ONLY FIRE FORGES IRON:
THE ARCHITECTURAL DRAWINGS OF MICHELANGELO

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'Sol pur col foco il fabbro il ferro'
*(*Only fire forges iron/to match the beauty shaped within the mind*)*
Michelangelo, Sonnet 62'[1]

The architectural drawings of Michelangelo depict spaces and parts of buildings, often staircases and archways or desks, and on the same sheet of paper he drew also fragments of human figures, arms, legs, torsos, heads, etc. I believe that this suggests his concern for the actual lived experience of human situations and reveals the primary importance of corporeality and perception in his work. Michelangelo was less concerned with making buildings look like human bodies, nor with the implied relationship this had in the Renaissance with divine geometry and cosmology. I contend that his drawing practice reveals his concerns for the relationships between the material presence of phenomena, and the articulation of ideas and forms which he considered to be latent within places, situations and things.

Michelangelo criticized the contemporary practice of replicating building designs regardless of their situation. The emphasis Alberti placed upon design drawings relegated construction to the carrying out of the architect's instructions, and drawings were used to establish geometrical certainty and perfection. Michelangelo believed that 'where the plan is entirely changed in form, it is not only permissible but necessary in consequence entirely to change the adornments and likewise their corresponding portions; the means are unrestricted (and may be chosen) at will (or: as adornments require).[2] In emphasizing choice, Michelangelo recovers the process of design from imitation and interpretation of the classical canon, and instead celebrates human attributes such as intuition and perception as essential to creativity.

The relationship of Michelangelos' "architectural theory" to his working methods leads James Ackerman to study his drawings and models and to conclude that he made a fundamental critique of architectural composition undertaken in drawing lines instead of volumes and mass. 'From the start', Ackerman, suggests, 'he dealt with qualities rather than quantities. In choosing ink washes and chalk rather than pen, he evoked the quality of stone, and the most tentative sketches are likely to contain indications of light and shadow; *the observer is there before the building is designed*[3] (my italics). This determination to locate himself inside a space which he was imagining, was a direct critique of the early Renaissance theories of architecture which emphasized ideal mathematical proportions based upon a perfect image of a human body, rather than the experience our bodies offer us in movement in space[4]. '… Michelangelo directed (criticism) against the contemporary system of figural proportion. It emphasized the unit and failed to take into account the effect of the character of forms brought about by movement-in architecture, the movement of the observer through and around buildings-and by environmental conditions, especially, light. It could produce a paper architecture more successful on the drawing board than in three dimensions.' The theories of Alberti, Sangallo, di Georgio, Dürer, et al[5] were concerned with drawings which elicit a cosmic order , seen as inherent in the geometry of the human body. 'When fifteenth century writers spoke of deriving architectural forms from the human body,' Ackerman claims that, 'they did not think of the body as a living organism, but as a microcosm of the universe, a form created in God's image, and created with the same perfect harmony that determines the movement of the spheres or musical consonances.[6] Michelangelo criticized Dürer's proportional system as theoretical 'to the detriment of life', Pérez-Gomez claims in The Perspective Hinge. He quotes Michelangelo's critique: 'He (Dürer) treats only of the measure and kind of bodies, to which a certain rule cannot be given, forming the figures as stiff as stakes; and what matters more, he says not

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[1] *Michelangelo, Life, Letters and Poetry*, ed. George Bull, trans. Peter Porter, Oxford 1987, pp. 142 & 153. The title of this essay is my translation of Michelango's Sonnett62.
[2] Letter fragment to Cardinal Rodolfo Pio (?) cited in *The Architecture of Michelangelo,* James Ackerman, Penguin, 1970, p. 37,
[3]ibid., p. 47
[4] ibid., p.43
[5] For a general description of Renaissance architectural theory see *Architectural Principals in the Age of Humanism*, Rudolf Wittkower, London, 1949; and Erwin Panofsky's work also, *Idea…* 1924, etc.
[6] Op Cit.., p. 38

one word concerning human acts and gestures.'[7] Such a shift in focus from intellectual to sensible integrity completes a turn outwards from the enclosed world of the medieval textual space of the *Hortus Conclusus* and scholastic cloister garden; outwards to an open realm of civil architecture in which corporeal experience and secular city life are championed over religious and metaphorical spaces[8]. Spaces became seen not as the representation of another ideal - such as an image of the garden of paradise - but rather, Ackerman suggests: 'the goal of the architect is no longer to produce an abstract harmony, but rather a sequence of purely visual (as opposed to intellectual) experiences of spatial volumes.'[9]

