boston: Isabella Stewart Gardner Museum, pp. 103-106.
- Wittkower, R. (1991), *Sculpture: Processes and Principles*, London: Penguin.

Contributors Details

Dan is a lecturer at Greenwich School of Design and the Bartlett School of Architecture, where he received his PhD, and is an editor for the Paper of Emerging Architectural Research. He has recently lectured and exhibited in London, Copenhagen, Rome and Hong Kong and is a co-founder of the design research practice Wu Oui.

Contact:

d.wilkinson.12@ucl.ac.uk