

# **A Well-Composed Body:** Anthropomorphism in Architecture



**Scott Drake**

**A Well-Composed Body:**  
Anthropomorphism in Architecture

Scott Drake

A Thesis submitted in fulfilment  
of the requirements for the degree of  
Doctor of Philosophy

School of Environmental Design  
University of Canberra

June 2003

## Abstract

Since the writings of Vitruvius in the first century AD, the use of the human body as a metaphorical and symbolic referent has provided what is perhaps the most prolific trope for architectural theory. The image of ‘Vitruvian Man,’ with limbs outstretched to touch the circle drawn from its navel, took on particular significance during the Renaissance, as architects such as Alberti, Filarete, di Giorgio, Colonna, and Serlio published their own interpretations of Vitruvius’ *Ten Books*. For these writers, the body, as *microcosm*, was the best available means for representing the order of the *cosmos*, the world as a whole. Yet just as the idea of the body as architectural referent was being reinterpreted, the body itself was being transformed by Renaissance anatomy. The unity and integrity of the body was jeopardised as anatomists studied the body through the dissection of corpses. The published results of these studies, the most notable being Vesalius’ *De Humani Corporis Fabrica*, were highly influential, with the anatomical methods of observation and partition emerging as the fundamental tenets of modern science. Several centuries later, the transformation of the body from a symbol of the world to an object amenable to scientific observation and control was all but fully realised, as the discoveries of Pasteur were put to use in the conquest of disease. These changing medical conceptions of the body led to concomitant transformations of the sense of self, as the body as object was increasingly divorced from the operations of the mind, in both its conscious and unconscious forms.

This thesis will examine how these changing conceptions of the human body have been interpreted within architectural theory since Vitruvius. Beginning with the idea of ornament as trope of sacrifice, it will examine how interpretations of the relation between the body as whole and as part have affected ideas of architectural composition. Further, it will examine the ethical implications of the trope of building as body, such that a building which reflects the proportions of a ‘well-composed’ body (Francesco di Giorgio), is itself an injunction to ‘composure,’ or appropriate behaviour. It will argue that modern architecture, while rejecting classical anthropomorphism, was nonetheless influenced by ideas and practices arising from anatomy. Then, in contrast to the object-body of anatomy, the thesis will examine phenomenological and hermeneutical conceptions of the body, which interpret the body as *lived*. From Merleau-Ponty’s study of perception to Scarry’s reading of the significance of pain, the contribution of the body to the sense of self will be explored, giving rise to a renewed conception of anthropomorphism as the manifestation not only of human form, but of human sentience. Further, to the modern fragmentation of both the body and architecture will be opposed integrative strategies of selfhood, such as the formation of narrative identity (Ricoeur), the engagement with a community through practice (MacIntyre), and the idea of the ‘monstrous’ body (Fracari). These strategies will be used to explore ways in which the form of the body can be understood other than in purely material terms, and how this is translated into architecture.

## **The Medical Examiner**

The Medical Examiner believes and practices the theory of maintenance. He insists that his operating instruments are free of bacteria. He places his favourite scalpels in the disinfectant metal container with the utmost care. He orders the autopsy tables from medical catalogs with a special interest in the details. He visits the factory where they are manufactured. He particularly is interested in the channels at the sides of the marble tables. His excitement increases as he observes the fluid moving into the oval at the end of the slab before the liquids begin their cascade.

The Medical Examiner favours a white stone and brushes it clean by himself after his sectional work is complete. He is disturbed by the increase in fratricides. His greatest sense of pleasure is the moment when the autopsy blade is placed gently, vertically to the outer skin, touching but not quite indenting. At that moment he demands total silence so he is able to hear the sound of his cut, thus commencing another spatial investigation. He marvels at the complexity of the body. He is defeated by his inability to find the soul.

John Hejduk, *Riga, Vladivostok, Lake Baikal: a work by John Hejduk*, edited by Kim Shkapich, New York: Rizzoli, 1989, p. 224.

To Pally and Fred

## Acknowledgements

Thanks firstly to my supervisor, Professor Stephen Frith, for the gift of guidance and wisdom that has made this thesis possible.

Thanks to friends and colleagues at the University of South Australia for their encouragement and support during the preparation of the thesis, including Peter Burgess, Rachel Hurst, Stephen Loo, David Morris, Sean Pickersgill, Virginia Lee, Jane Lawrence, Matt Rumbelow, Angelina Russo, Joe Vardon, and Christine Kearney. Special thanks to Rachel for proofreading and assistance with images.

Thanks to many of the members and guests of the Society of Architectural Historians, Australia and New Zealand for their helpful comments in relation to papers presented at annual conferences, including Samer Akkach, Richard Blythe, Judith Brine, Mark Cousins, Glen Hill, Michael Hill, Paul Hogben, Andrew Hutson, Mark Jackson, Sandra Kaji+O'Grady, Peter Kohane, Desley Luscombe, John Macarthur, Christine McCarthy, Sam Ridgway, Peter Sriver, Adrian Snodgrass, William Taylor, and Julie Willis. Thanks also to the editors of *Architectural Theory Review* for accepting earlier versions of material contained herein for publication.

Financial assistance for this thesis was generously provided by an Australian Post-Graduate Research Award administered by the University of South Australia from 1992-94. Support was also provided by the University of South Australia in the form of teaching relief through the Professional Experience Program in semester 1, 2000.

Thanks to staff and students at the University of Edinburgh for their hospitality during my visit, including Iain Boyd-White, Richard Coyne, Mark Dorrian, Adrian Hawker, and Alasdair Dorman-Jackson.

Thanks also to staff and students at the following institutions who provided assistance during an earlier research stage: Melbourne University (especially Alex Selenitsch), University of New South Wales, and Deakin University.

Thanks to Wendy Spurrier of the University of South Australia Library; and to the National Library of Scotland, Edinburgh University Architecture Library, State Library of South Australia, the Barr Smith Library at the University of Adelaide and the Flinders University Library.

# Contents

<i>Preface</i>	<i>i</i>
Chapter 1	1
<b>Architecture and the Body: Metaphor and Making.</b>	
Classical Anthropomorphism • The Rise of Science • Science and Architecture • Architectural Bodies • The Body in Sociology • Critiques of Science • Interpreting Architecture • Anatomy of Architecture • The Lived Body • Presentation and Representation	
Chapter 2	35
<b>Anatomy and Anthropomorphism: Architecture and the Dialectics of Unity</b>	
Vitruvian Bodies • Sacrificial Bodies • The Body Reborn • The Fabric of the Body • Renaissance Bodies • The Authority of Texts • Science and Method • Character and the French Academy • Respiration and Vital Spirits	
Chapter 3	86
<b>Evident Virtues: Modern Architecture and the Hygienic Body</b>	
Disease, Air, and Water • Surfaces of Cities • The Space of Ablution • Counting Bodies, Cleaning Bodies • Embracing Technology • Transparency • The Medical Body • Modern Bodies • From Soul to Self	
Chapter 4	126
<b>The Lived Body: Architecture as Practice</b>	
The Theory of Empathy • The Lived Body • Inhabited Space • Tactile Space • An Inner Self • Practice and Narrative Identity • Institution, Memory, and Imagination	
Chapter 5	164
<b>Monstrous Bodies: Architecture and the Play of Appearance</b>	
Pain and Pleasure: The Sublime • A Sociology of Artifacts • The Body in Pain • The Architecture of Violence • From Tradition to Revolution • Monstrous Bodies • The Sensory Imagination • Into the Labyrinth • The Play of Imagination • Play as Festival and Symbol	
Chapter 6	202
<b>Architectural Bodies</b>	
Bibliography	216

# Preface

Just as we think architecture with our bodies,  
we think our bodies through architecture.

Marco Frascari<sup>1</sup>

This thesis examines the role of the human body in architecture. In particular, it is concerned with the way the body is invoked in architectural texts as a model for the design of buildings. To say that a building is *like* a body is to encourage forms of architecture that can be understood through the body, leading in turn to ways of understanding the body through architecture.

In addressing the role of the body in architecture, the thesis forms part of an extensive interest in the body as a subject of scholarly inquiry in recent decades, in fields as diverse as anthropology, sociology, psychology, geography, philosophy, religious studies, art history and theory, and gender and culture studies. The body has also been a theme of inquiry in architecture, with investigations into the long tradition of relating buildings to bodies playing a major part in architectural historiography. This comes at a time when architectural theory in general has been moving away from the scientific determinants of modernism, in an effort to make up for an apparent lack of meaning in the built fabric of twentieth century cities. The

---

<sup>1</sup> Marco Frascari, *Monsters of Architecture: Anthropomorphism in Architectural Theory*, Savage, Maryland: Rowman & Littlefield, 1991p. 1.



postmodern reaction against this lack of meaning has often focussed upon the mechanisms of signification, on the role of architecture as a *sign*. Yet the interest in semiotics is part of the broader philosophical response to the modernist tradition, the recognition of the essentially partial and contingent nature of human knowledge. Central to this is an acknowledgement of the role of the body in the constitution of meaning. In his *Phenomenology of Perception*, for instance, Maurice Merleau-Ponty argues that instead of being the work of a ‘universal constituting consciousness’ (Descartes’ *Cogito*), meaning originates in the actions necessary for the conservation of life.<sup>2</sup> As these actions are elaborated upon, their literal meaning becomes figurative, leading to the formation of a cultural world. This depends upon the body’s ability to build for itself what Merleau-Ponty describes as an *instrument*, an outward projection of the body in acts of making.<sup>3</sup> In order to understand the ongoing consequences of postmodernity, this thesis explores how architecture can act as an ‘instrument,’ a projection of the body in the constitution of meaning. It does so by revealing the limitations of regarding the body in purely material terms, and by describing alternative ways of interpreting the form of the body in architecture.

In Chapter One, the historical appropriation of bodily form is interpreted in the context of current readings of the body. Through a review of literature from many of the fields above, it will be argued that the body can and must be understood as an essential part of any ‘scientific’ attitude to architecture, located as it is at the centre of architecture’s role in the manipulation of environmental conditions. Ironically, the neglect of the body in modernism is due in part to the adoption of principles developed through the scientific study of the body in anatomy and medicine. By regarding a work of architecture as an assembly of parts, it is possible to relate to the body as a model of composition, and to reflect values of health and well being that arise when parts work together harmoniously. In Chapter Two, this metaphor will be seen as being profoundly affected by the dissection of corpses in Renaissance anatomy theatres. For architects, familiar with the sacrificial origins of their art, published images of dissected bodies were readily adopted into architecture, with sections frequently used to present views into the building interior from an external vantage point.

---

<sup>2</sup> Maurice Merleau-Ponty, *Phenomenology of Perception*, translated by Colin Smith, London: Routledge & Kegan Paul, 1962, pp. 146-147.

<sup>3</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 146.

Further advances in scientific knowledge, especially the explanation of the body's vital force as a form of combustion, led eventually to a body understood in mechanical terms. In architecture, this prompted a move away from surface as a representation of internal character, towards an interest in internal workings, or *function*. In Chapter Three, a study of problems of urban hygiene in the nineteenth century will be used to show how forms of control designed to promote order led to new forms of bodily representation in architecture. Institutions such as hospitals and prisons became testing grounds not only for practices of surveillance, but also for methods of ventilation and ablution. Modern architecture's fascination with purity, whiteness, and transparency will be seen as part of the broader promotion of values of cleanliness, and the use of infrastructure to prevent disease by washing and airing the body.

In contrast to the scientific attitudes to the body characteristic of modernism, Chapter Four will examine ways in which the body can be considered as more and other than an object amenable to measurement and control. In particular, phenomenological themes will be used to show that an understanding of human sensory experience can call into question the claims to objectivity and universality characteristic of science. Instead, the phenomenological idea of the body as 'lived' serves to emphasise the corporeal nature of knowledge, and the importance of making as a means of understanding the world. The idea of embodied knowledge leads to a model of identity as socially or intersubjectively determined, the outcome of common projects to deal with common needs. By invoking shared forms of memory and imagination, architecture can give meaning to transitory experience by making it manifest in lasting and recognisable form.

To further understand architecture as a projection of internal states, Chapter Five explores the way in which artifacts are used to give comfort to the body, and thereby avoid aversive sensations of pain or suffering. Using ideas of the sublime, it will be argued that a complex dialectic of pleasure and pain exists through which the limits of the body are constantly negotiated as it engages with the world. In this way, artifacts are able to represent not the form of the body as such, but its formlessness, the depth of its sensory experience. In architecture, what emerges is an image of the body that is continually adjusted, a body whose surface acts as a register of exchange between interior and exterior. Explored through the writings of Marco Frascari, this will be seen to be a body starkly different from that of classicism. It is instead a *monstrous* body, a body of surface and

depth, of unity and fragmentation. By revealing what is otherwise concealed from view, the monstrous body provides an example of what Hans-Georg Gadamer describes as a ‘transformation into structure’.<sup>4</sup> This transformation enables artifacts to act as *symbols*, giving meaning to transitory experience by making it available for interpretation. As a partial presence that invokes what is absent, symbols are fragmentary, yet in each lies a promise of the whole. Instead of an alternative to scientific attitudes, this symbolic function of the body must firstly be shown as an essential part of any inquiry into the determinants of architectural form.

---

<sup>4</sup> Hans-Georg Gadamer, *Truth and Method*, second edition, London: Sheed and Ward, 1989, p.110.

# Chapter 1

## **Architecture and the Body: Metaphor and Making**

Buildings are as useful to our minds as they are to our bodies.  
John Onians<sup>1</sup>

### **Classical Anthropomorphism**

What role does the body play in architecture? In physical terms, any building designed for human habitation responds to the form of the body, taking account of its size and shape, its manner of movement, and its modes of interaction with the world. In this way, the body provides one of the major determinants of architectural form. But the body's relation to architecture also arises from frequent comparisons made between bodies and buildings. To say that a building is 'like' a body is to encourage an understanding of built form as not merely responding to, but also taking on, aspects of human form. From this common rhetorical strategy emerges *anthropomorphism*, through which a building may transcend the material conditions of its use to become an artifact of culture. The body thus provides one of the major sources of both architectural form and meaning, and for this reason has been frequently referred to throughout architectural theory.

---

<sup>1</sup> John Onians, *Bearers of Meaning: The Classical Orders in Antiquity, the Middle Ages, and the Renaissance*, Princeton, N.J.: Princeton University Press, 1988, p. 3.

Reference to the body as a source of form begins with Vitruvius, a Roman architect from the first century AD. Vitruvius' writings, gathered together in the *Ten Books on Architecture*,<sup>2</sup> are the only surviving architectural text from the classical period. Vitruvius' work is largely a technical manual, combining information on the design of machines and timepieces along with descriptions of building techniques, in which he sought to complement practical knowledge of the construction of buildings with theoretical principles to be used in their design. The principles apply particularly to the design of temples, addressed in Books III and IV. For Vitruvius, the design of temples depends upon symmetry, which in turn derives from proportion, the relation of the parts to the whole. The model for both is the human body:

For without symmetry and proportion no temple can have a regular plan; that is, it must have an exact proportion worked out after the fashion of the members of a finely-shaped human body.<sup>3</sup>

Vitruvius sought to reconcile the need to imitate the artistry of sculptors and painters with the need to describe architecture as *scientia*, which was, especially in the Pythagorean tradition, a form of knowledge based upon mathematics. This was achieved using the body, which provided a source of numeric relationships, or proportions, relating part to whole. An extensive list of bodily features, including face, palm, head, chest, and foot, are connected to each other and to the height of the body through whole number ratios. And while the parts are described in proportion to the whole, the whole is described using the two fundamental figures of square and circle:

Now the navel is naturally the exact centre of the body. For if a man lies on his back with hands and feet outspread, and the centre of a circle is placed on his navel, his figure and toes will be touched by the circumference. Also a square will be found described within the figure, in the same way as a round figure is produced. For if we measure from the sole of the foot to the top of the head, and

---

<sup>2</sup> Citations are from Vitruvius Pollio, *De Architectura*, Translated by F. Granger. London: Loeb Library, 1931. See also Vitruvius Pollio, *The Ten Books on Architecture*, Translated by Morris Hickey Morgan 1914. New York: Dover Publications, 1960, and Ingrid D. Rowland and Thomas Noble Howe (eds.) *Vitruvius: Ten Books on Architecture*, translated by Ingrid D. Rowland, Cambridge: Cambridge University Press, 1999.

<sup>3</sup> Vitruvius, *De Architectura*, 3.1.1-2; p. 159.

apply the measure to the outstretched hands, the breadth will be found equal to the height, just like sites which are squared by rule.<sup>4</sup>

Through this figure, which came to be known as ‘Vitruvian Man,’ the symbolism of the circle, representing transcendent order, and that of the square, representing mundane or worldly order, are connected in the body. The body is thus revealed as a worldly manifestation of transcendent order, reflected in its composition. Although made up of earthly parts, represented by the square, these are combined in such a way as to form a unified whole, represented by the circle. For Vitruvius, the body provided a model for architecture, whose parts were also to be combined to form a unified whole. The source of that combination was Nature, which Vitruvius described as the source for the architecture of the Ancients:

In like fashion the members of temples ought to have dimensions of their several parts answering suitably to the general sum of their whole magnitude. Therefore if Nature has planned the human body so that the members correspond in their proportions to its complete configuration, the Ancients seem to have had reason in determining that in the execution of their works they should observe an exact adjustment of the several members to the general pattern of the plan.<sup>5</sup>

Having described the numerical relationships appropriate for Ionic temples, Vitruvius goes on to describe those for Doric and Corinthian temples. Here the difference in proportions, evident particularly in the different columns of these orders, is accounted for with reference to different bodies. The columns of the Doric temple, based on measurements of a man, are seen to exhibit “the proportion, soundness, and attractiveness of the male body.”<sup>6</sup> The Ionic, originating in a temple to Diana, exhibited more slender, womanly, proportions, while the Corinthian column is described as imitating the slenderness of a young girl. Thus while the figure of Vitruvian Man describes the application of human form to architecture in general, this finds a particular focus in the relation of body to column. This relation has provided the foundation for two recent histories of architecture: Joseph

---

<sup>4</sup> Vitruvius, *De Architectura*, 3.1.3-4; p. 161.

<sup>5</sup> Vitruvius, *De Architectura*, 3.1.3-4; p. 161.

<sup>6</sup> Vitruvius, *De Architectura*, 4.1.4.

Rykwert's *The Dancing Column*<sup>7</sup> and John Onians' *Bearers of Meaning*.<sup>8</sup> The progressive sequence of the orders, writes Onians, "[...] form a colonnade which runs like a hard spine through the soft flesh of European history."<sup>9</sup> He adds: "Columns carried culture." With the persistence of classical forms well into the modern period, the anthropomorphism inherent in the use of columns has pervaded western architecture. As Rykwert argues, the analogy between the body and the orders is "deeply ingrained in all recorded architectural thinking."<sup>10</sup>

Although first committed to paper by Vitruvius, the comparison between body and column is likely to have been a commonplace in Greek culture many centuries earlier. Based on ideals of bodily form, columns in turn make visible an 'ideal' body. Carved in stone, these ideal bodies also demonstrate qualities of strength, erectness, and disciplined regularity that were desirable in persons, in particular those responsible for the maintenance and defence of the Greek state.<sup>11</sup> "The Greeks", writes Onians, "may well have dreamt of a phalanx that held together like a temple." For Vitruvius, proportion also had an expressive function. The reason for adopting Nature's rules was to show that those rules were being obeyed, and therefore that architecture was in harmony with the natural order. The body provided a visible metonym of Natural or cosmic order, a *microcosm*, the middle term in a three-fold metaphor of building-body-world.<sup>12</sup> Following the rules of Nature was one way to ensure appropriate appearance, or *decor*, described in Book I. While proportion was for Vitruvius a means of grounding architecture as a form of knowledge, or *scientia*, its use ensured appropriate expression. Through *decor*, Vitruvius relates architecture to that which is fitting or appropriate to do, to *decorum*, as described in works of ethics and rhetoric by Aristotle and Cicero.<sup>13</sup> As classical architecture was adopted throughout Europe during the Renaissance, the expressive function of the orders remained significant. By then the use of classical forms also provided a connection to tradition and authority, complemented by

---

<sup>7</sup> Joseph Rykwert, *The Dancing Column: On Order in Architecture*, Cambridge Mass.: MIT Press, 1996.

<sup>8</sup> Onians, *Bearers of Meaning*.

<sup>9</sup> Onians, *Bearers of Meaning*, p. 330.

<sup>10</sup> Rykwert, *The Dancing Column*, p. 29.

<sup>11</sup> Onians, *Bearers of Meaning*, p. 8.

<sup>12</sup> Rykwert, *The Dancing Column*: pp. 61-69; pp. 373-374.

<sup>13</sup> Onians, *Bearers of Meaning*, pp. 36-40.

reference to the authority of the Vitruvian text. By the sixteenth century, writes Onians, the choice of orders was used as an expression of status and morality, character and emotion.<sup>14</sup>

## The Rise of Science

With the European Renaissance, and the interest in classical forms and texts that it entailed, the body was to remain a fundamental focus of architecture. The orders were used extensively in virtually all European architecture from the Fifteenth Century onwards, while theoretical works on architecture were invariably new editions or re-interpretations of Vitruvius. These works gave currency to classical ideas of anthropomorphism. Yet the interest in the body at the time was more than architectural. The Renaissance marked the beginning of the Humanist period, characterised by a rejection of religious doctrine in favour of secular values, and celebrated through an effusion of creative and scientific endeavour.<sup>15</sup> On the one hand, the human form became the subject of extensive sculptural and pictorial representation. On the other, there arose a belief in the powers of the individual, in terms of creativity, and of reason and observation. Those who studied the physical world began to discover variance between their observations and the tradition of knowledge inherited through the church. The idea of a universe described by number and geometry remained, but the conception of mathematics changed from a representation of transcendent order to an internally consistent set of rules independent of human value, a ‘mechanisation’ of the world.<sup>16</sup> Initially characterised by Francis Bacon in the seventeenth century, science emerged as an independent, secular discipline, whose influence was extensive. As a form of knowledge, science came to dominate academies of learning throughout Europe, as its modes of investigation, description, and communication set the standard for all other fields of inquiry. More importantly, science, made manifest through technology, provided a means for the instrumental manipulation of the world.<sup>17</sup>

---

<sup>14</sup> Onians, *Bearers of Meaning*, p. 4.

<sup>15</sup> Rudolf Wittkower, *Architectural Principles in the Age of Humanism*, fourth edition, London; New York: Academy Editions: St. Martin’s Press, 1988.

<sup>16</sup> Eduard Jan Dijksterhuis, *The Mechanization of the World Picture*, translated by C. Dikshoorn, London: Oxford University Press, 1961.

<sup>17</sup> The sense of ‘technology’ addressed here is informed by Jacques Ellul’s characterisation of it as realised *technique*, being any of the means and methods of achieving efficiency. See Jacques Ellul, *The Technological Society*, translated by John Wilkinson, New York: Vintage, 1964.



In architecture, adoption of the principles of science and technology led eventually to the emergence of Modernism, based upon an ideology of ‘function.’ Use of the orders, like ornament in general, was rejected in favour of an aesthetic derived from pragmatic, formal, or technical issues. In this way the symbolic content of architecture, its role as a manifestation of a transcendental dimension, was replaced by purely instrumental concerns. This has been described by Dalibor Vesely as constituting a ‘conflict of representation.’<sup>18</sup> Conceived originally as a unity of instrumental and symbolic function, of *techne* and *poiesis*, architecture’s role was one of representing reality as a whole. This was rendered problematic as modern science sought to replace symbolic with instrumental representation, regarding precise, mathematical descriptions of reality as preferential to the ‘indeterminate and vague’ descriptions of traditional symbolism.<sup>19</sup> But by describing only that which is susceptible to mathematical understanding, science constitutes only a partial representation of reality.<sup>20</sup> The shift in representation constitutes a ‘conflict,’ argues Vesely, because of the different objectives of symbolic and instrumental representation. He writes: “While the former is reconciliatory and serves as a vehicle of participatory understanding and global meaning, the latter is aggressive and serves as an instrument of autonomy, domination and control.”<sup>21</sup>

Efforts made to reconcile architecture with the principles of science resulted in what Alberto Pérez-Gómez, after Vesely, has described as a ‘functionalization’ of architectural theory, purposely avoiding all reference to philosophy or cosmology.<sup>22</sup> During the early eighteenth century, architects at the *École Polytechnique*, most notably Jean-Nicolas-Louis Durand, sought to teach architecture as a science, based upon formal principles designed to

---

<sup>18</sup> Dalibor Vesely, “Architecture and the Conflict of Representation,” *AA Files* 8, Spring 1985, pp. 21-39. See also Dalibor Vesely, “On the Relevance of Phenomenology,” *Pratt Journal of Architecture* 2, 1988, pp. 59-62; Dalibor Vesely, “Architecture and the Poetics of Representation,” *Daidalos* 25, September 15, 1987, pp. 22-36.

<sup>19</sup> Vesely, “Architecture and the Conflict of Representation,” pp 20.

<sup>20</sup> That science is independent, non-representational, is, he writes, ‘one of the greatest misconceptions of modern times.’ Vesely, “Architecture and the Conflict of Representation,” p. 24.

<sup>21</sup> Vesely, “Architecture and the Conflict of Representation,” p. 22.

<sup>22</sup> Alberto Pérez-Gómez, *Architecture and the Crisis of Modern Science*, Cambridge, Mass.: MIT Press, 1983, p.4. “Once it adopted the ideals of a positivistic science, architecture was forced to reject its traditional role as one of the fine arts. Deprived of a legitimate poetic content, architecture was reduced to either a prosaic technological process or mere decoration.” p. 11.

facilitate composition.<sup>23</sup> Deprived of its symbolic dimension, those aspects of architecture that were not instrumental were, like art in general, relegated to the realm of subjectivity. This was the domain of aesthetics, the effect of sensation or pleasure, of bodily experience not connected to reason. This split, between the objective domain of science and the subjective domain of art, was problematic for architecture. In the eighteenth century, architects such as Etienne Louis Boullée sought to reconcile the split by resorting to the formalist aesthetics of Rationalism, the ordering of experience through relation to the pure geometry, form, or mass of the architectural object.<sup>24</sup> This task continued throughout the nineteenth century as the role of architecture became the expression of an *idea* rather than that of forming a connection to history or tradition. The expression of ideas ‘appropriate’ for the time, initially manifest as a choice between styles, shifted eventually to the expression of technology, and the focus upon architecture’s ‘internal’ determinants of function, materials and construction. With the emergence of Modernism through the Deutscher Werkbund and the Bauhaus, architecture was thoroughly pervaded by the ideology of science. Issues of health and hygiene formed a major part of the Bauhaus curriculum, with Hannes Meyer and Oskar Schlemmer making frequent reference to medical texts in their lectures.<sup>25</sup>

## Science and Architecture

As the culmination of the influence upon architecture of science, aesthetics, and technology, Modern architecture was largely devoid of anthropomorphism. Through both the rejection of ornament and the move away from the normative model of Vitruvian Man, the orders lost their place in architecture. The body was no longer needed as an intermediary term for explaining the world, nor as a source of measure and proportion: number and meaning were both to be found in science and technology. Somatic metaphors were rejected in favour of mechanical ones, typified by Le Corbusier’s characterisation of the house as a ‘machine for living in.’ Thus Modernism rejected the Humanist body in

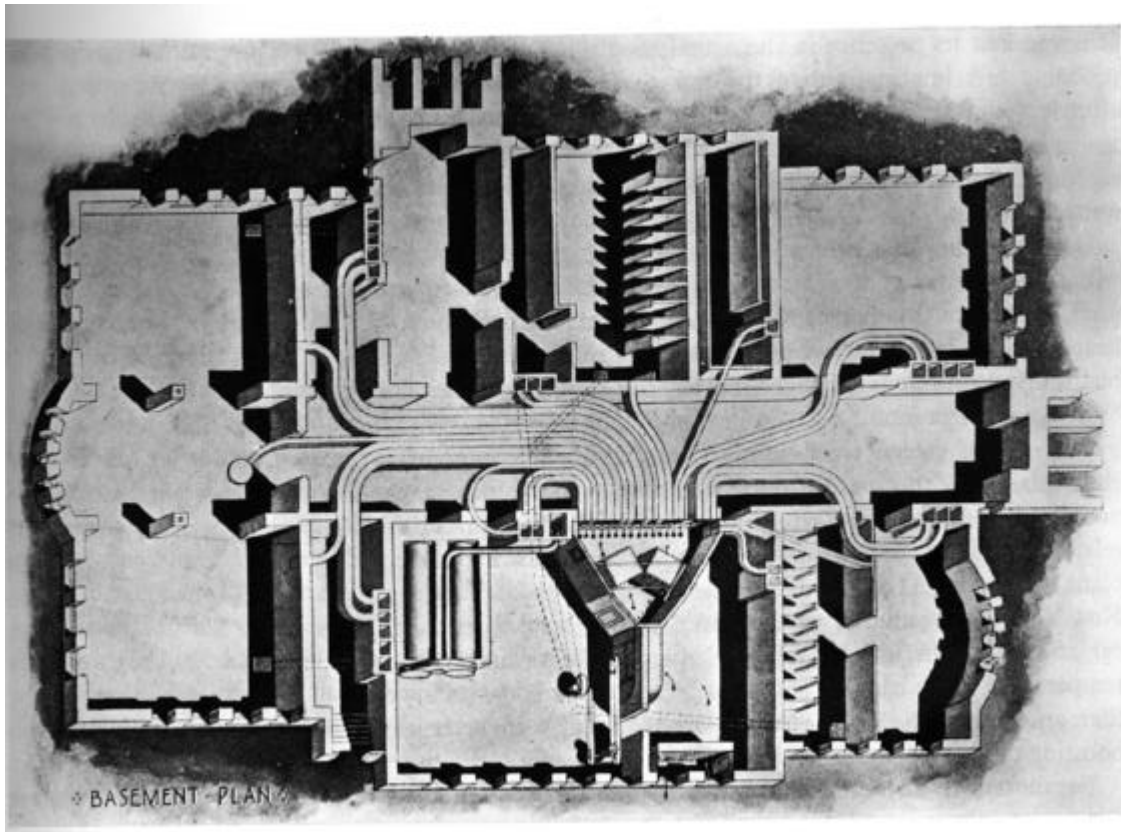
---

<sup>23</sup> See also Joseph Rykwert, *The First Moderns: The Architects of the Eighteenth Century*, Cambridge, Mass.: MIT Press, 1980.

<sup>24</sup> Vesely, “Architecture and the Conflict of Representation,” pp. 26-28.

<sup>25</sup> Christina Flötotto, “Building the new, hygienic, healthy man in modern architecture: Freidrich Wolf and the ‘Neues Bauen’,” *EAR* 27, September 2000, pp. 87-99.

favour of the abstractions of a mechanised world, a world of Newtonian science, dominated by natural and mechanical forces. Yet behind those abstractions, another type of body can be discerned. This is the body liable to instrumental control through the ‘technology’ of architecture, functioning to provide what Reyner Banham called the ‘well-tempered’ environment.<sup>26</sup> New configurations of form and space made using new materials of concrete, steel and glass were heavily dependent upon the mechanical manipulation of environmental conditions. This was especially so as a style of building developed in Europe was promoted as ‘International,’ applicable irrespective of local climatic or cultural considerations.



**Figure 1: Illustration from Banham, *Architecture of the Well Tempered Environment*, p. 53, showing ducting in a school in Michigan, taken from the Sturtevant Catalogue, 1906.**

---

<sup>26</sup> Reyner Banham, *The Architecture of the Well-Tempered Environment*, 2nd ed. Chicago: University of Chicago Press, 1984. See also Reyner Banham, *Theory and Design in the First Machine Age*, London: The Architectural Press, 1960.

For Modernism, active means of environmental control were an essential part of the utopian vision of freedom from the vicissitudes of nature. This was made possible by a small number of inventions made in the late nineteenth– and early twentieth centuries, especially air-conditioning, elevators, and electric lighting and power.<sup>27</sup> These inventions enabled regular and reliable provision of light and temperature controlled air, dramatically improving both living and working conditions of industrialised cities. Through active environmental control, architecture promised a cure for the insanitary and often dangerous conditions of factories and urban housing. The separation of combustion from the site of its application made possible by electricity removed the problems associated with energy use, such as the lack of oxygen, the accumulation of smoke and soot, and the danger of fire.<sup>28</sup> And the provision of water supply and waste disposal virtually eradicated the epidemics of contagious disease that swept through urban populations.<sup>29</sup> Modernism, through its use of plumbing and electrical services, promised safe, clean, and healthy cities. In this way, the ‘body’ for Modernism was one that would operate efficiently through the provision of adequate amounts of energy, air, and water: a body, in other words, mechanically conceived. It is a body whose needs can be satisfied, a body that can enjoy previously unimaginable levels of comfort. Yet that comfort can also be regarded with suspicion, as an extension of the capitalist control over labour, stabilising the workforce to ensure maximum efficiency.<sup>30</sup> The application of scientific principles of prediction and control to the workplace and its occupants is indicative of the aims of democratic capitalism to maximise investment return by minimising risk. One consequence of this instrumentalism is the reduction of work from a ‘calling’ or profession to that of a ‘career’ that can be directed toward individual achievement.<sup>31</sup>

---

<sup>27</sup> On the rise of active systems of environmental control, see Cecil D. Elliott, *Technics and Architecture: the Development of Materials and Systems for Buildings*, Cambridge, Mass.: MIT Press, 1992.

<sup>28</sup> David Nye, *Electrifying America: Social Meanings of a New Technology*, Cambridge, Mass.: MIT Press, 1990; David Nye, *Consuming Power: A Social History of American Energies*, Cambridge, Mass.: MIT Press, 1997.

<sup>29</sup> Richard Sennett, *Flesh and Stone: The Body and the City in Western Civilization*, London: Faber and Faber, 1994.

<sup>30</sup> Tomás Maldonado, “The Idea of Comfort,” in Victor Margolin, and Richard Buchanan, (eds.) *The Idea of Design: A Design Issues Reader*, Cambridge, Mass.: MIT Press, 1995, pp 248-256.

<sup>31</sup> On the idea of a ‘calling,’ see Charles Taylor, *The Ethics of Authenticity*, Cambridge, Mass: Harvard University Press, 1991. On the idea of ‘career’ in relation to architecture, see Stephen Frith, “Competent

The use of scientific and technological principles in architecture was inspired not only by the works of the Modernists, but also by the system of education developed at the Bauhaus. Here the teaching of architecture moved away from both the traditional apprenticeship system and the atelier system of the *École de Beaux-Arts* to adopt a more technical curriculum, more closely aligned with engineering than with fine arts.<sup>32</sup> As the teaching of architecture moved into universities around the world, this model proved attractive, enabling architecture to demonstrate a rigour that would gain the approval, if not the status, of the natural sciences.<sup>33</sup> One way to do so was to describe that field of study dealing with the manipulation of environmental conditions as ‘architectural science.’ Often explored in dedicated laboratories, this became a fundamental component of most departments of architecture in universities throughout the Western world.<sup>34</sup> As well as active means control light and air, the ‘science’ of architecture also addressed the performance of new building materials (especially glass), as well as related systems such as sunshading, for effecting environmental control. For many architects, these ‘passive’ means of modifying internal environment were crucial determinants in the choice of building geometry and materials. Taking advantage of ambient energy to create comfortable spaces was one of the primary functions of architecture, from which ‘form’ would naturally follow. Unfortunately, many of the buildings built under the name of Modernism were made with little understanding of these techniques, instead relying heavily on mechanical systems. Eventually, problems associated with energy use became apparent. The energy crisis of the 1970’s highlighted in economic terms the excessive reliance of industrial culture upon fossil fuels, just as ‘green’ movements were beginning to identify the damage caused to the natural environment by industrial production.<sup>35</sup> This spawned an interest in ‘low-energy’ architecture, reliant on passive rather than active techniques, which has since expanded to include issues of ‘sustainability,’ or ‘environmentally friendly’ architecture.

---

Qualities: The Problem of Virtue in Architectural Education,” in Desley Luscombe and Steve King (eds.), *Aspects of Quality in Australian Architectural Education*, Sydney: Royal Australian Institute of Architects, 1995, pp. 5-15; pp. 10-11.

<sup>32</sup>See Spiro Kostof (ed.), *The Architect: Chapters in the History of the Profession*, Oxford; New York: Oxford University Press, 1977.

<sup>33</sup> Dana Cuff, *Architecture: The Story of Practice*, Cambridge Mass.: MIT Press, 1991.

<sup>34</sup> Peter Galison and Emily Thompson (eds). *The Architecture of Science*, Cambridge, Mass.: MIT Press, 1999.

<sup>35</sup> Rachel Carson, *Silent Spring*. Boston: Houghton Mifflin, 1962.

Like any form of science, the science of architecture aims to predict, and therefore to control, particular physical or material aspects of the world. In architecture, what is controlled is the space enclosed by buildings, in order that it be suitable for human habitation. Despite the focus on building materials or performance, these are only of interest to the extent that they affect the body and its senses. Thus the science of architecture may in fact be regarded as a science of the body. Yet, like much of modern science, reference to the body is limited, hidden beneath layers of quantification. Through *psychometrics* or anthropometrics the body is reduced to a series of numeric requirements that can be met through the technology of architecture. These quantifications, rather than acting metonymically for the body, in fact substitute for it, thereby precluding the body from further consideration. Thus the scientific nature of modern architecture, although very much about the body, is in part responsible for the elimination of the body from architectural discourse.

### **Architectural Bodies**

In the latter half of the Twentieth Century, much of architectural theory has been characterised by a reaction against the excessively technological nature of modernism, and the loss of urban amenity associated with the demolition of ‘historic’ buildings. The planning of cities began to be interpreted from the point of view of its inhabitants, rather than as a purely technical issue. Beginning with Gordon Cullen’s *Townscape*, a range of works sought to address the embodied experience of moving through cities as a pedestrian.<sup>36</sup> Robert Venturi’s *Complexity and Contradiction in Architecture* also rallied against the impoverishment of urban experience by modernism, and instead promoted an architecture amenable to multiple interpretation.<sup>37</sup> Christopher Alexander’s work on ‘patterns’ sought to bring together a range of embodied experiences as the basis for a mathematical or linguistic

---

<sup>36</sup> Gordon Cullen, *Townscape*, London: Architectural Press, 1961. See also Colin Rowe and Fred Koetter, *Collage City*, Cambridge, Mass.: MIT Press, 1978; Kevin Lynch, *Good City Form*, Cambridge, Mass.: MIT Press, 1981; Rob Krier, *Architectural Composition*, London: Academy editions, 1988.

<sup>37</sup> Robert Venturi, *Complexity and Contradiction in Architecture*, New York: Museum of Modern Art, 1966.

model of design.<sup>38</sup> Meanwhile Geoffrey Broadbent argued that the human sciences, rather than natural sciences, provide the appropriate foundation for architecture.<sup>39</sup>

One direct attempt to re-examine the significance of the body in architecture saw it as a means to mediate between architecture and the human sciences. In *Body, Memory, and Architecture*, Bloomer and Moore applied psychological studies of perceptual schemata, especially that of ‘body image,’ to the experience of built space.<sup>40</sup> For them, the ‘objective’ descriptions of space inspired by Cartesian geometry were inadequate, and needed to be replaced by a conception of space ordered by the body. The presumed commonality of embodied experience was for them a way to overcome the problem of subjectivity raised by aesthetics. “[I]t is impossible” they wrote, “to imagine a spatial organisation more universal, more valued, and more immediately understandable to everyone than the one provided by the human body.”<sup>41</sup> For Bloomer and Moore, architecture enacts on a larger scale the processes of establishing identity through the body, thus allowing them to be shared by members of a household or community. It makes manifest the social nature of the body’s ‘emotional spatiality,’ its connection to place through memory.<sup>42</sup>

More recently, a series of publications have continued to explore the implications for architecture of the many diverse interpretations of the body currently available. A collection of essays, titled *Body and Building*, demonstrates the ongoing interest in applying bodily themes to the interpretation of architecture from the classical to the contemporary.<sup>43</sup> The body has also been used in readings of key architectural texts, such as Francesco Colonna’s

---

<sup>38</sup> Christopher Alexander et al, *A Pattern Language: Towns, Buildings, Construction*, New York: Oxford University Press, 1977; Christopher Alexander, *The Timeless Way of Building*, New York: Oxford University Press, 1979; Christopher Alexander, *Notes on the Synthesis of Form*, Cambridge: Harvard University Press, 1964.

<sup>39</sup> Geoffrey Broadbent, *Design in Architecture: Architecture and the Human Sciences*, Chichester: John Wiley and Sons, 1973. See also Jon Lang, *Creating Architectural Theory: The Role of the Behavioral Sciences in Environmental Design*, New York: Van Nostrand Reinhold Co., 1987.

<sup>40</sup> Kent C Bloomer and Charles W. Moore, *Body, Memory, and Architecture*, New Haven: Yale University Press, 1977. On ‘body image,’ see Seymour Fisher and Sidney E. Cleveland, *Body Image and Personality*, Princeton, N.J.: Van Nostrand, 1958; or more recently, Seymour Fisher, *Development and Structure of the Body Image*, Hillsdale, N.J.: Lawrence Erlbaum Associates, 1986.

<sup>41</sup> Bloomer and Moore, *Body, Memory, and Architecture*, p. 46.

<sup>42</sup> Bloomer and Moore, *Body, Memory, and Architecture*, pp. 45-46. “Body spatiality, by contrast, refers to an internal world which is not only distinct from and within an external world, but which is centered around ‘landmarks’ and bodily memories that reflect a lifetime of events encountered outside the psychic body boundary.”

*Hypnerotomachia Poliphili*.<sup>44</sup> The sixth in the series of the ‘Any’ conferences, *Anybody*, bringing together architects and cultural theorists, sought to investigate what non-literal ideas of the ‘body’ might mean in architecture.<sup>45</sup> Installations and performances by Diller and Scofidio provided new interpretations for the architectural body,<sup>46</sup> while the body also formed the basis for studies of gender and sexuality in architecture.<sup>47</sup> Some works provide a means for practicing architects to describe the way in which their work responds to the body,<sup>48</sup> while others use the body as a means of interpreting the work of architects, such as Daniel Libeskind, Peter Eisenman, and Bernard Tschumi.<sup>49</sup> Architecture also provides a way in which studies of vision in modernity<sup>50</sup> might be extended to include the body in its multi-sensory experience.<sup>51</sup> In short, a renewed consideration of the body has been one of the primary means by which architects and architectural theorists have sought to overcome the problems associated with the scientific and technological nature of modern architecture.

---

<sup>43</sup> Robert Tavernor and George Dodds (Eds.) *Body and Building*, Cambridge, Mass.: MIT Press, 2002. [The publication date of this anthology prevented it from being given full and proper consideration in the present thesis.]

<sup>44</sup> Francesco Colonna, *Hypnerotomachia Poliphili: the Strife of Love in a Dream*, translated by Joscelyn Godwin, London: Thames & Hudson, 1999. The authorship of the *Hypnerotomachia* has been recently disputed, with some authors attributing the work to Alberti: see especially Liane Lefaivre, *Leon Battista Alberti's Hypnerotomachia Poliphili: Re-cognizing the Architectural Body in the early Italian Renaissance*, Cambridge, Mass.: MIT Press, 1997.

<sup>45</sup> Cynthia Davidson (ed.), *Anybody*, New York; Cambridge, Mass.: Anyone Corp.; MIT Press, 1997.

<sup>46</sup> Elizabeth Diller and Ricardo Scofidio, *Flesh: Architectural Probes*; Georges Teyssot, *The Mutant Body of Architecture*, New York: Princeton Architectural Press, 1994.