Ackerman continues to infer that Michelangelo's drawings of mass, rather than indicating correctness of line, can be related directly to his compositional technique. Also, that matter and form are bound together through his working method-that drawing enabled him to think in a new way: 'It is this accent on the eye rather than on the mind that gives precedence to voids over planes.'[10] Ackerman continues to state his case: Michelangelo's drawings 'did not commit him to working in line and plane: shading and indication of projection and recession gave them sculptural mass.'[11]

The modeling of light as means of orienting ones movement through space, is best achieved and revised through model making. Typically, Renaissance architectural competitions were judged by viewing 1:20 models of facades as well as fragments of the building drawn at full scale[12]. The only drawings, which existed for fabrication of buildings before the Renaissance, were the *Modano*; 1:1 scale patterns of attic column bases or capitals[13]. The *Modani* slowly evolved from stage sets into *Modello*, architectural models, and often full-scale mock-ups of buildings, which enabled architects such as Michelangelo to 'study three-dimensional effects.' Models enable scale to be judged as well as enforce the relationship between materiality and form. They also allow aesthetic decisions to be made, which relate solely to perception. For example, the intellectual matters of expression of structural logic may appear well in an orthographic drawing but be in fact detrimental to the actual quality of our experience of a building. Ackerman believes that Michelangelo used sketches and model-making 'because he thought of the observer being in motion and hesitated to visualize buildings from a fixed point… this approach, being sculptural, inevitably was reinforced by a special sensitivity to materials and to the effect of light.'[14] He viewed sculpture also as the art of making ideas, form, visible in matter[15]. Michelangelo in particular distrusted the ways in which architectural drawings can mislead us and rather his own drawings are less objects for scrutiny than sites of his own concentration and 'drawing out' of his ideas. Alberto Pérez-Gomez claims that Michelangelo was suspicious of Perspective, he 'resisted making architecture through geometrical projections as he could conceive the human body only in motion.'[16] Conventional orthographic architectural drawings can be compared to anatomical sections, which cut through matter to reveal connections. The anatomical drawings of Leonardo da Vinci depict an objective view of still objects[17]. Michelangelo wished to infuse his cadavers with life and arranged their limbs in order to express the structure of human gestures. He sought, rather than a medical theory, to improve his capacity to depict the living body in movement.[18] This attention to the gestures we make, is closely related to the manner in which his spaces allow for and celebrate passage and movement through doorways, up staircases and across the ground. His drawings of spaces show also people

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[7] Cited in Pérez-Gomez, *The Perspective Hinge*, Alberto-Pérez-Gomez, MIT, 1997, p. 41-he is quoting from Condivi's *Life of Michelangelo* cited by most scholars as the source of the un-dated fragment which remains of Michelangelos' architectural theory, *Letter*e, see C. de Tolnoy, *Werk und Weltbild des Michelangelo*, Zürich, 1949, p. 95.
[8] See *The Enclosed Garden*:, Rob Aben & Saskia de Wit,, Rotterdam, 2001
[9] Op Cit.., p. 28
[10] ibid.
[11] ibid., p.155
[12] The recently opened Museo Della opera Del Duomo in Florence houses a selection of models for the West façade of the Duomo submitted in Competition in 1537. Michelangelo's models are particularly interesting for our discussion as they are incomplete and show drawn lines indicating where timber portions were to be added or where they have been removed. The drawn lines are rough and not intended for view.
[13] Cf. 'Modani were not only the sole "instrumental" drawings absolutely "required' for the construction of a building until the Renaissance, but they were also fertile ground for displaying the architect's erudition and capacity for invention.', op cit, p. 107
[14] Ackerman, Op Cit.. Pp. 47-8
[15] Cf. *La Carné Terre*, Sonnett 197, Michelangelo.: 'Flesh turned to clay, mere bone preserved (both stripped of my commanding eyes and handsome face) attest to him who earned my love and grace what prison is the body, what soul's crypt.'
[16] Op Cit.,, p. 41
[17] Michelangelo considered Leonardo to be a technician. His work was scientific, expressing no artistic worth. Leonardo's ingenuity extended to the way he cut up the figures he exhumed-and they were pathological documents used to train doctors up until the 19th century.
[18] Pérez-Gomez, Op Cit..

doing certain things there, and this is what enables us to read in his working methods the innate relationship between thinking and doing, and drawing and seeing[19].

The drawings which survive of Michelangelo's architectural projects are made with chalk and pen and ink and often have figures superimposed over views of spaces. This leads me to propose that he was thinking about how the human figure perceives space and also how it appears in a space, whilst he was designing. For example, the façade drawings for the Porte Pia in Rome depict not only the material of the elevation, but also show a part of a leg striding out of the picture plane, through the gateway, towards the viewer. Micehlangelo's twin concerns for scale and movement, are embedded in this moment of creativity. Similarly, the design of the library for the Medici library at San Lorenzo in Florence (also exhibited in Casa Buonarroti there[20]), transpose life size sketches of column profiles, actual views of staircases, sectional anatomical cuts through the building, fragments of limbs in movement with particular events unfurling in time. Michelangelo also drew faces in profile upon the profiles of columns, reflecting the importance of the figure in Humanist architecture as well as the emerging interest in the body as a model for meaning and communication of character[21]. The massiveness of the stone, its thickness and weight is drawn as a shadow, a dense profile, the space surrounding it alive with the movement of limbs. In a crude structural analysis, the Pietra Serena stone columns of the library vestibule are recessed, rather than proud or disengaged from the walls, in order to bear the weight of the beams submerged beneath the ceiling surface above. They are bearing a load and this is expressed in the coiled spring of the brackets, which sit below the implied ground datum of the library floor height frieze. The stairway is set in a space of compression; it is small, very tall, with light only entering from above. The columns bear weight downwards and we make a corresponding movement upwards toward the light, away from the chthonic realm of matter and weight. The implication of a hierarchy suggests Michelangelo's Neo-Platonism as well as his religious piety[22]. The library and its enlightening books are set above the darkness of the mundane life of the city. The staircase articulates this movement as a psychological shift also; we are led inexorably upwards, the architect drawing us towards the drama of the spatial and literary elucidation of the library.

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[19] The importance of working in a particular way through certain media is still an important part of contemporary theories of practice. For example, the emphasis upon the role of computers in drawing spaces is closely bound to the act of conceiving spaces and new spatial conditions. The academic view which Michelangelo criticized, developed into the Post-modernist legacy of the beaux-arts tradition in which plan composition-the invisible- is considered superior to perceptual veracity-the real (Cf. *Compulsive Beauty* and *The Return of the Real*, Hal Foster, reprinted MIT 2001). In many ways, the over-emphasis upon the importance of drawing as a means of composition, rather than drawing as a means to 'see', is one of the principal causes for conflict in contemporary architecture (Cf. *Inside Architecture*, Vittorio Gregotti, MIT, 1996, see especially the chapter 'On Technique' pp.51-60). The way in which one draws something enables it to be made in a particular way. CAD drawings of curvilinear forms can now be sent directly to a factory where a manufacturer can cut the shape immediately from the architects pattern-drawing. This replicates in part some of the methods of Renaissance architects in which the only drawings, which existed for fabrication, were the *Modano*. Most contemporary architects use CAD to either show perspective views of space or to make forms autonomous from hand-work and the tactile qualities of drawing which connect us immediately to the hapticity of spatial experience. Today, new buildings often disappoint us, they are not so perfect as the CAD images which we have seen of them, people and weather intrude in reality and mar the effects of the architect's dream-like visualization of virtual–light and dislocated atopia. Like Leonardo's anatomy drawings, modern buildings are often arid and enervating spaces, lacking material depth; all the shiny surfaces and brittle reflections miscast us as intruders in the private fantasies of the designer, we flicker there like ghosts. The relationship between lived experience and its supposed opposite, the objective view point, can be seen clearly not only in the god-like view of an aerial perspective but in the architecture which comes from these images. Can we see in modern techniques of drawing a clue to the same immateriality of the spaces? Certainly, the example of Michelangelo suggests not only that what and how you draw something affects what you draw, of course, but also, what you think and perhaps more importantly, how you think. This is clear in the resulting material quality of spaces and clearly shown in the design drawings. I suggest that the essential difference between the work of contemporary architects, such as Norman Foster and Frank Gehry, and Michelangelo, is the exact ontological significance of matter and form and their relationship made possible in drawing and modeling and other modes of description. See Robert Harbison, *Reflections on Baroque*, Reaktion, 2001, for an attempt to argue that contemporary architects such as Coop Himmelblau and Gehry are 'neo-baroque' and not simply drawing meaningless shapes; and also my refutation of Harbison in my review of this book in Building Design 09/03/01.