<sup>47</sup> Debra Coleman, Elizabeth Danze, Carol Henderson (eds.), *Architecture and Feminism: Yale Publications on Architecture*, New York: Princeton Architectural Press, 1996; Diana Agrest, Patricia Conway, Leslie Kanes Weisman (eds.), *The Sex of Architecture*, New York: Harry N. Abrams, 1996; Joel Sanders (ed.), *Stud: Architectures of Masculinity*, New York: Princeton Architectural Press, 1996; Beatriz Colomina (ed.), *Sexuality & Space*, New York: Princeton Architectural Press, 1992.

<sup>48</sup> Scott Marble et al (eds.), *Architecture and Body*, New York: Rizzoli, 1988.

<sup>49</sup> Arie Graafland, *Architectural Bodies*, Edited by Michael Speaks. Rotterdam : 010 Publishers, 1996; Michael J. Ostwald, and R. John Moore, *Disjecta Membra: Architecture and the Loss of the Body*, Sydney: Archadia, 1998.

<sup>50</sup> For example, Martin Jay, *Downcast Eyes: The Denigration of Vision in Twentieth Century French Thought*, Princeton, NJ: Princeton University Press, 1993; and Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*, Cambridge Mass.: MIT Press, 1992.

<sup>51</sup> Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses*, London: Academy Editions, 1996.



## The Body in Sociology

These architectural interpretations can be seen as part of a wider interest in ‘the body’ as a subject of inquiry in the late twentieth century, inspired largely by the writings of Michel Foucault. Foucault’s first publications focussed upon institutions where individuals were separated from society because of a perceived deviation from a position of normality.<sup>52</sup> In asylums and hospitals, deviations in mental and physical health were judged by state-appointed experts, men of medicine whose knowledge was applied ostensibly for improving the welfare of both the individual and the population as a whole. For Foucault, these ‘dividing practices’ showed the way in which knowledge is used in order to effect subjection, that is to give control over individuals through the constitution of the subject. The isolation and treatment of affliction reveals the embodied nature of that subject, the way in which the body provided the medium through which power-knowledge was exercised. This point was further emphasised as Foucault later extended the study to military and penal institutions.<sup>53</sup> On the one hand, minute control of gesture and movement in the discipline of soldiers, and on the other, violent acts of punishment against criminals, show the way in which power is ‘written on the body,’ that is, made manifest in the gestures of the individual. This provides a dramatic extension to Marcel Mauss’ observation that habits of bodily movement, care, and consumption are acquired *techniques*.<sup>54</sup>

Architecture’s complicity in the exercise of power through institutions is made particularly evident by Foucault in his study of Jeremy Bentham’s ‘Panopticon’ prison. The geometry of a darkened central tower encircled by back-lit cells makes the prisoners visible to the guards, but not vice-versa. The architecture creates a condition of surveillance whereby the prisoners, lacking evidence to the contrary, must assume that they are constantly under inspection. In this way, the prisoners internalise the principle of

---

<sup>52</sup> Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, translated by A.M. Sheridan Smith, New York: Vintage Books, 1975; Michel Foucault, *Madness and Civilization: A History of Insanity in the Age of Reason*, translated by Richard Howard, London: Tavistock, 1967.

<sup>53</sup> Michel Foucault, *Discipline and Punish: The Birth of the Prison*; translated by Alan Sheridan, second Vintage Books edition, London: Allen Lane, 1977.

<sup>54</sup> Marcel Mauss, “Techniques of the Body,” in *Sociology and Psychology: Essays*, translated by Ben Brewster, London; Boston: Routledge and Kegan Paul, 1979.

surveillance, governing their own conduct in anticipation of being observed.<sup>55</sup> The Panopticon exemplifies the way in which architecture, through the control of spatial and visual hierarchies, facilitates the exercise of ‘bio-power.’ Although most obvious in the radial plan, surveillance strategies are also in place in other institutions. With the hospital, for example, gathering together the sick in one place enabled them to be subjected to the ‘gaze’ of clinical medicine. Isolating patients facilitated observation and measurement, allowing the collection of data that led to statistical approaches to pathology. In similar ways, surveillance can be seen to operate in any social space where order is imposed, including schools, offices, factories, and even domestic environments.<sup>56</sup> As a realised version of an intended or desired order, architecture can thus be seen as a manifestation of power relations.<sup>57</sup> Foucault’s interest in the relationship between knowledge and power was further developed in his studies of the human sciences, bringing into question both the ordering and application of knowledge in fields such as linguistics, biology, and economics.<sup>58</sup> Through Foucault, ‘science’ appears less as an abstract study of the physical world, and more as a means of sanctioning particular forms of discourse and behaviour.

Foucault’s work has inspired the adoption of ‘the body’ as an explicit subject of inquiry in a variety of fields, especially sociology. Bryan Turner, for example, has argued that instead of the abstractions of structure, class and function, ‘the body’ should lie at the centre of sociological analysis.<sup>59</sup> Following Foucault, Turner suggests that the problem of order in society is a problem of the ‘government’ of the body. He writes: “Every society is confronted by four tasks: the reproduction of populations in time, the regulation of bodies in space, the restraint of the ‘interior’ body through disciplines, and the representation of the

---

<sup>55</sup> Foucault, *Discipline and Punish*; see also Paul Q. Hirst, *Foucault and Architecture*, Sydney, Australia: Local Consumption Publication, 1984.

<sup>56</sup> Jacques Donzelot, *The Policing of Families*, translated by Robert Hurley, New York: Pantheon Books, 1979.

<sup>57</sup> On architecture as a manifestation of power, see also Thomas A. Markus, *Buildings & Power: Freedom and Control in the Origin of Modern Building Types*, London; New York: Routledge, 1993; and Kim Dovey, *Framing Places: Mediating Power in Built Form*, London; New York: Routledge, 1999.

<sup>58</sup> Michel Foucault, *The Order of Things: an Archaeology of the Human Sciences*, London: Tavistock Publications, 1970; Michel Foucault, *The Archaeology of Knowledge*, translated by A.M. Sheridan Smith, London: Tavistock Publications, 1972.

<sup>59</sup> Bryan S. Turner, *The Body and Society: Explorations in Social Theory*, Oxford; New York: Basil Blackwell, 1984.

‘exterior’ body in social space.’<sup>60</sup> In this way, Turner combines Marx’s characterisation of the body as both the vehicle and the site of labour with Foucault’s ideas of the ordering of the body to argue that embodiment plays a fundamental role in all social action. Shared or imposed ideals of identity and behaviour combine with the needs of the body to dominate our everyday life, “involving us in a constant labour of eating, washing, grooming, dressing, and sleeping.”<sup>61</sup> The government of the body is a task undertaken at an individual as well as at a societal level, manifest in practices through which are determined issues of production and consumption, health and disease, gender and sexuality, family and self. Turner’s work is just one example of a range of studies addressing the significance of the body within sociology.<sup>62</sup> The body has also been a subject of inquiry in various fields, including art and art history,<sup>63</sup> feminism,<sup>64</sup> geography,<sup>65</sup> philosophy,<sup>66</sup> and cultural studies.<sup>67</sup> The body has been one of the key topics of postmodernism,<sup>68</sup> especially as it provided common ground for multi-disciplinary conferences and publications.<sup>69</sup>

---

<sup>60</sup> Turner, *The Body and Society*, p. 38.

<sup>61</sup> Turner, *The Body and Society*, p. 37.

<sup>62</sup> Mike Featherstone, Mike Hepworth, and Bryan S. Turner (eds), *The Body: Social Process and Cultural Theory*, London: Sage, 1991; Chris Schilling, *The Body and Social Theory*, London: Sage Publications, 1993; Anthony Synnott, *The Body Social: Symbolism, Self and Society*, London and New York: Routledge, 1993; Pasi Falk, *The Consuming Body*, London: Sage Publications, 1994; Simon J. Williams and Gillian Bendelow, *The Lived Body: Sociological Themes, Embodied Issues*, London; New York: Routledge, 1998.

<sup>63</sup> Andrew Benjamin, (ed.), *The Body*, London: Berlin: Academy Editions; Ernst & Sohn, 1993; Melissa Harris (ed.), *The Body in Question*, New York: Aperture Foundation, 1990. See also the journal *Theory, Culture and Society*, of which Turner was an editor.

<sup>64</sup> Elizabeth Grosz, *Volatile Bodies: Toward a Corporeal Feminism*, St. Leonards, N.S.W.: Allen & Unwin, 1994; Susan Bordo, *Unbearable Weight: Feminism, Western culture, and the Body*, Berkeley: University of California Press, 1993.

<sup>65</sup> Steve Pile, *The Body and the City: Psychoanalysis, Space, and Subjectivity*, London; New York: Routledge, 1996; Heidi J. Nast and Steve Pile (eds.), *Places Through the Body*, London; New York: Routledge, 1998; Paul Rodaway, *Sensuous Geographies: Body, Sense, and Place*, London; New York: Routledge, 1994.

<sup>66</sup> Donn Welton (ed.), *The Body: Classic and Contemporary Readings*, Oxford: Blackwell, 1999; Donn Welton (ed.), *Body and Flesh: A Philosophical Reader*, Malden, Mass.: Blackwell Publishers, 1998; David Michael Levin, *The Body’s Recollection of Being: Phenomenological Psychology and the Deconstruction of Nihilism*, London; Boston: Routledge & Kegan Paul, 1985.

<sup>67</sup> Stephen Kern, *Anatomy and Destiny: A Cultural History of the Human Body*, Indianapolis: Bobbs-Merrill, 1975.

<sup>68</sup> Carl A. Raschke, *Fire and Roses: Postmodernity and the Thought of the Body*, New York: State University of New York Press, 1996.

<sup>69</sup> Jonathan Crary and Sanford Kwinter, (eds.), *Zone 6: Incorporations*, New York: Urzone, 1992; Michel Feher, Ramona Naddaff and Nadia Tazi (eds.), *Zone 3-5: Fragments For a History of the Human Body*, New York, NY: Cambridge, Mass.: Zone; MIT Press, 1989; Michael Feher and Sanford Kwinter (eds.), *Zone 1/2: The Contemporary City*, New York: Urzone, 1987.

## Critiques of Science

While many of these studies represent a reaction against the simplifications of the body by science, they in fact originate in attempts to bring the study of human endeavour more in line with natural science. Only with Romanticism was there a direct opposition to scientific knowledge. Against the fragmentation of reality brought about by the rationalism of Descartes and the positivism of Comte, the Romantics sought a reunification of man with nature. In particular, they celebrated the idea of ‘perfection in unity,’ and of access to it through those dimensions of the world unaccounted for by science; love and beauty, sensory experience and imagination.<sup>70</sup> In architecture, the romantic quest for unity with nature found its way through the Arts and Crafts movement to provide a form of Modernism more aligned with nature than technology. Particularly evident in the architecture of Alvar Aalto in Finland and Frank Lloyd Wright in America, this has recently been described as Modernism’s ‘other tradition.’<sup>71</sup> While still influential, this tradition has since been complemented by critiques of modernity from other fields. As well as political critiques, originating largely in the Marxist writings of the Frankfurt School,<sup>72</sup> alternatives have also arisen from structuralism and semiotics, as well as from phenomenology and hermeneutics.<sup>73</sup> Most of these fields arose as part of the effort to raise the human sciences to the level of the natural sciences. In particular, they addressed the question of human understanding, in part as a means to overcome the divide between rationalism and empiricism. In the late nineteenth century, Ferdinand de Saussure studied the way in which language was able to convey meaning, coining the term *semiotics* for this science of the ‘sign’ in linguistics. In the twentieth century, the anthropologist Claude Levi-Strauss applied Saussure’s principles of

---

<sup>70</sup> Richard Coyne, *Technoromanticism: Digital Narrative, Holism, and the Romance of the Real*, Cambridge, Mass.: MIT Press, 1999, pp. 5-6.

<sup>71</sup> Colin St. John Wilson, *The Other Tradition of Modern Architecture: The Uncompleted Project*, London: Academy Editions, 1995.

<sup>72</sup> These include Manfredo Tafuri, *Architecture and Utopia: Design and Capitalist Development*, translated by Barbara Luigia La Penta, Cambridge, Mass.: MIT Press, 1976; and Fredric Jameson, *Postmodernism, or, The Cultural Logic of late Capitalism*, Durham: Duke University Press, 1991. On the Frankfurt School, see Martin Jay, *The Dialectical Imagination: A History of the Frankfurt School and the Institute of Social Research, 1923-1950*, Berkeley: University of California Press, 1996.

language to the interpretation of cultural practices in order to explain kinship structures in a more ‘scientific’ manner, resulting in the field of structuralism. Similarly, Friedrich Schleiermacher originally adopted the method of hermeneutics from theology as he sought to discover more accurate modes of interpretation, intended to prevent misunderstanding.<sup>74</sup> Later, Wilhelm Dilthey argued that the *interpretation* of the human sciences through hermeneutics constituted a fundamentally different form of knowledge from the *explanation* of the natural sciences. As part of his attempt to raise philosophy to the level of a science, Edmund Husserl adopted the term phenomenology (used earlier by Hegel) for the study of the way in which ‘phenomena’ present themselves to the mind. Husserl regarded European Science as being in a state of ‘crisis,’ lacking an understanding of the essential nature of things; he called instead for a return to ‘the things themselves.’<sup>75</sup> Following on from Husserl, Maurice Merleau-Ponty, in *Phenomenology of Perception*, examined the nature of the conditions prior to knowledge, and upon which knowledge depends.<sup>76</sup> Critical of science, he regarded it as merely a secondary explanation of the world and our experience in it. The ‘thing’ to which Merleau-Ponty returns is the body, exploring its primary position among objects, its status as that which enables other objects to be perceived: “The body is our general medium for having a world.”<sup>77</sup>

In his major work, initially dedicated to Husserl, Martin Heidegger employed phenomenological methods of analysis to the interpretation of *Being*, thereby developing an ontological hermeneutics.<sup>78</sup> Like Husserl, Heidegger was critical of rationalist modes of knowledge, regarding science as only one particular kind of knowing available to ‘Being’. Perhaps in order to avoid Cartesian dualism, Heidegger did not use the body as an explicit theme of his work, although it is implicated in his characterisation of Being as ‘being-there’ (*Dasein*). In exploring the modes of knowledge available to Being, Heidegger began with

---

<sup>73</sup> Jonathan A. Hale, *Building Ideas: An Introduction to Architectural Theory*, New York: John Wiley, 2000.

<sup>74</sup> Hale, *Building Ideas*, p. 216.

<sup>75</sup> Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*, translated with an introduction by David Carr, Evanston: Northwestern University Press, 1970.

<sup>76</sup> Merleau-Ponty, *Phenomenology of Perception*, passim.

<sup>77</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 146.

<sup>78</sup> Martin Heidegger, *Being and Time*, translated by John Macquarrie and Edward Robinson, Oxford: Basil Blackwell, 1962.

the common phenomenological theme of the use of tools. Tools provide an instance of the use of ‘equipment’ (*Zeug*) through which the body interacts with the world, as we engage in projects or ‘dealings’ in that world.<sup>79</sup> “The kind of dealing which is closest to us” writes Heidegger, “[is] not a bare perceptual cognition, but rather that kind of concern that manipulates things and puts them to use; and this has its own kind of ‘knowledge’.”<sup>80</sup> Equipment is known actively, not conceptually; it is an embodied knowledge, a ‘primordial’ relationship between the body and those objects that are seized hold of and put to use.<sup>81</sup> In relation to our Being (*Dasein*), equipment demonstrates a mode of being that Heidegger calls ‘*readiness-to-hand*’.<sup>82</sup> This ‘readiness’ also characterises the spatial relationship between objects and the body, as the region in which equipment presents itself to Being.<sup>83</sup>

The hermeneutical critique of scientific knowledge was further developed by Hans-Georg Gadamer, a student of Heidegger. In his ironically titled *Wahrheit und Methode* (*Truth and Method*), Gadamer is critical of the limited notion of understanding permitted by science, arguing that scientific method fails to live up to its claims of universality.<sup>84</sup> In its concern for truth as verifiable knowledge about objects and their properties, science neglects the domain of understanding that arises from the interpretation of *texts*. Gadamer’s work is an inquiry into truth as it arises in fields outside of science, such as theology, literature, law, and art, and into the ways in which that truth comes to be understood. Significantly, the modes of truth arising through interpretation go beyond the objective, disinterested, truths claimed by science, requiring instead an active engagement between subject and object, between reader and text. This engagement is particularly evident in the experience of a work of art, which, writes Gadamer, “[...] has its true being in the fact that it [...] changes the person who experiences it.”<sup>85</sup> The kind of truth that ‘comes to appearance’ through interpretation is a truth beyond that of methodological knowledge, a

---

<sup>79</sup> Heidegger, *Being and Time*, p. 97.

<sup>80</sup> Heidegger, *Being and Time*, p. 95.

<sup>81</sup> Heidegger, *Being and Time*, p. 98.

<sup>82</sup> Heidegger, *Being and Time*, p. 98.

<sup>83</sup> Heidegger, *Being and Time*, pp. 135-138.

<sup>84</sup> “The hermeneutic phenomenon” writes Gadamer, “is basically not a problem of method at all.” Gadamer, *Truth and Method*, p. xxi.

<sup>85</sup> Gadamer, *Truth and Method*, p. 102.

truth “in which one must *try to share*.”<sup>86</sup> As an ‘interpretation’ of interpretation, Gadamer’s work explores the philosophical significance of hermeneutics. Although it moves beyond the phenomenological questions of the relationship between body and objects, the notion of active engagement, explained using the notion of ‘play’, suggests ways in which embodied experience may be intrinsic to interpretation, understanding, and truth.

With the works of both Heidegger and Gadamer, we see how the original attempts to bring rigour to the human sciences evolved into a fundamental critique of the natural sciences to which they originally aspired. Interestingly, phenomenological and hermeneutical critiques of science were occurring at the same time as the truth conditions of science were being challenged from within. Throughout the twentieth century, philosophers and historians of science have brought the claims of science into question by exploring the processes of scientific discovery. Imre Lakatos<sup>87</sup> and Karl Popper<sup>88</sup> began the challenge to the truth conditions of science, suggesting that a valid theory was merely one that had not been disproved or ‘refuted.’ Thomas Kuhn extended this idea into a study of the ways in which scientists shift epistemological frameworks, or ‘paradigms,’ in response to new theories or discoveries.<sup>89</sup> Paul Feyerabend challenged the notion of ‘method’ altogether, arguing that many scientific discoveries arose in spite of, and not because of, systematic practices of inquiry.<sup>90</sup> Others, most notably Bruno Latour, examined the conditions for the production of scientific knowledge, arguing that claims to objectivity are deeply problematic in light of the social dynamics of the laboratory.<sup>91</sup> For Latour, the social dynamics of scientific knowledge are also active beyond the laboratory, as argued in his study of the adoption and

---

<sup>86</sup> Gadamer, *Truth and Method*, p. xxiii.

<sup>87</sup> Imre Lakatos, *Proofs and Refutations: the Logic of Mathematical Discovery*, edited by John Worrall and Elie Zahar, Cambridge; New York: Cambridge University Press, 1976.

<sup>88</sup> Karl Popper, *Conjectures and Refutations: the Growth of Scientific Knowledge*, 4th edition (revised), London: Routledge & Kegan Paul, 1972; Karl Popper, *The Logic of Scientific Discovery*, London: Hutchinson, 1972.

<sup>89</sup> Thomas Kuhn, *The Structure of Scientific Revolutions*, Chicago: University of Chicago Press, 1962.

<sup>90</sup> Paul Feyerabend, *Against Method*, third edition, London: Verso, 1993.

<sup>91</sup> Bruno Latour and Steve Woolgar, *Laboratory Life: The Social Construction of Scientific Facts*, Beverly Hills: Sage Publications, 1979; Bruno Latour, *Science in Action: How to Follow Scientists and Engineers through Society*, Cambridge, Mass.: Harvard University Press, 1987; Bruno Latour, *The Pasteurization of France*, Translated by Alan Sheridan and John Law, Cambridge, Mass., and London, England: Harvard University Press, 1988.

dissemination of the discoveries of Pasteur.<sup>92</sup> More recently, Joseph Rouse has interpreted the dynamics of scientific knowledge and practice based upon the writings of Foucault.<sup>93</sup>

## Interpreting Architecture

These various challenges to the dominance of science and technology have been influential in the constitution of architectural theory in the late twentieth century. Along with sociological, political, and structuralist readings, sections on phenomenology and hermeneutics have appeared in many recent anthologies and summaries of architectural theory.<sup>94</sup> One of the first to present a phenomenological view of architecture was the Norwegian historian Christian Norberg-Schulz, who described the importance of celebrating ‘place’, in contrast to the modernist conception of ‘space’.<sup>95</sup> Norberg-Schulz regularly applied ideas from Heidegger to readings of architects such as Jørn Utzon, Carlo Scarpa, and Louis Kahn.<sup>96</sup> Similarly, Karsten Harries has proposed a Heideggerian interpretation of the making of place as an expression of the ‘ethos’ of its inhabitants.<sup>97</sup> And recently the architect Steven Holl has adopted a phenomenological approach in the production and explanation of his work.<sup>98</sup>

---

<sup>92</sup> Bruno Latour, *The Pasteurization of France*, Translated by Alan Sheridan and John Law, Cambridge, Mass., and London, England: Harvard University Press, 1988.

<sup>93</sup> Joseph Rouse, *Engaging Science: How to Understand its Practices Philosophically*, Ithaca: Cornell University Press, 1996; Joseph Rouse, *Knowledge and Power: Toward a Political Philosophy of Science*, Ithaca: Cornell University Press, 1987.

<sup>94</sup> See, for example Neil Leach, *Rethinking Architecture: A Reader in Cultural Theory*, New York: Routledge, 1996; Kate Nesbitt (ed), *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*, New York: Princeton Architectural Press, 1996; K. Michael Hays (ed), *Architecture Theory since 1968*, Cambridge, Mass.: MIT Press, 1998; and Jonathan A. Hale, *Building Ideas: An Introduction to Architectural Theory*, New York: John Wiley, 2000.

<sup>95</sup> Christian Norberg-Schulz, *Genius Loci: Towards a Phenomenology of Architecture*, New York: Rizzoli, 1980; see also Christian Norberg-Schulz, *Intentions in Architecture*, Cambridge, Mass.: MIT Press, 1965.

<sup>96</sup> Christian Norberg-Schulz, “Kahn, Heidegger and the Language of Architecture,” *Oppositions* 18, Fall 1979, pp. 28-47; Christian Norberg-Schulz, *Architecture: Meaning and Place, Selected Essays*, Rizzoli International Publications, 1988.

<sup>97</sup> Karsten Harries, *The Ethical Function of Architecture*, Cambridge, Mass.: MIT Press, 1997.

<sup>98</sup> Steven Holl, Juhani Pallasmaa, and Alberto Pérez-Gómez, *Questions of Perception: Phenomenology of Architecture*, Tokyo: a+u publishing, 1994.



Of particular interest here is the application to architecture of Gadamerian hermeneutics by Adrian Snodgrass and Richard Coyne.<sup>99</sup> In contrast to natural-scientific models of design as a ‘process’ or ‘method,’ derived from a logical positivist conception of language, Snodgrass and Coyne describe design as *hermeneutical*, subject to processes of textual interpretation.<sup>100</sup> “Design is an interpretive activity, one of understanding a design situation rather than of solving a problem.”<sup>101</sup> After Gadamer, the designer is seen to encounter each situation already equipped with ‘prejudices,’ deeply entrenched assumptions, expectations, and interpretive practices which allow an initial meaning to be established. The situation is also *prefigured*, presenting a ‘context’ of interwoven physical and cultural aspects that will influence the outcome, from site and programme to construction techniques and regulatory controls. The design emerges as the designer engages in a dialectical exchange with that context, allowing the mutual influence of both to be explored. The designer’s initial preconception or ‘projection’ of what the design might be enables the various dimensions of the context to be understood, which in turn act to reconfigure that preconception. This brings into question the designer’s own prejudices, which may then be readjusted, thus giving rise to a new projection. The design progresses as the relation between part and whole is developed through reciprocal exchange. This is an instance of the ‘hermeneutical circle,’ the movement between part and whole fundamental to all acts of interpretation, where each is reconfigured in light of its influence upon the other. The ‘circling’ between part and whole of that which is interpreted is also a ‘circling’ between past and future understandings, a mysterious process of recognising that which is new.

With the hermeneutical conception of language, the preconceptions, or ‘fore-structures,’ which are brought to interpretation, are also active in acts of perception. When we sense

---

<sup>99</sup> Adrian Snodgrass and Richard Coyne, “Is Designing Hermeneutical?” Working Paper, Faculty of Architecture, University of Sydney, 1990; Adrian Snodgrass and Richard Coyne, “Can Design Assessment be Objective?” *Architectural Theory Review*, 2/1, April 1997, pp. 65-97; Adrian Snodgrass and Richard Coyne, “Hermeneutics and the Application of Design Rules,” working paper, Faculty of Architecture, University of Sydney, 1991; Adrian Snodgrass and Richard Coyne, “Hermeneutics, Objectivity and Design Evaluation,” working paper, Faculty of Architecture, University of Sydney, 1991; Adrian Snodgrass and Richard Coyne, “Models, Metaphors and the Hermeneutics of Designing,” working paper, Faculty of Architecture, University of Sydney, 1991; Richard Coyne, Adrian Snodgrass, and David Martin, “Metaphors in the Design Studio,” *Journal of Architectural Education* 48/2, November 1995, pp. 113-125.

<sup>100</sup> A description of computational models of design can be found in William J. Mitchell, *The Logic of Architecture: Design, Computation, and Cognition*, Cambridge, Mass.: M.I.T. Press, 1990.

<sup>101</sup> Snodgrass and Coyne, “Is Designing Hermeneutical?” p. 14.

something, by seeing an object or hearing a speech utterance, understanding of that thing is immediate, already implicated in the sensing of it. “In sensing a thing, we sense it *as* something.”<sup>102</sup> This is in contrast to logical positivist models of language, for which perception and meaning are regarded as independent events.

“When we see something, we see it not as a meaningless object to which we only later, and as a subsequent action, attach a meaning, but rather as something that we immediately, and coincident with the seeing, see as something already meaningful. The act of seeing something is an act of recognizing it, of understanding it as what it is.”<sup>103</sup>

Moreover, if something is not yet understood, or if we choose to enrich our understanding of something beyond its present meaning, it is possible to understand it *as* something *else*. This is the domain of metaphor.<sup>104</sup> Seen in this way, metaphor is not merely a linguistic trope, but is fundamental to all acts of perception and interpretation. What lies at the basis of understanding through metaphor, according to Lakoff and Johnson, is embodied experience.<sup>105</sup> As the body and its sensorimotor capacities interact with objects, forces, and space, fundamental concepts are established which then form the basis for further comparison. The experience of force and resistance, orientation and movement, containment and connection, number and distinction, balance and reciprocation, are first understood through the body. Then patterns from one domain of experience can be projected onto another, perhaps a more abstract or distant domain, in order to structure meaning. Many of these concepts, while taken for granted, can be seen to derive from the embodied nature of metaphor: affection as warmth; more as up; categories as containers; intimacy as closeness; understanding as seeing or grasping.<sup>106</sup>

---

<sup>102</sup> Snodgrass and Coyne, “Is Designing Hermeneutical?” p. 9.

<sup>103</sup> Snodgrass and Coyne, “Is Designing Hermeneutical?” p. 9.

<sup>104</sup> See, for example, Paul Ricoeur, *The Rule of Metaphor: Multi-Disciplinary Studies of the Creation of Meaning in Language*, translated by Robert Czerny; with Kathleen McLaughlin and John Costello, London: Routledge & Kegan Paul, 1978.

<sup>105</sup> George Lakoff and Mark Johnson, *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*, New York: Basic Books, 1999; George Lakoff and Mark Johnson, *Metaphors We Live By*, Chicago: University of Chicago Press, 1980; Mark Johnson, *Moral Imagination: Implications of Cognitive Science for Ethics*, Chicago: University of Chicago Press, 1993; Mark Johnson, *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*, Chicago: University of Chicago Press, 1987.

<sup>106</sup> Lakoff and Johnson, *Philosophy in the Flesh*, pp. 50-54.

With architecture, metaphor can be seen to pervade our understanding of the ‘process’ of design as well as the thing being designed. Design itself might be regarded as mysterious or creative, as a journey or as a search, as a solution to problems or response to constraints.<sup>107</sup> That process may also involve the application of particular metaphors, regarding, say, a house ‘as’ form or function, circulation or habitation. It could also involve an intentional play of oppositions, inverting or challenging dialectics of inside/outside, structure/servicing, front/back, or public/private.<sup>108</sup> Through this hermeneutical understanding of design, the importance of part and whole and the operation of metaphor, several questions arise. Firstly, what kinds of metaphors are appropriate for architecture? Are some metaphors more appropriate than others? Given the prevalence of anthropomorphism in architecture, it should be apparent that one significant metaphor is that of ‘building-as-body.’ While this metaphor is no longer operative in the same way as used by classical and renaissance architects, is the metaphor of ‘building-as-body’ still a valuable one? If so, what kind of body would or should that metaphor be based upon? The conception of the body has, as we have seen, been dramatically reconfigured since the Renaissance, suggesting that Vitruvian Man is no longer an appropriate referent for architecture. But are there other conceptions of the body by which architects can give meaning to their work?

Secondly, there is the question of what is meant by ‘part’ and ‘whole’ in architecture. In physical terms, the parts might be regarded as the physical elements out of which the building is constructed, such as pieces of timber, glass, or stone, whose connection, expressed in *detail*, gives meaning to the whole.<sup>109</sup> Alternatively, the parts could be understood as the various systems, of structure, servicing, and circulation, which work together to form the whole. The parts might also be regarded as the series of energy and fluid dynamics, of heat, light, sound, and air, which make spaces suitable for human habitation, and the whole being the sum total of the sensory experiences of those spaces. The parts could be understood narratively, a series of events in the lives of the inhabitants as they open a door, feel the warmth of the sun through a window, or gather together with

---

<sup>107</sup> Coyne, Snodgrass, and Martin, “Metaphors in the Design Studio,” p. 115.

<sup>108</sup> Coyne, Snodgrass, and Martin, “Metaphors in the Design Studio,” pp. 116-120.

friends to share a meal; the whole, then, a series of collected memories of those events. The parts could also be understood compositionally, as a series of patterns in plan, elevation, or section that go to make up the whole as an aesthetic unity. What these possibilities reveal is that the nature of 'part' and 'whole' itself depends upon the metaphoric conception of architecture; architecture *as* physical, technological, ecological, phenomenological, narrative, or aesthetic artifact.

Taken together, these two questions give rise to a third, namely, to what extent is the conception of part and whole in architecture determined by the metaphor 'building-as-body'? To answer this question, it is necessary to understand 'science' not in terms of the worldviews of Copernicus, Newton, and Einstein, but through the 'scientific' views of the body in medicine. It is via medicine, the art and science of healing the body through an understanding of its inner workings, that conceptions of the body become available for translation into architecture as anthropomorphism. The body provides a model of unity, as a necessary and sufficient combination of parts working together to maintain human life. With western medicine in particular, the body has been the subject of modes of inquiry which sought, following Aristotle, to understand the working of the whole by understanding the working of the parts. Yet for Aristotle, the purpose of understanding the parts was so that the function of the whole could be understood. For Aristotle, the body functioned as the vehicle of that vital or living force known as the soul (*anima*).<sup>110</sup> The question of what constitutes a whole body up to and including the Renaissance necessarily included the soul. However, since the Renaissance, western medicine has been concerned primarily with the idea of a body functioning in its own right as a living organism, the proper subject of anatomy and physiology. Through increasingly detailed studies of the working of the body, from Vesalius, to Harvey, to Pasteur, the history of medicine reveals changes in the conception of what constitutes a properly functioning body.

---

<sup>109</sup> Edward R. Ford, *The Details of Modern Architecture*, two volumes, Cambridge, Mass.: MIT Press, 1990; 1996.

<sup>110</sup> Aristotle, *On the Soul*, translated by W. S. Hett, Cambridge, Mass.: Harvard University Press, 1935; 415 b, pp. 87-88.

The idea of the body as a model of unity has an ancient pedigree. As Mary Douglas has observed, the idea can be applied to any bounded system.<sup>111</sup> While the boundaries of the body delimit it as an entity, those boundaries are vulnerable, liable to incursion, especially at times of the transgressions necessary to sustain the body. With both the ingestion of food and the elimination of waste, the body is liable to pollution, a corruption of its internal order.<sup>112</sup> This threat gives rise to shared rituals and practices in relation to food and waste, which in turn form the basis for the representation and interpretation of other social structures. Through ritual, social order is made visible in and through the body, such that the two are symbolically interconnected.<sup>113</sup> Thus rituals describe how threats to the bounded system, whether bodily or social, are to be avoided or amended.<sup>114</sup> And just as the experience of the body is extended outward to social structures, so too social structures are made manifest in experience. Ritual provides a way to demonstrate that transgression of the social order have been corrected through atonement. If the ritual is successful, the transgression has been healed.

“[R]ituals enact the form of social relations and in giving these relations visible expression they enable people to know their own society. The rituals work upon the body politic through the symbolic medium of the human body.”<sup>115</sup>

One such ‘ritual’ involves the identification and treatment of those bodies that have succumbed to the threat of corruption, bodies regarded as less than whole by virtue of affliction by illness. To regard the domain of illness in symbolic terms is of course to counter

---

<sup>111</sup> Mary Douglas, *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*, London: Routledge and Kegan Paul, 1966.

<sup>112</sup> See also Paul Ricoeur, *The Symbolism of Evil*, translated by Emerson Buchanan, Boston: Beacon Press, 1969.

<sup>113</sup> Douglas, *Purity and Danger*, p. 115. “The body is a model which can stand for any bounded system. Its boundaries can represent any boundaries which are threatened or precarious. The body is a complex structure. The function of its different parts and their relation afford a source of symbols for other complex structures. We cannot possibly interpret rituals concerning excreta, breast milk, saliva, and the rest unless we are prepared to see in the body a symbol of society, and to see the powers and dangers credited to social structure reproduced in small on the human body.”

<sup>114</sup> Douglas, *Purity and Danger*, p. 121. “[A]ll margins are dangerous. If they are pulled this way or that the shape of fundamental experience is altered. Any structure of ideas is vulnerable at its margins. We should expect the orifices of the body to symbolise its specially vulnerable points. Matter issuing from them is marginal stuff of the most obvious kind. [...] The mistake is to treat bodily margins in isolation from all other margins. There is no reason to assume any primacy for the individual’s attitude to his own bodily and emotional experience, any more than for his cultural and social experience.”

once again the ideology of science, as manifest in the perception of modern medicine as scientific. But as Susan Sontag has argued, the perception of diseases such as cancer and AIDS are heavily laden with metaphors of moral corruption.<sup>116</sup> Similarly, Roy Porter, following Douglas, has described conceptions of the body and its sicknesses as social as well as biological, thereby shaping the practice of medicine.<sup>117</sup> Porter writes:

“What is considered normal health and what constitutes sickness or impairment are negotiable, and the conventions vary from community to community and within subdivisions of societies, dependent upon class, gender, and other factors. Maladies carry different moral charges. [...] Bodies are thus languages as well as envelopes of flesh; and sick bodies have eloquent messages for society.”<sup>118</sup>

Concepts of sickness and health demonstrate historical variation, due not only to changes in knowledge about the body, but also to changes in the way in which that knowledge is interpreted. The study of medicine is instructive in understanding how scientific knowledge becomes used, both practically and metaphorically, especially as ideas about health and well being are mapped onto society as a whole. Medicine is also instructive because, as Foucault has shown, the treatment of sickness in individual bodies becomes the province of society in general, in order to control the threat posed to other bodies.

## **Anatomy of Architecture**

The influence upon architecture of the medical conception of the body begins with the rise of anatomy during the Renaissance, the exploration of the parts of the body through the dissection of corpses. Anatomy demonstrations were carried out in theatres across Europe, and publications of anatomical illustrations were among the first printed books. As Sawday has argued, an interest in ‘partitioning’ arose in various cultural endeavours at the time, all

---

<sup>115</sup> Douglas, *Purity and Danger*, p. 128.

<sup>116</sup> Susan Sontag, *Illness as a Metaphor*, New York: Farrar, Straus and Giroux, 1978.

<sup>117</sup> Roy Porter, *The Greatest Benefit to Mankind: Medical History of Humanity From Antiquity to the Present*, London: Harper Collins, 1997.

<sup>118</sup> Porter, *The Greatest Benefit to Mankind*, p. 36.

based upon the model of the body.<sup>119</sup> The influence of anatomy was so pervasive, he suggests, that the Renaissance can be regarded as a “culture of dissection.”<sup>120</sup> Anatomy gave rise to a new conception of bodily unity, based upon the partitioned body, with its inner workings revealed. Thus ideas of body interiority and spatiality were reconfigured, as these were either visible from the exterior, or made manifest on the surface or skin. Moreover, the processes of anatomical inquiry, of partitioning the body and laying out the parts across a table, were to become the model of scientific inquiry in general, forming the foundation of ‘method’ as described by both Bacon and Descartes. In Chapter 2, the influence of Renaissance anatomy will be explored through the work of architects such as Leon Battista Alberti, Francesco di Giorgio Martini, and Sebastiano Serlio. For these architects, the influence of Vitruvius was challenged by the new anatomical conceptions of the body. The dissected body provided a model not in terms of correct proportion, but in terms of the visibility of inner states, as the interior, as a correctly functioning combination of parts ordered in space, was made manifest on the surface.

The second major influence for architecture, more than three centuries later, occurred with the development of bacteriology around the discoveries of both Pasteur and Koch. This was significant, firstly, because it enabled the knowledge of anatomy to be put into practice through surgery. Combined with the development of anaesthetics that had overcome the problem of pain, germ theory gave rise to sterilisation techniques that prevented post-operative infection. Prior to this, surgery had been low on the medical hierarchy, restricted to the treatment of surface conditions.<sup>121</sup> Now, however, surgeons are able to enter the body, as if it were a corpse, to restore order to the body interior. The second significance of germ theory lay in the fact that it was *preventative*. The development of immunisation gave relief from the epidemics of diseases such as typhoid and cholera that had swept through urban Europe. Yet germ theory was also pervasive in its reconfiguration of practices of bathing, dress, and domestic hygiene. Growing medical knowledge of the mechanisms of contagion led to new standards of cleanliness, which in turn

---

<sup>119</sup> Jonathan Sawday, *The Body Emblazoned: Dissection and the Human Body in Renaissance Culture*, London; New York: Routledge, 1995.

<sup>120</sup> Sawday, *The Body Emblazoned*, pp. 2-3.

<sup>121</sup> The exception was military surgery, dealing as it was with a captive audience; with great advances made by surgeons such as Ambroise Paré. See Porter, *The Greatest Benefit to Mankind*, pp. 188-190.

engendered new types of social behaviour. In particular, the avoidance of disease led to a shift from atmospheric to hydraulic practices of hygiene, with the result that vision was to replace smell as the measure of salubrity. The use of water for domestic and bodily hygiene was promoted by 'Purity movements' throughout the nineteenth century. These movements undertook the self-appointed task of cleaning the entire social body, with the call to moral reform poorly disguised in scientific language. Teaching new practices of bathing and dress were seen by their members as a means to rid cities of disease, dirt, and vice.

Chapter 3 will explore the influence upon modern architecture of Pasteurian medicine. In Paris in 1919, Le Corbusier's held an exhibition of paintings in association with Amedée Ozenfant that was to mark the beginning of the 'Purist movement.'<sup>122</sup> The accompanying catalogue, *Après le Cubisme*, intended as the movement's manifesto, describes a purity of mechanisation and standardisation, a purity derived from number and geometry, as fundamentals of art and science. Yet in the choice of the title, Le Corbusier reveals himself as one of the major protagonists in bringing the values of hygiene to architecture. His manual of the dwelling in *Towards a New Architecture* reads like a manual of hygiene, while the plan for the Radiant City was based in large part on the avoidance of disease through the provision of fresh air and sunlight. In his characterisation of the machine-house, Le Corbusier, like most modern architects, sought to come to terms with the provision of services to meet with the new demands for washing. At the 1928 CIAM conference, the determination of minimum requirements for dwelling, or *existenzminimum*, necessarily included plumbing. In his essay titled "Plumbers," lamenting the poor bathing practices of his fellow Europeans, Adolf Loos equated bathing with culture.<sup>123</sup> In the same way, it was in the pursuit of culture that Loos sought to cleanse the 'body' of architecture through the rejection of ornament.<sup>124</sup> The use of new materials of glass and concrete, while representing the adoption of new technology, also enabled cleanliness to be demonstrated. Concrete was frequently painted white, giving the appearance of a freshly cleaned surface, and glass, while easy to clean, also provided a visible reminder of the water used for cleaning. More

---

<sup>122</sup> Banham, *Theory and Design in the First Machine Age*, pp. 206-213.

<sup>123</sup> Adolf Loos, "Plumbers," translated by Harry Francis Mallgrave, in Nadir Lahiji and D. S. Friedman (eds.) *Plumbing: Sounding Modern Architecture*, New York: Princeton Architectural Press, 1997, pp. 15-19.



importantly, the transparency of glass enabled a new level of visibility into the interior, thus turning architecture into an instrument of surveillance. In these ways, architects sought to emulate the status of the medical profession through the control of urban populations, thereby making the values of medicine manifest in the architecture of modernity.

## The Lived Body

By posing questions about metaphor and about part and whole, hermeneutics emerges as more than simply an alternative to the ‘scientific’ approach to architecture. Instead it reveals that modern architecture is dependent upon the metaphor of the body, albeit a body conceived in ‘scientific’ terms through medicine. This leads to one further question, namely, how might understandings of the body in phenomenology affect the architectural metaphor of ‘body-as-building’? That is, in moving beyond the ideology of modernism, are there metaphors of the body other than those provided by science – especially of the body as *lived* – that are able to inform the interpretation of architecture?

The question arises not only because of the significance of anthropomorphism, but also because of the importance of the body in both phenomenological and hermeneutical critiques of science. One of the major problems identified by that critique is the separation of mind and body that began with the Cartesian *Cogito*. Rather than the conception of body and soul as interrelated in both classical and Christian belief, Descartes implied a separation of the two by distinguishing the world of objects (*res extensa*) from the world of ideas (*res cogitans*).<sup>125</sup> For Descartes the place of reason was the mind, located at a point within the body, rather than permeating it. Thus the body was relegated to the world of objects, with the mind, not the body, being the proper domain of philosophical inquiry. The split enabled the body to be appropriated by medicine as an object amenable to manipulation, at the same time as it promoted a view of knowledge and its application as independent of the body. This resulted in claims to objectivity, since identified by feminist and postmodernist critiques as serving to conceal power relations based upon embodied differences such as race and gender. It also resulted in a disembodied conception of identity, an internalised

---

<sup>124</sup> Adolf Loos, *Spoken into the Void: Collected Essays, 1897-1900*, translated by Jane O. Newman and John H. Smith, Cambridge, Mass.: MIT Press, 1982.

view of the self that was also appropriated by medicine through the fields of psychology and psychiatry.

An essential part of phenomenological and hermeneutical critiques of science is the attempt to overcome the separation of mind and body since Descartes, and to rediscover the role of the body in the constitution of knowledge. In Chapter 4, the influence upon architecture of embodied conceptions of identity will be examined through the metaphor of the *lived* body. The idea of the lived body has been explored by Merleau-Ponty, who described the way in which understanding arises from perception, through the interaction between body and world. “[M]y body is a movement towards the world, and the world my body’s point of support.”<sup>126</sup> For Merleau-Ponty, the surface of the body appears as a ‘radical discontinuity,’ across which spatial and object relations change. In contrast to the modernist conception of surface as an impediment to vision, Merleau-Ponty regards surface as a site of exchange between self and world necessary for their mutual constitution. Surface exchange is also significant within hermeneutical models of selfhood. Paul Ricoeur acknowledges the temporal and linguistic dimensions of experience in describing ‘narrative identity’; Charles Taylor acknowledges the engagement with everyday projects of production and reproduction in his affirmation of ‘ordinary life’; and Alasdair MacIntyre describes the involvement in ‘practice’ as crucial to the determination of self in virtue ethics. For these authors, identity is not merely an interior state, but arises as a result of the ongoing exchange between internal and external determinants, between body and world, between self and others. Interpreted through the metaphor of ‘body-as-building’, these conceptions of self give rise to new possibilities for differentiating between interior and exterior, for regarding surface as a register of the ongoing exchange between the two. With Louis Kahn’s concept of the ‘institution,’ built form emerges from the innate human desire to gather together. By providing a place for people to meet, architecture becomes an expression of the convergence of individual and social needs. With Aldo Rossi’s celebration of the theatrical dimension of architecture, the city emerges as both a stage for human events and as a site for the embodiment of narrative structures, invoking their recollection through

---

<sup>125</sup> Rene Descartes, *The Principles of Philosophy*, in *The Philosophical Works of Descartes*, translated by Elizabeth S. Haldane and G. R. T. Ross, London, Cambridge University Press, 1967, p. 221.

<sup>126</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 350.

memory and imagination. Both can be seen as a reinstatement of architecture's role as a record of human events, a transformation of the body into the monuments of the city.

## Presentation and Representation

One further critique of the modernist view of the body as a material object, amenable to strategies of domestication and disclosure, rests upon an interpretation of the violence inherent in these acts. Anthony Vidler's description of the experience of interior states as 'uncanny' acknowledges the lived body as both familiar and unfamiliar.<sup>127</sup> While the familiar dimension of sensory experience is reduced through the provision of comfort, the unfamiliar dimension of the body interior is accentuated through its appropriation by medicine and psychology. In the architecture of Libeskind and Eisenman, and in the writings of Tschumi, the focus on violence against the body reminds us of its susceptibility to pain. In recognising the capacity for pain and suffering, the lived body can be seen as characterised not only by the sensory experience described by Merleau-Ponty, but also by the meaning given to sensation through its effect upon the body. In the work of Elaine Scarry, this capacity, described as *sentience*, is implicated in all acts of making.<sup>128</sup> For Scarry, the expression of interior states, motivated by the desire to prevent pain, is enacted as the 'projection of sentience,' the making of a world that is sympathetic to our capacity for pain. In this way, 'anthropomorphism' is less an imitation of human form than a making of objects that are mindful of the body as lived. In this way, acts of making help to overcome the vulnerability of the body by extending its capacities outward into the world.

This remaking of the world is also done in anticipation of the forms of incorporation necessary for sustaining the body. As Bourdieu has identified, questions of taste in regard to material artifacts originate in the necessary discernment associated with food.<sup>129</sup> In the

---

<sup>127</sup> Anthony Vidler, *The Architectural Uncanny: Essays in the Modern Unhomely*, Cambridge, Mass.: MIT Press, 1992; Anthony Vidler, "The Building in Pain: The Body and Architecture in Post-Modern Culture," *AA Files* 19 (Spring 1990): pp.3-10.

<sup>128</sup> Elaine Scarry, *The Body in Pain: The Making and Unmaking of the World*, New York; Oxford: Oxford University Press, 1985.

<sup>129</sup> "[...] one cannot fully understand cultural practices unless 'culture,' in the restricted, normative sense of ordinary usage, is brought back into 'culture' in the anthropological sense, and the elaborated taste for the most refined objects is reconnected with the elementary taste for the flavours of food."

work of Marco Frascari, anthropomorphism is explored through the dialectic of expression and incorporation.<sup>130</sup> For Frascari, the lived body comes to understand the world not by merely incorporating things into itself, but by making things out of itself and transforming itself into them.<sup>131</sup> Such transformations require a ‘productive’ search for correspondences between things, dealing not with abstractions, but with the material reality of the world, and how it can be shaped to satisfy the needs of the body. The role of architecture, as a productive art, is to foster happiness, to facilitate the ‘beatific’ life. The productive search for correspondences involved in acts of making helps to overcome the fragmentary, or in Lacan’s terms, ‘morsellated,’ nature of sensory experience. Unlike Lacan’s mirror, however, artifacts do not provide a unified image of the body. Instead, the image of the body is constantly transformed as new correspondences result from the conceiving of ‘inconceivable’ unions. For Frascari, the body revealed in this way is ‘grotesque’ or ‘monstrous,’ always in a process of becoming, its limits or boundaries constantly negotiated as they interact with the world.

Chapter 5 will explore the idea of anthropomorphism as an expression of the body not as static form, but as a constantly changing series of interior affective states that are projected outward as artifacts. These artifacts give rise to the hermeneutic possibility of meaning being mutually developed through the interaction between objects and the body. This interaction can also be explored through the idea of *play*. This originates in Kant, who described aesthetic experience as a ‘play’ or ‘free-play’ between the faculties of imagination and understanding necessitated by the absence of a concept.<sup>132</sup> Johan Huizinga regarded play as *the* characteristic human activity, more fundamental than the ability for reason or

---

Pierre Bourdieu, *Distinction: A Social Critique of the Judgement of Taste*, translated by Richard Nice, London: Routledge, 1984, p. 1.

<sup>130</sup> Frascari, *Monsters of Architecture*, passim. Frascari also explores the analogy of gastronomy and architecture in “*Semiotica Ab Edendo*, Taste in Architecture,” *Journal of Architectural Education*, 40/1, Fall 1986, pp. 27. See also Frascari, “Take as Much You Please of Some Unknown Material,” unpublished article; October 2, 2001 (<http://www.waac.vt.edu/material/takesome.html>), and Frascari, “Architects, Never Eat Your Pasta Without a Proper Sauce! A short anti-Cartesian meditation on the nature of architectural imagination,” unpublished article; June 11, 2001 (<http://www.waac.vt.edu/material/pasta.html>).

<sup>131</sup> Frascari, *Monsters of Architecture*, pp. 49-50.

<sup>132</sup> Immanuel Kant, *Critique of Judgement*, translated by James Creed Meredith, Oxford: Clarendon Press, 1952; §9, pp. 57-60.

making.<sup>133</sup> For Gadamer, the absorption of play is used to describe the experience of a work of art, itself typifying the active engagement that is central to hermeneutical interpretation. Gadamer describes the play of art as always a 'presentation' for someone, such that the play 'comes to presence' or 'presents itself' as a result of the player's absorption. Through presentation, play is opened out to an audience, with the result that they are drawn into the play, and become part of it. This is particularly evident in the theatrical play of appearance, which is one of the four types of play described by Roger Caillois.<sup>134</sup> Here gestures are altered to suggest that a different character is being presented through the body. Combined with the 'interplay' of body and objects, this leads to an 'object hermeneutics,' through which artifacts engage with the body in the expression of character. It is this form of 'presentation,' it will be argued, that informs the use of anthropomorphism in architecture.

---

<sup>133</sup> Huizinga, J. *Homo Ludens: A Study of the Play Element in Culture*, translated by R.F.C. Hull, London: Routledge and Kegan Paul, 1949.

<sup>134</sup> Roger Caillois, *Man, Play and Games*, translated by Meyer Barash, New York: Free Press, 1961.

## Chapter 2

# **Anatomy and Anthropomorphism: Architecture and the Dialectics of Unity**

The whole of (social) space proceeds from the body, even though it so metamorphoses the body that it may forget it altogether—even though it may separate itself so radically from the body as to kill it.

Henri Lefebvre.<sup>1</sup>

### **Vitruvian Bodies**

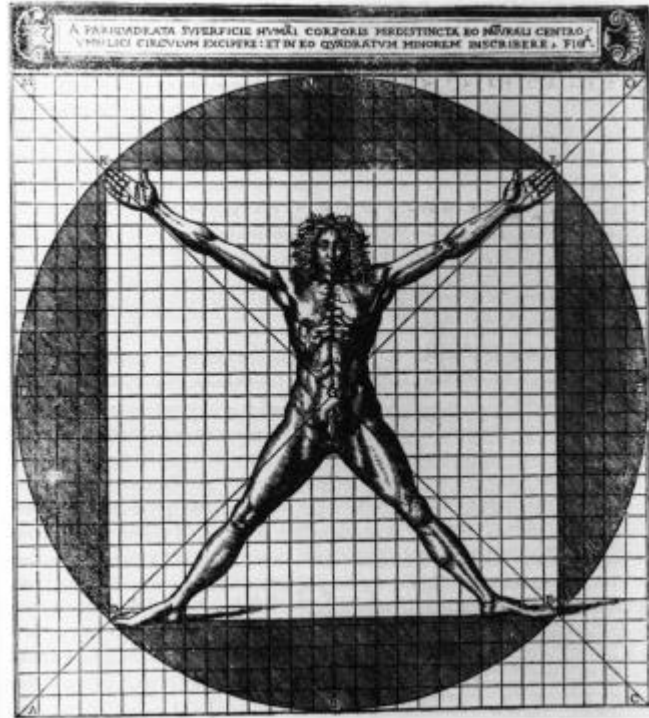
As the oldest surviving architectural text, Vitruvius' *Ten Books* has provided a foundation for all subsequent architectural theory. Of all the contents of the text, it is the description of a body circumscribed by circle and square that has become the most recognisable element of Vitruvian theory. Our image of this figure, of 'Vitruvian Man,' comes to us not from the original *Ten Books*, received as it was without illustrations. It comes instead from the many versions drawn during the Renaissance, by architects such as Cesare Cesariano, Francesco di Giorgio Martini, and of course, Leonardo Da Vinci. Although a common rhetorical trope, Vitruvius' comparisons between body and building gave rise to an image that, according to Rudolf Wittkower, haunted the imagination of

---

<sup>1</sup> Henri Lefebvre, *The Production of Space*, Translated by Donald Nicholson-Smith, Oxford, UK; Cambridge, Mass.: Blackwell, 1991, p. 405.

Renaissance architects.<sup>2</sup> Since then it has come to represent Renaissance humanism, and the importance of the body of man as both a manifestation of cosmic order and the source of immense creative powers. The idealised physique of Vitruvian Man provided a source of proportion and composition that enabled architects to impart a measure of divine perfection to their work.

But there are other bodies to be found in Vitruvius. There are the bodies of the first humans who discovered fire and began to build shelter, whose upright stance and dexterous hands distinguished them from savage beasts.<sup>3</sup> There is the body of the architect, whose hands and mind provide the craftsmanship and technology necessary for good design.<sup>4</sup> There are the gendered bodies of the orders; the masculine Doric, the feminine Ionic, and the ‘maidenly’ Corinthian.<sup>5</sup> There is the ‘body’ of knowledge that an architect requires, bringing together a scientific and a liberal arts education. Countering the possible objection that the variety of subjects needed to be studied by an architect is too large,



**Figure 2:** Woodcut from Cesare Cesariano’s edition of Vitruvius’ *Ten Books*, Como, 1521. (As published in Rykwert, *The Dancing Column*, p. 89.)

<sup>2</sup> Rudolf Wittkower, *Architectural Principles in the Age of Humanism*, fourth edition, London: Academy Editions, 1988, p. 14.

<sup>3</sup> Vitruvius *De Architectura*, 2.1.1-9; pp. 77-87.

<sup>4</sup> Vitruvius *De Architectura*, 1.1.1-18; pp. 9-25. “He should be a man of letters, a skilful draughtsman, a mathematician, familiar with historical studies, a diligent student of philosophy, acquainted with music; not ignorant of medicine, learned in the responses of jurisconsultants, familiar with astronomy and astronomical calculations.” p. 9.

<sup>5</sup> Vitruvius *De Architectura*, 4.1.1-12; pp. 203-211.

Vitruvius argues that they must be perceived as interconnected, “For a general education is put together like one body from its members.”<sup>6</sup> And finally, there is the body susceptible to excesses of heat and cold, to the injurious effect of moisture, or threatened by the pestilential breath of marsh animals.<sup>7</sup> The choice of site for any building, according to Vitruvius, is primarily a matter of salubrity, avoiding dampness and foul winds.<sup>8</sup> To understand the healthiness of a site, the reliability of its food and water supply, Vitruvius recommends ‘the old method,’ the ancient practice of sacrificing animals found grazing in the area and inspecting their livers (haruspication or hepatoscopy).<sup>9</sup> In Chapter 6 of Book 1, the layout of the streets of any city is said to affect the health of its inhabitants. Streets may be arranged so as to exclude unpleasant, infectious, and injurious winds, allowing a ‘smooth and thick air’ to develop, nourishing and refreshing those who are healthy, and expediting the cure of those undertaking medical treatment.<sup>10</sup>

For Vitruvius, healthiness comes from the relationship between a body and its environment, mediated by what he calls ‘natural decor.’ In Chapter 2 of Book 1, architecture is described as consisting of the following: Order, Arrangement, Proportion,

---

<sup>6</sup> Vitruvius *De Architectura*, 1.1.11; p. 17.

<sup>7</sup> Vitruvius, *De Architectura*, 1.4.1-8; pp. 35-41.

<sup>8</sup> Vitruvius, *De Architectura*, 1.4.1-8; pp. 35-41. “In the case of the walls these will be the main points:—First, the choice of the most healthy site.”

<sup>9</sup> Vitruvius, *De Architectura*, 1.4.9; pp. 41-43. “Therefore emphatically I vote for the revival of the old method. For the ancients sacrificed the beasts which were feeding in those places where towns or fixed camps were being placed, and they used to inspect the livers, which if at the first trial they were livid and faulty, they went on to sacrifice others, doubting whether they were injured by disease or faulty diet. When they had made trial of many, and had tested the entire and solid nature of the livers in accordance with the water and pasture they established there the fortifications; if however, they found them faulty, by analogy they judged: that the supply of food and water which was to be found in these places would be pestilential in the case of human bodies.”

<sup>10</sup> Vitruvius, *De Architectura*, 1.6.1-3; pp. 53-57. “When the walls are set round the city, there follow the divisions of the sites within the walls, and the layings out of the broad streets and the alleys with a view to aspect, these will be rightly laid out if the winds are carefully shut out from the alleys. For if the winds are cold they are unpleasant; if hot they infect; if moist, they are injurious. [...] Suppose they are excluded. Not only will this render a place healthy for sound persons; but also if any diseases shall happen to arise from other infections, those who in other healthy places find cure from counteracting medicine, in these, on account of the moderate climate and by the exclusion of the winds, will be still more quickly cured. For the diseases which are cured with difficulty in the regions which are described above are these: cold in the windpipe, cough, pleurisy, phthisis, spitting of blood, and others which are cured by strengthening remedies rather than by purgings. These ailments are treated with difficulty, first because they are caught from chills, secondly because when the strength is worn out by disease the air is agitated; it is thinned by the agitation of winds; at the same time it draws the sap from diseased persons and renders them thinner. On the other hand, a smooth and thick air which is free from the passage of draughts and does not move backwards and forwards, builds up their limbs by its steadiness, and so nourishes and refreshes those who are caught by these diseases.”



Symmetry, Decor, and Distribution.<sup>11</sup> ‘Decor’ involves the correct choice of details for the temples of each of the various gods, made according to convention, or custom, or nature.<sup>12</sup> ‘Natural decor,’ however, consists of the choice of suitably healthy sites, with temples of healing gods requiring a good water supply to facilitate recovery from illness.<sup>13</sup> The correct choice of site also allows rooms to be oriented to achieve appropriate daylight.<sup>14</sup> While natural decor determines the appropriate relation to site in order to ensure the health of its inhabitants, decor based on convention and custom ensures that the ornamentation correctly expresses the character of the god to whom the temple is dedicated, and moreover, that it is followed consistently throughout the work to prevent causing offence.<sup>15</sup> Unlike the meaning of ‘decor’ as visual beauty, Vitruvius’ use of the term is generally understood to mean the more common ‘decorum’ or propriety, addressed in contemporary texts on poetics and rhetoric, especially Cicero’s *De oratore* and *De officiis*, as well as Greek texts, most notably Aristotle’s *Poetics*.<sup>16</sup> The allusion to rhetoric makes decor a form of expression, demanding an appropriateness of style depending on the orator, audience, and subject matter. Moreover, that expression takes on a moral dimension, as decorum, or in Greek *prepon* (‘propriety’), determines what is natural and fitting for each person to do, and that their actions correspond to both the social and the natural order. According to Vesely, it is

---

<sup>11</sup> Vitruvius, *De Architectura*, 1.2.1-7; pp. 25-36.

<sup>12</sup> Vitruvius, *De Architectura*, 1.2.5-7; pp. 27-29. “Decor demands the faultless ensemble of a work composed, in accordance with precedent, of approved details. It obeys convention, [...] or custom, or nature.”

<sup>13</sup> Vitruvius, *De Architectura*, 1.2.7; pp. 29-31. “There will be a natural decor: first, if for all the temples there shall be chosen the most healthy sites with suitable springs in those places in which shrines are to be set up; secondly and especially for Aesculapius and Salus; and generally for those gods by whose medical power sick persons are manifestly healed. For when sick persons are moved from a pestilent to a healthy place and the water supply is from wholesome fountains, they will more quickly recover.”

<sup>14</sup> Vitruvius, *De Architectura*, 1.2.7; p. 31. “Also there will be natural seemliness if light is taken from the east for bedrooms and libraries; for baths and winter apartments, from the wintry sunset; for picture galleries and the apartments which need a steady light, from the north, because that quarter of the heavens is neither illumined nor darkened by the sun’s course but is fixed unchangeable throughout the day.”

<sup>15</sup> Vitruvius, *De Architectura*, 1.2.7; p. 31. “Again, if in Doric entablatures, dentils are carved on the cornices, or if with voluted capitals and Ionic entablatures, triglyphs are applied, characteristics are transferred from one style to another: the work as a whole will jar upon us [*offendetur*], since it includes details foreign to the order.”

<sup>16</sup> See Onians, *Bearers of Meaning*, pp. 36-39; Vesely, “Architecture and the Poetics of Representation”; and Peter Kohane and Michael Hill “The eclipse of a commonplace idea: decorum in architectural theory,” *ARQ: Architectural Research Quarterly*, 5/1, 2001, pp. 63-77.

through decorum or propriety that architecture is able to participate in the order of reality, and is able to represent that order by making it manifest in the sensible realm.<sup>17</sup>

Through the principle of *decor*, Vitruvius connects the health of the body to its symbolic significance. Threatened by the ill effects of nature, the body must be contained and protected by buildings, and is dependent upon their correct execution in order to reduce that threat. This body is ever vulnerable to the fragmenting effects of chaos and violence. The symbolic body, however, demonstrates that the unity and integrity of the body is intact, that its internal order is in accordance with the order of nature. The symbolic body, as a model of unity used to determine architectural composition, transcends the work of architecture. As Victor Burgin writes, “[...] the body *contains* the very generating principle of the building.”<sup>18</sup> Through decorum, architecture makes manifest the correspondence between internal and external order, acting as a representation of that order in the material world. It is the relationship between these two bodies, the symbolic and the physical, that can be seen to change throughout the history of architectural theory. In the use of the body as a compositional or symbolic referent, architects have frequently been influenced by the various attempts to discover the order of reality occurring within the body. By turning to contemporaneous understandings of the body in medicine and science, architects have maintained a tension between the body as both unified and fragmented, between buildings that are contained by bodies, and bodies that are contained by buildings.

The metaphor of body as building is dependent upon the expressive function of architecture, that is, its relation to language, through which the body emerges as a model of unity. As microcosm, the body demonstrates a unity that is the source of beauty, and therefore to be imitated in the various arts. In book eight of the *Poetics*, Aristotle describes the principle of unity of plot, described as a structural union of parts such that if any one is displaced or removed the whole will be disjointed or disturbed. For Aristotle, the whole is an organic assembly of parts such that no part can be added nor taken away without

---

<sup>17</sup> Vesely writes: “In its fully articulated sense, [*prepon*] means an harmonious participation in the order of reality and in the outward expression of that order. The outward expression does not refer to mere imitation or representation of order which is already familiar to us. It implies rather that order is represented in such a way that it becomes conspicuous and actually present in sensual abundance.” Vesely, “Architecture and the Poetics of Representation,” p. 29.

<sup>18</sup> Victor Burgin, “The City in Pieces,” in Gabriel Brahm Jr. and Mark Driscoll (eds), *Prosthetic Territories: Politics and Hypertechnologies*, Boulder: Westview Press, 1995, pp. 5-20, p. 6.

detracting from it.<sup>19</sup> Applied to the body, this principle of unity is dependent upon the soul. For Aristotle, all living things are animated by a soul; man differs from animals in possessing the capacity for reason, but both are alive because they are permeated by a soul.<sup>20</sup> The soul is not transcendent, but is to be found within, immanent in each and every living being. In its most basic form, the soul is nutritive or vegetative, that is, it is able to feed and reproduce itself. The soul of animals is further capable of perception and sensation, for which it uses the organs of the (animal) body. In order to understand the soul, Aristotle anatomised the bodies of animals, taking them apart in order to understand the purpose of each part. This is explained as follows: ‘Now, as each of the parts of the body, like every other instrument, is for the sake of some purpose, viz., some action, it is evident that the body as a whole must exist for the sake of some complex action. Just as the saw is there for the sake of sawing and not sawing for the sake of the saw, because sawing is the using of the instrument, so in one way the body exists for the sake of the soul, and the parts of the body for the sake of those functions to which they are naturally adapted.’<sup>21</sup> The soul is the purpose for which the body exists; and since the parts, naturally adapted to their functions, combine to form the whole, their purposes contribute to the expression of the soul through the body.

## Sacrificial Bodies

The myth of origins told by Vitruvius has reappeared many times in architectural theory, often interpreted through the idea of the ‘primitive hut.’<sup>22</sup> These explanations of

---

<sup>19</sup> Aristotle, *Poetics*, Chapter VIII: Unity of Plot. “As therefore, in the other imitative arts, the imitation is one, when the object imitated is one, so the plot, being an imitation of an action, must imitate one action and that a whole, the structural union of the parts being such that, if any one of them is displaced or removed, the whole will be disjointed and disturbed. For that which may be present or absent without being perceived, is not an organic part of the whole.” Aristotle *The Poetics of Aristotle*, translated by S. H. Butcher, London; New York: MacMillan, 1895, p. 33.

<sup>20</sup> Aristotle, *On the Soul*, 404 b, p. 23.

<sup>21</sup> Aristotle, *The Parts of Animals*, 1.5; translated by A.L. Peck, London: Heinemann, 1937, p. 103. See also Philip Steadman, *The Evolution Of Designs: Biological Analogy in Architecture and the Applied Arts*, Cambridge; New York: Cambridge University Press, 1979, p. 10.

<sup>22</sup> Vitruvius, *De Architectura*, 2.1.1-1.8; pp. 77-87. See also Joseph Rykwert, *On Adam’s House in Paradise: The Idea of the Primitive Hut in Architectural History*, New York: Museum of Modern Art, 1972; R.D. Dripps, *The First House: Myth, Paradigm, and the Task of Architecture*. Cambridge, Mass.: MIT Press, 1997.

architecture's emergence from ritual, symbolism, or technology (fire) describe how the needs, actions, or limits of the body were transformed into practices of making and decoration. The frequent return to origins suggest that such practices must continually be revalidated, their meaning reaffirmed in relation to prevalent belief.<sup>23</sup> More recently, Rykwert has described how the ornamentation to be found in architecture, especially that of columns, originates in the markings of the body made during initiation rites. These markings, achieved through practices such as scarifying, circumcision, or tattooing, signify the body's separation from an unreflective engagement with the natural world.<sup>24</sup> The marking of the body had to be, writes Rykwert, both memorable and evident, a rite of passage into a society in which the self may be understood through association with others. For this reason, the marking occurs through rituals of mutilation or torture, giving rise to such an acute experience of pain that the body is conceptually separated from the natural world. The markings transform the surface of the body into a radical discontinuity, bringing to presence the experience of pain in the form of traces on the body that are amenable to interpretation. Those traces continue to emphasise the alterity of the body, its existence as a cultural artifact. That alterity is further emphasised by markings, especially tattoos, which provide a map or password for the soul's journey into the afterlife. Rykwert describes how Queequeg, the Polynesian mariner in Herman Melville's *Moby Dick*, carves his coffin with the same markings that appear on his body, their pattern presenting a theory of heaven and earth.<sup>25</sup> Similarly, the process of marking the body is transferred to the objects used to mark out ground, themselves an analogue of the body's orientation in and inhabitation of space.<sup>26</sup>

The violence of ritual is also transformed into ornament through practices of commemoration. "Architects ought to be familiar with history," writes Vitruvius, "because in their works they often design many ornaments about which they ought to render an account

---

<sup>23</sup> "The return to origins always implies a rethinking of what you do customarily, an attempt to renew the validity of your everyday actions, or simply a recall of the natural (or even divine) sanction for your repeating them for a season." Rykwert, *On Adam's House in Paradise*, p. 192.

<sup>24</sup> Rykwert, *The Dancing Column*, p. 118.

<sup>25</sup> Rykwert, *The Dancing Column*, p. 119.

<sup>26</sup> "The planting of a post is a primal gesture—the ability to orientate ourselves, to know the orthogonality of our body to the ground, is a condition of our being." Rykwert, *The Dancing Column*, p. 119-122.

to inquirers.”<sup>27</sup> In his descriptions of caryatids, marble statues of long robed women used as columns, Vitruvius reveals a familiarity with architecture’s violent origins. The Greeks, having defeated the Peloponesian state of Caria, enslaved the women as a warning. The architects of the time transformed images of the women into columns, thereby making their punishment visible to others.<sup>28</sup> Similarly, after the Spartans defeated the Persians, a colonnade was erected.<sup>29</sup> From the violence of battle, in which the bodies of men are brutally sundered, comes the erection of trophies; the demonstration of victory represented in ornament. Transformed into ornament, these bodies describe the victory of the winners, and the suffering of the losers. As columns, the captives are condemned forever to bearing the weight of the building above. These strategies of commemoration are typical of acts of destruction and reconstruction in classical ritual. The violence of hunting or war, by compromising the unity of animal or human bodies, was regarded as a threat to natural order. Rituals of reassembly were necessary in order to appease the gods, and to bring them to presence in the mortal world.<sup>30</sup> The partition and reassembly of the victim’s body helps to overcome the limitation of mortality, the separation from the world of the gods. But it also overcomes the limitation of embodiment, the separation of individuals from each other. Sacrifice enacts a ritual of sharing a divided body, thus uniting worshippers as one body. The act of communion, of consuming the partitioned body of the sacrificial victim, enables the presence of the god to permeate each of the bodies of those present, uniting them together into a community.

The tokens or tropes of reassembled bodies used to mark battlefields and hunting grounds were also used to mark, or decorate, temples. According to George Hersey, this

---

<sup>27</sup> Vitruvius *De Architectura*, 1.1.5; p. 9.

<sup>28</sup> “And so the architects of that time designed for public buildings figures of matrons placed to carry burdens; in order that the punishment of the sin of the Cariatid women might be known to posterity and historically recorded.” Vitruvius *De Architectura*, 1.1.5; p. 11.

<sup>29</sup> “There they placed statues of their captives in barbaric dress—punishing their pride with deserved insults—to support the roof, that their enemies might quake, fearing the workings of such bravery, and their fellow-citizens looking upon a pattern of manhood might by such glory be roused and prepared for the defence of freedom.” Vitruvius *De Architectura*, 1.1.6; p. 11.

<sup>30</sup> See Walter Burkert, *Homo Necans: The Anthropology of Ancient Greek Sacrificial Ritual and Myth*, translated by Peter Bing, Berkeley, University of California Press, 1983. “Time and time again in myth, the remnants of a victim torn apart are collected, deposited, brought back to life.” p. 232.

can be seen as one of the primary sources of ornament.<sup>31</sup> Ornament can serve to immortalise the victims of war, or it can commit to stone a record of the outcome as confirmation of the propriety of suffering.<sup>32</sup> Yet the demonstrative nature of literal figures is but a part of a larger didactic role of ornament within architecture. Hersey argues that ornament, rather than a remnant of obsolete construction techniques, is a ‘trope’ of social, political, economic, and religious events, allowing them to be understood through bodily metaphors.<sup>33</sup> Far from mere embellishment, ornament was an essential part of the acts of partitioning and reassembly necessary for the erection of buildings. This occurred firstly in sacred groves, where the trees, (also thought to contain gods) were decorated with sacrificial offerings. Such decorations continued as trees were transformed into columns, and the first temples constructed. Along with the bodies of victims, the communion of sacrifice was able to endure in the details of the temple. These arose initially from the transformations of body parts, with teeth, bones, and skins becoming dentils, triglyphs, and tympana. Details also arose from the decorations associated with sacrifice. Torus mouldings at the base of columns evolved from ropes used to bind feet, and capitals were derived from ceremonial headdress.<sup>34</sup> Another important aspect of detailing was the protection of life-giving fluids drained from the victim. Forms of ornament that are today referred to as ‘weathering,’ serving to drain water away from the surface of a building, originated in the channels carved to collect blood, wine and other offerings. Collecting these fluids was essential, since they were considered to be the very force of life of the body from which they had been drained.<sup>35</sup>

---

<sup>31</sup> George Hersey, *The Lost Meaning of Classical Architecture: Speculations on Ornament from Vitruvius to Venturi*, Cambridge, Mass.: MIT Press, 1988.

<sup>32</sup> “Caryatids, prisoners, herms, terms, atlantes, and Doric, Ionic, and Corinthian columns were set up as freestanding monuments throughout the Roman empire, presumably as monuments to the ancestral justice done against treachery. One might call them trophies of the battle against civil disorder. This practice, says Cesare, constituted a form of public instruction known as stylography—literally, teaching or demonstrating via columns.” Hersey, *The Lost Meaning of Classical Architecture*, p. 126.

<sup>33</sup> Hersey, *The Lost Meaning of Classical Architecture*, pp. 1-10.

<sup>34</sup> Hersey, *The Lost Meaning of Classical Architecture*, pp. 11-45.

<sup>35</sup> “The water had to be extruded, just as soul, life-force, strength, sexual ability, and other god-given powers were conceived as fluids to be absorbed by, or removed from, the human body.” Hersey, *The Lost Meaning of Classical Architecture*, p. 40.

Other explanations can also be found connecting the body to the origins of architecture, especially those of the clearing or *chora*, the sacred glade or dancing ground.<sup>36</sup> Yet what the tropes of ritual and sacrifice suggest is a range of dualities by which architecture relates directly to the body. Both bodies and buildings appear as a unified whole, yet one that is made up of parts. In the body, that unity depends upon a soul, while the use of sacrificial bodies to validate constructed edifices suggests a need for buildings to possess some equivalent measure of that vital force.<sup>37</sup> Both bodies and buildings are liable to fragmentation, to a loss of unity, and a consequent loss of vital force. Principles of decorum, by their connection to rhetoric, suggest that bodies and buildings are amenable to interpretation, and thus appear as both object and text. What makes them legible are markings on the surface, markings that represent or make manifest invisible depths, especially the depths of the soul and its susceptibility to suffering. Through all of these dualities—part and whole, unity and fragmentation, living and dead, object and text, surface and depth—the body becomes a model for buildings in terms of their relation to both social and natural order. They do so by demonstrating an engagement in rituals of commemoration, practices which acknowledge suffering and attempt to give it meaning.

---

<sup>36</sup> Alberto Pérez-Gómez, “Chora: The Space of Architectural Representation,” *Chora* 1, 1994, pp. 1-34. On the ‘clearing,’ see Martin Heidegger, “Building, Dwelling, Thinking,” in *The Question Concerning Technology and Other Essays*, translated by W. Lovitt, New York: Harper and Row, 1977.

<sup>37</sup> Frascari, *Monsters of Architecture*, p. 1.

## The Body Reborn

With the revival of classical texts during the Renaissance, Vitruvius' *Ten Books*, as the only surviving work on architecture, took on a great importance.

The first architectural text of the Renaissance, Leon Battista Alberti's *On the Art of Building in Ten Books*, appearing in full around 1452 (though not printed until 1486), contains extensive

allusion to and criticism of the Vitruvian original.<sup>38</sup> The notebooks of Francesco di Giorgio from the fifteenth century contain a version of the Vitruvian figure,

along with several studies of human proportion in relation to plans, facades, entablatures, and even whole cities. Publications of Vitruvius began with that by Fra Giocondo in 1511, soon followed by Italian translations by Fabio Calvi and Antonio da Sangallo.<sup>39</sup> Cesare Cesariano published an edition of Vitruvius in 1521, which also reflected the ideas of his teacher, Donato Bramante, while an academy dedicated to the study of Vitruvius was founded in 1542.<sup>40</sup> According to Rudolf Wittkower, the image of Vitruvian Man became the principal justification for the large number of centrally planned churches built from the late fifteenth to early sixteenth centuries, exemplified by Bramante's Tempietto, the basilica church of Saint Peter in Montorio, Rome (1502). Through the image of Vitruvian Man and the symbolism of the circle, Christian architecture was transformed from a representation of Christ crucified into a Platonic image of divine perfection, an earthly manifestation of an intelligible mathematical symbol.



**Figure 3: Vitruvian Figure.** Francesco di Giorgio: *Trattati*, vol 1, p. 68. Codex Ashburnam 361, 15v., Biblioteca Mediceo-Laurenziana, Florence. (As published in Rykwert, *The Dancing Column*, p. 60.)

<sup>38</sup> Leon Battista Alberti, *On the Art Of Building in Ten Books*, translated by Joseph Rykwert, Neil Leach, and Robert Tavernor, Cambridge, Mass.: MIT Press, 1988.

<sup>39</sup> Wittkower, *Architectural Principles in the Age of Humanism*, pp. 13-16.

<sup>40</sup> Wittkower, *Architectural Principles in the Age of Humanism*, p. 16.



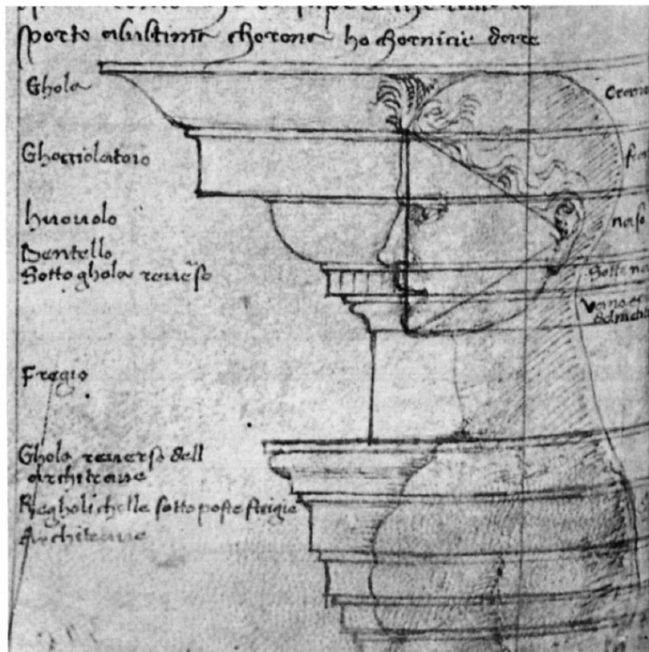


Figure 4: Body as ornament. Francesco di Giorgio: *Trattati*, vol 1, fig. 25; Codex Salluziano 148, 15v., Biblioteca Reale, Turin. (As published in Rykwert, *The Dancing Column*, p. 57.)

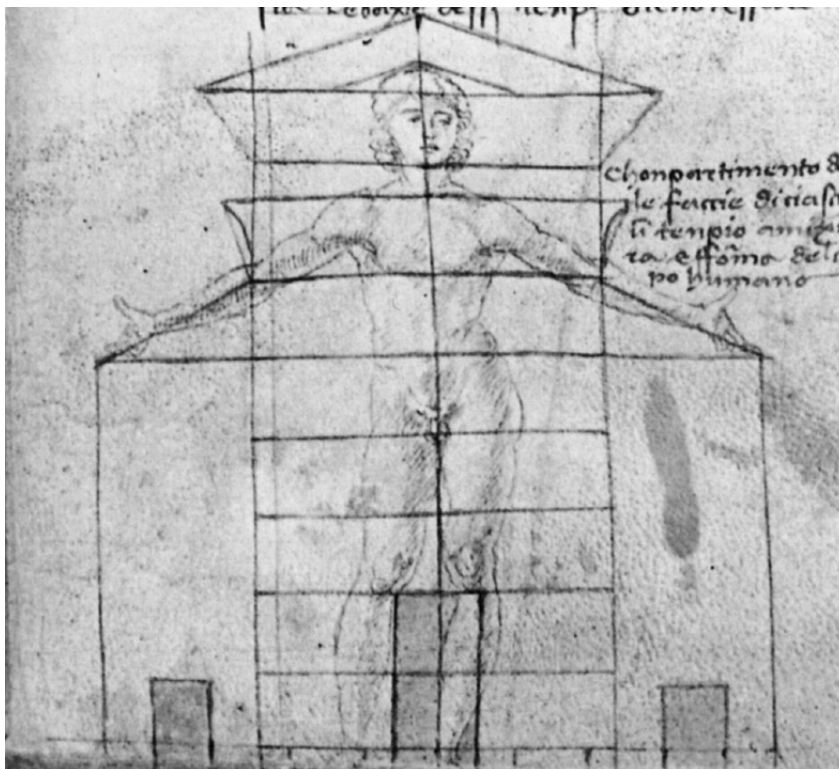


Figure 5: Body as façade. Francesco di Giorgio, *Trattati*, vol 1, p. 90. Codex Salluziano 148, 21v., Biblioteca Reale, Turin. (As published in Rykwert, *The Dancing Column*, p. 63.)

Another consequence of the renewed interest in ancient texts was the erection of theatres for the performance of classical drama and comedy, plays written by Aristophanes, Euripides, Aeschylus, and others. Alberti, for instance, designed a theatre in Rome for Pope Nicholas V in 1452, and devotes a section of *De re aedificatoria* to the design of theatres, circuses, and amphitheatres.<sup>41</sup> One new type of ‘performance’ undertaken in theatres was that of anatomical demonstrations, involving the dissection of corpses for the purpose of medical instruction. The first anatomy theatres were temporary structures made of wood, built either out of doors or within an existing building. The first permanent theatre, built in Padua in the 1580’s, was followed by a series of similar spaces throughout the academies of Europe. The use of theatres was in part necessitated by the popularity of these events. Initially, in academies such as Salerno where medicine was taught in the eleventh and twelfth centuries, anatomical demonstrations were made in lecture theatres using the bodies of pigs. But during the fourteenth century, demonstrations such as those by Mundinus at Bologna were made using human bodies. The dissection of corpses, having been discouraged for many centuries by the Catholic Church, was justified by using the bodies of criminals, as an extension of punishment inflicted through public acts of execution. By compromising Christian burial practices, partition of the body after death would prevent the soul of the criminal from ascending to heaven. These events were extremely popular, attracting an audience from the upper echelons of a class society, and attended by travellers, increasingly touring Europe as a cultural pursuit. In *The Body Emblazoned*, Jonathan Sawday argues that the work of the anatomists played heavily upon the popular imagination, evoking a combination of morbid and erotic fascination far beyond mere interest in the workings of the body.<sup>42</sup> Attached to centres of learning, anatomy theatres were afforded a high degree of respect, and began to form part of the network of cultural spaces by which cities were identified and differentiated. “The anatomy theatre was a register of civic importance, an index of the intellectual advancement of the community, an advertisement for a city’s flourishing cultural and artistic life.”<sup>43</sup>

---

<sup>41</sup> Alberti, *On the Art Of Building*, 8.7; pp. 268-278.

<sup>42</sup> Jonathan Sawday, *The Body Emblazoned: Dissection and the Human Body in Renaissance Culture*, London; New York: Routledge, 1995.

## The Fabric of the Body

As with architects, anatomists were limited to a single text received from the classical text, namely, the writings of Galen, a Roman physician from the second century AD. Lectures consisted of a presentation of anatomical knowledge, elaborated through Galen's text, in the context of philosophical instruction, based upon Aristotle's writings on the soul (*De Anima*). The anatomy lecture was a demonstration that was both medical and philosophical, to show the *body*, as described by Galen, as the place of the *soul*, explained through the writings of Aristotle. The format involved the professor, such as Mundinus, reading aloud from Galen and Aristotle. This was accompanied, or even followed, by the dissection of the body, performed by a surgeon over a period of several days. In this format, the professor did not need to engage with the corpse; it was merely there to confirm what appeared in the text. It was the text that was authoritative; there was nothing to be learnt from the body that did not already appear in writing. The sequence of dissection worked from the outside in, starting with those areas most liable to decomposition. However, this contrasts with Galen's suggestion that one should first learn about the bones, because they play the same role in the human body as walls do in houses.<sup>44</sup> Galen wrote:

“‘The nature of all the bones, as I said, is to be thoroughly learnt either from man, or from the body of the ape, or better from both. Then one should move on to the anatomy of the muscles. For these two parts of the body underlie all the others, like the foundations of a building.’”<sup>45</sup>

Comparisons between bodies and buildings occur frequently throughout Galen's text. Although a common rhetorical strategy, this may also be due to the fact that his father, Nicon of Pergamum, was an architect. Nicon, who also provided Galen's education, was connected with the building trade in the temple area of a town famous for its sanctuary of the healing god Asclepius.<sup>46</sup> Galen chose medicine, yet his writings on the body focus upon its

---

<sup>43</sup> Sawday, *The Body Emblazoned*, p. 42.

<sup>44</sup> Andrew Cunningham, *The Anatomical Renaissance: The Resurrection of the Anatomical Projects of the Ancients*, Aldershot: Scolar Press, 1997, p. 27.

<sup>45</sup> Galen, as cited in Cunningham, *The Anatomical Renaissance*, p. 27.

<sup>46</sup> Owsei Temkin, *Galenism: Rise and Decline of a Medical Philosophy*, Ithaca and London: Cornell University Press, 1973, p. 3.

structure, seen as an assembly of parts each of which is made to fulfil a particular purpose.<sup>47</sup> Although Galen was interested in human anatomy, much of his work was derived from the bodies of apes and other animals, since dissecting human bodies was not permitted in the Rome of his day. What knowledge of human anatomy he did gain came from skeletal remains or from treating the sick. At one point, Galen was appointed physician to the gladiators: a job which, remarks Porter, “enlarged his anatomical and surgical expertise, since wounds afforded windows onto the body.”<sup>48</sup>

Galen’s text, and the method of dissection recommended therein, were to form the foundation of anatomical practice during the Renaissance. His method, and the general format of anatomical lectures, was followed for over 200 years, until the dissemination of knowledge was fundamentally changed with emergence of printing during the fifteenth century.<sup>49</sup> Architectural and anatomical treatises were among the earliest printed books, published alongside classical works of literature and philosophy. Some appear to have shared the same illustrators, as images from Johannes de Ketham’s *Fasciculo di Medicina* (Venice, 1493) and the first edition of *Hypnerotomachia Poliphilo*, published at the press of Aldus Manutius in 1499, suggest.<sup>50</sup>

---

<sup>47</sup> “The thesis that Galen maintains in *On the use of parts* is that all the parts of the human body were made for a purpose; that they were made in the best way to fulfil that purpose; that this purpose is the evidence for, and the expression of, Nature’s foresight and wisdom; and that anatomizing to reveal the *uses* of the parts is the key to both understanding and appreciating that purpose and hence the wisdom of nature.” Cunningham, *The Anatomical Renaissance*, p. 30.

<sup>48</sup> Porter, *The Greatest Benefit to Mankind*, p. 73.

<sup>49</sup> On the influence of printing, see Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-modern Europe*, Cambridge: Cambridge University Press, 1979.