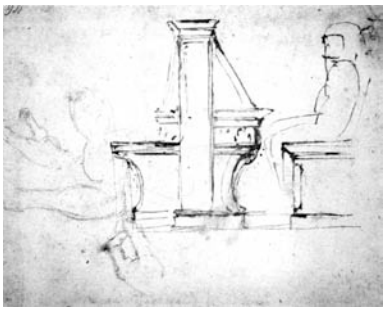
[20] See *An Invitation to Casa Buonarroti*, exhibition catalogue, Edizioni Charta, Milano, 1994

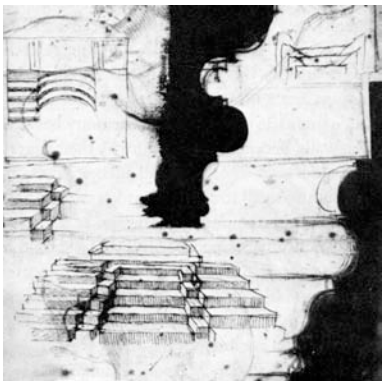
[21] Cf. Ackerman Op Cit.. p. 37 and see also "The Architectonics of Embodiment", Dalibor Vesely and "Reclining Bodies: Figural Ornament in Renaissance Architecture", Alina Payne, in *Body and Building: Essays on the Changing Relation of Body and Architecture*, ed. George Dodds and Robert Tavernor, MIT, 2002

[22] Cf. *The Cornucopian Mind and the Baroque Unity of the Arts*, Giancarlo Maoirino, The Pennsylvania State University Press, 1990: 'Beauty could not be severed from figuration in Neo-Platonic poetics, since nothing "grows old more slowly than shape and more quickly than beauty. From this it is clearly established that beauty and shape are not the same" (Ficino). Shape consists of "unfabricated" mass, whereas arrangement, proportion, and adornment refer to external criteria of beauty whose futility Michelangelo pinned to empty skulls, fleshless skins (*Last Judgement*) and poetic lines: "Once on a time our eyes were whole/every socket had its light. /Now they are empty, black and frightful, /This it is that time has brought." Inevitably the process of time eats away at beauty.' p. 18

A drawing of the reading booths not only shows a figure seated, reading, but also, drawn on the same paper we see a hand drawn turning a page. The space a body takes up is cast as the form of the architecture; architecture the presence of human absence, a residue of movement, the setting for life.

In rejecting the means of representation of earlier Humanist architects, Michelangelo formulated a modern aesthetic sensitivity to the act of creativity as a spontaneous and memorial whole to which nothing has to be added 'to make it better… Unity consists in act'[23]. The act of drawing revealed the power of the mind to see in matter the immanence of forms, the presence and emergence of ideas. Michelangelo expressed this Neo-Platonic passivity simultaneously with a celebration of the compulsion to imagine forms within things: 'No block of marble but it does not hide/ the concept living in the artist's mind-/ pursuing it inside that form, he'll guide/ his hand to shape what reason has defined'[24]. As an anti-theory, or call to the creative contingency of human responses to situations; Michelangelo's comments upon architectural composition expose the academic reproduction of prototypes to the modern critique of originality, autonomy and individual virtuosity on the one hand, and the potency of place, action and situation on the other. His drawings are records of action and thought. Extemporary performances of imagination and skill combining a material sensibility with care for the appearance of things inherent in the ways things come into Being. Michelangelos' drawings suggest that how we do something enables what we do to occur. Drawing simultaneously records and reveals the correspondence between speaking and doing, making and imagining, things and ideas, imagination and time, materiality and the immaterial; "*Only Fire Forges Iron.*"





[23] Ficino, *The Philebus Commetary* 300, cited in ibid. p. 28 In *Philebus*, Socrates shows that because we can draw a circle, a circle is a form (eidos) which pre-exists awaiting our discovery of it. Plato infers that the ideal order of things is present and can appear within the sensible order of reality, if only partially and provisionally in language and art. This is the basic premise of phenomenology also: ideas reside in things: *Collected Dialogues*, Plato, Oxford, 1992.
[24]Michelangelo, Sonnet 151, Op. Cit..