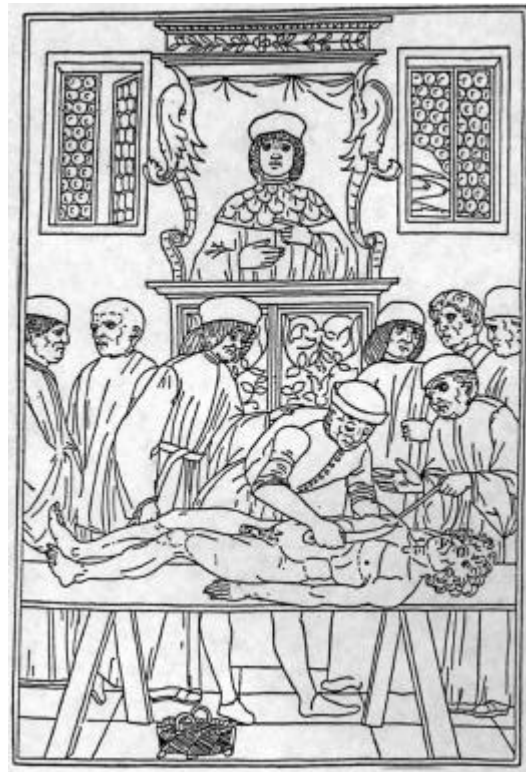
<sup>50</sup> I am grateful to John MacArthur for pointing this out. On the woodcuts of the *Hypnerotomachia*, see Lefavre, *Leon Battista Alberti’s Hypnerotomachia Poliphili*, passim.



Figure 6: Image from Colonna, *Hypnerotomachia Poliphilo*, Venice, 1499, p. a7 (Chapter 1 p. 13).

*Similar illustration styles used for both architectural and medical treatises.*

Figure 7: Image from *Fasciculus di Medicina*, Venice, 1493. (As published in Cunningham, *Anatomical Renaissance*, p. 45.)



But the greatest work of anatomical illustration during the Renaissance, published in 1543, was *De Humani Corporis Fabrica* by Andreas Vesalius (1514-1564). Vesalius first studied medicine at Paris, then went on to Padua, where he was appointed demonstrator or surgeon. He quickly gained recognition for his skills at dissecting, and the drawings he made to assist the demonstration proved popular with the students. This inspired him to publish woodcuts, for which he enlisted the help of Johannes Stephanus of Calcar, a student of Titian.<sup>51</sup> These images, used by Vesalius to illustrate the *Fabrica*, differ markedly from those used up until that time. Prior to the Renaissance, anatomical knowledge had been illustrated with internal elements—heart, lungs, veins, etc.—drawn directly onto the body. The figures, still alive, peer out of the page toward the reader, with their internal workings visible on the surface. This imparts an odd transparency to the bodies, with interior and exterior visible at the same time.<sup>52</sup> In comparison, the images in Vesalius' text appear more realistic, more accurate as a description of the body interior. But this is only possible because the images owe as much to the means of inquiry as to the body itself. The images in the *Fabrica*, and in many contemporary anatomical texts, make the interior visible by *opening* the body; the skin is shown as cut and folded back. Thus the *act* of dissection is described along with the results. To render the interior of the body using perspective, it is first necessary to overcome both its opacity and its compaction. That is, the body must be *spatialised*, opened and partitioned by the hand so that the eye can follow. This spatialisation transformed the body from a compounded mass into an arrangement of parts whose relative positions could be shown.<sup>53</sup> The three-dimensional complexity of the body, the depth beneath the surface, is rendered as a two dimensional image through a combination of dissection and perspective representation.<sup>54</sup> The penetration of vision into the body interior is only possible when preceded by the hands. The discontinuity of surface is lost as the interior of the body is revealed as an apportionment

---

<sup>51</sup> Cunningham, *The Anatomical Renaissance*, p. 93.

<sup>52</sup> “[T]he body is rendered oddly transparent—we are able to see both the exterior and the interior at the same time. It is as though the artist is allowing us to peer *through* the body’s surface, rather than *into* its structures.” Sawday, *The Body Emblazoned*, p. 102.

<sup>53</sup> “The body, then, has been carefully rearranged, with structures removed, or pushed to one side, or ‘fractured’ to enable art to intervene within the body cavity.” Sawday, *The Body Emblazoned*, p. 101.

<sup>54</sup> Sawday, *The Body Emblazoned*, pp. 95-97.

of space. The interior space of the body is rendered contiguous with space outside the body, and becomes metonymic of space in general.<sup>55</sup>

The importance of spatial continuity between interior and exterior is further revealed in illustrations showing flayed corpses standing in idyllic landscapes. Intended to show musculature, a crucial element of the fabric of the body, the images do away with the enclosure of the skin by omitting it altogether. But more important is the fact that the figures appear to be alive, adopting the poses of classical statuary, unperturbed by their condition. In their equanimity, the figures reveal a complicity in their own dissection. Sometimes this complicity is more literal, as figures hold back their own skin to reveal interior organs.

In this way, the anatomists' involvement with death is effaced by the significance of what they reveal. The knowledge they obtained, although extracted from corpses, provides the secrets to the operation of the living body, the secrets of life itself. The images show a corpse that is neither a passive nor reluctant subject of anatomisation, but is instead an accomplice to the



**Figure 8: Dissected figure from Vesalius, *De Humani Corporis Fabrica*, 1543, Book II, Tab.**

**II. The juxtaposition of corpse and ruin implies an uncovering of structural order.**

---

<sup>55</sup> “Space, the positioning of the body within a three-dimensional matrix, was the key to anatomical understanding. [...] The study of anatomy *was* the study of the organization of space.” Sawday, *The Body Emblazoned*, p. 86.

process of revealing its internal fabric.<sup>56</sup> The absence of the anatomist from the images further emphasises this ‘rhetoric of self-dissection.’ The violence of anatomy is obviated as the corpse is shown to willingly give up its secrets, without suffering. The ‘naturalness’ of the process is asserted, where the body, despite being dissected, is able to retain its place amongst the world of the living. The classical ruins within the landscape emphasise the continuity of the anatomical knowledge with that of the ancients, whilst also stressing the inevitability of death and decay, the mutability of human affairs.<sup>57</sup>

In the rich symbolism that is the frontispiece of Vesalius’ *Fabrica*, the setting itself is made complicit in the demonstration. At the centre of the image, Vesalius, flanked by Galen and Aristotle, can be seen holding back the skin of a dissected corpse. The scene takes place inside what appears to be a circular basilica. Most theatres at the



**Figure 9: Frontispiece from Vesalius, *De Humani Corporis Fabrica*, 1543.** *The setting, like the body at its centre, appears to have been dissected.*

time were circular or ovoid in plan, a geometry that derives in large part from the position of the body at its centre. Unlike other theatres, the point of focus, the corpse, lay flat, and was thus visible from above, and from all directions.

<sup>56</sup> “Anatomy is shown to be a science which (contrary to what we might expect) seems to animate the body, and endow it (albeit temporarily) with a life of its own so that it could assist in the engaging spectacle of its own division.” Sawday, *The Body Emblazoned*, p. 113.

<sup>57</sup> Sawday, *The Body Emblazoned*, p. 115.



However, at the top corners, the entablature can be seen to turn outwards, as though the building has itself been sectioned. Sawday argues that the frontispiece depicts a ‘cross-section’ of an anatomy demonstration: “It is as though the complete structure, the surrounding basilica [...] with its massive architectural supports, together with the concentric rings of benches, has been cross-sectioned along the diameter which passes through the cadaver.”<sup>58</sup> This in part a pictorial device, allowing the tableau to be presented for the purposes of instruction. Yet it also asserts that the mysteries of a building’s internal structure can be exposed to view in the same way as those of the body.

## Renaissance Bodies

For architects of the Renaissance, these changes to the understanding and representation of the body were not without influence. Joseph Rykwert suggests that the use of the term ‘fabric’ in the Vesalian title coincides with a shift in attitude toward making, from the determination of outward appearance to the production of a whole shown in its various divisions and complex workings.<sup>59</sup> This shift, according to Rykwert, occurs in a period of about two centuries following the early writings of Alberti. In early parts of *De re aedificatoria*, written around the 1440’s, Alberti is careful to distinguish the architect from the carpenter [*fabrum*], who is merely an instrument in the hands of the architect.<sup>60</sup> For

---

<sup>58</sup> Sawday, *The Body Enblazoned*, p. 67. Sawday suggests that the illustration is based upon Bramante’s Tempio, a symbol uniting Christian sacrifice (martyrdom) and divine order through the image of the body. The sectioning of both body and building challenge the Copernican view of the universe, which had been published earlier the same year, instead positing the womb, our point of origin, as the centre of the universe. (pp. 70-71.) On the relation between Vesalius and Copernicus, see also Martin Kemp, “Temples of the Body and Temples of the Cosmos: Vision and Visualisation in the Vesalian and Copernican Revolution,” in Brian S. Baigrie (ed.) *Picturing Knowledge: Historical and Philosophical Problems Concerning the Use of Art in Science*, Toronto; Buffalo: University of Toronto Press, 1996, pp. 40-85.

<sup>59</sup> Joseph Rykwert, “Body and Mind,” *Storia Delle Idee Problemi e Perceptive Seminario Inter* 49, October 1987, pp. 157-168. Rykwert writes: “[...] the remarkable and unchronicled change in the implication of the word *fabrica* seems to me to provide a useful comment on the changing role of architecture – and I would say, by a necessary analogy a change in our valuation of building and of the place of our bodies within them. And I would even hazard a generalization at this point: that the terms in which we describe world order, buildings, and our bodies form a constant metaphoric chain, whose shifts and deformations have their effect in our sociology and our medicine as well as in our architecture.” p. 159.

<sup>60</sup> “I should explain exactly whom I mean by an architect; for it is no carpenter that I would have you compare to the greatest exponents of other disciplines: the carpenter is but an instrument in the hands of the architect. Him I consider the architect, who by sure and wonderful reason and method, knows both how to devise through his own mind and energy, and to realize by construction, whatever can be

Alberti, architecture is an intellectual pursuit, for which the architect “[...] must have understanding and knowledge of all the highest and most noble disciplines.”<sup>61</sup> The distinction is further emphasised by the difference between the two elements of which the aesthetic appearance of a building is said to consist: *Beauty* and *Ornament*. In a clear debt to Aristotle, Alberti defines Beauty as follows:

“Beauty is that reasoned harmony of all the parts within a body so that nothing may be added, taken away, or altered, but for the worse.”<sup>62</sup> Beauty is the most noble, inherent in the object considered beautiful, while ornament is merely auxiliary or complementary, an attachment or addition to beauty.<sup>63</sup>

For Alberti, the source of beauty is nature, to be found not only in the human body, but in the bodies of animals.<sup>64</sup> In Alberti’s text, many of the Vitruvian principles are reiterated, including the account of the human body as the origin of the orders. Metaphors of bodily structure, however, are more extensive, suggesting a reasonable knowledge of Galenic anatomy. He even cites Galen, although this is only in order to describe a fever frequently afflicting the citizens of Rome.<sup>65</sup> Alberti’s descriptions of construction techniques make frequent metaphorical reference to the body, comparing parts of buildings to bones, ligaments, flesh, and nerves.<sup>66</sup> The bodies of animals demonstrate the ingenuity of Nature in several ways. Firstly, they provide a model of structural stability, with bones all linked to each other and bound fast with muscles and ligaments, enabling the whole arrangement to

---

fitted out for the noble needs of man, by the movement of weights and the joining and massing of bodies.” Alberti, *On the Art Of Building in Ten Books*, prologue, p. 3.

<sup>61</sup> Ibid., p. 3.

<sup>62</sup> Alberti, *On the Art Of Building in Ten Books*, 6.2; p. 156.

<sup>63</sup> “[...] ornament may be defined as a form of auxiliary light and complement to beauty. From this it follows, I believe, that beauty is some inherent property, to be found suffused all through the body of that which may be called beautiful; whereas ornament, rather than being inherent, has the character of something attached or additional.” Alberti, *On the Art Of Building in Ten Books*, 6.2; p. 156.

<sup>64</sup> “The great experts of antiquity [...] have instructed us that a building is very like an animal, and that Nature must be imitated when we delineate it.” Alberti, *On the Art Of Building in Ten Books*, 9.5; p. 301.

<sup>65</sup> Alberti, *On the Art Of Building in Ten Books*, 1.5; pp. 16-17.

<sup>66</sup> Alberti, *On the Art Of Building in Ten Books*, 3.14; pp. 85-86. “The same method of construction should be followed for the vaults as is used for the walls. In fact, the bones within the wall continue unbroken right up to the top of the vault; they are constructed in the same way and are set a correspondingly similar distance apart, the ligaments stretch from bone to bone, and the section between is filled in with paneling. [...] In short, with every type of vault, we should imitate Nature throughout, that is, bind together the bones and interweave flesh with nerves running along every possible section: in length, breadth, and depth and also obliquely across. When laying the stones to the vault, we should, in my opinion, copy the ingenuity of Nature.”

stand on its own.<sup>67</sup> Secondly, they provide a model for the relative sizes of parts, the whole being a composition of parts whose dimensions correspond to one another.<sup>68</sup> And finally, the bodies of animals provide a model of suitability of the parts, both to their individual purpose, and to their purpose as a whole.<sup>69</sup>

But just what it is that produces beauty? A discussion of the cause of beauty Alberti leaves until Chapter 5 of Book 9, and then he defines it only after some equivocation.<sup>70</sup> Since every building (or body) is composed of parts, changes to the size, shape, position, or number of those parts will detract from the overall ‘seemliness’ of the thing.<sup>71</sup> Beauty thus depends upon number, outline, and position. But it also depends upon a further quality, which is to be found in Nature. This Alberti describes as *concinnitas*, being the means by which parts that are different to one another may be combined together in such a way that they correspond in appearance.<sup>72</sup> Alberti concludes:

---

<sup>67</sup> “The physicians have noticed that Nature was so thorough in forming the bodies of animals, that she left no bone separate or disjointed from the rest. Likewise, we should link the bones and bind them fast with muscles and ligaments, so that their frame and structure is complete and rigid enough to ensure that its fabric will still stand on its own, even if all else is removed.” Alberti, *On the Art Of Building in Ten Books*, 3.12; p. 81.

<sup>68</sup> “[...] just as the head, foot, and indeed any member must correspond to each other and to all the rest of the body in an animal, so in a building, and especially a temple, the parts of the whole body must be so composed that they all correspond to one another, and any one, taken individually, may provide the dimensions of all the rest.” Alberti, *On the Art Of Building in Ten Books*, 7.5; p. 199.

<sup>69</sup> “As for Italy, their inborn thrift prompted them to be the first who made their buildings very like animals. Take the case of a horse: they realized that where the shape of each member looked suitable for a particular use, so the whole animal itself would work well in that use. Thus they found that grace of form could never be separated or divorced from suitability for use.” Alberti, *On the Art Of Building in Ten Books*, 6.3; p. 158.

<sup>70</sup> “Now I come to a matter with which we have promised to deal all along: every kind of beauty and ornament consists of it; or, to put it more clearly, it springs from every rule of beauty. This is an extremely difficult inquiry; for whatever that one entity is, which is either extracted or drawn from the number and nature of all the parts, of imparted to each by sure and constant method, or handled in such a manner as to tie and bond several elements into a single bundle or body, according to a true and consistent agreement and sympathy—and something of this kind is exactly what we seek—then surely that entity must share some part of the force and juice, as it were, of all the elements of which it is composed or blended; for otherwise their discord and differences would cause conflict and disunity.” Alberti, *On the Art Of Building in Ten Books*, 9.5; p. 301.

<sup>71</sup> “For within the form and figure of a building there resides some natural excellence and perfection that excites the mind and is immediately recognised by it. I myself believe that form, dignity, grace, and other such qualities depend on it, and as soon as anything is removed or altered, these qualities are themselves weakened and perish. Once we are convinced of this, it will not take long to discuss what may be removed, enlarged, or altered, in the form and figure. For every body consists entirely of parts that are fixed and individual; if these are removed, enlarged, reduced, or transferred somewhere inappropriate, the very composition will be spoiled that gives the body its seemingly appearance.” Alberti, *On the Art Of Building in Ten Books*, 9.5; p. 302.

<sup>72</sup> “It is the task and aim of *concinnitas* to compose parts that are quite separate from each other by their nature, according to some precise rule, so that they correspond to one another in appearance. [...]”

“Beauty is a form of sympathy and consonance of the parts within a body, according to definite number, outline, and position, as dictated by *concinnitas*, the absolute and fundamental rule in nature. This is the main object of the art of building, and the source of her dignity, charm, and worth.”<sup>73</sup>

*Concinnitas*, the rule of Nature which architects must learn in order to achieve beauty through the composition of parts, complements the skill of the architect known as *compartition*. In Book 2, Alberti describes six elements, locality, area, compartition, wall, roof, and opening, “ [...] of which the whole matter of building is composed”.<sup>74</sup> Compartition is the art of dividing up the site or the building into smaller parts appropriate for their purpose.<sup>75</sup> With compartition, the unity of the whole is achieved by its articulation into parts, which in their variety and harmony make up the whole.<sup>76</sup> Through both *concinnitas* and *compartition*, Alberti emphasises the role of architecture as an intellectual endeavour, of bringing parts together for structural, functional, and above all, aesthetic purposes far beyond the mere fabrication of the carpenter. That intellectual endeavour is further emphasised by architecture’s moral dimension, for which ornament takes on a new significance. As well as the treatment of ornament as an attachment or addition to beauty, Alberti describes the importance of ornament as a demonstration of a building’s status. In books seven, eight, and nine, Alberti describes the ornament ‘proper’ to sacred, public

---

Neither in the whole body nor in its parts does *concinnitas* flourish as much as it does in Nature herself; thus I might call it the spouse of the soil and of reason. [...] Everything that Nature produces is regulated by the law of *concinnitas*, and her chief concern is that whatever she produces should be absolutely perfect.” Alberti, *On the Art Of Building in Ten Books*, 9.5; p. 302. For a discussion of *concinnitas*, see also Robert Tavernor, *On Alberti and the Art of Building*, New Haven and London: Yale University Press, 1998, Chapter 5.

<sup>73</sup> Alberti, *On the Art Of Building in Ten Books*, 9.5; p. 303.

<sup>74</sup> Alberti, *On the Art Of Building in Ten Books*, 1.2; p. 8.

<sup>75</sup> “Compartition is the process of dividing up the site into yet smaller units, so that the building may be considered as being made up of close-fitting smaller buildings, joined together like members of the whole body.” Alberti, *On the Art Of Building in Ten Books*, 1.2; p. 8.

<sup>76</sup> “The chief ornament [sic] in every object is that it should be free of all that is unseemly. Compartition, therefore, will be seemly when it is neither jumpy, nor confused, nor disorganised, nor disconnected, nor composed of incongruous elements; it should be made up of members neither too numerous, nor too small, nor too large, nor too dissonant or ungraceful, nor too disjointed or distant from the rest of the body, as it were. But in terms of its nature, utility, and methods of operation, everything should be so defined, so exact in its order, number, size, arrangement, and form, that every single part of the work will be considered necessary, of great comfort, and in pleasing harmony with the rest.” Alberti, *On the Art Of Building in Ten Books*, 6.5; p. 163.

secular, and private buildings, respectively. Ornament is seen to give ‘dignity’ to each of these three kinds of buildings, in appropriate measure according to proper hierarchy.

“With sacred works, especially public ones, every art and industry must be employed to render them as ornate as possible: sacred works must be furnished for the gods, secular ones only for man, the latter, being less dignified, should concede to the former, yet still be ennobled with their own details of ornament.”<sup>77</sup>

The meaning of ornament is also extended to include the way in which each of these building types, appropriately distributed and arranged, enhances the city.<sup>78</sup> The buildings themselves become the ornament, as “[...] a well-maintained and well-adorned temple is obviously the greatest and most important ornament of a city.”<sup>79</sup> Although Alberti does not directly address the Vitruvian principle of *decor*, its presence is implicit in this aspect of ornament. Its omission is probably to the then pervasiveness of the principle of *decorum*, its operation as an ethical principle of social behaviour.<sup>80</sup> Schooled in Ciceronian rhetoric, Alberti attributes to ornament the role of expression, such that a building is able to speak of its use or purpose, and of the social status of its occupants. For Alberti, the principles of beauty and ornament, and their achievement through *concinnitas* and compartition, demonstrate a concern for the unity and integrity of architectural works, their outward appearance an expression of their moral character. Descriptions of parts, rhetorically related to parts of the body, occur only in context of their proper assembly or relation. Yet in the various treatises published after Alberti, it is possible to discern an increasing interest in architecture’s inner complexity.

---

<sup>77</sup> Alberti, *On the Art Of Building in Ten Books*, 8.1; p. 244.

<sup>78</sup> “The *area* of the city, and the surrounding region, will be greatly enhanced if the buildings are appropriately distributed and arranged.” Alberti, *On the Art Of Building in Ten Books*, 7.1; p. 190.

<sup>79</sup> Alberti, *On the Art Of Building in Ten Books*, 7.3; p. 194.

<sup>80</sup> Kohane and Hill, “Decorum in architectural theory,” *passim*.

In the work of fifteenth century architect Antonio Averlino, known as Filarete, the body is described as the principal source for architecture. In his *Treatise on Architecture*, published around 1460, Filarete asserts that all the proportions, measures, qualities, and origins of buildings derive from the form and figure of man.<sup>81</sup> As well as building upon the principles of measure and proportion in relation to the orders found in Vitruvius and Alberti, Filarete connected them to



**Figure 10: The origins of architecture. Filarete, *Treatise on Architecture*, Book 1, Folio 4v.**

the Christian narrative of origins, describing the first shelter formed by Adam as he raised his arms above his head.<sup>82</sup> Later, Filarete describes dwelling as a bodily need, as fundamental as that of eating. Like the body, architecture may live, sicken, and die, needing nourishment in the form of maintenance, and a doctor, in the form of a master-builder, to repair and cure it.<sup>83</sup> Filarete also invokes the process of parturition to explain the role of the architect. He describes architect as the ‘mother’ of the building, the client as the ‘father,’ and process of

---

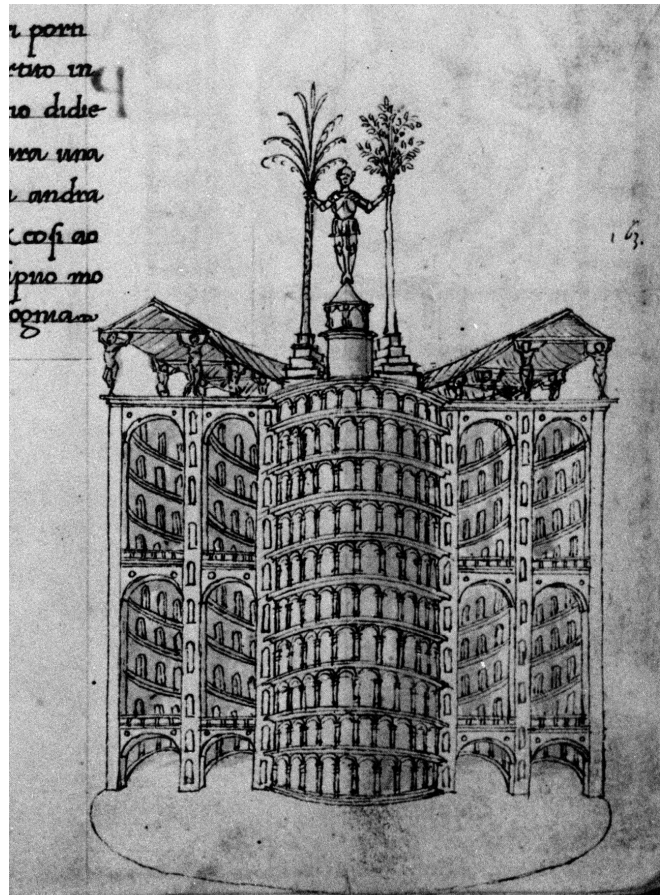
<sup>81</sup> Filarete, *Treatise on Architecture*, translated by John R. Spencer, New Haven: Yale University Press, 1965.

<sup>82</sup> “There is no doubt that architecture was invented by man, but we cannot be certain who was the first man to build houses and habitations. It is to be believed that when Adam was driven out of Paradise, it was raining. Since he had nothing else at hand to cover [himself], he put his hands over his head to protect himself from the rain. [...] Since both food and shelter are necessary to the life of man, it is to be believed for this reason that after Adam had made a roof of his hands and had considered the need for his sustenance, he thought and contrived to make some sort of habitation to protect himself from the rain and also from the heat of the sun. When he recognized and understood his need, we can believe that he made some sort of shelter of branches, or a hut, or perhaps some cave where he could flee when he needed. If such were the case, it is probable that Adam was the first.” Filarete, *Treatise on Architecture*, 1.4v; p. 10. See also Rykwert, *On Adam’s House in Paradise*.

<sup>83</sup> “I will show you [that] the building is truly a living man. You will see what it must eat in order to live, exactly as it is with man. It sickens and dies or sometimes is cured of its sickness by a good doctor. [...] You can say that a building does not sicken and die like a man. I say to you that a building does just that, for it sickens when it does not eat, that is, when it is not maintained and begins to fall off little by little exactly as a man [does] when he goes without food, and finally falls dead. This is exactly what the building does. If it has a good doctor when it becomes ill, that is, the master who mends and cures it, it [will] stand a long time in good state. This is obvious. I can attest to this, for the court of the Signoria of Milan was ill from lack of food and half dead, when at great expense, I restored it to health. Without this protection it would soon have been finished. You need to maintain it continually and to guard it from corruption and too much fatigue, because, as man becomes thin and ill from too much fatigue, so [does] the building. Through corruption, the body of the building rots like that of man.” Filarete, *Treatise on Architecture*, 1.6r; pp. 12-13.

design as requiring an appropriate period of gestation. Before the architect ‘gives birth’ in the form of a small relief model, he should ‘dream about his conception,’ turning it over in his mind.<sup>84</sup>

The metaphor of body as building is further extended with Filarete’s design for the House of Vice and Virtue. Here, a statue of Virtue stands atop a cylindrical tower of seven storeys, representing the four Cardinal and three Theological Virtues, or alternatively, the seven deadly sins. Ascending through the building, one encounters seven rooms devoted to the seven Liberal Arts. In its division of rooms and its circulation, the design represents a programme of instruction.



As Hanno-Walter Kruft suggests, “Architecture becomes the external representation of an educational idea.”<sup>85</sup> The design for the House of Vice and Virtue can also be read as an allegory of body

**Figure 11: The House of Vice and Virtue. Filarete, *Treatise on Architecture*, Book XVIII, Folio 144r.**

<sup>84</sup> “The building is conceived in this manner. Since no one can conceive by himself without a woman, by another simile, the building cannot be conceived by one man alone. As it cannot be done without a woman, so he who wishes to build needs an architect. He conceives it with him and then the architect carries it. When the architect has given birth, he becomes the mother of the building. Before the architect gives birth, he should dream about his conception, think about it, and turn it over in his mind in many ways for seven to nine months, just as a woman carries her child in her body for seven to nine months. [...] When this birth is accomplished, that is when he has made, in wood, a small relief design of its final form, measured and proportioned to the finished building, then he shows it to the father.” Filarete, *Treatise on Architecture*, 2.7v; pp. 15-16.

<sup>85</sup> Hanno-Walter Kruft, *A History of Architectural Theory: From Vitruvius to the Present*, translated by Ronald Taylor, Elise Callander, and Antony Wood, London; Zwemmer, 1994, p. 55.

interior. Spaces within the body are liable to corruption and decay; but so too does the possibility of virtue lie within. Thus the avoidance of sin, and the attainment of virtue, becomes a matter of navigating the body interior, ensuring that the lowly spaces avoided and the virtuous spaces visited each in turn. The design echoes the practice of using imaginary rooms as mnemonic devices that began during the Renaissance.<sup>86</sup> More importantly, with the building drawn using perspective section, Filarete is considered to have created a new form of architectural representation.<sup>87</sup> Filarete's treatise was probably written in 1461-64, at which time he lived in Milan. Since his work on the Ospedale Maggiore was nearing completion, it is likely that he was aware of at least some of the medical texts available at the time. Whether or not his creation of this new form of architectural representation was inspired by anatomical images is not known. But use of sectional drawings became significant for architects from that time onwards.

In the work of Francesco di Giorgio Martini, also written during the late fifteenth century, the anthropomorphic principles of Vitruvius are given renewed impetus. Francesco begins his treatise with a definition of architecture that grounds the use of the body in Vitruvius. "As Vitruvius says, all the art and the *ragione* is extracted from the well composed and proportioned human body."<sup>88</sup> Francesco makes the analogy both more explicit and more detailed than does Vitruvius through the extensive use of illustrations. In notebooks produced throughout his working life, Francesco drew plans, facades, entablatures, and even whole cities with human figures superimposed. The drawings reinforce the importance of hierarchic relations, with those buildings occupying the position of the head—the chancel of a church or the fortress in a town—having the greatest importance. In one illustration, Francesco also shows a familiarity with anatomical illustration as a skeleton is juxtaposed with a figure showing proportion. Francesco's application of measurements taken from the body is comprehensive, although in the translation to drawings, he states that the architect must complement principles with talent

---

<sup>86</sup> See Frances Yates, *The Art of Memory*, London: Routledge and Kegan Paul, 1966.

<sup>87</sup> Wolfgang Lotz, *Studies in Italian Renaissance Architecture*, translated by Margaret Breitenbach, Renate Franciscono, and Paul Lunde, Cambridge, Mass.; MIT Press, 1977.

<sup>88</sup> Francesco di Giorgio Martini, *Trattati di architettura, ingegneria e arte militare*, edited by Corrado Maltese and Livia Degrassi Maltese, Milan: Il Polifilo, 1967, Vol 1, p. 3. As cited in Alina A. Payne, *The Architectural Treatise in the Italian Renaissance: Architectural Invention, Ornament, and Literary Culture*, Cambridge: Cambridge University Press, 1999, p. 107.



and experience. Since drawing (*disegno*) must be used to convey what cannot be conveyed in words, the discretion and guidance of the artist is necessary in the application of principles.

Both Filarete and Francesco di Giorgio utilise ornament as a means to convey social hierarchy, describing the correct size and ornament of houses for a duke, bishop, gentleman, merchant, artisan, and poor man or farmer. However, while Filarete describes these in descending order, Francesco begins his list with the house for private persons, the least important. This is justified by their temporal emergence, with small houses necessarily coming before larger institutions. According to Onians, Francesco thus adopts a principle of historical development in terms of growth likely to have been derived from Aristotle.<sup>89</sup> Onians also attributes to Francesco the initiative of using cutaway drawings, evolving out of his concern that in drawings, one part of a building will always be hidden by another.<sup>90</sup> The solution was to use drawings showing the interior and exterior at the same time.<sup>91</sup> In Daniele Barbaro's edition of Vitruvius of 1584, he states that with this drawing type, showing the thickness of walls and the projections of every element, the architect is like a physician who demonstrates the interior and exterior parts at the same time.<sup>92</sup>

In contrast to the more speculative treatises of Alberti, Filarete and Francesco di Giorgio, those written during the sixteenth century provide more practically oriented instruction on the interpretation of the orders. In the books of Sebastiano Serlio, published from 1537 onwards, Vitruvian principles of decorum were interpreted through Christian belief, with the Doric order posited for churches dedicated to founding saints, and the

---

<sup>89</sup> Onians, *Bearers of Meaning*, pp. 165-176.

<sup>90</sup> Onians, *Bearers of Meaning*, p. 175.

<sup>91</sup> Onians argues that this was influenced by Aristotle, since Francesco states in his preface that for Platonic and Peripatetic philosophers, one of the best ways to analyse an unfamiliar object is to divide it into its parts. Onians, *Bearers of Meaning*, pp. 175-176.

<sup>92</sup> Describing the last of the three kinds arrangement described by Vitruvius (ichnography, orthography, scenography) Barbaro writes: "From this third *idea*, called scenography (*sciografia*), from which great utility is derived, because through the description in the profile, we understand the thickness of walls, the projections of every element (*membro*), and in this the architect is like a physician who demonstrates all the interior and exterior parts of works." Marcus Vitruvius, *I Dieci Libri dell'Architettura di M. Vitruvio, tradutti e commentati da Monsig. Daneile Barbaro*, Marcolini, Venice, 1584, p. 30; as cited in Marco Frascari, "A New Angel/Angle in Architectural Research: The Ideas of Demonstration," *JAE* 44/1, November 1990, pp. 11-19; p. 15.

Corinthian for those dedicated to the Virgin Mary.<sup>93</sup> Originally trained as an artist, Serlio brings to architecture the idea that knowledge of the interior is vital for the correct representation of surface. For Serlio, the role of perspective was to represent the full complexity of the body, not just the surface.<sup>94</sup> This attitude, common among Renaissance painters, meant that artists often composed a large part of the audience for anatomical demonstrations. Through a knowledge of depth, Serlio interpreted the principle of decorum as an aesthetic hierarchy, with buildings, like bodies, having parts that, while necessary for sustaining life, must be shielded from view.<sup>95</sup> The importance of interiority gave Serlio's idea of decorum a greater reliance upon natural order. Like Filarete, Serlio's description of the houses suitable for various classes of men begins with the poorest, thereby suggesting that architecture's distance from its natural origins was able to be expressed through ornament.<sup>96</sup> Serlio also applied principles of ornamental hierarchy according to a building's use, with the Tuscan order advocated for utilitarian structures on the edge of the city, such as fortifications, gates, prisons, and aqueducts.<sup>97</sup> Serlio solves the problem of conformity to canon or convention by appeal to *licentia*, or licence, the freedom of the architect to interpret the rules of antiquity.<sup>98</sup> While the architect is able to choose according to what

---

<sup>93</sup> Sebastiano Serlio, *Tutte l'opere d'architettura*, (1537-51) Venice 1619, 4.6; p. 139. See also Kohane and Hill, "Decorum in architectural theory," p. 68.

<sup>94</sup> Sawday writes: "Anatomy and perspective shared a common tendency. Both, Serlio suggested, were concerned with volume rather than surface. Any attempt at rendering surface convincing without an understanding of volume was to be content with the 'bare shew of superficialities' rather than the full complexity of the body functioning within space." Sawday, *The Body Emblazoned*, p. 86.

<sup>95</sup> "For just as in the human body there are some parts that are noble and beautiful and others that are rather ignoble and ugly, but of which we have the greatest need and indeed would not be able to live without; so also in buildings there ought to be some parts that are respectable and honoured, and others less elegant, but without which the former could not be free and would lose part of their dignity and beauty. But just as the Blessed Lord has arranged our organs so that the most beautiful are in the most exposed and visible places, and the less attractive in hidden places, so too we, in building, will locate the main parts, which are to be looked at, in visible places, and the less beautiful as far from sight as possible. And in these latter parts we will put all the ugly things of the house, everything that might cause shame and uglify the most beautiful parts." Serlio, *Tutte l'opere d'architettura*, 2.2; as quoted in George Hersey, *Pythagorean Palaces: Magic and Architecture in the Italian Renaissance*, Ithaca: Cornell University Press, 1976, pp. 113-114.

<sup>96</sup> "For Serlio, such decorum of ornament was testimony to civility, with the representation of social gradations providing an architectural record of society's distance from its rude origins. Social order both mirrored and was situated within natural order." Kohane and Hill, "Decorum in architectural theory," pp. 68-69.

<sup>97</sup> Serlio, *Tutte l'opere d'architettura*, 4.5; p. 127.; Kohane and Hill, "Decorum in architectural theory," p. 68.

<sup>98</sup> Serlio, *Tutte l'opere d'architettura*, Book 4; p. 146v.; Payne, *The Architectural Treatise in the Italian Renaissance*, p. 118.

pleases him most, licence remains limited by *decorum*, beyond which it veers into the pejorative sense of *licentioso*.<sup>99</sup> This experimentation with the orders depends upon the mixing (*mescolanza*) of elements, extensively illustrated through details.

With both Andrea Palladio and his pupil Vincenzo Scamozzi, the importance of *decorum* is less a matter of conformity to social custom as it is one of conformity to nature. Palladio suggests that variation from common usage is acceptable if the result is beautiful or natural.<sup>100</sup> In Palladio's *Four Books* 'nature' takes on an importance above that of the historical and theoretical origins of architecture, providing guidance to the ancients in the determination of detail. The role of the body as a model for architecture remains, but it acts more as a guide to structural or constructional integrity than to proportion. Payne suggests that Palladio and Scamozzi were influenced by the growing scientific interest in nature, such as Giovanni Borelli's studies of the mechanics of the body. While Palladio made extensive use of the combined section/elevation, enabling both to be seen together in a single drawing, it was Scamozzi who made the parallel with anatomy explicit:

“The section of the well proportioned building is like the anatomy of a human body. As in the latter one can see the connections between bones, the linkages of the nerves, and the intersections of the veins, with the covering of soft tissue; so in the former one can see the trimming of the columns, and walls, the interlocking of the cornices, the entwining of those things that ornament, and finally the shells that cover the internal parts.”<sup>101</sup>

The intention for Scamozzi is not so much function as its effect – the external appearance of internal order, a combination of literary and scientific influence. But as Payne identifies, the anatomised body provides a new correlate for architecture, affecting both its modes of representation and its products. She writes:

---

<sup>99</sup> Payne, *The Architectural Treatise in the Italian Renaissance*, Chapter 6. “Serlio's architectural inventions stay within the boundaries of good *licentia* if and only if the character, aspirations, social/economic position, and professional activities of the patron or dedicatee find appropriate visible representation in large-scale architectural images.” p. 140.

<sup>100</sup> Andrea Palladio, *The Four Books of Architecture*, translated by Isaac Ware, New York: Dover Publications; 1977; see also Payne, *The Architectural Treatise in the Italian Renaissance*, p. 175.

<sup>101</sup> Vincenzo Scamozzi, *Discorsi sopra l'antichità di Roma di Vincenzo Scamozzi architetto veneziano*, Venice: Francesco Ziletti, 1582, p. 15. Translation and citation by Payne, *The Architectural Treatise in the Italian Renaissance*, p. 235.

“The human paradigm has shifted into a scientific mode, where the internal workings of the body, invisible to the eye and yet accessible to the mind – dissected, charted, and analyzed in the laboratory – begin to attract attention and ultimately to take over as appropriate parallels for what happens inside walls and behind veneers.”<sup>102</sup>

By the eighteenth century, in the drawings of Giambattista Piranesi, anatomical conventions had clearly been adopted for the depiction of architecture.<sup>103</sup> Here temples of ancient Rome appear like the flayed bodies of Vesalian anatomy, their archaeological reconstruction replicating the stages of dissection of the human body. Rykwert has described Piranesi’s etchings as “vast autopsies of the detritus of Roman magnificence.”<sup>104</sup> Barbara Maria Stafford suggests that strategies used by Piranesi in the depiction of classical ruins imitate the surgical practices of anatomical description.<sup>105</sup> The use of holes in the sides of buildings, like cuts or wounds, enable Piranesi to reveal their internal structure, while the use of multiple images on the same plate, showing the same building at different levels of construction, imitate the anatomical drawings of a body at different stages of dissection.<sup>106</sup>

---

<sup>102</sup> Payne, *The Architectural Treatise in the Italian Renaissance*, p. 234.

<sup>103</sup> John Wilton-Ely, *Piranesi as Architect and Designer*, New York: New Haven: Pierpont Morgan Library ; Yale University Press, 1993.

<sup>104</sup> Rykwert, *On Adam’s House in Paradise*, p. 62.

<sup>105</sup> Barbara Maria Stafford, *Body Criticism: Imaging the Unseen in Enlightenment Art and Medicine*, Cambridge, Mass.: MIT Press, 1991. “Wielding the etcher’s needle like a scalpel, he applied surgical procedures taken, I believe, from medical illustrations, to turn the still living fabric of architecture inside out.” p. 59.

<sup>106</sup> “It was perhaps from Cowper’s revision of Vesalius that Piranesi learned to mobilize the muscled architectural dead as *écorchés*. Flayed bodies became analogues for temples peeled of their marble. Once the rind was removed, they exhibited the fissures and channels of underlying rubblework. [...] Piranesi, I believe, transplanted three ‘surgical’ strategies into the domain of archaeological publication. First, he made use of accidental holes or ‘wounds’ gaping in the sides of deteriorating masonry to allow glimpses of their internal structure, an otherwise concealed aspect of the building. [...] Piranesi’s second ‘dissective’ strategy was to exhibit multiple images limblike on the same plate. Different stages of building, types of construction, ground elevations, and variable conditions of erosion necessitated a dual device. The edifice was dismembered piece by piece and paratactically recomposed. The parts, thus juxtaposed or inlaid, formed an assemblage. [...] Like a surgeon, Piranesi responsibly sutured the certain to the conjectural, thereby allowing the seamed nature of the whole to show. In an anatomical fashion, he taught the viewer to estimate the unknown by knowledgeably judging a maze of isolated and scattered remains. Significantly, however, anatomization, or the visual separation of segments, was only the means to a larger end, the totality of the graphic ensemble. His ultimate aim was synthesis. The pried-apart limbs and members had to be reintegrated into the heroic span of views Piranesi thus helped his contemporaries to recontextualize the ruins of the past into the living organism of modern urban Rome.” Stafford, *Body Criticism* pp. 59-70.

## The Authority of Texts

Throughout the Renaissance, a shift is evident away from the rhetorical conception of the body and its translation into architecture, and toward a ‘scientific’ or analytic investigation of both. This is further emphasised by the development and then proliferation of the use of sections, adopting a variation on the rules of perspective in order to show a privileged view of the interior of bodies and buildings.<sup>107</sup> Beginning with Alberti, and his interest in generating a unified and pleasing whole through *compartition* and *concinnitas*, there appears to have been an increasing interest in the demonstration of architecture’s inner workings. This also coincided with changes to the interpretation of ancient authority, with the strict Vitruvian canon gradually being reconfigured, most notably by Serlio.<sup>108</sup> These changes to both architecture and anatomy occurred in context of the broader upheavals in the relation between knowledge and authority during the Renaissance. On the one hand, intellectual inquiry was gradually being wrested from the control of the Church, while on the other, changes in the availability of Holy Scripture brought about by printing were being used to challenge the position of the church as mediator of the word of God. Just as descriptions of the material world by Copernicus and others were beginning to contradict what was found in Scripture, so too the authority of the church was being challenged by Erasmus and Luther. In the nineteenth century, Burckhardt viewed these changes as a manifestation of Kant’s idea of creative genius, and of Hegel’s concept of progress.<sup>109</sup> The Renaissance came to be regarded as a turning point for Western civilisation, when men of science managed to liberate knowledge from the control of the church. But early anatomy demonstrations were not intended to challenge the authority of the church. They were instead undertaken as a demonstration of the perfection of God’s creation, revealing the presence of God in the mortal body. Aristotle’s ideas of design and teleology merged with

---

<sup>107</sup> Jacques Guillerme and Heline Vérin, “The Archaeology of Section,” *Perspecta* 25, 1989, pp. 226-257. See also Christine McCarthy, “Drawing and Quartering, ‘Mort Safes and Dissection Rooms: Divisions of the anatomical and the abject criminality of the architectural section,” in Stephen Cairns and Philip Goad (eds.), *Building Dwelling Drifting: Migrancy and the Limits of Architecture*, papers from the third ‘Other Connections’ conference, Faculty of Architecture, Building and Planning, University of Melbourne, 1997.

<sup>107</sup> See Onians, *Bearers of Meaning*, passim.

<sup>108</sup> See Onians, *Bearers of Meaning*, passim.

<sup>109</sup> Jacob Burckhardt, *The Architecture of the Italian Renaissance*, translated by James Palmes; edited by Peter Murray, London : Secker & Warburg, 1985.

the Platonic idea of the body as microcosm, revealing the body of man, created in God's own image, as the end or goal of the process of creation. Although the body was liable to tempt the soul with earthly desires, it was nonetheless an expression of that soul in the world. It is as a consequence of this view that the proscription against anatomising the human body was relaxed, for nowhere else could the full perfection of God's creation be seen. The body was anatomised only as a means to better understand the soul contained therein.<sup>110</sup>

Although anatomical demonstrations did not represent a direct challenge to the authority of the church, their acceptance required the negotiation of a variety of social and religious prohibitions in relation to the body. While resulting in ever more precise articulations of human anatomy, dissection involves a transgression of structures of unity, a violence against the order of Nature.<sup>111</sup> This is emphasised by the anatomists' involvement with the legally imposed violence of execution. By cutting up corpses, the anatomists were violating the domain of the dead, an act which should have brought infamy and condemnation. What made this necessary was the dangerous and mysterious nature of the body interior. Despite its constant presence, the interior of the body is only visible at times of trauma or death. Its presence is usually understood indirectly, via traces which find their way to the surface, that are often indications of illness or disease. Using bodies already dead prevents the pain caused by vivisection, and its association with torture.<sup>112</sup> For the same reason, the common scientific strategy of experimenting upon ones own body was denied the anatomists.<sup>113</sup> The bodies of criminals, deemed to have forfeited the privacy of their interior, become the focus of an outwardly directed gaze. The corpse, laid bare by the anatomist, becomes a reflection that alludes to our own interior.<sup>114</sup>

---

<sup>110</sup> Cunningham argues that the primary intention of anatomists during the Renaissance was not the rejection of authority and tradition thought to impeded discovery, but was in fact to demonstrate the soul as the purpose of the body. "Every anatomist up to and well beyond the sixteenth century looked at the body as being, in one way or another, the instrument of the soul, and if they were interested in anatomizing it, it was *because* it was the instrument of the soul. [...] The soul is what anatomizing was about." Cunningham, *The Anatomical Renaissance*, pp. 196-197.

<sup>111</sup>As Sawday explains "[...] a dissection might denote not the delicate separation of constituent structures, but a more violent 'reduction' into parts: a brutal dismemberment of people, things or ideas." Sawday, *The Body Emblazoned*, p. 1.

<sup>112</sup> See Cunningham, *The Anatomical Renaissance*, p. 22-25, and *passim*.

<sup>113</sup> "[...]the interior recesses of the body are not merely private to others, but peculiarly private – that is expressly forbidden – to the owner or inhabiter of the body." Sawday, *The Body Emblazoned*, p. 15.

<sup>114</sup> Sawday writes: "[...] it is, perhaps, this very impossibility of gazing within our own bodies which makes the sight of the interior of other bodies so compelling. Denied direct experience of ourselves, we

What anatomists offered in exchange for violating the domain of the dead was a knowledge of the body that could be used to preserve the health of other bodies. The body was ‘conquered’ not only in terms of a discovery of its internal workings, but in terms in the way that knowledge could be used to overcome the threat of ill health.<sup>115</sup> Through both demonstrations and publication, and thus through connection with the knowledge of the Ancients, the social status of the physician was raised above that of the surgeon. While surgeons were limited to operating on the outside of the body, physicians were able to use knowledge of the body to reason from symptoms as to the internal, and hidden, cause of disease, and then administer the correct cure.<sup>116</sup> And while the upper classes revelled in the spectacle of dissection, the lower classes were made acutely aware of the complicity between medicine and the law. Since the bodies used for dissection were those of executed criminals, the possibility arose for dissection to be imposed as part of the sentence. Partitioning of the body already formed part of many death sentences, thus ensuring that punishment extended beyond death. Previously, prevention of burial had been achieved using a gibbett, a metal cage in which the body was suspended as it slowly decayed. Such violent forms of punishment were intended to show a complicity between sovereign and divine power.<sup>117</sup> But dissection provided an alternative means to compromise the integrity of the body. The retributions of justice were now complemented by the contribution to knowledge, with criminals made to perform a public service even after death.<sup>118</sup>

Anatomy demonstrations, far from scientific investigations in any modern sense, were instead complex rituals demonstrating various aspects of scientific, juridical, religious, and textual authority in relation to the body. Yet Vesalius managed to dramatically transform the very nature of that ritual, and with it, the relation between textual authority and direct visual evidence. Vesalius’ rise to the position of professor was due only in part to the quality and popularity of his work. As dissector, he began to challenge professorial authority,

---

can only explore others in the hope (or the fear) that this other might also be us.” Sawday, *The Body Emblazoned*, p. 8.

<sup>115</sup> Sawday writes: “[A]natomization takes place so that, in lieu of a formerly complete ‘body’, a new ‘body’ of knowledge and understanding can be created. [...] The anatomist, then, is the person who has reduced one body in order to understand its morphology, and thus to preserve morphology at a later date, in other bodies, elsewhere.” Sawday, *The Body Emblazoned*, p. 2.

<sup>116</sup> Cunningham, *The Anatomical Renaissance*, p. 80.

<sup>117</sup> Foucault, *Discipline and Punish*, passim.

<sup>118</sup> Sawday, *The Body Emblazoned*, p. 55.

expressing opinions that were at variance with those given in the lecture. In one demonstration, Vesalius was rebuked by the professor, Curtius. Confident in his observations, Vesalius continued to follow his own course, much to the delight of the students.<sup>119</sup> The ensuing argument between them centred upon the difference between what was ‘visible to the eyes’ and what was ‘evident to reason’ as taught by authority. For Vesalius, the *visible evidence of the body* took priority over that of the text, enabling what appeared in the text to be verified. While Curtius maintained that authority lay with Galen’s text, Vesalius insisted that whatever was described be demonstrated by pointing to its occurrence in the body. With the mode of demonstration initiated by Vesalius, he conveyed the importance of direct visual experience, the idea that one should see for oneself (the literal meaning of *autopsy*). Although challenging the authority of the text, Vesalius considered himself faithful to Galen’s original project, even though his observations contradicted much of what had been written. For he had realised the advantage he had over Galen, namely, that he had access to human bodies for dissection, and was to develop for the first time a comprehensive anatomy of the *human* body. Thus appeared the *Fabrica*, a detailed description of the ‘fabric’ of the body, the material assembly from which can be determined actions and uses.<sup>120</sup> From Vesalius onwards, Renaissance anatomy consisted of direct exploration of the material and functional aspects of the human body.

Cunningham suggests that rather than constituting an ‘anatomical Renaissance’ in which the authority of the Church was rejected, developments in anatomy at that time appear to have much in common with the Reformation. Challenges to the authority of the church initiated by Erasmus and carried through by Luther centred upon the importance of individual interpretation. For Luther, Christianity was a religion of personal engagement, where it was each individual’s duty to read the Word of God available to them in the bible.<sup>121</sup> The bible, not the church, was the source of all authority.<sup>122</sup> His was not a

---

<sup>119</sup> Cunningham, *The Anatomical Renaissance*, pp. 103-111. See also Roger French, *Dissection and Vivisection in the European Renaissance*, Aldershot, U.K.; Sydney: Ashgate, 1999, pp. 162-192.

<sup>120</sup> It is, according to Cunningham, an ‘*anatomy of structure*’: “What Vesalius sees is the human body, built on and supported by the bones, to which the muscles are attached; it has great systems of vessels (the veins, arteries, and nerves).” *The Anatomical Renaissance*, p. 120.

<sup>121</sup> This was in part due to the proliferation of texts made possible by the printing press, first produced around 1450. On the influence of printing, see Elizabeth L. Eisenstein, *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-modern Europe*, Cambridge: Cambridge University Press, 1979.



rejection of Christian faith, but a stress on the importance of direct encounter with the Word, the search for an authentic church based upon the direct participation of each of its members. While there is no direct evidence to connect Vesalius with the reformed church, Cunningham suggests that Vesalius' innovations in anatomy reveal him to be acting in a similar manner. For Vesalius, the body is a source of authority available to be read by all.<sup>123</sup> By encouraging a detailed examination of the body, both in demonstrations and in the detail of his illustrations, Vesalius promotes an unmediated experience of the truth contained within the body.<sup>124</sup>

In relation to architecture, what these changes suggest is that the two bodies identified in Vitruvius – the ideal body and the vulnerable body – were beginning to merge, with anatomical publications redefining the symbolic role of the body. In the use of sectional drawings, architects appear to be demonstrating that their own skills were comparable with those of physicians, and that the cosmic significance of the body, rather than being described using circumscription, needed to be demonstrated through a detailed display of its inner workings.<sup>125</sup> What was also reconfigured during the Renaissance was the attitude to ancient authority in the form of the Vitruvian canon. However, unlike anatomy, where the dissected body provided an alternative to Galen's text, there was no new referent for architecture. In the ensuing centuries, critical debate about architecture centred upon the extent to which architects were able to interpret the rules of antiquity. While the judgement of the anatomists was crucial for interpreting the 'text' of the body without referring to Galen, reinforced by

<sup>122</sup> "In his confrontation with the defenders of the Catholic Church, Luther's challenge was always for them to show—to literally point out with their finger—the texts in the bible on which their claims were built. Only this would count as authority to Luther." Cunningham, *The Anatomical Renaissance*, p. 218.

<sup>123</sup> "Now, with Vesalius, the body is the text. The body is a better text than Galen, and where Galen differs from the text of the body, then Galen must be ignored. The true text, the text of the human body, is in front of one's eyes at the demonstration, and all those attending it have a duty to read it for themselves." Cunningham, *The Anatomical Renaissance*, p. 121.

<sup>124</sup> "Not only does Vesalius insist on the primacy of 'the Word,' that is, the body, over written text and tradition but, like Luther with the Bible, he introduces touching and pointing, into both the practice of public anatomizing and its visual representation, as aids to witnessing the truth for oneself." Cunningham, *The Anatomical Renaissance*, p. 227.

<sup>125</sup> In his history of prison architecture in England, Robin Evans writes: "Acting in the character of an architect meant the adoption of techniques which allowed a proposal to be laid forth for examining in the absence of the building itself, above all in the form of a drawing. Plans, sections and elevations – the principal tools of the profession – made it possible to see a building from a distance and yet to see its multifarious internal workings at a glance; to survey it from an abstracted, privileged vantage point as if it were a dissected body, and to see it so before the fact of its construction." Robin Evans, *The*

ever more detailed interpretation of the human body, the judgement of architects was without referent, and no matter how ingenious the interpretation of rules, came to be viewed with suspicion. The only alternative to the authority of Vitruvius was the ‘discretion and guidance’ of the architect. On the one hand, architects such as Serlio, Vignola, and Palladio sought to consolidate the rules of antiquity into pattern books of orders, while on the other, Mannerist architects were testing the limits of those rules through distortion and exaggeration of proportions. Michelangelo’s stair for the Laurentian Library, for example, constructed in the 1550’s, takes on grotesque dimensions as it fills the vestibule, and like the viscera in the Vesalian images, threatens to spill out of the body in which it is contained. For architects of the Baroque, free interpretation of rules was to be revelled in. Guarino Guarini, for example, stated that “Architecture can correct the rules of antiquity and invent new ones.”<sup>126</sup> Baroque architecture is clearly inspired by the complexity of the human interior revealed by dissection. However, like the drawings of Vesalius, Baroque bodies are very much alive, the rich folds of surface serving to represent the souls contained within.<sup>127</sup>

## Science and Method

Without an objective referent to replace the authority of the ancients, architecture became susceptible to the dramatic change brought about by the increasing status of scientific knowledge. Leonardo Benevolo, in his historical account of Renaissance Architecture, describes the emergence of modern science as constituting a ‘crisis of sensibility.’<sup>128</sup> Architecture, like many other practices, was being fragmented by a division of labour. The various tasks described by Vitruvius as being the province of the architect—surveying, mechanical constructions, hydraulics and fortifications—became specialised disciplines detached from architecture. This reflected a wider division, the well known separation occurring between science and the arts. The increasing precision of the

---

*Fabrication of Virtue: English Prison Architecture, 1750 - 1840*, Cambridge: Cambridge University Press, 1982, p. 45.

<sup>126</sup> As cited in Krufft, *A History of Architectural Theory*, p. 106.

<sup>127</sup> Gilles Deleuze, *The Fold: Leibniz and the Baroque*, translated by Tom Conley, Minneapolis: University of Minnesota Press, 1993, passim.

<sup>128</sup> Leonardo Benevolo, *The Architecture of the Renaissance*, 2 vols., translated by Judith Landry, London and Henley: Routledge and Kegan Paul, 1978, vol. 2, p. 585ff.

description of the world in material terms was seen as having a more reliable access to truth. Correspondingly, whatever could not be studied in scientific terms was relegated to the realm of art. “The rise of science” writes Benevolo, “removed from the system of the arts its main argument for stability and social utility, i.e. its value as a vehicle for knowledge; artistic mimesis could no longer be the imitation of reality and had to become the imitation of emotions.”<sup>129</sup> The effect upon architecture of this division was less extensive than upon other arts such as painting or music. This was due not only to the usual resistance to change caused by socio-technical methods of architectural production, but also to its lack of representational content. And since architecture could not direct the emotions as effectively as other arts, the crisis was manifest mostly in contentious differences in the ‘guidance’ of the architect. Benevolo explains:

“In reality the crisis of architectural culture, which was coming to a head during the 1620’s, consisted in the collapse of the objective criteria of choice typical of recent tradition; these objective criteria were replaced not by other criteria of the same kind, but by tendentious proposals, and often by a number of conflicting and complementary ones; the outcome of this crisis was not the formation of a new common repertoire, as an alternative to the previous one, but the start of a debate for an indefinite period.”<sup>130</sup>

This crisis is seen to result from the increasing influence of science at the time, particularly with the publications of Galileo, Kepler, Bacon, and Descartes in the early seventeenth century, describing the natural world of the earth and other planets. These ideas were reinforced by inventions such as the pocket watch, which allowed more precise divisions and measurements of objects, of space, and of time. Yet the methods and metaphors for all of these forms of scientific inquiry were heavily influenced by the anatomisation of the body. This is particularly evident in the work of René Descartes. Descartes was familiar with the work of Vesalius, and spent eleven years in Amsterdam at a time when public anatomy was at its peak.<sup>131</sup> Descartes did not, however, engage in these anatomies, but instead resorted to the dissection of animal carcasses. In both his philosophical descriptions of the body and the mind it contained, and in his enumerations of

---

<sup>129</sup> Benevolo, *The Architecture of the Renaissance*, p. 594.

<sup>130</sup> Benevolo, *The Architecture of the Renaissance*, p. 596.

<sup>131</sup> G. A. Lindeboom, *Descartes and Medicine*, Amsterdam : Rodopi, 1979.

scientific method, the influence of dissection is readily apparent. Descartes' partitioning of the world into objects (*res extensa*) and mind (*res cogitans*), occurs most profoundly at the level of the body. The identity of the individual, the formerly complete unity of body and soul, is separated. Moreover, the separation is based upon the body's susceptibility to partitioning through dissection.

The body, relegated to the world of objects, is seen to act solely in accordance with the laws of mechanics. And like a machine, the body could best be understood by taking it apart. Anything that was too complex to understand as a whole could be partitioned into its constituent elements. Thus partitioning, as a method of inquiry, became central to Descartes' work. As a 'rule' of method, he stated that he would "[...] divide each difficulty I should examine into as many parts as possible, and as would be required the better to solve it."<sup>132</sup> Although Descartes is remembered for formalising scientific method, the idea of partitioning was not new. Walter Ong has argued that 'method' emerged in response to the problem of the systematic organisation of knowledge.<sup>133</sup> While the arrangement of elements of discourse was necessitated by the invention of printing, the patterns of spatialisation and ordering were derived from the anatomised body. "[The] ordering of discourse was akin to the progressive partitioning of the body in anatomical demonstration, and thus indebted to a language of the body at every point."<sup>134</sup>

The revolution in the anatomical understanding of the human body epitomised by Vesalius' texts is a visible manifestation of a deeper revolution. Practitioners of anatomy emerged victorious in the confrontation between ancient texts and their own methods of direct visual evidence. With approval from the church, the anatomists managed to

---

<sup>132</sup> The principles stated in the Discourse on the Method are as follows: "The first was never to accept anything as true if I had not evident knowledge of its being so; that is, carefully to avoid precipitancy and prejudice, and to embrace in my judgement only what presented itself to my mind so clearly and distinctly that I had no occasion to doubt it. The second, to divide each problem I examined into as many parts as was feasible, and as was requisite for its better solution. The third, to direct my thoughts in an orderly way; beginning with the simplest objects, those most apt to be known, and ascending little by little, in steps as it were, to the knowledge of the most complex; and establishing an order in thought even when the objects had no natural priority to another. And the last, to make throughout such complete enumerations and such general surveys that I might be sure of leaving nothing out." Rene Descartes, *Philosophical writings*, a selection translated and edited by Elizabeth Anscombe and Peter Thomas Geach, London: Nelson, 1954, pp. 20-21.

<sup>133</sup> Walter Ong, *Ramus: Method and the Decay of Dialogue*, Cambridge, Mass.: Harvard University Press, 1958.

<sup>134</sup> Sawday, *The Body Emblazoned*, p. 136.

overcome taboos against the violation of corpses, offering in return a graphic demonstration of the wonder of God's creation. The delicate process of dissecting a body gave rise to an entirely new mode of investigation, involving a systematic procedure of partitioning the subject and recording the results. Dissection of the body provided the model for the organisation of knowledge. This gave rise to a whole new series of metaphors, allying intellectual clarity with the visual clarity that penetrated the body, unoccluded by the veil of skin.<sup>135</sup> In the analytic method of simplification through partition, described by Descartes, the influence of dissection is palpable. Similarly, the scientific process of the *tabulation* of information mimics the act of reducing a whole body to parts which are then arrayed across the dissection table.<sup>136</sup> In this way, the process of partitioning and describing the fabric of the body was replicated in the study of the natural world.

One of the aims of the study of the natural world was to describe the various forms of beauty to be found within it. In his *Dissertation sur les variétés naturelles*, published posthumously in 1791, the Dutch physician Petrus Camper presented studies of the facial geometry of both humans and animals.<sup>137</sup> Camper, one of most important anatomists of the eighteenth century, sought to provide rules whereby artists and architects, whose task was the representation of nature, would be able to convey all types of emotions. Camper's

---

<sup>135</sup> Barbara Maria Stafford, *Body Criticism: Imaging the Unseen in Enlightenment Art and Medicine*, Cambridge, Mass.: MIT Press, 1991, p. 54, and passim. Stafford writes: "Anatomy and its inseparable practice of dissection were the eighteenth-century paradigms for any forced, artful, contrived, and violent study of depths. Metaphors of decoding, dividing, separating, analyzing, fathoming permeated ways of thinking about, and representing, all branches of knowledge from religion to philosophy, antiquarianism to criticism, physiognomics to linguistics, archaeology to surgery. Analogies of dissection, specifically, functioned on two interrelated levels. The literal, corporeal sense derived from tactile cuts inflicted by actual instruments. Digging knives, invading scissors, sharp scalpels mercilessly probed to pry apart and distinguish muscle from bone. The figurative sense played upon the allusion to violent and adversarial jabbing. Such excavation stood for an investigative intellectual *method* that uncovered the duplicity of the world. Discursive thought called upon powers of baring abstraction whereby the lowly particular was mentally separated from the elevated generality. The trivial predicate was severed from the significant subject, the unimportant individual was subtracted from the important universal. Both meanings shared the connotation of a searching operation performed on a recalcitrant substance. One involved manual probing, the other cerebral grasping. Each suggested the stripping away of excess by decomposition and fragmentation for the purpose of control." p. 47.

<sup>136</sup> This relationship is central to Foucault's investigation of taxonomy. He writes: "I use that word 'table' in two superimposed senses: the nickel-plated, rubbery table swathed in white, glittering beneath a glass sun devouring all shadow – the table where, for an instant, perhaps forever, the umbrella encounters the sewing-machine; and also a table, a *tabula*, that enables thought to operate upon the entities of our world, to put them in order, to divide them into classes, to group them according to names that designate their similarities and their difference – the table upon which, since the beginning of time, language has intersected space." *The Order of Things*, p. xvii.

work signals the beginnings of nineteenth-century anthropological and phrenological research, and also the beginnings of modern comparative anatomy. The study of the face, physiognomy, had been codified in the sixteenth century by Giambattista della Porta, but it was the images of Charles Le Brun, chancellor then rector of the French Academy of Painting in the late seventeenth century, that inspired Camper.<sup>138</sup> Le Brun's pathognomy was based upon Descartes' theory of the passions, where the surface of the body was seen as a register for emotions originating in the pineal gland, the seat of the soul. The interest in physiognomy by Camper and Le Brun was based on the perceived unity of geometry and expression, and the idea that expression was a register of *character*.<sup>139</sup>

Physiognomy formed part of the variety of studies of the expressive qualities of the body through both expression and gesture, the use of the face and hands to adopt the conventions of rhetoric. Yet while gesture belonged to the intentional construction of discourse, the face was seen as an involuntary register of the passions of the soul. Physiognomy is less concerned with the face as a means of intentional expression than as a visible manifestation of inner character, a kind of natural language of emotions. Le Brun's drawings emphasise this natural aspect of the face by describing character not through expression, but through visual analogy with various animals. These are passive subjects whose temperament is conveyed as they take on the appearance of a cat, fox, boar, owl, eagle, or camel. Through the adoption of classification methods of natural history and art, Le Brun thus presents a kind of taxonomy of the emotions, an ordering of character according to facial geometry.<sup>140</sup> Transformed into a natural phenomenon, the inner nature of a human being was to be explained according to mathematical and scientific principles, reducing the great diversity of souls into a limited range of personality 'types.'<sup>141</sup>

---

<sup>137</sup> Petrus Camper, *Dissertation sur les variétés naturelles qui caractérisent la physiognomie des hommes des divers climats et des différens âges*, Paris and the Hague, 1791.

<sup>138</sup> Giambattista della Porta *De Humana Physiognomonia*, Naples, 1586; Charles Le Brun, *Conférence sur l'expression générale et particulière des passions*, Paris, 1698. On Della Porta and Le Brun, see also See also Patrizia Magli, "The Face and the Soul," *Zone* 4, 1989, pp. 87-127; and Rykwert, *The Dancing Column*, pp. 36-56.

<sup>139</sup> On 'character' in architecture, see Adrian Forty, *Words and Buildings: A Vocabulary of Modern Architecture*, London: Thames & Hudson, 2000.

<sup>140</sup> Jean-François Bédard, "The Measure of Expression: Physiognomy and Character in Lequeu's 'Nouvelle Méthode'," *Chora* 1, 1994, pp. 35-56.

<sup>141</sup> On type in architecture, see Anthony Vidler, "The Idea of Type: The Transformation of the Academic Ideal, 1750-1830," *Oppositions* 8, 1977, pp. 94-115; also Micha Bandini, "Typology as a Form

## Character and the French Academy

Le Brun's ideas of the expressive nature of the face found their way into architecture via his friend, Claude Perrault. Perrault was active in scientific circles; originally trained as a comparative anatomist, he was also a founding member of the French Royal Academy of Science. Claude, along with his brother Charles, was active in the 'Dispute of the Ancients and Moderns,' in which the authority of ancient texts was challenged by the possibility of discovering scientific knowledge through direct investigation of nature.<sup>142</sup> In the *Ordonnance*, Perrault called into question the idea that the laws of proportion were given by Nature, instead arguing that they were determined by custom and tradition.<sup>143</sup> Instead, Perrault sought to bring to architecture the same rational principles that were being adopted in science, establishing a system of proportions for the orders based upon empirical evidence.<sup>144</sup> Troubled by the variance between different categorisations of the orders in Vitruvius and Renaissance treatises, Perrault sought to establish a system of architectural proportions that was as universal and practical as any scientific law. In doing so, Perrault rejected the idea that the body was a source of proportion, thereby disconnecting architecture from its symbolic connotations, its relation to the macrocosm via the microcosm of the body. He also introduced the idea that beauty could arise from the use for which a building is intended ('usage'), making way for later theories of function. Despite Perrault's interest in the universal nature of mathematical laws, his prescriptions for proportion and beauty give the orders an internal consistency, making them more a series of technical instructions for composition than a means to impart meaning to architecture.<sup>145</sup>

---

of Convention," *AA Files* 6, May 1994, pp. 73-82; Rafael Moneo, "On Typology," *Oppositions* 13, Summer 1978, pp. 22-45; G. C. Argan, "On the Typology of Architecture," translated by Joseph Rykwert, *Architectural Design*, December 1963, pp. 564-565; Anthony Vidler, "The Third Typology," *Oppositions* 7, 1976, pp. 1-4; Anthony Vidler, "The Production of Types," *Oppositions* 8, 1977, p. 93.

<sup>142</sup> Charles Perrault, *Parallèle des Ancients et Modernes*, 4 vols., Paris, 1692-1696.

<sup>143</sup> Claude Perrault, *Ordonnance des Cinq Espèces de Colonnes*, Paris, 1683.

<sup>144</sup> On Perrault, see Alberto Pérez-Gómez, *Architecture and the Crisis of Modern Science*, Cambridge, Mass.: MIT Press, 1983, especially Chapter 1, "Claude Perrault and the Instrumentalization of Proportion."

<sup>145</sup> "Architectural proportion lost in Perrault's system its quality of absolute truth. Numbers no longer had their traditional magic power, their connotations as an essential form of divine revelation. Perrault was thus able to reduce the problem to the immanent discourse of reason, and at the same time question

For over a hundred years, discourse at the Academy was dominated by the argument between rationalisation and the authority of tradition. Perrault's greatest critic was Jacques-François Blondel, whose *Cours d'Architecture* was the first textbook for students of the Academy.<sup>146</sup> Blondel argued against Perrault's rejection of custom, reaffirming the significance of proportion as the key to beauty. Although supporting the normative role of the body, Blondel, in referring to the theories of various Renaissance architects, noted the importance of personal expression and decision in the interpretation of rules. While proportion and geometry ensured 'positive' or absolute beauty, interpretation was necessitated by the variety of building types—Blondel describes sixty-four of them—that might be encountered by an architect. The various types were to be dealt with using different expressive qualities suitable to architecture, such as sublime, noble, virile, light, elegant, delicate, mysterious, grand, bold, terrifying, and so on.<sup>147</sup> These and other 'characters' were listed by Blondel as the appropriate expression of mood or emotion for a particular work of architecture,



**Figure 12: Jean-Jacques Lequeu, Symbolic Order for the Chamber of Estates of a National Palace, 1789.** As published in Duboy, *Lequeu: An Architectural Enigma*, p. 315.

---

proportion's immemorial role as the ultimate justification of *praxis*." Pérez-Gómez, *Architecture and the Crisis of Modern Science*, p. 31.

<sup>146</sup> Blondel, *Cours d'architecture, ou traité de la décoration, distribution & construction des bâtiments*, Paris, 1771-7.

<sup>147</sup> Forty, *Words and Buildings*, p. 122. See also Krufft, *A History of Architectural Theory*. "[Blondel] associates temples with *décence*, public buildings with *grandeur*, monuments with *somptuosité*, promenades with *élégance*, etc." Thus, Krufft writes, "[for] Blondel, the use of ornament is not an arbitrary matter; it must be determined by expressive function." p. 149.



thereby indicating its purpose or use.<sup>148</sup> Blondel also applied the principle of character to individual rooms, with the exterior decoration is seen to announce the interior ‘distribution’ of the building.<sup>149</sup> Blondel’s ideas follow on from those of Germain Boffrand, who introduced the idea of *caractère* in his *Livre d’Architecture* of 1745. According to Boffrand, the role of the architect is to know these different characters, and to make them felt in his work. Derived from Horace’s *Ars Poetica*, the principle of character brings to architecture rules of expression that require fidelity to the nature of the inhabitant or use of the building. “Different buildings,” writes Boffrand, “by their arrangement, by their construction, and by the way they are decorated, should tell the spectator their purpose; and if they do not, they offend against the rules of expression and are not as they ought to be.”<sup>150</sup>

Inspired by the writings and teachings of Boffrand and Blondel, the idea of character continued to be invoked well into the eighteenth century. Nicolas Le Camus de Mézières urged that Le Brun’s principles of characterising the passions be applied to architecture.<sup>151</sup> Jean-Jacques Lequeu, who published his *Nouvelle Méthode* in 1792, was preoccupied by the expressive possibilities of physiognomy, making extensive studies of faces and facial features.<sup>152</sup> Claude-Nicolas Ledoux also used the principle of *caractère*, in combination with social ideals borrowed from Rousseau, in the series of houses designed according to the occupations of their inhabitants.<sup>153</sup>

---

<sup>148</sup> “All the different sorts of architectural production should bear the imprint of the particular purpose of each building, all should have a character determining their general form, and announcing the building to be what it is.” J.-F. Blondel, *Cours d’Architecture*, vol 2, pp. 229-230; as cited in Forty, *Words and Buildings*, p. 122.

<sup>149</sup> Krufft, *A History of Architectural Theory*, p. 148.

<sup>150</sup> Germain Boffrand, *Livre d’Architecture*, Paris, 1745, p. 16; as cited in Forty, *Words and Buildings*, p.121.

<sup>151</sup> *Le Génie de l’architecture, ou l’analogie de cet art avec nos sensations* (Paris, 1780) translated as *The Genius of Architecture, or the Analogy of that Art with our Sensations*, Translated by D. Britt, Santa Monica: Getty Centre for the History of Art and the Humanities, 1992.

<sup>152</sup> Bédard, “The Measure of Expression.” See also Philippe Duboy, *Lequeu: An Architectural Enigma*, translated by Francis Scarfe, London: Thames and Hudson, 1986; Anthony Vidler, *The Writing of the Walls: Architectural Theory in the Late Enlightenment*, Princeton, N.J: Princeton Architectural Press, 1987.

<sup>153</sup> *L’Architecture de Claude-Nicolas Ledoux*, edition Ramee, Princeton, New Jersey: Princeton Architectural Press, 1983. See also Anthony Vidler, *Claude-Nicolas Ledoux: Architecture and social reform at the end of the Ancien Regime*, Cambridge, Mass : MIT Press, 1990.

This interest in the expressive nature of architecture formed a connection to Vitruvian principles of decorum, although in a diminished form. As Vesely identifies, theories of character demonstrate a tendency to move toward the surface of a building, toward the ‘experience of appearances,’ and away from the representation of depth, an outward expression of the order of reality.<sup>154</sup> This interest in surface, while emphasising the need for correspondence between interior and exterior, is won at the expense of the connection to symbolic order. This disconnection is further emphasised as interest in the expressive nature of the face inspired by physiognomy served to reduce interest in the body as a whole.<sup>155</sup> For the French Academy, the interest in the body moved away from the symbolic unity of Vitruvian Man, and toward the classificatory systems being developed at the time for the study of nature, especially Linnaeus’ *Systema Naturae* of 1748.<sup>156</sup> The systematic recording of species of plants or animals was both comprehensive and open ended; it gave order to what was known, and promised a glimpse of the unknown, of those species whose existence was suggested by the gaps in the tabulation.<sup>157</sup> The influence of taxonomy meant that the body could no longer be understood through a canonical or symbolic model, but must instead be understood via a comprehensive knowledge of each of its possible variants.

Taxonomy’s influence upon architecture is particularly evident in the work of Jacques-Nicolas-Louis Durand. Durand taught at the *École Polytechnique*, which had replaced the Academy following the French Revolution. Durand’s best known publication, the *Recueil et Parallèle des Edifices*, shows a range of great works of architecture, all drawn to the same scale, grouped according to function.<sup>158</sup> No distinction is made between the cultural or historical origins of each of the works, and their arrangement makes them appear like the

---

<sup>154</sup> “In *character* we can see quite clearly a tendency to move towards the surface of a building, an interior or a garden, towards the experience of appearances, while in *convenance* and *bienséance* there is a tendency to move into the depth of architectural reality, towards an order still understood in terms of *ethos*.” Vesely, “Architecture and the Poetics of Representation,” p. 28.

<sup>155</sup> Rykwert, *The Dancing Column*, pp. 47-48.

<sup>156</sup> Linne, Carl von, *Systema naturae*, Lipsiae: Impensis Godofr. Kiesewetteri, 1748.

<sup>157</sup> “[Taxonomy] implied the possible existence of a transformational or combinatorial principle, whereby the classification might be extended, beyond the known species, either to indicate the positions of species still undiscovered or lost in the past, or else, even more exciting, to generate theoretical species of kinds unknown to nature.” Steadman, *The Evolution of Designs*, p. 24.

<sup>158</sup> Jacques-Nicolas-Louis Durand, *Recueil et Parallèle des Edifices de Tout Genre, Anciens et Modernes*, Paris, 1801; also J.N.L. Durand, *Précis des Leçons d’Architecture*, Paris, 1802. On Durand’s influence and theories, see Sergio Villari, *J.N.L. Durand (1760-1834): Art and Science of Architecture*, New York: Rizzoli, 1990.

specimens of a naturalist collector.<sup>159</sup> Durand explicitly rejected the role of the body, stating that “[...] the proportions of the human body have not served, nor could have served, as a model for the architectural orders.”<sup>160</sup> Durand also denied the importance of character, suggesting that it would result automatically from solving the disposition of the plan according to the building’s use. With this rejection of architecture’s symbolic function, argues Pérez-Gómez, Durand reduced the entire value system of architecture down to the two factors of convenience and efficiency, intended only to achieve the provision of comfort and the avoidance of pain.<sup>161</sup>

With the *Recueil* presenting great works of architecture as exemplars of composition, the *Précis* presents students with a means to emulate them in the form of a method for combining elements together. The first part describes columns, walls, openings, roofs, and other elements according to their proportion and materials of construction, while the second part describes rules for positioning them on a grid, with objects located on grid lines and openings at their mid-points. Devoid of historical or symbolic referent, the problem of design was reduced to a meaningless game of combination, whose meaning was derived only from the process itself.<sup>162</sup>

While the grid system facilitated symmetry and regularity, it neglected any treatment of hierarchy, either within each work, or in relation to their place in the social order. This loss of hierarchy, and the loss of the body as a referent in general, meant that the unity of the work, the end or purpose for which the parts were brought together, is no longer given. Although ideas of unity had been rendered problematic by the penetration of vision into bodies and buildings, Durand’s method denies the idea of unity as a necessary and sufficient combination of parts. His drawings avoid entirely the depiction of the interior as a privileged

---

<sup>159</sup> “The plans of large numbers of historical buildings, grouped according to their general functions—theatres, stadia, markets, and so on—are set out in the plates of Durand’s *Recueil et Parallèle des Edifices* of 1801, all drawn to common scales, arranged like nothing so much as the specimens for some work of natural history or geology.” Steadman, *The Evolution of Designs*, p. 29.

<sup>160</sup> Durand, *Précis*, Vol. 1, p. 14. As cited in Villari, *J.N.L. Durand*, p. 66.

<sup>161</sup> “For Durand, economy and efficiency were not a limitation, but sources of inspiration. They became the *only* acceptable values of architecture. And as long as the work fulfilled its program, it would be pleasant. The idea of efficiency is a functional relation: to achieve a *maximum* result with a *minimum* effort, with maximum economy. The system of values in architecture was thus reduced to a scale between pleasure and pain.” Pérez-Gómez, *Architecture and the Crisis of Modern Science*, p. 303.

<sup>162</sup> Pérez-Gómez, *Architecture and the Crisis of Modern Science*, p. 304.

view into a unified whole, and instead appear merely as diagrams showing the relative position of the various elements.<sup>163</sup>

Durand's work proved extremely influential, with several reprints and translations produced throughout the nineteenth century. His rejection of the symbolic significance of the orders can be seen as the beginning of the functionalisation of architecture, the derivation of designs solely according to their intended use. Although obviously influenced by contemporary political events, changes in attitude to authority and tradition indicated by Durand's work can also be seen to relate to changes in the scientific conception of the body. The shift from a direct investigation of the fabric of the body to a study of its variations within a taxonomic system meant that the role of the body as model for architecture's symbolic unity was no longer tenable. The rejection of the body meant that there was no metaphorical referent to establish principles of order and meaning in relation to architecture, no way to address the difficulties occasioned by the dualities of part and whole, unity and fragmentation, surface and depth. While the idea of 'function' relates back to Aristotle's conception of an inner teleology, by the nineteenth century the idea of function meant only use.<sup>164</sup> The soul, although central to all previous discourse about the body, was largely absent from nineteenth century scientific discourse. In the work of Lambert-Adolphe-Jacques Quételet, for example, with which Durand was familiar, evidence of a Divine Mind was to be found in the probabilities and numerical distributions seen to govern bodies, and not in the bodies themselves.<sup>165</sup> The explanation for this elision, I believe, lies in the

---

<sup>163</sup> "The *single, entire, and well-finished* Palladian body, already reeling under the blows of the baroque principle of hierarchy, is shattered now by the nearly serial composition of its elements. In particular the architectural space explodes, fracturing itself, its supposedly eternal indissolubility threatened at the core." Villari, *J.N.L. Durand*, p. 61.

<sup>164</sup> Joseph Rykwert has argued that the principle of 'form follows function' in fact originates in a concern for modelling surface in accordance with internal conditions of material and force. Along with the idea of 'organic' architecture, the relation between form and function is generally attributed to the eighteenth century Franciscan friar, Carlo Lodoli, passing via Francesco Milizia's *Lives of Famous Architects* to Horation Greenough, then to Louis Sullivan and on to Frank Lloyd Wright. However, Rykwert explains that for Lodoli, 'organic' referred primarily to the human body, and 'function' meant the mechanical working of forces within the structure translated into graphic terms. See Joseph Rykwert, "Lodoli on Function and Representation," in *The Necessity of Artifice*, London: Academy Editions, 1982, pp. 115-121. On Lodoli, see also Marco Frascari, "Function and Representation in Architecture," *Design Methods and Theories* 19/1, 1985, pp. 200-216.

<sup>165</sup> Lambert-Adolphe-Jacques Quételet, *A Treatise on Man and the Development of his Faculties*, London, 1842. On Quételet's influence upon Durand, see Bédard, "The Measure of Expression."

research into respiratory processes that followed on from Vesalius, eventually connecting the study of the heart to the atmospheric chemistry of the eighteenth century.

## Respiration and Vital Spirits

While Vesalius' *Fabrica* had provided a comprehensive description of various parts of the body, it raised a great number of questions as to their operation and purpose. One of the most compelling issues for anatomists was the working of the heart, understood as the source of life, providing blood for all the other organs. In particular, differences in the size and type of blood contained in the connections between heart and lungs could not readily be accounted for. The groundwork for an explanation was to be provided by Hieronymus Fabricius ab Aquapendente, chair of anatomy at Padua in the late sixteenth century.<sup>166</sup> Fabricius' study of the *ostiola*, the so-called valves in veins, was to prove valuable for his student, William Harvey, in the latter's description of the circulation of the blood, published after he returned to England. Harvey managed to show that the blood, rather than being produced and consumed in different parts of the body, circulated through it, driven by the action of the heart. Although this description gave support to emerging mechanistic descriptions of the body, Harvey remained staunchly Aristotelian, regarding his discovery as confirmation of the heart's role as the 'fountain' of life for the body.<sup>167</sup> As Sennett has shown, the idea of circulation was to prove highly influential in the planning and design of cities.<sup>168</sup> But neither Fabricius nor Harvey had managed to explain the connection between heart and lungs, known as the 'pulmonary transit' of the blood. The difficulty here lay not in variation from Galenic texts, but in its potential contradiction with the Bible. The Bible taught that the blood was the seat of the soul, and the soul was breathed into man by God.

---

<sup>166</sup> On Fabricius, see Cunningham, *The Anatomical Renaissance*, Chapter 6. See also Roy Porter, *The Greatest Benefit to Mankind*, pp. 183-215.

<sup>167</sup> "[...] it comes to pass in the body, that all the parts are nourished, cherished, and quickned with blood, which is warm, perfect, vaporous, full of spirit, and [...] alimentative: in the parts the blood is refrigerated, coagulated, and made as it were barren, from thence it returns to the heart, as to the fountain or dwelling-house of the body, to recover its perfection, and there again by naturall heat, powerfull, and vehement, it is melted, and is dispens'd again through the body from thence, being fraught with spirits, as with balsam, and that all the things do depend upon the motional pulsation of the heart." William Harvey, *An Anatomical Essay Concerning the Movement of the Heart and the Blood in Animals*, 1628; as cited in Porter, *The Greatest benefit to Mankind*, pp. 211-212.

A correct description of the pulmonary transit involved identifying the *lungs*, not the heart, as the place where the blood was mixed with air (spirit). This was first postulated by Michael Servetus in 1553, in his work *The Restoration of Christianity*. Servetus was consequently condemned for heresy and burnt at the stake. Servetus' idea was soon confirmed by Realdo Columbo, Vesalius' successor at Padua, in his posthumous publication of 1559, *On Anatomy*.

Descartes dismissed the Aristotelian foundation of Harvey's work, arguing instead for the mechanical consequences of circulation. The heart was seen as an engine, providing the motive force for the rest of the body. The heart was no longer seen as the source of life: instead it merely allowed the vital force in the blood to circulate throughout the body.<sup>169</sup> But if this were the case, Harvey's followers were to ask, where was the life force coming from? The relationship of the heart with the lungs suggested that the life force was to be found *outside* the body: so in the seventeenth century, the scientific study of air was to take on a particular significance. The importance of air to living creatures was graphically demonstrated by Robert Boyle. Boyle used a bell jar to create a vacuum into which birds and animals were placed. The creatures would soon perish, or be miraculously brought back to life as the air was replaced.<sup>170</sup> In *An Experiment on a Bird in the Air Pump* (1768), Joseph Wright of Derby used this demonstration to depict the power of the scientist over life and death.<sup>171</sup>

---

<sup>168</sup> Sennett, *Flesh and Stone*, Chapter 8.

<sup>169</sup> Rene Descartes, *The Passions of the Soul*, in *The Philosophical works of Descartes*, translated by Elizabeth S. Haldane and G. R. T. Ross, London, Cambridge University Press, 1967, pp. 333-336.

<sup>170</sup> Porter, *The Greatest Benefit to Mankind*, pp. 220-222. Similar experiments, by Robert Hooke and Richard Lower, challenged the view that the lungs were a kind of bellows designed to cool the fiery heart. Since a candle would also be extinguished by a vacuum, life was seen as a form of combustion, reliant upon the air for nourishment. The lungs transferred that nourishment from the air into the blood; the heart merely distributed the enlivened blood around the body.

<sup>171</sup> Erica Langmuir, *The National Gallery Companion Guide*, London: National Gallery Company, 1994, p. 329-330. This experiment was typical of the science-based home entertainment popular in the eighteenth century. See also Barbara Maria Stafford, *Artful Science: Enlightenment, Entertainment, and the Eclipse of Visual Education*, Cambridge, Mass.: MIT Press, 1994.



**Figure 13:** Joseph Wright of Derby, *An Experiment on a Bird in the Air Pump*, 1768. (British National Gallery)

But exactly what the air contained would only be identified with the advances in gas chemistry during the eighteenth century. Not until 1775 was oxygen identified, named by Antoine-Laurent Lavoisier, but also isolated by Joseph Priestly and Karl Wilhelm Scheele.<sup>172</sup> The history of gas chemistry has traditionally been told in scientific terms, as laboratory discoveries, hampered by the erroneous positing of phlogiston by Georg Ernst Stahl. But what phlogiston provided was an explanation of the vital force of the air, and its susceptibility to depletion. Similarly, the gases identified by Lavoisier and others were to provide an explanation of the respiratory process, the form of combustion by which animal heat was generated. Some resistance to mechanical and chemical descriptions of life were provided by vitalists, most notably Albrecht von Haller, for whom the physical body was animated by an immaterial soul. However, the relation to physiology meant that even for the vitalists, the soul was understood naturalistically, not religiously, as a life force shaping

---

<sup>172</sup> Porter, *The Greatest Benefit to Mankind*, pp. 252-254.

growth and regeneration.<sup>173</sup> Some considered the force of life to be in the nerves, not the veins; work by Luigi Galvani and Alessandro Volta, pioneers of electrophysics and electrochemistry, began by demonstrating the movement of muscles in animals by electrical impulse. But as a vital force, electricity simulated life only as movement, and there was no apparent ambient force supplying the body. Franz Anton Mesmer's use of magnets to cure patients led him to believe that he had discovered a vital 'aetherial fluid,' that he called 'animal magnetism.'<sup>174</sup> The importance of gas chemistry, however, was that it not only identified the source of the vital force, it also connected scientific study of the body to a long history of speculation about disease. At the time, inspired by the classification of natural systems, physicians were striving to develop a comprehensive classification of disease (nosology). Studies of the air held a promise of identifying, and thereby curing, airborne diseases.<sup>175</sup>

These changes to the conception of the body were to have a dramatic effect upon architecture. Discourse on the body in terms of its symbolic function, as a visible representation of appropriate relation to social and natural order evident in principles of decorum and character, had been lost in the few short centuries from Alberti to Durand. Following Durand's rejection of the body as the source of the orders, discourse turned to the functional and therapeutic relations between bodies and buildings. Instead of the symbolic body of Vitruvian Man, the body of modernism will be seen to be one that is characterised by scientific values of health and hygiene, purity and efficiency. It is to this body, and its dependence upon circulation, ventilation, and mechanical servicing, which we now turn.

---

<sup>173</sup> Porter, *The Greatest Benefit to Mankind*, pp. 250-252.

<sup>174</sup> Porter, *The Greatest Benefit to Mankind*, pp. 285-286. Patients treated in this way went into convulsive fits by which they were supposedly cured; others became 'mesmerised' in a hypnotic trance. See also Alison Winter, *Mesmerized: Powers of Mind in Victorian Britain*, Chicago: University of Chicago Press, 1998.

<sup>175</sup> As Porter writes: "These inquiries also led to attempts to measure the salubrity of the atmosphere, with a view to purifying the noxious air of towns and fetid buildings. Pneumatic chemistry, it was hoped, held the key not just to environmental medicine, but to therapeutics." Porter, *The Greatest Benefit to Mankind*, p. 254.



## Chapter 3

### **Evident Virtues: Modern Architecture and the Hygienic Body**

The machine we live in is an old coach full of tuberculosis.

Le Corbusier<sup>1</sup>

The growth of scientific knowledge in the French Academies was an essential part of the broader social and political changes characteristic of Enlightenment Europe. With the overthrow of the *ancien regime* and the establishment of political systems based upon 'rational' principles, human relations were transformed. These transformations were reflected in the structure and layout of cities, as public spaces and monuments were adapted to reflect new ideals of freedom and equality. Yet the biggest change to cities came not from new political systems, but from the application of scientific knowledge to the production of goods. Machines used to harness the latent energy of fossil fuels and direct it toward manufacture enabled a shift from agrarian to industrial economy, through which the principles and practices of capitalism were implemented. Often hailed as 'labour saving,' mechanical production in fact required a constant supply of operators, a reliable workforce

---

<sup>1</sup> Le Corbusier, *Towards a New Architecture*, trans. by Frederick Etchells, London: Architectural Press, 1946, pp. 256-7.

that would ensure profitability. The greatest change to European cities came from the introduction of factories, and from the dramatic increases in population as peasants moved to urban centres to seek employment. Moving to cities, rural populations were disconnected from their engagement with the land, and from the cycles of growth and return of agrarian life. The combination of industrial pollution and human waste proved too much for the cities to absorb, leading to epidemics of cholera and typhoid that claimed many thousands of lives. These epidemics were the major impediment to the optimism brought about by the belief in progress and improvement to material wealth.

Most cities had been founded on waterways that provided both a regular supply of fresh water as well as a conduit for waste. When these proved inadequate to cope with the demands of industrialisation, their augmentation with reticulated supply and drainage was slow to occur. The need for infrastructure was not immediately apparent, as its role in the prevention of disease was little understood. Efforts made to remove waste were motivated largely by the desire to avoid the foul smells associated with it. The widespread introduction of water supply and drainage occurred only after developments in medical science that identified the cause of disease and its means of transmission. The discovery of germs led to a new conception of the body, one that required new practices of bathing, dress, and hygiene. These practices were not automatically adopted, but needed to be disseminated throughout the population. This was done using various forms of instruction and encouragement, and involved the gradual introduction of services into the home. For architects, dealing with new spaces for ablution meant complicity in the dissemination of these practices, and with them, the promotion of a new kind of body. The idea of a hygienic body, a body clean and free of corruption, was to become a dominant metaphor for modern architecture.

### **Disease, Air, and Water**

As cities grew rapidly during the eighteenth and nineteenth centuries as a result of industrialisation, strategies of removing pollution and waste were slow to be adopted. In many cities, improvements were made to infrastructure only in response to outbreaks of fire

or disease.<sup>2</sup> The result, according to Lewis Mumford, was “[...] the most degraded urban environment the world had yet seen.”<sup>3</sup> Cities required new practices of hygiene, which in turn depended upon adequate water supply and drainage. Yet for infrastructure to be used, a transformation in attitudes to health and hygiene was required. The rural populations who moved to cities had brought with them attitudes that saw dirt as a source of life and protection from disease. Constant contact with the earth had been a natural way of life; all things grew from the earth, and all things returned to it. Crops were watered by rain, but rarely was it collected and used for bathing. Washing was considered unnecessary, since dirt and excrement were thought to provide a ‘*cordon sanitaire*’, which bathing would remove.<sup>4</sup> Although the move to cities meant leaving crops behind, the peasants brought whatever means of subsistence they could, such as livestock, poultry and beasts of burden. Streets became filled with the waste of animals and humans alike, with the carcasses of dead animals adding to the refuse. The level of waste soon became intolerable.<sup>5</sup> The smell, as well as being unpleasant, was considered a cause of disease. Since the Middle Ages, ill health had been associated with odours, with disease, especially plague, thought to be contracted by the absorption of mephitic air through the lungs or skin. While skin could be protected by dirt or impermeable clothing, the danger of breathing foul air could only be avoided if the air itself was removed. The danger of mephitic air was also avoided by replacing it with other odours; incense, smoke, and perfumes were originally used for this purpose.<sup>6</sup> Aromatics could also be used to strengthen and protect the body. Indeed belief in the therapeutic nature of aromatics extended back to Hippocrates and Galen.<sup>7</sup> Avoiding disease was largely a matter of deodorisation, and smell was crucial in evaluating the healthiness or otherwise of air. On the level of the body, the simplest strategy of

---

<sup>2</sup> Mark Girouard, *Cities & People: a Social and Architectural History*, New Haven: Yale University Press, 1985, p. 339.

<sup>3</sup> Lewis Mumford, *The City in History: its Origins, its Transformations, and its Prospects*, Harmondsworth: Penguin, 1991 (1961), p. 509.

<sup>4</sup> Sennett, *Flesh and Stone*, pp. 261-263; see also Goubert, *The Conquest of Water*, p. 216.

<sup>5</sup> Terence McLaughlin, *Coprophilia: or, a peck of dirt*, London: Cassell, 1971. Eighteenth-century Britain, writes McLaughlin, was “drowning in its own excrement.” p. 3.

<sup>6</sup> Constance Classen, David Howes and Anthony Synnott, *Aroma: The Cultural History of Smell*, London and New York: Routledge. 1994; Annick Le Gu  rer, *Scent: The Mysterious and Essential Powers of Smell*, translated by Richard Miller, New York: Turtle Bay Books. 1993.

<sup>7</sup> Alain Corbin, *The Foul and the Fragrant: Odour and the Social Imagination*, translated by Miriam Kochan, Roy Porter, and Christopher Prendergast; London: MacMillan, 1996 (1986), p. 62.

deodorisation was to repel or replace foul air using fragrances. Perfume was the most direct of a variety of means of fumigating bodies and spaces, using such aromatics as herbs, resins, vinegar, camphor, and even gunpowder.<sup>8</sup> Ideas of health and illness were often understood within a theological framework. Foul air, disease, and death were the hallmarks of evil, while pleasant smells were a sign of goodness: saints were reported as emanating only pleasant smells, known as the ‘odour of sanctity.’<sup>9</sup> The attraction and repulsion of smells provided a ready measure for distinguishing between good and bad, of food, water, air, or other people. As Alain Corbin explains, smell is the basic sense of sympathy and antipathy among beings.<sup>10</sup>

Attitudes to air were influenced by William Harvey’s publication describing the circulation of the blood (*De Motu Cordis*) following his return to London.<sup>11</sup> The health of the body was no longer conceived in terms of a balance of humours, but was now dependent upon maintaining the flow of blood. Ernst Platner applied the principle to air: like blood, air needed to circulate, and skin was the membrane through which air in the body was exchanged with the atmosphere. Dirt on the skin, instead of protecting the body, was seen to impede this exchange.<sup>12</sup> To enable the skin to breathe, Platner recommended frequent ablutions, for the face, hands, and feet, and even, on occasion, for the whole body. Prior to this, bathing had largely been symbolic or therapeutic. In fact, since the Middle Ages, the dangers associated with exposing the body to water were seen to be so potentially harmful that bathing was largely avoided.<sup>13</sup> Because the skin was regarded as permeable, the delicate balance of humours could easily be upset by exposing the body to water, making it particularly susceptible to disease. Water could not only hold mephitic, but could also relax the fibres, and weaken the organism. Further, moralists warned against the dangers associated with bathing; the prospect of pleasure associated with the exposure of

---

<sup>8</sup> Corbin, *The Foul and the Fragrant*, pp. 61-66.

<sup>9</sup> Corbin, *The Foul and the Fragrant*, p. 39. See also Paul Ricoeur, *The Symbolism of Evil*, translated by Emerson Buchanan, Boston: Beacon Press, 1969.

<sup>10</sup> Corbin, *The Foul and the Fragrant*, p. 140.

<sup>11</sup> William Harvey, *An Anatomical Exercise on the Motion of the Heart and Blood in Animals*, 1628.

<sup>12</sup> Corbin, *The Foul and the Fragrant*, p. 71; Sennett, *Flesh and Stone*, p. 262.

<sup>13</sup> George Vigarello, *Concepts of Cleanliness: Changing attitudes in France since the Middle Ages*, translated by Jean Birrell, Cambridge: Cambridge University Press, 1988, p. 9.

the naked body, and the threat of succumbing to autoeroticism.<sup>14</sup> Apart from these dangers, there was also the practical problem of access to water. Only for the wealthy was the prospect of a regular supply of clean water a reality, with servants to perform the labour of carrying it indoors. For the masses, bathing was collective, if it happened at all; mostly the sweat of labour was enough to clean the pores.

For the bourgeoisie, prior to the adoption of bathing, cleaning the body was achieved using a ‘dry wash,’ wiping dirt and perspiration from the body with a linen cloth.<sup>15</sup> The cloth could also be perfumed, allowing the scent to be transferred to the body by rubbing. The expense of the cloth and the labour of cleaning it meant that these practices were limited to the upper classes. Later, linen was interspersed between the body and its heavier outer clothing. This lining of linen could be removed and cleaned. Since it was white, such linen was highly visible, and soon came to represent the cleanliness of the body.<sup>16</sup> As fear over the dangers of miasma eased, the outer layers became less constrictive, and the linen beneath became even more visible. Thus Harvey’s ideas had led to a new *visual* language of cleanliness, which also served as a form of class distinction.<sup>17</sup> The removal of dirt enabled the free circulation of air around the skin. Less constrictive clothing further encouraged circulation, at the same time making skin visible, revealing its healthiness through contact with the air. Clean skin symbolised the fact that inner impurities had been allowed to escape, vented through the skin to the atmosphere. Cleanliness was reduced to a purely mechanical system of purging the body of impurities collected from the surrounding air. As a result ideas of pollution were redefined. The meaning of ‘purity’ shifted, from a religious conception of inner goodness to a secular one related to people’s social experience. As Sennett observes, “Impurity meant dirty skin rather than a stain on the soul.”<sup>18</sup>

---

<sup>14</sup> Corbin, *The Foul and the Fragrant*, p. 72.

<sup>15</sup> Vigarello, *Concepts of Cleanliness*.

<sup>16</sup> Vigarello, *Concepts of Cleanliness*, p. 41.

<sup>17</sup> “Cleanliness was the visual effect that marked one’s membership of a social class rather than the state of one’s body.” Mark Wigley, *White Walls, Designer Dresses: The Fashioning of Modern Architecture*, Cambridge, Mass.: MIT Press, 1995, p. 5.

<sup>18</sup> Sennett, *Flesh and Stone*, p. 262.

## Surfaces and Cities

Strategies of cleaning cities were based upon the same principles as those used for the body. Atmospheric strategies relied upon the replacement of mephitic air using aromatics. Attempts at dispersal were also made using noise, such as the ringing of bells or firing cannons. These soon gave way to strategies that sought to improve circulation of air, leading to a transformation of *surface*.<sup>19</sup> Paving, used since Roman times, was seen as an effective way to encourage the flow of air. Paving also had a pleasing appearance, made traffic easier, and most importantly, sealed off the air from the dangerous exhalations of the earth.<sup>20</sup> Cobblestones, between which could accumulate the filth of the city, were replaced with flagstones, having a smooth surface and precise joints. The provision of water began as a means of cleansing the air, and the nineteenth century saw an increase in the use of water fountains for the purification of public spaces.<sup>21</sup> Paving could easily be cleared of rubbish using water, the use of which was intended merely to encourage flow. What mattered was keeping things moving, the movement itself seen as sufficient prevention against corruption.<sup>22</sup> The therapeutic effects of movement led to a desire to clear the streets of waste. Drainage began as a means to ensure the movement of water, thus preventing stagnation; sewage systems began to be installed.<sup>23</sup> Municipal health laws were introduced requiring that streets be swept and rubbish removed.<sup>24</sup> Industry and commerce were also affected, as factories and markets were threatened with relocation, as were other sources of smells such as slaughter-houses and cemeteries. This separation was not originally mandated by town planning regulations, but lower rents in areas surrounding these facilities often led landlords to press for their removal. So began the modern planning strategies of separation and isolation, originating from sensory intolerance, attempting to maximise ventilation and minimise the odious intermingling of smells.

---

<sup>19</sup> Rodolphe el-Khoury, "Polish and Deodorise: Paving the City in Late-Eighteenth-Century France," *Assemblage* 31, 1997: pp. 6-15.

<sup>20</sup> Corbin, *The Foul and the Fragrant*, p. 90.

<sup>21</sup> Goubert, *The Conquest of Water*, p. 27.

<sup>22</sup> "Cleaning did not mean washing so much as *draining*; the primary goal was to ensure the discharge, the evacuation of rubbish." Corbin, *The Foul and the Fragrant*, p. 91.

<sup>23</sup> Most European cities were equipped with drainage systems around the mid-nineteenth century. Girouard, *Cities & People*, p. 340.

<sup>24</sup> Sennett, *Flesh and Stone*, p. 263.

Building on the bodily metaphors used by Renaissance architects, planners sought to apply Harvey's ideas to the layout of cities. The major streets of most European cities had originally been intended for ceremonial purposes, allowing the movement of citizens toward shrines, monuments, or palaces. For Enlightenment planners, the principle of health based on circulation made movement an end in itself. Those who travelled to the New World, such as Pierre L'Enfant, planner of Washington in the late eighteenth century, had the opportunity to put these ideas into practice in the design of cities laid out from scratch.<sup>25</sup> But for those working European capitals, the facilitation of movement involved the destruction of large areas of the city. This is particularly evident in Baron Haussmann's reconstruction of Paris in the 1850's and 1860's. Working from a sketch given to him by Emperor Napoleon III, Haussmann opened out over 150 kilometres of new streets, enabling the introduction of water supply, sewers, gas lighting, and public transport, along with schools, hospitals, barracks, and public parks.<sup>26</sup> The new streets were made by demolishing large numbers of buildings in which labouring classes worked and lived, leaving communities split in two by boulevards flowing with traffic.<sup>27</sup> This was enabled by a combination of new forms of legislation, involving the introduction of compulsory purchase orders as well as laws relating to public health.<sup>28</sup>

## The Space of Ablution

Strategies of health based upon principles of circulation were also adopted by architects. In Ledoux's design for the Saline de Chaux (1773-1788), the separation of buildings had the dual benefit of reducing fire hazard and allowing ventilation that would benefit the health of the workers.<sup>29</sup> Ledoux learnt the need for both from his involvement in the debate over

---

<sup>25</sup> Sennett, *Flesh and Stone*, pp. 263-270.

<sup>26</sup> Leonardo Benevolo, *The History of the City*, translated by Geoffrey Culverwell, London: Scolar Press, 1980, pp. 787-822.

<sup>27</sup> Sennett, *Flesh and Stone*, pp. 329-332.

<sup>28</sup> Benevolo, *The History of the City*, p. 787-822.

<sup>29</sup> Anthony Vidler, *Claude-Nicolas Ledoux: Architecture and Social Reform at the end of the Ancien Regime*, Cambridge, Mass.: MIT Press, 1990, pp. 94-95.

the rebuilding of the Hotel-Dieu in Paris, destroyed by fire in 1772.<sup>30</sup> Although Ledoux did not design any hospitals, he was familiar with the guidelines for their layout written by the physician Antoine Petit 1774, which suggested isolating ward blocks using a radial plan form.<sup>31</sup> In hospitals, smooth surfaces were introduced to encourage the flow of air, with ceramic tiles plastering, and whitewashing used to render the walls impermeable.<sup>32</sup> Chemical disinfectants were also used, with lime dissolved in water proving effective in neutralising the odour of corpses.<sup>33</sup> The strategies of separation identified by Foucault as facilitating surveillance in hospitals and prisons were often promoted as a means to improve the health of inmates.<sup>34</sup> With their densely packed collections of docile bodies, such institutions proved ideal laboratories for reformers to test their methods.<sup>35</sup> The introduction of a centralised system for heating and ventilation in Joshua Jebb's design for the Pentonville Prison (1844) enabled prisoners to be kept healthy while interred in windowless cells.<sup>36</sup> The desire for ventilation led to a renegotiation of the space of the individual body, through the separation of patients and prisoners either into discrete cells or individual beds.<sup>37</sup> Crowding became a source of anxiety, with the spatial requirements of the body determined by forms of sensory intolerance.<sup>38</sup> The increasing spatial definition of the individual also occurred on a domestic level. The introduction of water into the home resulted in the articulation of private space into areas for sleeping, dressing, and bathing. According to Corbin, this reconfiguration of private spaces led to a new narcissism, an encounter with the self and its individual emanations, free from the intrusion of others.<sup>39</sup> This desire to prevent the commingling of odours would lead to the spatial distribution of the modern home, with

---

<sup>30</sup> Anthony Vidler, *The Writing of the Walls: Architectural Theory in the Late Enlightenment*, Princeton, N.J.: Princeton Architectural Press, 1987.

<sup>31</sup> Vidler, *Ledoux*, p. 95; Vidler, *The Writing of the Walls*, p. 55-64. Guidelines for hospital design were also prepared by the physician Jean-Baptiste Le Roy, brother of architect Julien-David.

<sup>32</sup> Corbin, *The Foul and the Fragrant*, p. 91.

<sup>33</sup> Corbin, *The Foul and the Fragrant*, p. 122.

<sup>34</sup> See also Michel Foucault, *Discipline and Punish*, and Foucault, *The Birth of the Clinic*.

<sup>35</sup> On the role of architecture in prison reform, see Robin Evans, *The Fabrication of Virtue*.

<sup>36</sup> Luis Fernandez-Galiano, *Fire and Memory: On Architecture and Energy*, translated by Gina Carriño, Cambridge, Mass.: MIT Press, 2000, pp. 233-238.

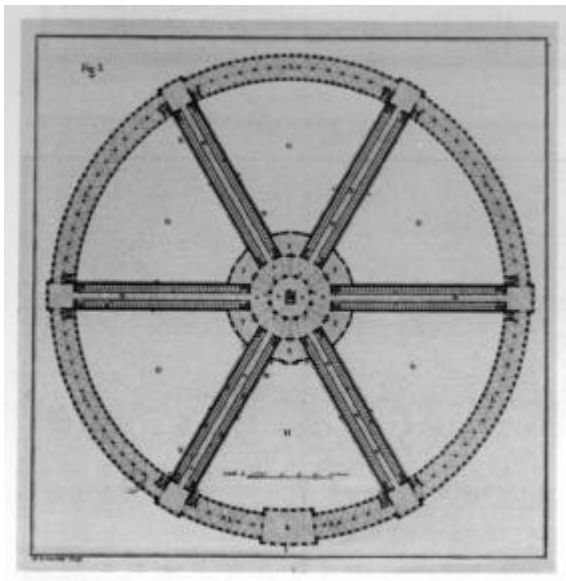
<sup>37</sup> Vidler, *The Writing of the Walls*, p. 77.

<sup>38</sup> Corbin, *The Foul and the Fragrant*, pp. 98-100.

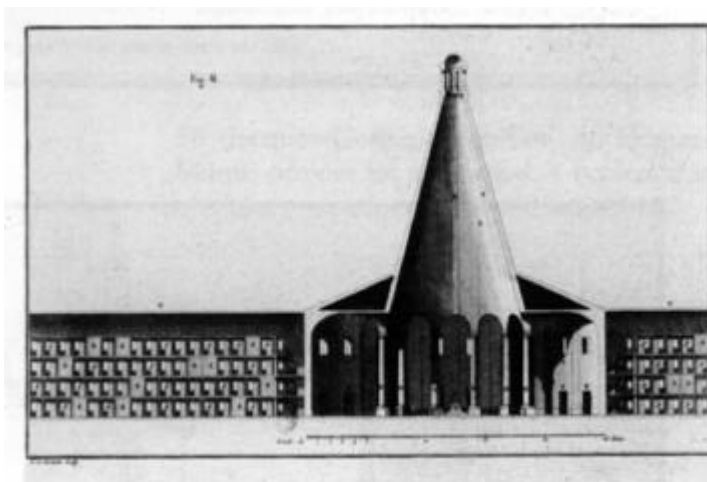
<sup>39</sup> Corbin, *The Foul and the Fragrant*, pp. 95-101.







**Figure 15:** Antoine Petit, Project for a new Hôtel-Dieu, plan, 1774. Engraving by Claude-Mathieu de Lagardette from Antoine Petit, *Mémoire sur la meilleure manière de la construire un hôpital de lalades* (Paris 1774), pl. 1. (As published in Vidler, *The Writing of the Walls*, pl. 51.)



**Figure 16:** Antoine Petit, Project for a new Hôtel-Dieu, section. (As published in Vidler, *The Writing of the Walls*, pl. 52.)

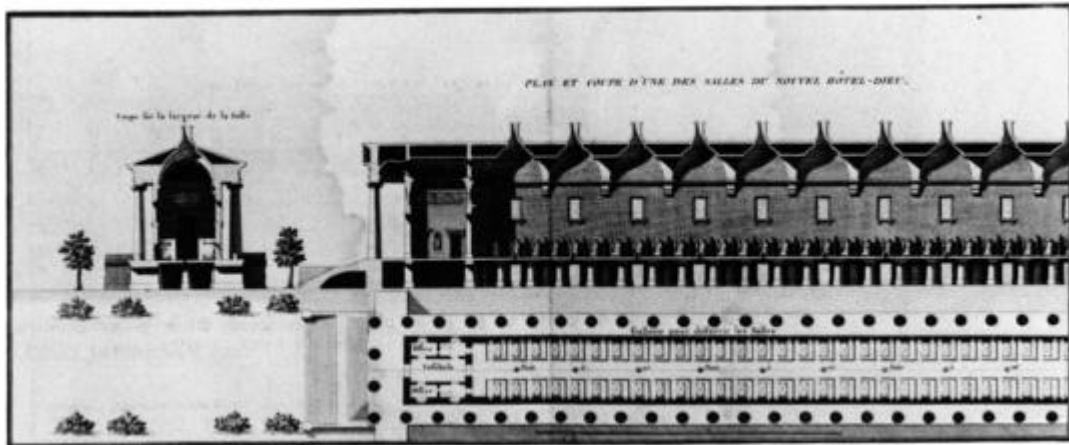


Figure 17: Jean-Baptiste Le Roy and Charles-François Viel, ward block for a new Hôtel-Dieu, 1773. In *Mémoires de l'Académie des Sciences*, 1787. (As published in Vidler, *The Writing of the Walls*, pl. 55.)

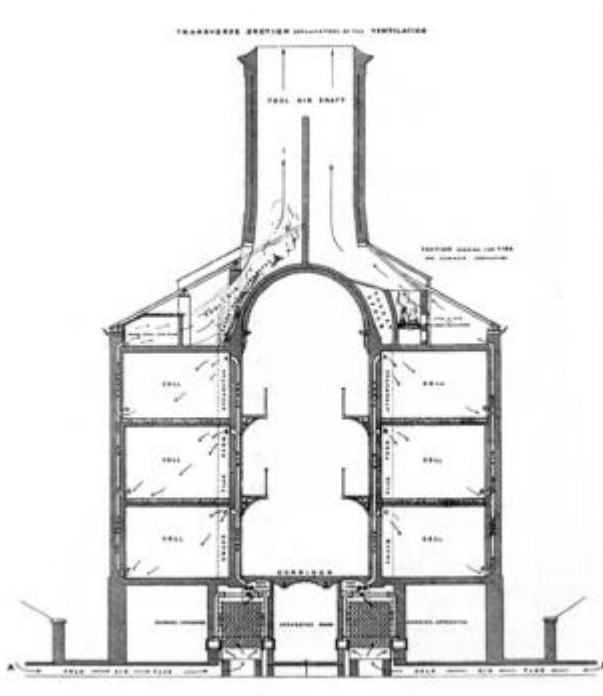


Figure 18: Pentonville Prison. Joshua Jebb, *Report of the Surveyor General of Prisons*, 1844. (As published in Fernandez-Galiano, *Fire and Memory*, p. 235.)

Unfortunately, the refinements arising from the introduction of services were slow to reach the homes of the working classes. High population densities in tenement housing meant that articulations of space were simply not possible. Moreover, most landlords were reluctant to bear the expense of installing plumbing and drainage in new constructions, let alone fitting them to existing dwellings.<sup>41</sup> Despite this, attempts were made to disseminate hygiene practices among the poor. From the safety of institutions, sanitary reformers moved out to the houses of peasants and workers to encourage the use of water for bathing. Yet the motives of reformers can be regarded as not entirely philanthropic. With little access to the new hygiene practices, the poor were readily identifiable by their lack of conformity to the codes of white clothing and clean skin. The subtle refinements of personal odour and space among the bourgeoisie led them to regard the poor as responsible for the smell of the city. Along with the threat to olfactory sensibility, the association of foul air with contagion meant that the poor were regarded as a threat to health. And worst of all, the smell of the poor was regarded as indicative of their moral corruption that threatened the order of the city.<sup>42</sup> The bourgeoisie, feeling crowded in upon by the urban poor, sought to extend their own practices of hygiene across the entire population, in order to rid themselves of this threefold threat.<sup>43</sup> Among the poor, however, there was suspicion of, and resistance to, sanitary reform.<sup>44</sup>

In the newly formed United States of America, the promotion of cleanliness as a public virtue was even more pronounced. Major public figures, most notably Benjamin Franklin, urged the population to clean themselves by appealing to their sense of patriotism. Cleanliness was raised to the level of a moral standard, one of the ‘values’ enumerated by

---

<sup>41</sup> Mumford, *The City in History*, pp. 526-530.

<sup>42</sup> “[...] from clean streets to clean houses, and from clean rooms to clean bodies, the intention was no less than to transform the habits of the most deprived sector of the population, to banish their supposed vices, concealed or visible, by changing their bodily habits.” Vigarello, *Concepts of Cleanliness*, p. 192.

<sup>43</sup> “Emphasizing the fetidity of the laboring classes, and thus the danger of infection from their mere presence, helped the bourgeois to sustain his self-indulgent, self-induced terror, which dammed up the expression of remorse. From these considerations emerged the tactics of public health policy, which symbolically assimilated disinfection and submission. ‘The enormous fetidity of social catastrophes,’ whether riots or epidemics, gave rise to the notion that making the proletariat odorless would promote discipline and work among them.” Corbin, *The Foul and the Fragrant*, p. 143.

<sup>44</sup> “Bourgeois deodorization presupposed wealth, or at least comfort; it attested lack of involvement in manual labour. [...] The extensive use of chlorine in water multiplied rumours; some people saw it as evidence that the elite were bent on mass homicide.” Corbin, *The Foul and the Fragrant*, p. 213.

Franklin and others, used to identify the true American character.<sup>45</sup> This practice continued well into the twentieth century.<sup>46</sup> As Suellen Hoy explains, the pursuit of cleanliness became something of an American obsession.<sup>47</sup> Hygiene became a public matter, with associations forming to combat the outbreak of disease in public spaces. ‘Sanitarians,’ self appointed agents acting the public interest, sought to impose control on those citizens considered too undisciplined and complacent to improve their environment.<sup>48</sup> Yet without scientific knowledge of the cause of disease, many of the recommendations made by reformers were phrased in domestic or aesthetic terms.<sup>49</sup> The desire to rid the population of disease and disorder also extended to the erasure of imported cultural practices. Cultural difference was erased as middle class standards of hygiene were inculcated in African American and immigrant minorities.<sup>50</sup> Traces of culture were further threatened as reformers made their point in aesthetic terms, expressing a preference for sparse, robust, and easily cleaned furnishings, as opposed to the more ornate styles preferred among immigrants. From body, to dress, to ornamentation, to architecture, the promotion of virtue through the physical environment appears as a common theme throughout the nineteenth century. Values of health and hygiene were often explicitly connected with the morality of family, with the home as the focal point for the interdependence of the family unit. Not only were families reliant upon their breadwinner for sustenance and standing, so too the breadwinner was reliant upon the stability of the home to avoid drifting from the path of constancy.<sup>51</sup>

---

<sup>45</sup> Suellen Hoy, *Chasing Dirt: The American Pursuit of Cleanliness*, Oxford and New York: Oxford University Press, 1995.

<sup>46</sup> The idea of listing ‘values,’ enabling identity through difference, appeared in the sociological research of Milton Rokeach. Among such middle class aspirations as ‘comfort’ and ‘freedom,’ Rokeach includes ‘cleanliness’. See Milton Rokeach, *The Nature of Human Values*, New York: Free Press, 1973. For a critique of the biases inherent in Rokeach’s work, see Carol Gilligan, *In a Different Voice: Psychological Theory and Women’s Development*, Cambridge, Mass.: Harvard University Press, 1982.

<sup>47</sup> Hoy, *Chasing Dirt*, passim.

<sup>48</sup> Reformers such as Lemuel Shattuck of Boston “recommended a programme of sanitary control in which the state and municipality would share the responsibilities of guardian, regulator, and educator of its citizens.” Hoy, *Chasing Dirt*, p. 26.

<sup>49</sup> Most associations for promoting hygiene were comprised of amateurs, who were only vaguely aware of emerging medical and scientific theories. Hoy, *Chasing Dirt*, p. 75.

<sup>50</sup> “[C]leanliness became something more than a way to prevent epidemics and make cities liveable—it became a route to citizenship, to becoming American.” Hoy, *Chasing Dirt*, p. 87.

<sup>51</sup> Goubert, *The Conquest of Water*, p. 229.

Robin Evans describes a similar impetus to moral reform in English public housing of the Victorian period.<sup>52</sup> Evans argues that twentieth century housing emerged from the efforts to overcome the ‘indecentencies’ of the rookery den.<sup>53</sup> Although the moral intentions of improved living conditions has been largely overshadowed by the effectiveness of sanitary reform, the provision of housing is predicated upon the view that the two are inseparable.<sup>54</sup> In the crowded rookeries, informal spatial divisions had prevented the easy identification of families and individuals. Although this hampered the efforts of agents of the state, especially police and tax collectors, a localised morality was ensured by the constant presence of others.<sup>55</sup> At nighttime, however, sleep led to both reduced vigilance and increased temptation, with abandonment to sleep acknowledged at the time as an erotic condition. The intermingling of families in shared sleeping spaces, often in a reduced state of dress, aroused fear among reformers.<sup>56</sup> Model housing, in contrast, sought to separate families from each other, with individual apartments accessed by a common, external stair, preventing dwellings being used as through-routes, while also forming a barrier between each dwelling and the public realm. Inside each apartment was further divided, having separate bedrooms for parents, boys, and girls, along with a privy and scullery. The internal divisions promoted a particular form of family structure, demarcating forms of behaviour and their associated levels of privacy. Like the new practices of hygiene, these new housing types met with resistance, their inhabitants suspicious of the ‘introverted domesticity’ entailed by their occupation.<sup>57</sup>

---

<sup>52</sup> Robin Evans, “Rookeries and Model Dwellings: English Housing Reform and the Moralities of Private Space,” *Architectural Association Quarterly*, 10/1, 1978, pp. 24-35.

<sup>53</sup> Evans, “Rookeries and Model Dwellings,” p. 24.

<sup>54</sup> “Behind novel claims that [...] improvements to popular housing were instrumental to social progress, lay a conviction that virtue could be wrought from architecture as surely as corruption was wrought from slums.” Evans, “Rookeries and Model Dwellings,” p. 26.

<sup>55</sup> “You could never be certain where anyone was [...] but you could be sure that whatever anyone did was done in the purview of numerous neighbors.” Evans, “Rookeries and Model Dwellings,” p. 28.

<sup>56</sup> “Investigators could reveal grotesque instances of overcrowding but were as much concerned with the moral implications of flesh pressed against flesh as with the more obvious discomforts of piling too many bodies into a confined space.” Evans, “Rookeries and Model Dwellings,” pp. 30-31.

<sup>57</sup> Evans, “Rookeries and Model Dwellings,” p. 31.

## Counting Bodies, Cleaning Bodies

Efforts to control populations through sanitary and housing reform were further enhanced by the then emergent ‘science’ of statistics. At the end of the Napoleonic era, new practices of counting populations developed as church records of births, deaths, and marriages were extended to measure various aspects of human behaviour. In the interests of the state, bodies were measured, the incidence of disease was counted, and aberrations such as crime and suicide were recorded. According to Ian Hacking, a fascination for quantification emerged, resulting in an “avalanche of printed numbers”.<sup>58</sup> Statistics helped keep track of populations, and in one case in particular, proved helpful in identifying the cause of disease. By mapping deaths due to an outbreak of cholera in the Broad Street area of London in 1854, John Snow confirmed his suspicion that a local pump-well was contaminated. The handle was removed from the pump, and the epidemic soon ended.<sup>59</sup> Yet while the science of statistics was helpful in establishing the cause of disease and the efficacy of cures, it also led to a reconfiguration of the idea of normality. The French pathologist François-Joseph-Victor Broussais argued that the pathological state of any organ was a result of irritation that altered it from its ‘normal’ state, with disease and health differing in degree, not in kind.<sup>60</sup> Normality, far from being defined as an expected or usual state, emerged as the opposite of the pathological, a state prior to, or free from, deviation. Yet because statistics enabled the normal to be quantified, namely as that which occurred within acceptable boundaries of the curve of Normal distribution, the primacy was soon inverted. Now the pathological was defined as a deviation from the normal, and all variation was characterised as variation from the normal state. When August Comte applied Broussais’ theories to the ‘collective organism,’ normality was used in relation to intellectual and moral dimensions of society.<sup>61</sup> Through Comte’s positivism, the idea of normality ceased to be regarded as the ordinary state, and instead became an ideal state toward which effort and progress were to be

---

<sup>58</sup> Ian Hacking, *The Taming of Chance*, Cambridge; New York: Cambridge University Press, 1990, p. 164.

<sup>59</sup> John Snow, *On the Mode of Communication of Cholera*, London, 1855. See also Edward R. Tufte, *Visual Explanations: Images and Quantities, Evidence and Narrative*, Cheshire, Conn.: Graphics Press, 1997, pp. 27-37.

<sup>60</sup> Hacking, *The Taming of Chance*, p. 164.

<sup>61</sup> Porter, *The Greatest Benefit to Mankind*, pp. 313-314.

directed.<sup>62</sup> The states of normality that were to be sought were intricately related to the categories into which people were classified before they could be counted. This practice, which Hacking describes as ‘making up people,’ serves to establish identity in accordance with socially accepted norms, while erasing difference by eliminating all other aspects from consideration.<sup>63</sup> Although Comte’s positivism veered away from these numerical notions, the ethics of utilitarianism—the greatest good for the greatest number—were intimately connected with these measured ideals; numbers became a moral indication of the quality of life.

But it was not until the end of the nineteenth century that the control of populations was to enjoy the full force of scientific objectivity. While the medical community had been supportive of the practices of bathing and ventilation, it was with the discoveries of Louis Pasteur in the 1880’s that the need for public hygiene became widely acknowledged. Simultaneous discoveries by Pasteur in France and Robert Koch in Germany had identified micro-organisms as the cause of disease. This originally found agricultural application, but after Pasteur twice succeeded in saving the life of a young boy threatened by rabies, interest in his work gripped the public imagination. In the following years, Pasteur, Koch, and their successors identified the cause of large numbers of deadly diseases, and developed vaccines for their prevention. Yet Pasteur’s discoveries were to influence more than just preventative medicine. Around the same time, surgical procedures were beginning to adopt, albeit tentatively, an interest in cleanliness as promoted by reformers. In 1847, for example, Ignaz Semmelweis, a physician at the Vienna General Hospital, ordered medical students, who had been assisting with deliveries after coming straight from autopsies, to wash their hands with chlorinated water. The result was a sharp decline in mortality rates.<sup>64</sup> But it was not until the work of Joseph Lister that ideas of antiseptic surgery would take hold. Lister, aware of Pasteur’s research, realised that airborne bacteria were entering the body during surgery, causing infection. Exposed flesh, he realised, needed to be cleaned, replacing the barrier of skin with a chemical barrier.<sup>65</sup> Lister’s formalisation of antiseptic surgery

---

<sup>62</sup> Hacking, *The Taming of Chance*, p. 168.

<sup>63</sup> Hacking, *The Taming of Chance*, p. 3. See also Hacking’s “Making Up People,” in T. Heller *et al* (eds.), *Reconstructing Individualism*, Stanford, 1986, pp. 222-236.

<sup>64</sup> Porter, *The Greatest Benefit to Mankind*, pp. 369-370.

<sup>65</sup> Porter, *The Greatest Benefit to Mankind*, p. 371.



techniques combined with another dramatic medical advance, also made possible through chemical researches. The 1840's saw the first steps in the use of anaesthetics, with nitrous oxide, ether, and chloroform enabling the surgeon to carry out his task without inflicting pain. Previously, surgery had been limited to surface manipulations, or to emergency procedures occasioned by war or infection. The combination of anaesthetics and antiseptics enabled surgeons to venture inside the body, inspecting and manipulating the body interior while the patient was still alive.<sup>66</sup> This meant that pathologists were able to do more than identify disease during autopsy. Foucault's criticism of the patho-anatomical gaze rested on the epistemic priority given to the corpse, the revelation of truth provided by the death of the patient.<sup>67</sup> Such an event, while lamentable, placed the physician in the advantageous position of being able to confirm his diagnosis. Yet as Porter explains, pathology did not lead to cures or help improve matters for the sick. Invasive surgical procedures, however, enabled the advances of pathology to be put to use. In this way, a strange inversion was effected. While the living body could be opened to the gaze and touch of the surgeon, this was only possible by temporarily reducing the patient's body to the level of a corpse.

These transformations brought a dramatic increase in the social status of the surgeon, now exceeding that of the physician. The gradual inclusion of surgery in the curricula of medical schools had brought status, particularly through association with anatomy. Anatomical knowledge, derived by gazing into the body of another, had acquired a degree of objectivity. This, combined with the patient's inability to see into their own interior, gives the surgeon the power of *agency*, acting on behalf of the patient to venture into their body interior. To do so required trust, earned carefully by the medical profession through years of social and institutional affiliation, not to mention the continued publication of anatomical knowledge in scientific terms.<sup>68</sup> The surgeon became a mediator between interior and exterior worlds.<sup>69</sup> The success of medicine in the fight against disease and the treatment of

---

<sup>66</sup> Surgery was also complemented by the various diagnostic techniques that had been developed; from stethoscopes (which saved the physician from the smell of the patient) to X-rays. See Stanley Joel Reiser, *Medicine and the Reign of Technology*, Cambridge: Cambridge University Press, 1978.

<sup>67</sup> Foucault, *The Birth of the Clinic*, p. 166.

<sup>68</sup> Ludmilla Jordanova, "Medicine and Genres of Display," in Lynne Cooke and Peter Wollen, eds., *Visual Display: Culture Beyond Appearances*, Seattle: Bay Press, 1995.

<sup>69</sup> "The surgeon seems to share the iconic status of the artist (or the visionary) within our culture, since both are held to be in possession of a privileged gaze which is able to pass beyond common experience,

illness and injury made doctors a powerful voice in the community. Medicine transformed science from an abstracted inquiry into a benevolent presence in everyday life. The hygiene movement found the medical profession to be a powerful ally, giving to bathing an objective necessity.<sup>70</sup> Institutions, especially hospitals and schools, were utilised to instruct the population in these new rituals. Journals such as *L'Illustration* and *Le Petit Journal* encouraged models of bourgeois behaviour, the adoption of which led almost inevitably to increased consumption. Hygiene was good for people, and good for business. Fortunately, the cost of installing water supply and sewerage systems was usually borne by the state, in the interests of all. But in exchange, bodies became arrogated by the state. While water permeated every part of the body exterior, the body interior was subjected to control through vaccination. In the interests of health, privacy was overruled, and the relation between doctor and patient transformed. As Latour observes, the physician shifted from being a confidant of the patient to an agent of public health intent upon the eradication of disease.<sup>71</sup>

Rather than reconfiguring practices of hygiene, germ theory tended instead to intensify those already in place. The enemy, although invisible, had at last been identified. Avoidance of infection, it was now realised, required thorough cleansing using water. Germs could not be seen, but clean clothes and skin could be: and smell was no longer a reliable indication of salubrity. Thus germ theory engendered a shift from an atmospheric to a hydraulic conception of hygiene, expressed largely through visual codes of cleanliness. The potential dangers of water were far less serious than the threat posed by contagious diseases, and resistance to its use needed to be overcome. This required not only changes to the social acceptance of bathing, but also what is perhaps the most significant technological development in the modern city: the transformation of water from a gift bestowed by nature to an industrial product. It is this transformation that Jean-Pierre Goubert has described as

---

through surface structures, to encounter a reserved core of reality.” Sawday, *The Body Emblazoned*, p. 12.

<sup>70</sup> “Proud of its knowledge and utterly convinced of the certainty of its arguments, the scientific elite busied itself with making a distinction between the healthy and the unhealthy and disseminating its message of hygiene and cleanliness. [...] The scientific world thus overthrew ‘the world order’, changed the use of space and of the body and created new objects and new rituals.” Goubert, *The Conquest of Water*, p. 215.

the ‘conquest of water.’<sup>72</sup> For bourgeois practices of bodily hygiene to become widespread, dramatic advances in water supply and drainage were required. In an age already dominated by scientific attitudes to the world, this meant handing over the control of water to scientists; chemists, physicians, hydrologists, geologists, and engineers. The vicissitudes of nature could no longer be relied upon to provide water in sufficient quantity, and with sufficient regularity, to ensure adequate cleaning of the body and its clothing. Only by industrialising the supply of water could hygiene be guaranteed. These developments helped to eradicate the epidemics that had tormented European cities since the middle ages; indeed it is in the fight against disease that modern science most directly achieves Bacon’s desire to overcome nature in the service of humanity. And in doing so, the city was transformed.<sup>73</sup> Water’s former sacred status, its long association with rituals of purity, was overwritten by the processes of cleanliness recommended by the physicians and sanitary reformers.<sup>74</sup> No longer was it sufficient to merely anoint the body with water, purifying the soul contained therein: instead, purification required scrupulous cleansing of the entire body. The ‘conquest’ was thus twofold, as the domestication of water served in turn to transform the rituals of daily life, bringing a new awareness of the body.<sup>75</sup> The adoption of Pasteur’s ideas had entailed a shift in strategies of cleanliness; along with the impetus to movement inspired by Harvey, bodies now had to be thoroughly washed.

---

<sup>71</sup> “In order to save everyone’s liberty, the contagious patient must be notified by the physician, isolated, disinfected, in short, put out of harm’s way, like a criminal. *Disease was no longer a private misfortune but an offence to public order.*” Latour, *The Pasteurization of France*, p. 123.

<sup>72</sup> Goubert, *The Conquest of Water*.

<sup>73</sup> Goubert writes: “Those whose role it was to manage and manipulate space—architects, town planners, sanitary engineers, hygienists, chemists and engineers—created new objects and sculpted new structures, concealed the hydraulic systems and took water underground in order to protect it and to protect man from it; then, when it had performed—or failed to perform—its cleansing function they sent it back to the river or made it gush forth from fountains and taps or even the new British-style lavatories. In their role as conquerors, they planned, organised and built a new ‘body’, that of water, which they incorporated into nature in the image of man.” Goubert, *The Conquest of Water*, p. 253.

<sup>74</sup> As Goubert observes, water came to “symbolise the hygiene that was sacrosanct to the followers of Pasteur.” Goubert, *The Conquest of Water*, p. 27.

<sup>75</sup> “The mechanism of conquest was based on water’s ancient purity, and on innumerable purification rites—both pagan and Christian—and was solidly supported by a social code reflected in the attention given to cleanliness and tapped by the hygienist movement; water slowly conquered the world by permeating society and insinuating itself into innermost recesses of the body that had hitherto remained concealed.” Goubert, *The Conquest of Water*, p. 27. Goubert here makes reference to Phillipe Perrot, *Le Travail des Apparences: Ou les transformations du corps féminin XVIIIè--XIXè siècles*, Paris, 1984.

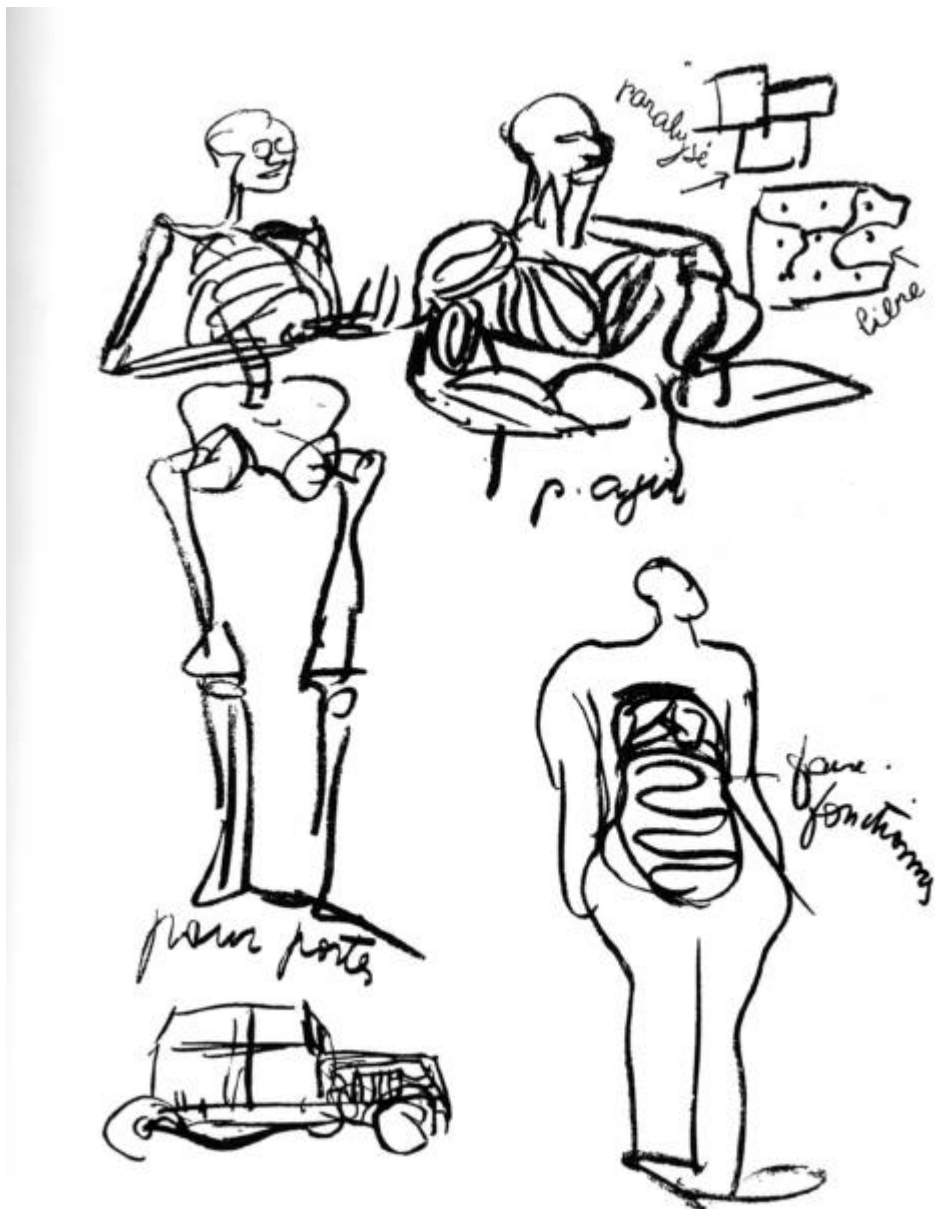


Figure 19: Illustration from Le Corbusier, *Precisions: On the Present State of Architecture and City Planning*, p. 125. Skeleton, musculature, and viscera provide inspiration for the free plan.

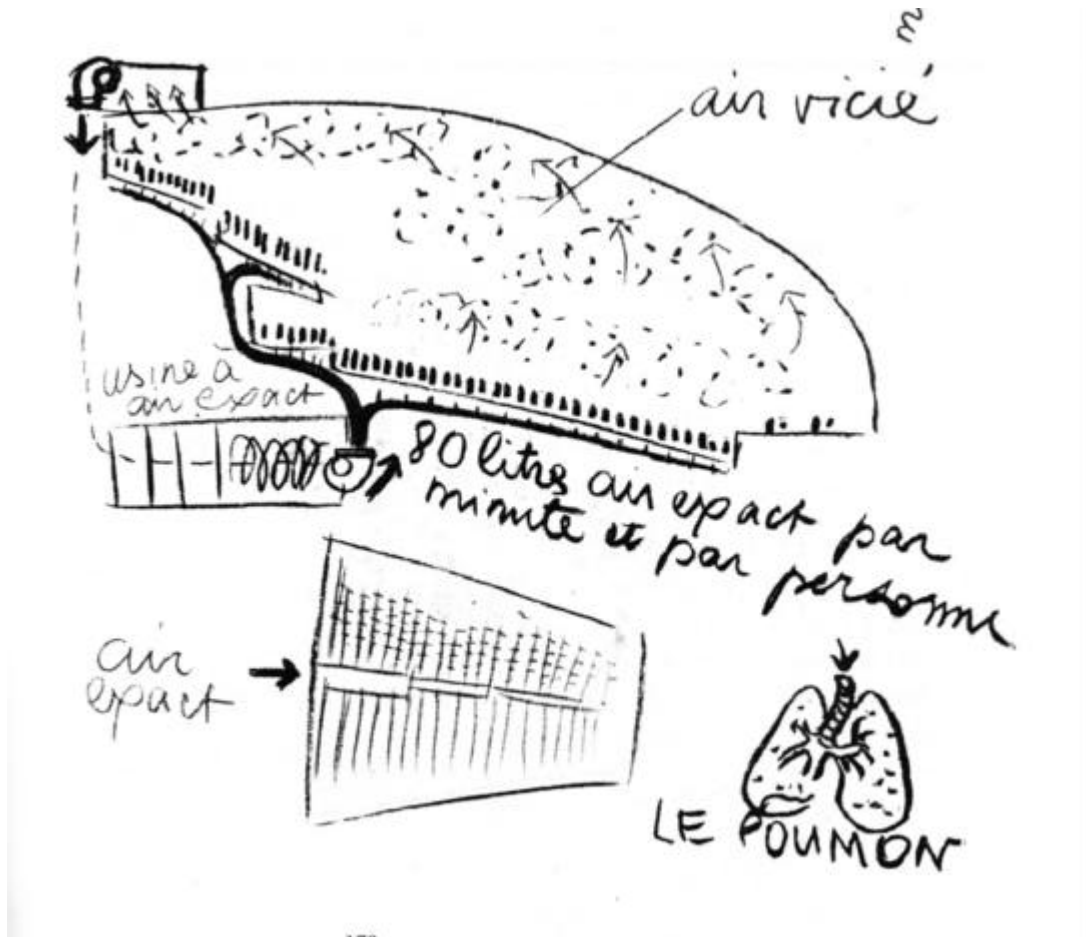


Figure 20: Illustration from Le Corbusier, *Precisions: On the Present State of Architecture and City Planning*, p. 166. Airconditioning shown in comparison to the function of the lung.

## Embracing Technology

When Le Corbusier described the house as “a machine for living in,” he coined what has become one of the most dominant metaphors of modern architecture. It is an image which captures the growing influence of scientific and technological progress that swept the world in the nineteenth and early twentieth centuries. For all the changes—social, political, aesthetic, and epistemological—brought about since the beginning of the modern era, the machine serves as a metonymic reminder for all the others. Viewed as a machine, the house becomes subjected to scientific ideology, the belief in endless progress provided by rational thought. Most significant for modernism was the idea of functionality; that like a machine, a house, or indeed any building, can and should be designed according to the purpose for which it will be used.

Le Corbusier was familiar with Renaissance theories, derived from Vitruvius, connecting architecture to the body. To arrive, then, at the conception of ‘house as machine’ transforms these theories by an idea that we have seen originates in Descartes: namely that the human body is a machine. This idea was most fully developed by Julien Offray La Mettrie in his *L’Homme Machine* of 1748.<sup>76</sup> Thus Corbusier combined these ideas to make the home a major site for the promotion of technological values. It is interesting to note, then, the ‘functions’ that Le Corbusier had in mind for the machine-house. He wrote: “A house is a machine for living in. Baths, sun, hot-water, cold-water, warmth at will, conservation of food, hygiene, beauty in the sense of good proportion.”<sup>77</sup>

Sandwiched between the famous quotation and the call to good taste of a classical aesthete, we find no less than seven factors related to the cleanliness, health, and comfort of the occupants. Le Corbusier’s machine-house, like so much domestic technology of the time, was an instrument of cleanliness, manifesting the advances of science on the level of the body. Throughout *Vers Une Architecture*, Le Corbusier promotes the importance of everything that is clean and healthy: “We have acquired a taste for fresh air and clear daylight.”<sup>78</sup> He urges that the house be considered with the same intellectual, aesthetic, moral, and therapeutic criteria that were used by reformers to promote hygiene. Technology, applied to domestic construction and habitation, becomes a metonym for all the benefits that it will bring. He writes:

“Eradicate from your mind any hard and fast conceptions in regard to the dwelling-house and look at the question from an objective and critical angle, and you will inevitably arrive at the ‘House-Tool,’ the mass-production house, available for everyone, incomparably healthier than the old kind (and morally so too) and beautiful in the same sense that the working tools, familiar to us in our present existence, are beautiful.”<sup>79</sup>

---

<sup>76</sup> Julien Offray de la Mettrie, *L’Homme Machine*, Leyden, 1748; translated by G. C. Bussey and M. W. Calkins as *Man a Machine*, Chicago, 1912. See also A. Vartanian, *La Mettrie’s ‘L’Homme Machine,’* Princeton 1960; and Steadman, *The Evolution of Designs*. On the body as a machine, see also Johnson, *The Body in the Mind*, pp. 127-137.

<sup>77</sup> Le Corbusier, *Towards a New Architecture*, p. 89.

<sup>78</sup> Le Corbusier, *Towards a New Architecture*, p. 85.

<sup>79</sup> Le Corbusier, *Towards a New Architecture*, p. 245.

The appeal of industrial aesthetics to modern architects was later captured by Reyner Banham in his *Theory and Design in the First Machine Age*.<sup>80</sup> Le Corbusier's interest in mechanisation is made apparent in the illustrations of aeroplanes and motor vehicles appearing throughout *Vers Une Architecture*. Yet in his condemnation of the then prevalent housing conditions, their lack of technological advance is seen as a threat to health:

“Bewilderment seizes us, then, if we bring our eyes to bear on the old and rotten buildings that form our snail-shell, our habitation, which crush us in our daily contact with them—putrid and useless and unproductive. Everywhere can be seen machines which serve to produce something and produce it admirably, in a clean sort of way. The machine that we live in is an old coach full of tuberculosis. There is no real link between our daily activities at the factory, the office or the bank, which are healthy and useful and productive, and our activities in the bosom of the family which are handicapped at every turn.”<sup>81</sup>

Productivity, progress, and hygiene are interconnected, the combined benefits of modernisation. Le Corbusier appears himself as a sanitary reformer, and in the “Manual of the Dwelling” in *Vers Une Architecture*, he adopts the form and tone of the hygiene manuals of the day:

*“Demand a bathroom looking south, one of the largest rooms in the house or flat, the old drawing-room for instance. One wall to be entirely glazed, opening if possible on to a balcony for sun baths; the most up-to-date fittings with a shower-bath and gymnastic appliances.*

*“An adjoining room to be a dressing-room in which you can dress and undress. Never undress in your bedroom. It is not a clean thing to do and makes the room horribly untidy. [...] Demand bare walls in your bedroom, your living room and your dining-room. [...] If you can, put the kitchen at the top of the house to avoid smells. [...] Demand a vacuum cleaner. [...] Teach your children that a house is only habitable when it is full of light and air, and when the floors and walls are clear. To keep your floors in order, eliminate heavy furniture and thick carpets.”<sup>82</sup>*

---

<sup>80</sup> Reyner Banham, *Theory and Design in the First Machine Age*, London: The Architectural Press, 1960.

<sup>81</sup> Le Corbusier, *Towards a New Architecture*, pp. 256-7.

<sup>82</sup> Le Corbusier, *Towards a New Architecture*, pp. 114-115.



**Figure 21: Le Corbusier, Villa Savoye (Photo: Ralph Liebermann).**

Principles of hygiene are put into practice, as pilotis raise the building off the ground, and living areas open out to the sunlit roof terrace.



**Figure 22: Le Corbusier, Villa Savoye, ground floor. . (Photo: Ralph Liebermann).**

A hand basin allows guests to wash before ascending to the floors above.



Le Corbusier's urban strategies also build upon those already utilised by Enlightenment planners to clean up the city. Buildings separated and raised up above ground allow maximum ventilation, while also avoiding the contaminations of industry. Through high-rise, however, the density of the city could be maintained, in order that economic interests be met:

“It is time that we should repudiate the existing lay-out of our towns, in which the congestion of buildings grows greater, interlaced by narrow streets full of noise, petrol fumes, and dust; and where on each storey the windows open wide on to this foul confusion. The great towns have become too dense for the security of their inhabitants and yet they are not sufficiently dense to meet the new needs of ‘modern business.’”<sup>83</sup>

One way that Le Corbusier and other modern architects were able to contribute to the transformation of the city was through the provision of mass housing. Indeed the provision of housing for the working class occupied much of the attention of early modernist architects. Attempts to establish acceptable standards, such as the *existenzminimum* discussed at the 1928 CIAM conference, invariably led to questions of hygiene.<sup>84</sup> The minimum dwelling naturally included separate rooms for bathing, laundering, and cooking, as well as adequate access to fresh air and sunlight. Architects thus joined in with the physicians and sanitary reformers to change the daily lives and habits of the poor, often relocating them to more ‘appropriate’ dwellings. Sometimes mass housing was able to directly inculcate industrial values of cleanliness. Companies which provided housing could extend their surveillance practices right into the homes of workers.<sup>85</sup>

---

<sup>83</sup> Le Corbusier, *Towards a New Architecture*, pp. 52-55.

<sup>84</sup> See Peter Rowe, *Modernity and Housing*, Cambridge, Mass.; MIT Press, 1993, pp. 57-59.

<sup>85</sup> Hoy cites the example of the Ford plant in America: “Ford employees became indoctrinated with middle-class standards of hygiene in Americanization classes at company plants. Besides English, they learned how to eat, what to wear, and when to bathe. White-collar company investigators also visited auto workers’ homes, looking for signs of uncleanness, drunkenness, gambling, or poorly cared-for children.” Hoy, *Chasing Dirt*, p. 137.

## Transparency

The new high-rise mass housing also enabled architects to overcome the problem of retro-fitting water supply and drainage into every dwelling. Plumbing became an aesthetic as well as a technical issue. To achieve the clean lines of the glass curtain wall meant that hierarchies of privacy needed to be adjusted. New designs enabled wet areas to be pulled back from the external walls, and plumbing to be hidden in conduits. Yet minimising fenestration to maintain privacy disrupted the external composition. One solution was to remove such spaces from the external facade altogether, relying upon mechanical ventilation and artificial lighting to make the space habitable. In fact, as Paul Clark has argued, only by denying fenestration to the water closet was Mies van der Rohe able to develop the all glass facade of the Farnsworth house of 1950, in which the spaces for ablution are the only ones afforded any visual privacy.<sup>86</sup> Of course it is the ownership of the sylvan setting that makes up for this, but even then, the problems experienced by Mrs Farnsworth are well known.<sup>87</sup> For the occupants of the new housing, the matter of privacy was also problematic. While the acts of bathing were shielded from view, their consequences were made more visible. Fenestration for living spaces was increased, to maximise the healthy effects of sunlight. Yet this had the added benefit of opening the house to the external gaze, thus facilitating the self-appointed task of surveillance adopted by sanitary reformers.

The transparency of glass extends the language of surface developed in response to theories of contagion. As we have already seen, germ theories led to a proliferation in the use of water to prevent disease. Smooth surfaces, used to facilitate flow, now had to be washed as well. Whiteness emerged as a symbol of this cleanliness, in part due to the role of linen in symbolising bodily hygiene, and in part through the metaphoric relation to skin. Dirt on the skin was not seen as inherently harmful, but rather as impeding the flow of air through the skin by which the body rid itself of filth. Whiteness thus symbolised a cleanliness that went far below the surface, proof that all unwanted matter had been flushed out of the body. Olfactory codes of cleanliness are thus replaced by visual codes, made possible

---

<sup>86</sup> Paul Clark, "Ludwig Mies van der Rohe's Scrupulous Building of the Hygienic House," in *Building as a Political Act* (Proceedings of the 1997 ACSA International Conference), New York: ACSA Press, 1998.

<sup>87</sup> Alice T. Friedman, "Domestic Differences: Edith Farnsworth, Mies van der Rohe, and the Gendered Body," in Christopher Reed (ed.), *Not at home: The Suppression of Domesticity in Modern Art and Architecture*, London: Thames and Hudson, 1996, pp. 179-192.

through deodorisation. Thus hygiene is fundamental to the emergence of vision as the primary sense of modernity.<sup>88</sup> In the tradition of linking architecture and dress dating back to Alois Riegl, modern architects emulated the white clothing in fashion at the time. But as Wigley argues, the intention was not to provide one more new style, but to refuse fashion in favour of function. This antifashion look is intended as the ultimate goal of hygiene, allowing what Le Corbusier described as “[...] the clear and naked emergence of the Essential” that is the teleology of culture.<sup>89</sup> The white walls of modern architecture provide the archetypal clean surface, where hygiene is both seen and symbolised, a mark of civilisation.<sup>90</sup> The codes rely not only upon the absence of dirt, but also on the representation of flow: thus the surfaces are smooth, reflective, and impermeable, free of internal contamination, as smooth and reflective as the water used to wash them.

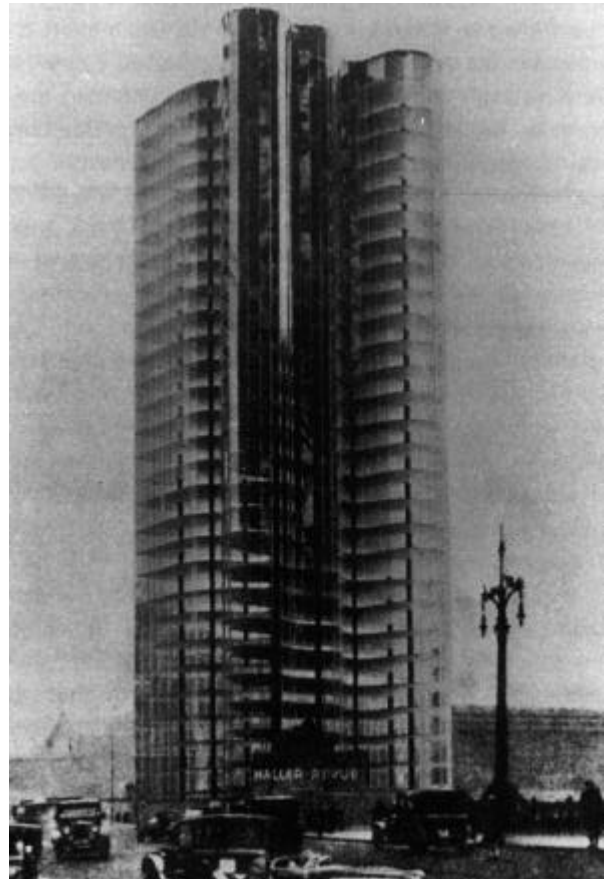
---

<sup>88</sup> Mark Wigley has recently described the modernist use of white walls in these terms: “Modern architecture joins the doctor’s white coat, the white tiles of the bathroom, the white walls of the hospital, and so on. Yet the argument is not about hygiene per se. It is about a certain look of cleanliness. Or, more precisely, a cleansing of the look, a hygiene of vision itself. Whitewash purifies the eye rather than the building. Indeed it reveals the central role of vision in hygiene.” Wigley, *White Walls*, p. 5.

<sup>89</sup> Le Corbusier, *Towards a New Architecture*, p. 128.

<sup>90</sup> As Wigley writes: “It is supposed to be the look that terminates the obsessive turnover of looks, acting as the stable surface behind the parade of ephemeral fashions, the neutral, or neutralizing, ground with which a building can test itself and other buildings for unwanted fashion infections by making them appear as ornamental ‘stains,’ as Le Corbusier put it, that stand out against its clean surface.” Wigley, Mark, *White Walls*, p xxii.

Ornament, despite both its symbolic and practical embodiment of flow, was rejected as a mere impediment to the precision of surface. Yet the clean lines and clean space of modernity were achieved through a combination of white walls and glazing. Glass allows the penetration of vision, yet it also reinforces the symbolism of flow. The transparency of glass enables architecture to align itself with water as a symbol of purity, enables architecture to turn into water. In Mies van der Rohe's Glass Skyscraper project of 1922, for example, the building becomes a cataract, washing over all who would occupy it. Glass makes architecture into an agent of cleanliness, its transparency a defining characteristic of modernity, rendering the space clean, clear, and odourless.



**Figure 23: Mies van der Rohe, Glass Skyscraper, Berlin, 1922. Photomontage of the second project.**

(As published in Mertins, *The Presence of Mies*, p. 57. Copyright: Berlinische Galerie, Museum für Moderne Kunst Photographie und Architektur, Berlin.)

The idea of transparency in relation to modern architecture has also been explored by Rowe and Slutzky.<sup>91</sup> The literal transparency of glass, they argue, is but one form of transparency central to modernism. The other is a 'phenomenal' transparency, achieved through the visible interpenetration of forms. Here the use of overlapping elements in three-dimensional composition alludes to the parts that cannot be seen. A gestalt of forms combines with the parallax achieved through movement to open out the form of the building in a continuous flow of forms in space. As we have seen, this kind of transparency had emerged with perspective, particularly as it was used to depict the body's internal organs. The gaze of the medical eye into the compounded

---

<sup>91</sup> Colin Rowe and Robert Slutzky, *Transparency*, Basel: Birkhäuser Verlag, 1997.

mass of the body interior was facilitated by the dissector's hands, disposing the opaque organs into a visible spatial arrangement. Thus, through transparency both literal and phenomenal, the interior of the modern dwelling is laid bare to the inquiring gaze of the agents of health.

The role of water is also evident in the significance placed upon horizontality in Modernism. As Xavier Costa argues, the placement of buildings on level ground relies upon an imitation of water's horizontal surface, achieved using either plumb line or *chorobate*.<sup>92</sup> Water can also enable horizontality to predominate an architectural composition, such as that of Mies' Barcelona Pavilion of 1929. Despite the pavilion's meticulous planimetric asymmetry, it in fact demonstrates a rigorous horizontal symmetry about eye level.<sup>93</sup> The main roof appears to be 'floating' overhead, supported by minimal vertical structure, itself made of highly reflective material. As Josep Quetglas identifies, the pavilion is made entirely of reflective surfaces, with glass, chrome steel, polished stone, and stucco combining with water to create endless reflections.<sup>94</sup> A solitary human figure, Georg Kolbe's *Sunrise* (1925), stands (on the only inclined surface in the whole pavilion) precariously balanced above the water of the small pool.

## The Medical Body

Beatriz Colomina has also explored some of the ways in which architecture responds to the influence of medicine.<sup>95</sup> The dramatic increase in institutionalised medicine at the beginning of the twentieth century meant that many architects were engaged to design facilities for the promotion of health and the treatment of disease. Especially popular were sanatoria for the treatment of tuberculosis, the best known being Alvar Aalto's at Paimio

---

<sup>92</sup> Xavier Costa, 'Ground Level,' in Nadir Lahiji, and D. S. Friedman (eds.) *Plumbing: Sounding Modern Architecture*, New York: Princeton Architectural Press, 1997, pp. 93-102.

<sup>93</sup> Robin Evans, "Mies van der Rohe's Paradoxical Symmetries," in *Translations from Drawing to Building and Other Essays*, Cambridge, Mass.: MIT Press, 1997, pp. 232-276.

<sup>94</sup> Josep Quetglas, *Fear of Glass: Mies van der Rohe's pavilion in Barcelona*, translated by John Stone and Rosa Roig, Basel; Boston: Birkhauser, 2001, pp. 95-101.

<sup>95</sup> Beatriz Colomina, "The Medical Body in Modern Architecture," In Davidson, Cynthia (ed). *Anybody*, New York; Cambridge, Mass.: Anyone Corp.; MIT Press, 1997, pp. 228-239. She begins: "For as long as we remember, or for as long as history remembers, architecture has followed medicine. If classical

(1929-33). These facilities influenced the design of domestic architecture, with its ‘constant preoccupation’ with ventilation, sunlight, hygiene, and white walls.<sup>96</sup> Siegfried Giedion’s 1929 book *Liberated Dwelling*, contained images of mountain lodges, seaside resorts, sports stadia, gymnastics, sunbathing, and tennis. The images of houses that do appear show them being used for exercise or for basking in sunshine and fresh air. “It would seem as if modern architects and their promoters were advocating life in a sanatorium. [...] Modern architecture was unproblematically understood as a kind of medical equipment, a mechanism for protecting and enhancing the body.”<sup>97</sup> Le Corbusier’s use of pilotis to protect the house from the wet humid ground is described as an ‘obsession,’ with his promotion of fresh air and exercise necessitating a new ground in the form of the roof terrace. And in Tony Garnier’s project for an Industrial City of 1904, the heliotherapy building of the hospital complex is seen to dominate the city, while the sports centre was placed in a central site that in mediaeval times would have been reserved for the cathedral. “Health,” observes Colomina, “became a new form of religion.”<sup>98</sup>

Belief in the therapeutic value of architecture was encouraged by the problem of tuberculosis, a disease initially thought to result from a sedentary life in damp, dark, and poorly ventilated conditions. Environmental causes suggested environmental cures, and modern architecture sought to provide them. “Nineteenth-century architecture was demonised as unhealthy, and sun, light, ventilation, exercise, roof terraces, hygiene, and whiteness were offered as a means to prevent, if not cure, tuberculosis.”<sup>99</sup> Unlike other diseases, tuberculosis was tolerated, romanticised as a state of heightened sensitivity.<sup>100</sup> Yet when connected with the metaphor of the body as a machine, the disease suggested susceptibility to fatigue, thereby threatening industrial and military efficiency.<sup>101</sup> Responding to a body constructed in medical or economic terms thus renders architecture susceptible to

---

theories of the polis followed theories of the four humors, modern ideas of disease have influenced architectural theories in this century.” p. 230.

<sup>96</sup> Colomina, “The Medical Body,” p. 230.

<sup>97</sup> Colomina, “The Medical Body,” p. 230.

<sup>98</sup> Colomina, “The Medical Body,” p. 231.

<sup>99</sup> Colomina, “The Medical Body,” p. 231.

<sup>100</sup> Susan Sontag, *Illness as a Metaphor*, New York: Farrar, Straus and Giroux, 1978.

<sup>101</sup> Anson Rabinbach, *The Human Motor: Energy, Fatigue, and the Origins of Modernity*, New York: Basic Books, 1990.

changing conceptions of the body within medicine. As the body changes with each new disease, diagnosis, and treatment, so too does its translation into architecture.<sup>102</sup>

In the work of Charles and Ray Eames, experiments with plywood began with the design of medical equipment, such as splints and stretchers, for use during World War II. The furniture that evolved from these suggests a connection between ergonomics and orthopaedics, with the role of the architect extending beyond the preventative. By designing the ‘medical equipment’ that is architecture, the architect becomes a surgeon. Colomina cites an interview with Charles Eames, in which the metaphor was made explicit:

“‘The preoccupation with self-expression is no more appropriate to the world of art than it is to the world of surgery. That does not mean I would reduce self-expression to zero; I am sure that really great surgeons operate on the edge of intuition. But the rigorous constraints in surgery—those are important in any art.’”<sup>103</sup>

The metaphor of the surgeon becomes the means by which architecture as art is redeemed from the subjective realm. The body becomes the object of architecture, its therapeutic needs providing the ‘rigorous constraints’ to which the architect must respond.

The comments of both Le Corbusier and Charles Eames reveal the extent to which surgery provided the paradigmatic model of the body during the early twentieth century. As Porter has observed, this was a golden age for medicine, in which the work of Pasteur symbolised the conquest of nature in the interest of man. The causes of disease had been identified, and all manner of preventions and cures were rapidly being developed. But more importantly, germ theory provided the key to putting to use the ‘scientific’ knowledge of anatomy that had been growing since Vesalius. Through both anaesthetics and antiseptics, surgeons were able to enter the body, manipulate it, repair it as if it were a machine. This could be done largely without pain, without risk of infection, without the patient even having to be aware of their body being operated upon. This extraordinary power over the body is what enabled the surgeon to eclipse the physician in social status, and to arouse the envy of the architectural profession. The utopian vision of modernity was realised in the image of the

---

<sup>102</sup> “The body was no longer a stable point of reference around which an architecture could be built. Architects like Le Corbusier and his colleagues actively redesigned the body with their architecture rather than housing or symbolizing it.” Colomina, “The Medical Body,” p. 235.

surgeon, who epitomised the application of science in the transforming the body. Architects, used to making reference to the body, had also been usurped: the modern body was defined by surgery. To maintain cultural status, architects had to respond to this new kind of body.

The surgical body could be opened and repaired, realising the predictions of Descartes and La Mettrie of the body as a machine. The surgical body was unconscious, transparent; open to the gaze and control of the surgeon, reliant upon their authority and agency. The surgical body was freshly washed and disinfected, draped in white, purged of impurities and reduced to its essence. Modern architects adopted the role of the surgeon by applying a range of metaphors and compositional devices to the architectural ‘body.’ Ornament was removed, walls were covered in a grid of tiles or rendered white, glazing liberally splashed about. ‘Functions’ were prioritised, inner workings, in the form of connection details, rendered conspicuous. Geometries were purified, planes separated to avoid enclosure. With modernism, for the first time, the wall lost its role as a barrier separating interior from exterior; space was rendered contiguous. Giedion described this as a ‘new spatial conception,’ uniting the concerns of previous architectures with a “hitherto unknown interpenetration of inner and outer space.”<sup>104</sup> The modernist body is no longer that which animated classical anthropomorphism, a living body whose unity symbolises cosmic order. It is instead the body as object, opened, fragmented, and analysed by anatomists, reduced to a set of working parts revealed through dissection.

With modernism, also for the first time, architecture was to serve literally everybody. The aim of providing housing for every citizen is one that responds to a statistical conception of population, namely as a collection of persons who ‘counted’ in the eyes of the state, and who were ‘counted’ accordingly. Such persons were defined by measurements of acceptable minima; rights, in political terms, but also the right to health, education, and housing. One of the earliest health provisions was immunisation, which relied for its effectiveness on reaching entire populations. The importance to the state of such programmes meant that they were rarely optional: thus statistics were used to prevent

---

<sup>103</sup> Colomina, “The Medical Body,” p. 235.

<sup>104</sup> Siegfried, Giedion, *Space, Time and Architecture: the growth of a new tradition*, 5th ed., Cambridge: Harvard University Press, 1967.



disease as well. In endeavouring to provide every person with healthy housing, modern architects aspired to emulate the heroic achievements of Koch and Pasteur.

Yet even as the effectiveness of Pasteurian medicine was being felt, so too was its social presence changing. Having rescued the body from the threat of disease, the importance of hygiene continued to be espoused: the mechanisms of promotion had found value in health. Manufacturers found that from the desire for health had emerged the desire for social acceptance, and with it, increased consumption of hygiene products. It is here that the coercive nature of advertising first arises, appealing to the fear of death, playing on the fear of social rejection, and promising the sexual gratification of pleasure and sensuality.<sup>105</sup> The miasmatic threat of death overcome, new fears of embarrassment, through failing to remove one's own bodily excretions, are created.<sup>106</sup> The rhetoric of this 'culture of cleanliness' also tied social acceptance to financial success, as membership of the new managerial ('white collar') class was sold as being dependent upon appearance.<sup>107</sup>

In the home, similar values were espoused. Expectations of domestic hygiene increased, belying the technological promise of 'labour-saving' devices.<sup>108</sup> The internalisation of wet areas also meant that a new threat had arisen: the danger of embarrassment that might arise when odours from these rooms permeated the rest of the house.<sup>109</sup> The level of cleanliness of the home and its occupants emerged as the responsibility of the mother, a visible symbol of her devotion to her family.<sup>110</sup> The successes of Pasteurian medicine had largely removed the threat of infection, but in these ways it had been appropriated by industry and turned to commercial ends. Through hygiene, consumption had become a ritual of modernity.

---

<sup>105</sup> Suellen Hoy, *Chasing Dirt*, passim.

<sup>106</sup> See Vincent Vinikas, *Soft Soap, Hard Sell: American Hygiene in an Age of Advertisement*, Ames, Iowa: Iowa State University Press, 1992.

<sup>107</sup> "Advertisements for soaps, mouth washes, toothpastes, and deodorants in mass-circulation magazines showed working men and women how to cleanse themselves and become part of the increasingly sweatless, odorless, and successful business class." Hoy, *Chasing Dirt*, p. 143-144.

<sup>108</sup> Ruth Schwartz Cowan, *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave*, New York: Basic Books, 1983.

<sup>109</sup> "Cooking, bathroom, perspiration, smoking, and refrigerator odors were only a few of the many that might embarrass or disgust family and friends. Thus 'smart' housewives bought an excess of 'freshening' products, tackled all those jobs nobody liked, and killed unwanted odors." Hoy, *Chasing Dirt*, p. 170.

## Modern Bodies

The direct application of technology to the body in the form of modern medicine occurred within a broader discourse regarding both organisms and machines that was occurring throughout the nineteenth century. On the one hand, processes by which natural forms developed were being described through the dual influence of heredity and environment, a tension resolved in part by Charles Darwin's publication *On the Origin of Species* in 1859. On the other hand, mechanisation of transport and industry was transforming everyday life in the cities of Europe, drawing both support and criticism. These discourses interwove, as organisms were described in mechanical terms, and technological advances explained as a form of evolution.<sup>111</sup> Both were interpreted through Hegelian idealism to argue for the natural superiority of modern man, and to suggest further means of advancement such as eugenics.<sup>112</sup>

The idea that technological forms were subject to the same evolutionary forces as natural ones were influential in modernism. In *Vers Une Architecture*, Le Corbusier uses an illustration of the evolution of automobile forms to suggest the relevance of biomorphic analogies for architecture, inspired by D'Arcy Wentworth Thompson's influential *On Growth and Form* of 1917.<sup>113</sup> The clean lines of modernism were again responding to fluid dynamics, this time in the form of streamlined bodies to facilitate movement. Regarding design as a process of evolution also inspired Louis Sullivan's theories about the relationship between form and function, made manifest in the organic architecture of both Sullivan and Frank Lloyd Wright.

Just as technology could be considered organic, so too organisms, especially the body, could be considered technological. As extensions of the body, machines made the body

---

<sup>110</sup> McLaughlin observes: "Much of the advertising for washing powders is designed to make housewives feel that they are neglectful wives and mothers unless they wash their family's clothes with the particular powder offered." McLaughlin, *Coprophilia*, p. 158.

<sup>111</sup> Steadman, *The Evolution of Designs*, passim.

<sup>112</sup> Tim Armstrong, *Modernism, Technology, and the Body: A Cultural Study*, Cambridge: Cambridge University Press, 1998.

<sup>113</sup> D'Arcy Wentworth Thompson, *On Growth and Form*, abridged edition, edited by John Tyler Bonner, Cambridge: Cambridge University Press, 1961.

more powerful, more capable, speeding up the process of human evolution by carrying it on outside, but still attached to, the body.<sup>114</sup> The body is thus able to be seen as a hybrid mechanical/organic creature, a *mechanomorph*, with machines prosthetically enhancing the body.<sup>115</sup> However, this evolutionary dream was far from the reality, with connection to machines usually involving the drudgery and danger of industrial labour. This was the situation documented by Karl Marx and Fredrich Engels, who described the problems that technological advance represented for the labouring classes. With the advent of powered machines, Marx argued, the relationship between technology and body is reversed. A tool as an extension of the body allows the powers of the body to be magnified, extending their reach out into the world. But equipped with engines, the machine is able to exceed the body, so that now the body is an extension of the machine, subordinated to it. Through the machine, labour becomes absorbed as one more extension of capital.<sup>116</sup> The science of work, exemplified by Frederick Taylor's *Principles of Scientific Management* of 1911, reduced the body to one working part among many, made more efficient by minimising the number of steps needed to complete its tasks. The influence of Taylorism is, however, exaggerated: far greater efficiency was in fact achieved by Henry Ford's assembly line, by reducing the number of tasks performed by each body to one.

Marx's criticism extended far beyond the appalling work conditions that prevailed in factories since the industrial revolution. His was a criticism of alienation, the separation of the worker from the task of making that technology had engendered. Rather than extending and enhancing the body, machines in fact fragment the body, separating out attributes or functions and rendering the remainder as obsolete. The body's capacity for extension by the machine is inverted into a body in need of extension, a body slow to evolve and lacking the perfections of technology. This lack, Marx identified, was sustained by the fetish of commodity. Capitalism benefits from the lack by promising completion through an endless array of consumer goods, which in fact maintain the lack rather than resolving it.<sup>117</sup>

---

<sup>114</sup> Steadman, *The Evolution of Designs*, p. 124.

<sup>115</sup> Armstrong, *Modernism, Technology, and the Body*, p. 78.

<sup>116</sup> Armstrong, *Modernism, Technology, and the Body*, p. 79.

<sup>117</sup> Armstrong writes: "Modernity [...] brings both a fragmentation and augmentation of the body in relation to technology; it offers the body as lack, at the same time as it offers technological compensation. Increasingly, that compensation is offered as a part of capitalism's fantasy of the complete body: in the mechanisms of advertising, cosmetics, cosmetic surgery, and cinema; all

The domestic environment that enveloped the body, protecting it from sensory intrusion, was also transformed by the proliferation of consumer goods. The cosmetics and appliances of the early twentieth century merely replaced the perfumes and furnishings of the Victorian era, with which the home had been made into a place of sensory indulgence for the body. Peter Gay has described the dissemination of bourgeois behaviours and artefacts as ‘democratisation of comfort.’<sup>118</sup> He writes:

“The Horatian injunction to mingle the agreeable with the useful was in fact an undisputed article of nineteenth-century bourgeois faith. Objects should be pretty as well as utilitarian; an indispensable part of their function was to give pleasure.”<sup>119</sup>

Although the sensory excesses of the Victorian era were precisely what modern architects were reacting against, the provision of comfort (albeit minimised) remained a goal for modernism. The idea of comfort as ease or convenience is far from its original sense of alleviating pain and fatigue by strengthening or fortifying. Seen in this way, comfort becomes a means to mollify populations, to act, as Maldonado suggest, as a scheme for social control.<sup>120</sup> This is achieved firstly as comfort works to increase the productivity of labour by restoring energies consumed in the world of work. Thomas Tierney echoes this view, referring to this domestic function of ‘convenience.’<sup>121</sup> Bodily demands for rest, food, and ablution are an ‘inconvenience’ that limit or interfere with the use of time: through technology, the modern household overcomes the demands of the body.<sup>122</sup>

The second way in which comfort acts to achieve social control, according to Maldonado, is in its definition and delimitation of the family unit in both structure and

prosthetic in the sense that they promise the perfection of the body.” Armstrong, *Modernism, Technology, and the Body*, p. 3.

<sup>118</sup> Peter Gay, *The Bourgeois Experience: Victoria to Freud; Volume 1, Education of the Senses*, New York; Oxford: Oxford University Press, 1984, pp. 438ff.

<sup>119</sup> Gay, *The Bourgeois Experience*, p. 441.

<sup>120</sup> Tomás Maldonado, “The Idea of Comfort,” in Victor Margolin, and Richard Buchanan, (eds.) *The Idea of Design: A Design Issues Reader*, Cambridge, Mass.: MIT Press, 1995, pp 248-256.

<sup>121</sup> See Thomas F. Tierney, *The Value of Convenience: A Genealogy of Technical Culture*, Albany: State University of New York Press, 1993.

<sup>122</sup> “[M]odernity treats the body [...] as the source of limits and barriers imposed upon persons. What these limits require is not planning and attention, but the consumption of various technological devices that allow people to avoid or overcome such limits. [...] The value of technology for the modern

habitation. The provision of material comfort within the family home enables a ‘privacy’ which protects the family as a social unit. By “anchoring [the family] to a precise location, tying it then to an *interior*,” the stability of the family is ensured.<sup>123</sup> Sennett argues that the emphasis on comfort, privacy and interiority, whether familial or individual, has the effect of breaking down communication between persons that is essential for a full life.<sup>124</sup> Following E. M. Forster’s injunction, in *Howard’s End*, to ‘Only connect,’ Sennett is critical of the isolation that comfort engenders. Comfort may lead to stability in social structures, a feeling of contentment in individuals, but in doing so it prevents the myriad accidental exposures to the lives of others that are possible in the city.<sup>125</sup>

### From Soul to Self

As we have seen, the *habitus* of practices of grooming and dress can be seen as a manifestation of converging and conflicting attitudes that arose, on the one hand, from scientific (medical) conceptions of the body, and on the other, from social and cultural conceptions of identity. These concepts and practices gave rise to a ‘technological’ construction of the body, from the perfumes that were used to adjust its scent to the spaces arrayed around it for the purposes of grooming.<sup>126</sup> These technologies, by focussing attention on the body in increasingly private contexts, led to an increasing sense of individuality, a self whose appearance could be controlled by adjustments to the body. Scent receded as codes of cleanliness came to be expressed visually. Surfaces, both skin and linen, emerged as demonstrations of inner purity, itself interpreted as a body free of pollution rather than a soul free of corruption. In fact, with the emergence of bodily hygiene and grooming, there had been a correlative decline in discourse about the soul. The idea of an ‘inner life force’ by which vitalists attempted to maintain its currency was rejected by

---

household, therefore, lies in technology’s ability to mitigate the effect of bodily limits.” Tierney, *The Value of Convenience*, p. 38-39.

<sup>123</sup> Maldonado, “The Idea of Comfort,” p. 249.

<sup>124</sup> “If comfort lowered a person’s level of stimulation and receptivity, it could serve the person at rest in withdrawing from other people.” Sennett, *Flesh and Stone*, p. 339.

<sup>125</sup> “Individualism and the fact of speed deaden the modern body; it does not connect.” Sennett, *Flesh and Stone*, p. 324.

supporters of gas chemistry as ‘mere combustion.’ Many things had been discovered by opening the body, but the soul was not one of them. As Sennett observes: “Empirical observation could not locate the soul in the body.”<sup>127</sup>

What emerged in its stead was the liberal self, a central figure in the nascent democracies of France and America. Hierarchic systems of the monarchic state were replaced with medical models of the healthy body, blurring the boundaries between hygiene, science, and city planning. The semblance of equality masked the use of hygiene as a bourgeois strategy for controlling the poor, of freeing themselves from the threat of dirt, disease, and vice. Surfaces of the city were made smooth to encourage the circulation that was vital for health; water supply and drainage installed to facilitate the removal of waste. Architects adjusted plan forms and fenestration to optimise ventilation, and articulated interior space into ever smaller units for dealing with the body’s multifarious functions. Both the public presentation of and private encounter with the ‘self’ was determined according to the physical conception of the body, its need for health and hygiene. The body as mechanism necessitated technological provision, of services throughout the city, and appliances within the home. Servicing enabled the needs of the body, measured in terms of light, air, water, and energy, to be met.

The utopian vision of the modern city was certainly inspired by technologies of industry and engineering. Yet it was also inspired by technologies of medicine that had made the promise of a healthy, happy future appear to be a reality. Its proponents were, perhaps, also envious of the lionisation of Pasteur, the esteem of the surgeon, the status of the medical profession, and the power of agency they held over the entire population. Surely architecture, too, could promote the ‘virtue’ of cleanliness in and through the home of every citizen. Yet just as they began to do so, a different problem was becoming evident. Medicine’s success in the prevention of disease had created a sense of dissociation of the body from the self. The fragmentation of the body in modernity is nowhere more pronounced than in the perception that identity, associated with the mind, is somehow separate from the body, located somewhere inside it. The more the body is controlled and

---

<sup>126</sup> ‘Technological’ is here used in the sense, suggested by Ellul, of any manifest technique or practice. See Jacques Ellul, *The Technological Society*, Translated by John Wilkinson. New York: Vintage, 1964.

<sup>127</sup> Sennett, *Flesh and Stone*, p. 239.

manipulated by medicine, the less it is perceived as the self. This phenomenon owes a great deal to Cartesian metaphysics; as we have seen, Descartes' anatomical researches led to the body to be regarded in mechanical terms, separate from the mind within. Neither soul nor self had been located as part of the human anatomy, in part justifying medical intervention, yet also giving rise to a sense of the self as an inner depth.<sup>128</sup> The body had been so well attended to in the provision of health and comfort that it was no longer seen as part of the self; instead the self was to be found somewhere within.

This sense of the self as separate from the body is inadvertently highlighted by technology. Artifacts which extend the body can be seen to highlight the body as being in need of extension, as somehow lacking, suffering from loss.<sup>129</sup> We have seen how the emergence of the modern sense of identity was reflected in the theory of 'character' at the French Academy, whereby works of architecture were also given identity. This identity was then 'typified,' normalised, in the typological theories of Durand. The emerging sense of identity, however, served also to frustrate the Academy by rendering matters of judgement or taste as mere expressions of individual preference. Modern architects reacted against this problem by looking again to the body as a source of reference, reassured by the successes of the medical profession. Le Corbusier's *Vers Une Architecture*, while celebrating technology, also reads like a hygiene manual, promoting the house as a machine for cleaning the body. The designs that followed at once conceal and reveal the body; providing private spaces for ablution, yet rendering visible the consequences of the act. The architect emerges as a surgeon, with the body correctly ordered, yet open to the gaze.

Meanwhile, medicine, having conquered the body, had begun to contemplate the workings of the inner mind. Through the fields of psychology and psychiatry, the mind emerged as one more territory suitable for medical investigation. In this way, it continued

---

<sup>128</sup> Maldonado refers to "the destruction of the body' in favour of the formation of the 'person.'" Maldonado, *The Idea of Comfort*, p. 250.

<sup>129</sup> This negative sense of the prosthetic, says Armstrong, was captured by Freud in *Civilization and its Discontents*: "In arguing that 'with every tool man is perfecting his own organs', Freud seems to propound a theory of organ-extension: sight is extended and perfected via the telescope and microscope; hearing via the telephone, memory by the gramophone.[...] But Freud also writes of technology under the sign of mourning. It supplies deficiencies and makes up for absences, correcting defects in sight, replacing a lost loved one; the house replaces the original loss, the womb. Lost body parts and objects—as in Freud's thinking generally—are compensated for." Armstrong, *Modernism, Technology, and the Body*, p. 77.

the desire for a clarification of the body, a rendering conscious of states of interiority. It is these ideas of the inner 'self,' so central to modernity, which will now be addressed.



## Chapter 4

### **The Lived Body: Architecture as Practice.**

The tasks which face the human apparatus of perception at the turning points of history cannot be solved by optical means, that is, by contemplation alone. They are mastered gradually by habit, under the guidance of tactile appropriation.  
Walter Benjamin<sup>1</sup>

#### **The Theory of Empathy**

As well as being marked by the dramatic changes to public health addressed in the previous chapter, the nineteenth century was also characterised by philosophical inquiry into the body's sensory engagement with the world.<sup>2</sup> In contrast to the idealism of Schelling, Fichte and Hegel, Kant's description of aesthetic pleasure as the feeling of suitability of the faculties for their purpose inspired a consideration of the subjective aspects of aesthetic contemplation. In *The World as Will and Representation*, (1819-1844) Arthur Schopenhauer sought to describe imagination as a physiological process.<sup>3</sup> Influenced by the

---

<sup>1</sup> Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations*, translated by Harry Zohn, third edition, London: Fontana, 1992, p. 233.

<sup>2</sup> See Harry Francis Mallgrave and Eleftherios Ikonomou (eds.) *Empathy, Form, and Space: Problems in German Aesthetics 1873-1893*, Santa Monica: The Getty Centre for the History of Art and the Humanities, 1994; also Crary, *Techniques of the Observer*, Chapter 3.

<sup>3</sup> "What is imagination? A very complicated physiological occurrence in an animal's brain, whose result is the consciousness of a picture or image at that very spot." Arthur Schopenhauer, *The World as Will and Representation*, translated by E.F.J. Payne, New York: Dover, 1966, vol. 2, p. 191.

work of Xavier Bichat, Schopenhauer emphasised the link between the physiological and philosophical dimensions of sensory experience, suggesting that Bichat's work and his own be read side by side.<sup>4</sup> In Bichat's physiology, life was regarded as the cumulative effect of various organs and processes, with each responsible for different functions of the body, such as movement, thought and sensation. The resultant fragmentation of the body was, for Schopenhauer, essential for aesthetic experience. The perception of beauty required freeing the senses from the demands of the body, suspending knowledge of the self in order to become a pure, will-less subject of knowing.<sup>5</sup> Described by Schopenhauer as 'objectivity,' this suspension of the self is particularly evident in relation to architecture, which, being less representational than other arts, is able to convey more fundamental forces such as gravitation and strength.<sup>6</sup>

This loss of the self in acts of aesthetic perception, while essential to the emergence of empathy theory, was also the basis of early psychological studies, with philosophical and physiological inquiry combining to explain the role of the senses in the experience of beauty and art. In *Mikrokosmos*, Herman Lotze argued that emotive aspects of sensation are due to the projection of the self into the experience of forms.<sup>7</sup> It is through our own corporeality, our own experience of bodily forces, that we interpret the world, reading into it the 'joy and sorrow' of existence.<sup>8</sup> Robert Vischer described this projection of the self into the world of objects as 'empathy' (*Einfühlung*, literally in-feeling).<sup>9</sup> Vischer noted the

---

<sup>4</sup> Xavier Bichat, *Recherches physiologiques sur la vie et la mort*, 1799. See also Elizabeth Haigh, *Xavier Bichat and the Medical Theory of the Eighteenth Century*, London: Wellcome Institute for the History of Medicine, 1984. "[...] his reflections and mine mutually support each other, since his are the physiological commentary on mine, and mine are the philosophical commentary on his; and we shall best be understood by being read together side by side." Schopenhauer, *The World as Will and Representation*, vol. 2, p. 261.

<sup>5</sup> Mallgrave and Ikonomou, *Empathy, Form, and Space*, p. 9.

<sup>6</sup> "[...] architecture affects us not only mathematically but dynamically and [...] what speaks to us through it is not mere form and symmetry but rather those fundamental forces of nature, those primary Ideas, those lowest grades of the will's objectivity." Schopenhauer, *The World as Will and Representation*, vol 1, p. 215.

<sup>7</sup> Hermann Lotze, *Microcosmus: An Essay Concerning Man and His Relation to the World*, translated by Elizabeth Hamilton and E.E. Constance Jones, New York: Scribner and Wellford, 1886.

<sup>8</sup> "The world becomes alive to us through this power to see in forms the joy and sorrow of the existence that they hide; [...] no form is so unyielding that our imagination cannot project its life into it." Lotze, *Microcosmus*, vol. 1, p. 584; As cited in Mallgrave and Ikonomou, *Empathy, Form, and Space*, p. 20.

<sup>9</sup> Robert Vischer, *On the Optical Sense of Form: a Contribution to Aesthetics*, in Harry Francis Mallgrave and Eleftherios Ikonomou (eds.) *Empathy, Form, and Space: Problems in German Aesthetics 1873-1893*, Santa Monica: The Getty Centre for the History of Art and the Humanities, 1994, pp. 89-123.

importance of a correlation between the form of an object and the bodily or sensory structure of the perceiving subject, referred to as ‘similarity’. This meant that aesthetic pleasure could result from the way in which an object emulated either the form of the body or its senses. It also meant that pleasure could result from objects which invoked a correspondence between the senses, leading to “a strengthening or weakening of the general *vital sensation*.”<sup>10</sup> This projection of the body and its senses into the world of objects culminates in the feeling of empathy, arising from the projection of our sense of self inside the object. This also has a reciprocal effect, with objects themselves becoming an analogy for our own structure. According to Vischer, empathetic projection enables the self to be determined as it is imaginatively enveloped in the object being sensed: “I wrap myself within its contours as in a garment.”<sup>11</sup> The projection of the self into objects also provides a basis for explaining artistic production. Rather than imitating nature, artists strive to capture their own ‘vital sensation’ in sensuous form. Art becomes a means to overcome the limitations of the self, to transform the variability of human emotion into a beautiful object, and thereby to ‘objectify’ the human condition. The more pure the form, the more easily it invites empathic projection, giving rise to an harmonious emotional experience.<sup>12</sup>

In his *Prolegomena to a Psychology of Architecture*, Heinrich Wölfflin considered the problem of how architectural forms are able to express an emotion or mood.<sup>13</sup> Influenced by Vischer’s ideas of empathy, Wölfflin begins by identifying the anthropomorphic basis of perception. It is only because we have a body, he writes, that we are able to identify with the conditions of other forms: *‘Physical forms possess a character only because we ourselves possess a body.’*<sup>14</sup> Yet in applying Vischer’s notion of empathy to architecture,

---

<sup>10</sup> Vischer, *On the Optical Sense of Form*, p. 99.

<sup>11</sup> “[...] an objective but accidentally experienced phenomenon always provokes a related idea of the self in sensory or motor form. [...] The way in which the phenomena is constructed also becomes an analogy for my own structure. I wrap myself within its contours as in a garment.” Vischer, *On the Optical Sense of Form*, p. 101.

<sup>12</sup> Mallgrave and Ikonomou, *Empathy, Form, and Space*, pp. 26-27.

<sup>13</sup> Heinrich Wölfflin, *Prolegomena to a Psychology of Architecture*, in Mallgrave and Ikonomou (eds.) *Empathy, Form, and Space*, pp. 149-190.

<sup>14</sup> (original italics). “If we were purely visual beings, we would always be denied an aesthetic judgement of the physical world. But as human beings with a body that teaches us the nature of gravity, contraction, strength, and so on, we gather the experience that enables us to identify with the conditions of other forms. [...] We have carried loads and experienced pressure and counter pressure, we have collapsed to the ground when we no longer had the strength to resist the downward pull of our bodies, and that is why we can appreciate the noble serenity of a column and understand the tendency

Wölfflin transforms it from an explanation of aesthetic sensation into a means of interpretation. “Forms become meaningful to us” he writes, “only because we recognize in them the expression of a sentient soul. Instinctively we animate each object. This is a primeval instinct of man.”<sup>15</sup> Empathy allows objects to be read as manifestation of vital force. In contrast to the tendency of matter to succumb to formlessness, to collapse to the ground under the force of gravity, he identifies an opposing force, or will, that can be transferred to objects. Between matter and form is a tension or opposition that Wölfflin describes as ‘force of form’ [*Formkraft*]. The very force that holds our bodies upright can be transposed into objects, resulting in the animation of inanimate matter.<sup>16</sup>

Following Schopenhauer, Wölfflin acknowledges the importance to architecture of the fundamental forces of weight and strength, and its inability to express the full range of human emotions. Yet for Wölfflin, these fundamental forces are the principal theme of architecture, its expression of material and form, gravity and force: “Its subject remains the *great vital feelings*, the moods that presuppose a constant and stable body condition.”<sup>17</sup> Architecture is experienced through direct bodily feelings, which serve to emphasise this vital force. Powerful columns give rise to ‘energetic stimulation,’ large spaces expand our breathing, and asymmetry is experienced as physical pain, “as if a limb were missing or injured.”<sup>18</sup> The ensuing reading of architectural styles relates largely to their differing effects upon movement, breathing, or posture of the body. Wölfflin writes of the ‘still and restful lines’ of Doric temples, the ‘quicker movement’ of the Ionic, the ‘breathless haste’ of Arab ornament, the ‘dignified calm’ of Romanesque, and the ‘restless pressing forward’ of the northern

---

of all matter to spread out formlessly on the ground.” Wölfflin, *Prolegomena to a Psychology of Architecture*, p. 151.

<sup>15</sup> Wölfflin, *Prolegomena to a Psychology of Architecture*, p. 152.

<sup>16</sup> “We know the force of gravity from our own body. What holds us upright and prevents a formless collapse? It is the opposing force that we may call will, life, or whatever. I call it force of form [*Formkraft*]. *The opposition between matter and force of form*, which sets the entire organic world in motion, is the principal theme of architecture. Aesthetic perception even transposes that most intimate experience of our own body onto inanimate nature. We assume that in everything there is a will that struggles to become form and has to overcome the resistance of a formless matter.” Wölfflin, *Prolegomena to a Psychology of Architecture*, p. 159.

<sup>17</sup> Wölfflin, *Prolegomena to a Psychology of Architecture*, p. 152.

<sup>18</sup> “Powerful columns energetically stimulate us; our respiration harmonizes with the expansive or narrow nature of the space. In the former case we are stimulated as if we ourselves were the supporting columns; in the latter case we breathe as deeply and fully as if our chest were as wide as the hall. Asymmetry is often experienced as physical pain, as if a limb were missing or injured. Likewise we know

Gothic.<sup>19</sup> The consistency of each particular style within its historical and social context leads Wölfflin to consider the problem of architecture as an expression of the attitudes of a people. Style is seen to emerge not as a consequence of individual will but of popular sentiment, as those who create immerse themselves into the ‘character’ of their nation. Architecture, however, as the slowest of all cultural forms in responding to changes in character, is susceptible to alienation, to a continued use of forms sustained only by tradition. Such forms, writes Wölfflin, are ‘falsely applied’, and are thus ‘completely deprived of life.’<sup>20</sup>

For Wölfflin, the then emergent field of psychology promised to provide a foundation for art history in the same way that mechanics provided a grounding for physics. Psychology was thus regarded as a way to overcome the split between human and natural science, a science of the mind that would confirm the role of art in the constitution of knowledge. Although never seriously challenging the dominance of natural science, psychology and psychoanalytic theory certainly proved highly influential in the study of art and architecture during the twentieth century.<sup>21</sup> Yet in Wölfflin’s theory, psychology is a means to understand the relationship between architecture and the body, with the psychological study of art seen to be grounded by the body, that ‘constant denominator’ linking the variations in attitude between persons within and across cultures.<sup>22</sup> It is this link between mind and body that justified psychology as a field of medicine during the nineteenth century, motivated by the belief that madness was a disease that could be cured by manipulation or treatment.<sup>23</sup> No longer a matter of divine aberration, madness began to be addressed as a medical problem, asylums transformed from municipal or religious charities into medical institutions. These

---

the disagreeable condition that is induced by looking at something unbalanced, and so on.” Wölfflin, *Prolegomena to a Psychology of Architecture*, pp. 154-155.

<sup>19</sup> Wölfflin, *Prolegomena to a Psychology of Architecture*, pp. 170-171.

<sup>20</sup> Wölfflin, *Prolegomena to a Psychology of Architecture*, pp. 184-185.

<sup>21</sup> Wilhelm Worringer, *Abstraction and Empathy*, New York, International Universities Press, 1953 (1908); Richard Wollheim (ed.), *The Image in Form: selected writings of Adrian Stokes*; Harmondsworth: Penguin, 1972; Richard Wollheim, *Art and its objects*, Harmondsworth: Penguin, 1968; E. H. Gombrich, *Art and Illusion: a study in the psychology of pictorial representation*, 5th ed. London: Phaidon, 1977; Rudolf Arnheim, *The Dynamics of Architectural Form*, Berkeley: University of California Press, 1977; Hal Foster *Compulsive beauty*, Cambridge, Mass.: MIT Press, 1993; Anthony Vidler, *Warped Space: Art, Architecture, and Anxiety in Modern Culture*, Cambridge, Mass.: MIT Press, 2000.

<sup>22</sup> Wölfflin, *Prolegomena to a Psychology of Architecture*, p. 184.

became veritable laboratories for experimentation, with inmates subjected to a range of often cruel and inhuman treatments. The asylum became the major site in which medical knowledge and state authority demonstrated a complicity in the constitution and control of the self.<sup>24</sup> Various corporeal manipulations were justified by psychological theories that regarded the body as one means to access an ‘inner’ self. This inner self was seen to be revealed through the analysis of dreams and hypnotism, both of which were to form fundamental strategies of Freud’s psychotherapy.<sup>25</sup> Psychoses were not only the prerogative of the mad, however, and psychotherapy soon became a means to access one’s inner self in order to overturn the repression of traumatic experiences of loss caused by separation and desire. Popular interest in psychology, suggests Armstrong, reveals a desire for the disclosure of inner states, the achievement of ‘clarification’ of the body, “a rendering conscious of states of interiority.”<sup>26</sup>

## The Lived Body

In seeking to establish the way in which an inner self or mind related to architecture through the mediation of the body, empathy theory depended upon a combination of physiological and psychological interpretations of sensory experience. Tempered by the Cartesian dualism of mind and body, much of nineteenth century psychology sought to identify the way in which the senses distorted our experience of objects and thereby prevented true knowledge of the world. It is this problem that motivated Husserl’s call for a return to ‘the things themselves’, an attempt to uncover their essence. His study of the way

---

<sup>23</sup> As Porter observes: “[...] most nineteenth-century physicians maintained that insanity was ultimately rooted in the organism, particularly the brain; for that reason, therapy needed to be incorporated within a medical model, and prescribed by physicians.” Porter, *The Greatest Benefit*, p. 498.

<sup>24</sup> Michel Foucault, *Madness and Civilization*. See also Roy Porter, *Mind-forg’d Manacles: A History of Madness in England from the Restoration to the Regency*, London: Athlone, 1987; Roy Porter, *A Social History of Madness: Stories of the Insane*, London: Weidenfeld and Nicolson, 1987; Ian Hacking, *Rewriting the Soul: Multiple Personality and the Science of Memory*, Princeton, NJ: Princeton University Press, 1995.

<sup>25</sup> “To some degree against the hopelessness of asylum psychiatry, [...] a new dynamic psychiatry appeared in the late nineteenth century. Its historical roots include Mesmer’s therapeutic use of ‘animal magnetism’, later called hypnotism by the Manchester Surgeon James Braid. With its dissociations and apparent automatisms of behaviour, hypnotism unveiled hitherto hidden dimensions and layers of the personality and raised new issues about the will, unconscious thinking, and the unity of the self.” Porter, *The Greatest Benefit*, p. 513.

phenomena present themselves to the mind led to his proposal for a ‘phenomenological reduction,’ a method of bracketing things off from their cultural context in order to achieve access to the ‘life-world,’ or world of immediate experience.<sup>27</sup> Although originally playing down the role of the body in the constitution of knowledge, Husserl later acknowledged the difficulty of his task. As a medium of understanding, the body was seen as essentially different from objects in the world, its surface constituting a radical discontinuity. While space in general can be regarded as homogenous, Husserl observed, “*the lived body and its bodily space break the homogeneity asunder.*”<sup>28</sup> Although not further developed by Husserl, this acknowledgment of the body was to prove influential for his students, Heidegger and Sartre, as well as for Merleau-Ponty, who founded the journal *Les Temps Modernes* with Sartre in 1945.<sup>29</sup> It is Merleau-Ponty in particular who sought to investigate the role of the body in the constitution of knowledge.

In *Phenomenology of Perception*,<sup>30</sup> Merleau-Ponty examines those psychological studies concerned with the way in which understanding is possible through sensory exchange with the world. He begins by rejecting the claims by Kant and Descartes that there is an originary point of consciousness from which all else could be deduced. Any ‘objective’ explanation of the world is seen as problematic, since such an explanation must be derived from our experience of that world from the limited perspective of a body. To regard sensory experience as an impediment to an accurate, ‘scientific’, conception of the world is to fail to acknowledge that such experience is necessarily prior to any explanation of it.<sup>31</sup> Following Husserl, Merleau-Ponty argues that the reductions of science constitute a ‘withdrawal’ from the world in which we find ourselves. Acknowledging the primacy of

<sup>26</sup> Armstrong, *Modernism, Technology and the Body*, p. 5.

<sup>27</sup> Edmund Husserl, *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*. See also Joseph J. Kockelmans, (ed.) *Phenomenology: The Philosophy of Edmund Husserl and its Interpretation*, Garden City, N.Y: Anchor Books, 1967.

<sup>28</sup> Edmund Husserl, *The Phenomenology of Intersubjectivity*, (original italics). As cited in Edward Casey, *The Fate of Place: A Philosophical History*, Berkeley: University of California Press, 1997.

<sup>29</sup> Merleau-Ponty’s essays were later published in *Sense and Non-sense*, translated by Hubert L. Dreyfus and Patricia Allen Dreyfus, Evanston, Ill.: Northwestern University Press, 1964.

<sup>30</sup> Maurice Merleau-Ponty, *Phenomenology of Perception*, translated by Colin Smith, London: Routledge & Kegan Paul, 1962.

<sup>31</sup> “Science has not and never will have, by its nature, the same significance *qua* form of being as the world which we perceive, for the simple reason that it is a rationale or explanation of that world. [...] To return to things themselves is to return to that world which precedes knowledge, of which knowledge

experience makes the world itself, and not subjective consciousness, the source of knowledge. The world necessarily exceeds consciousness, and constitutes for it an inexhaustible source of wonder. The subject emerges only in the process of moving beyond itself, and towards that world.<sup>32</sup>

The self is dependent upon the senses for its connection to the world. Rather than acknowledging that dependence, argues Merleau-Ponty, scientific attempts to explain the workings of the senses reinforce the boundary between self and world that occurs at the surface of the body. Although perception is our only possible access to such a reality, it is, in its variability, viewed as inferior to it. In the Müller-Lyer's illusion, for example, two lines made different due to their context are posited as being 'the same' in some objective, prior, and privileged reality. In this way, experiential phenomena are constrained by their conformity to scientific principles, and are denied their tolerance of contextual variation and ambiguity.<sup>33</sup> Through perception, objects are understood not with reference to some objective reality, but to their importance or meaning in relation to the body. It was only through a denial of the body's significance for sensory experience, its reduction to a means of transmitting information, that subject and object were conceived as separate.

This separation of subject and object was particularly evident with the sense of sight, giving to the subject the quality of an impartial spectator, "an interior without exterior."<sup>34</sup> For Merleau-Ponty, however, vision occurs *between* perceiving subject and perceived object, with meaning, rather than inhering in the object, coming from their interaction. Anything seen is 'already inhabited by a meaning', perceived or anticipated in relation to the

---

always *speaks*, and in relation to which every scientific schematization is an abstract and derivative sign-language." Merleau-Ponty, *Phenomenology of Perception*, pp. vii-ix.

<sup>32</sup> "Husserl's transcendental is not Kant's and Husserl accuses Kant's philosophy of being 'worldly', because it *makes use* of our relation to the world, which is the motive force of the transcendental deduction, and makes the world immanent in the subject, instead of being filled with wonder at it and conceiving the subject as a process of transcendence towards the world. [...]The world is not what I think, but what I live through. I am open to the world, I have no doubt that I am in communication with it, but I do not possess it; it is inexhaustible." Merleau-Ponty, *Phenomenology of Perception*, p. xiii-xvii.

<sup>33</sup> "[Science] forces the phenomenal universe into categories which make sense only in the universe of science. It requires that two perceived lines, like two real lines, should be equal or unequal, [...] without realizing that the perceived, by its nature, admits of the ambiguous, the shifting, and is shaped by its context. In Müller-Lyer's illusion, one of the lines ceases to be equal to the other without becoming 'unequal': it becomes 'different'. That is to say, an isolated, objective line, and the same line taken as a figure, cease to be, for perception, 'the same'." Merleau-Ponty, *Phenomenology of Perception*, p. 11.

<sup>34</sup> "[...] while the living body became an exterior without interior, subjectivity became an interior without exterior, an impartial spectator." Merleau-Ponty, *Phenomenology of Perception*, p. 56.



body.<sup>35</sup> In contrast to the notion of the perceiving subject as a passive recipient of information about the world, Merleau-Ponty emphasises the way in which that world is perceived in its potential for interaction, engagement, or inhabitation. This complicity of subject and object in the constitution of meaning depends in large part upon the variation of vision, upon the way in which the body is able to move in relation to other objects. Through both its capacity for movement and its role as perceptual apparatus, the body emerges as fundamentally different to the objects of perception.

To begin, the body demonstrates a primacy not shared by other objects. Instead it is that with which we are able to understand objects, the necessary precondition that allows access to the world of objects. “[The body] is my basic habit, the one which conditions all the others, and by means of which they are mutually comprehensible.”<sup>36</sup> The body is *more* than an object, “[...] it is that by which there are objects.”<sup>37</sup> And elsewhere: “The body is our general medium for having a world.”<sup>38</sup> As the means by which the world is available to us through perception, the body must always be present, regardless of the variety of objects available for perception. The body demonstrates a ‘primordial presence’ over its perceptual field.<sup>39</sup> The body also demonstrates a persistence of presence that distinguishes it from other objects. An object available for perception could equally be absent, exchanged for another, removed from my perceptual field. The body, however, is “an object which does not leave me.”<sup>40</sup>

The body is literally indispensable as a means of perception. Its constant presence leads it to resist the normal means by which objects are experienced. To overcome the limitation of perspective, whereby only one side of an object is available to perception, usually requires variation in the relative position of body and object. To change perspective, I can

---

<sup>35</sup>“Vision is already inhabited by a meaning (*sens*) which gives it a function in the spectacle of the world and in our existence. The pure *quale* would be given to us only if the world were a spectacle and one’s own body a mechanism with which some impartial mind made itself acquainted. Sense experience, on the other hand, invests the quality with vital value, grasping it first in its meaning for us, for that heavy mass which is our body, whence it comes about that it always involves a reference to the body.” Merleau-Ponty, *Phenomenology of Perception*, p. 52.

<sup>36</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 91.

<sup>37</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 92.

<sup>38</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 146.

<sup>39</sup> “The presence and absence of external objects are only variations within a field of primordial presence, a perceptual domain over which my body exercises power.” Merleau-Ponty, *Phenomenology of Perception*, p. 92.

either move the object in relation to my body, or move my body in relation to the object (or both together). That is, I can move it around, or move around it, to build up an image of various aspects. In this relation, the body is normally the means, and not itself an object, of perception. In fact the act of perception precludes the body from itself being so perceived: “In so far as it sees or touches the world, my body can therefore be neither seen nor touched.”<sup>41</sup> It is possible to perceive some parts of the body as though they are an object at a distance, but much of the body is resistant to such perception. There are parts of my body that can never be seen except indirectly, parts that can be touched only in a contorted manner. This resistance to perception increases nearer to the body’s perceptual apparatus: “My visual body is certainly an object as far as its parts far removed from my head are concerned, but as we come nearer to the eyes, it becomes divorced from objects, and reserves among them a quasi-space to which they have no access.”<sup>42</sup> Attempts to perceive the body are confounded by this resistance. The persistence of the body makes it resistant to the variation of perspective by which other objects are perceived. The body’s perspective upon itself is fixed, a fixity that movement cannot alter. “[The body] defies exploration and is always presented to me from the same angle. [...] To say that it is always near me, always there for me, is to say that it is never really in front of me, that I cannot array it before my eyes, that it remains marginal to all my perceptions, that it is *with* me.”<sup>43</sup> This persistence of the body means that its movement is of a different kind to that of objects. It is not an object to be moved, but is rather an object that is carried along with any volitional movement. “My body itself I move directly, I do not find it at one point of objective space and transfer it to another, I have no need to look for it, it is already with me”.<sup>44</sup>

Following Merleau-Ponty, Drew Leder describes the body’s resistance to reflexive perception as a form of ‘disappearance’.<sup>45</sup> As perceptual apparatus, our sensory organs

---

<sup>40</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 90.

<sup>41</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 92.

<sup>42</sup> Merleau-Ponty, *Phenomenology of Perception*, pp. 91-92.

<sup>43</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 90.

<sup>44</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 94.

<sup>45</sup> Drew Leder, *The Absent Body*, Chicago and London: University of Chicago Press, 1990. Leder’s work provides a reading of somatic phenomenology from a medical perspective, detailing the way in which medical knowledge of the body differs from lived experience.

are unable to direct that focus upon themselves, demonstrating a ‘focal disappearance’ in relation to their own position at the centre of their perceptual field.<sup>46</sup> Eyes cannot ‘see themselves’, unless aided by an externalised image in a mirror or photograph. Nor can they perceive their own perceptual activity: the act of sensing is not itself available to sensory experience. As Sartre explains, although I can see, “I cannot ‘see the seeing’.”<sup>47</sup> Not only do the senses resist thematisation, many of the body’s internal processes—digestion, circulation, respiration, thermal regulation, and the organs that carry out these tasks—occur outside of perception or volition.<sup>48</sup> Merleau-Ponty refers to the “concentrated darkness of my bodily organs,” emphasised by the resistance of the body interior to direct visual perception.<sup>49</sup> When the body does become the object of attention, it does so imperiously, demanding attention because its regular operation has become in some way problematic. Leder describes this as a phenomenon of ‘dys-appearance’. Sensations of hunger, fatigue, or pain act to direct the body away from its pursuits, and toward strategies of overcoming adverse sensation.<sup>50</sup> The sensation of pain, in particular, directs attention inwards, its aversiveness motivating the desire to expel it from the body, to return to a body without pain. Thus pain is often experienced as alien, the unwanted consequence of a disease or injury that has invaded or damaged the body.<sup>51</sup>

These forms of differentiation from the world of objects render the surface of the body as a point of inflection, across which perception is fundamentally altered. At the surface of the body, the perception of objects gives way to the experience of perception, the living out of the lived body in its engagement with the world. The body, in its persistent presence, takes over from the world as a collection of objects, to be understood only through experience: “I cannot understand the function of the living body,” writes Merleau-Ponty, “except by enacting it myself, and except in so far as I am a body which rises towards the

---

<sup>46</sup>“Precisely as the center point from which the perceptual field radiates, the perceptual organ remains an absence or nullity in the midst of the perceived.” Leder, *The Absent Body*, p. 13.

<sup>47</sup> Sartre, *Being and Nothingness*, p. 304.

<sup>48</sup> Leder, *The Absent Body*, pp. 45-46.

<sup>49</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 326.

<sup>50</sup> “The highly affective and significant call of pain renders unimportant projects that previously seemed crucial. [...] Space loses its normal directionality as the world ceases to be the locus of purposeful action.” Leder, *The Absent Body*, p. 75.

<sup>51</sup> Patients will often refer to the pain as an ‘it,’ separate from the ‘I.’ Leder, *The Absent Body*, p. 76.

world.”<sup>52</sup> Moreover, the multiplicity of external objects gives way at the surface of the body not to a collection of perceptual apparatuses, but to a singular, unified body: “The outline of my body is a frontier which ordinary spatial relations do not cross. This is because its parts are inter-related in a peculiar way: they are not spread out side by side but enveloped in each other. [...] I am in undivided possession of it”.<sup>53</sup>

While the body is always the central term in any experience of the world of objects, it is itself, as a means of perception, only understood in relation to that world. This leads Merleau-Ponty to describe the body as both an “anchorage in a world”<sup>54</sup>, and as a “pivot of the world.”<sup>55</sup> The body as pivot mediates between the world as it impacts upon our body, and our body as it projects out into the world. Thus sensations present themselves, writes Merleau-Ponty, “as certain kinds of symbiosis, certain ways the outside has of invading us and certain ways we have of meeting this invasion.”<sup>56</sup> And elsewhere: “[...] my body is a movement towards the world, and the world my body’s point of support.”<sup>57</sup> Because of this ‘movement towards the world,’ it is *touch* that emerges as the paradigmatic sense, the model by which sensation in general can be understood. The body, as material and movement, renders sensation *tactile*. In arguing the significance of touch in understanding, Merleau-Ponty makes explicit the rejection of Kant’s conceptual synthesis, while at the same time rejecting the Cartesian universality of vision as a vanity.<sup>58</sup>

Touch reveals the body as a *thickness* at the centre of the world, able to connect with the world by reaching out towards it, and extending into it. For Merleau-Ponty, this

---

<sup>52</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 75.

<sup>53</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 98.

<sup>54</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 144.

<sup>55</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 82.

<sup>56</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 317; Or in a more poetic flourish, “[...] the world ceaselessly assails and beleaguers subjectivity as waves wash round a wreck on the shore.” p. 207.

<sup>57</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 350.

<sup>58</sup> “It is not consciousness which touches or feels, but the hand, and the hand is, as Kant says, an ‘outer brain of man’. In visual experience, which pushes objectification further than does tactile experience, we can, at least at first sight, flatter ourselves that we constitute the world, because it presents us with a spectacle spread out before us at a distance, and gives us the illusion of being immediately present everywhere and being situated nowhere. Tactile experience, on the other hand, adheres to the surface of our body; we cannot unfold it before us, and it never quite becomes an object. Correspondingly, as the subject of touch, I cannot flatter myself that I am everywhere and nowhere; I cannot forget in this case that it is through my body that I go to the world, and tactile experience occurs ‘ahead’ of me, and is not centred in me. It is not I who touch, it is my body.” Merleau-Ponty, *Phenomenology of Perception*, p. 316.

reaching out into the world denies the passive role of the spectator, and instead suggests a certain motivation, an active engagement with the world whose meaning and purpose are related back to the body. The body's 'projection' out into the world is directed by its *projects*, the purposes for which it engages with the world. The body, for Merleau-Ponty, is a 'vehicle of being'.<sup>59</sup> It is an intermediary, orienting and directing the self in its relation to the world, carrying consciousness toward the objects of its attention. 'Consciousness' is not an awareness of things as such, but an awareness of their useability. It is a 'being-towards-the-thing' that is mediated by the body.<sup>60</sup>

Together, these various ways in which the body differentiates itself act to counter Cartesian dualism, the relegation of the body to the world of objects. First, the body demonstrates a primacy, taking a position as the first object, as that which makes possible the experience of all others. Second, the body demonstrates a constancy and a fixity with relation to its own perceptual apparatus, thereby resisting strategies of perceptual investigation. Third, it demonstrates a disembodiment, effacing itself as an object of perception as a result of its outward focus. Fourth, it demonstrates a boundedness or limitation, within which its parts are enveloped in each other and possessed together as a unity. Finally, it attempts to overcome that limitation by moving out into the world, engaging with it actively in the course of its projects.

## Inhabited Space

This movement towards the world involves more than the mere perception of objects. Instead the body accumulates and appropriates objects, temporarily including them within its scope or limit. Such objects are acquired and used by the body as part of its projects, in its active engagement with the world. With the example of a blind man's stick, Merleau-Ponty describes the way in which objects are 'incorporated' in order to extend or amplify our

---

<sup>59</sup>"The body is a vehicle of being in the world, and having a body is, for a living creature, to be involved in a definite environment, to identify oneself with certain projects and be continually committed to them." Merleau-Ponty, *Phenomenology of Perception*, p. 82.

<sup>60</sup> "Consciousness is in the first place not a matter of 'I think' but of 'I can'. [...] Consciousness is being-towards-the-thing through the intermediary of the body. [...] to move one's body is to aim at things through it." Merleau-Ponty, *Phenomenology of Perception*, pp. 137-139.

sensory apparatus, resulting in a ‘dilation’ of our being.<sup>61</sup> Heidegger calls such objects ‘equipment’ (*Zeug*), handled or manipulated by the body in its dealings with the world.<sup>62</sup> Equipment has its own kind of ‘knowledge,’ a familiarity that blurs the distinction between body and object. Moreover, such objects are often retained for future use, demonstrating a potentiality that Heidegger describes as a ‘*readiness-to-hand*’.<sup>63</sup> This placement of objects near to the body suggests that the relation between the two is spatially mediated. According to Heidegger, things ‘ready-to-hand’ occur within a *region* (*Gegend*), that space in which objects can be related to the body in terms of both directionality and proximity. Any abstracted conception of space, he argues, must originate in the spatiality of the ready-to-hand, and must be derived from it.<sup>64</sup>

For Merleau-Ponty, the space between objects and the body is also instrumental in perception. He describes space as a form of ‘potential’ that enables an adjustment in the relative position of body and object. Characterised by touch, perception entails an engagement of the body as it either moves objects or moves around them. The resultant variation in perspective allows a complex image of an object to be pieced together, taking into account not only its appearance from various viewpoints, but also other qualities such as smell, texture, temperature, elasticity, density, or weight. While this variation allows some degree of abstraction, the idea of an object outside of perception is, for Merleau-Ponty, untenable.<sup>65</sup> Instead, objects are understood by ‘inhabiting’ them, by examining from various perspectives their location and character, that is, by placing the body as far as

---

<sup>61</sup> “To get used to a hat, a car, or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body. Habit expresses our power of dilating our being-in-the-world, or changing our existence by appropriating fresh instruments.” Merleau-Ponty, *Phenomenology of Perception*, p. 143.

<sup>62</sup> Heidegger, *Being and Time*, pp. 95-98.

<sup>63</sup> Heidegger, *Being and Time*, p. 98.

<sup>64</sup> “The ‘above’ is what is ‘on the ceiling’; the ‘below’ is what is ‘on the floor’; the ‘behind’ is what is ‘at the door’; all “wheres” are discovered and circumspectively interpreted as we go our ways in everyday dealings; they are not ascertained and catalogued by the observational measurement of space.” Heidegger, *Being and Time*, pp. 136-137.

<sup>65</sup> “Our perception ends in objects, and the object once constituted, appears as the reason for all the experiences of it which we have had or could have. For example, I see the next-door house from a certain angle, but it would be seen differently from the right bank of the Seine, or from the inside, or again from an aeroplane: the house *itself* is none of these appearances: it is, as Leibnitz said, the geometrized projection of these perspectives and of all possible perspectives, that is, the perspectiveless position from which all can be derived, the house seen from nowhere. But what do these words mean? Is not to see always to see from somewhere? To say that the house itself is seen from nowhere is surely to say that it is invisible!” Merleau-Ponty, *Phenomenology of Perception*, p. 67.

possible into the position of the object. Yet in the perception of any particular object, the space that surrounds it as potential is already inhabited by other objects, objects which imply another viewpoint back upon the object being perceived. Taken together, objects form a 'system' or 'world', where the perception of each implies, and in turn is implied by, the perception of all others.<sup>66</sup> Objects 'display themselves', their relative positions making them available for perception, alternately coming into focus or receding from view. Space demonstrates a potentiality by enabling the perception of objects, yet its potential is sustained as objects are complicit in each other's perception, 'mirroring' each other, and thereby obviating the need to move among them. This relation between objects leaves them open to perception, making them *translucent*. Merleau-Ponty writes:

“Our previous formula must therefore be modified; the house itself is not the house seen from nowhere, but the house seen from everywhere. The completed object is translucent, being shot through from all sides by an infinite number of present scrutinies which intersect in its depths leaving nothing hidden.”<sup>67</sup>

In describing the perception of objects as 'inhabitation,' Merleau-Ponty frequently refers to those objects that are literally inhabited, such as a house or flat, along with the objects they contain. Throughout *Phenomenology of Perception*, the house appears as both a manifestation and a metaphor of embodied perception. To choose among the objects that 'display themselves' to perception, to concentrate or focus upon one particular object, is to 'open' that object, to 'continue inside' it an exploration that previously enveloped them all.<sup>68</sup>

---

<sup>66</sup> “To see is to enter a universe of beings which *display themselves*, and they would not do this if they could not be hidden behind each other or behind me. In other words: to look at an object is to inhabit it, and from this habitation to grasp all things in terms of the aspect which they present to it. But in so far as I see those things too, they remain abodes open to my gaze, and, being potentially lodged in them, I already perceive from various angles the central object of my present vision. Thus every object is the mirror of all others. When I look at the lamp on my table, I attribute to it not only the qualities visible from where I am, but also those which the chimney, the walls, the table, can 'see'; but back of my lamp is nothing but the face which it 'shows' to the chimney. I can therefore see an object in so far as objects form a system or a world, and in so far as each one treats the others round it as spectators of its hidden aspects and as guarantee of the permanence of those aspects. Any seeing of an object by me is instantaneously reiterated among all those objects in the world which are apprehended as co-existent, because each of them is all that the others 'see' of it.” Merleau-Ponty, *Phenomenology of Perception*, pp. 68-69.

<sup>67</sup> Merleau-Ponty, *Phenomenology of Perception*, pp. 68-69.

<sup>68</sup> “To see an object is either to have it on the fringe of the visual field and be able to concentrate on it, or else respond to this summons by actually concentrating upon it. When I do concentrate my eyes on it, I become anchored in it, but this coming to rest of the gaze is merely a modality of its movement: I

A house or flat is significant as an object that can be entered, occupied, and inhabited by the body. Moreover, inhabited space is known not as a series of images, but as a collection of objects whose spatial organisation is 'in' the body, tied to it by 'threads' of intentionality.<sup>69</sup> Space and the body are understood reciprocally, through movement and orientation, measurement and location, familiarity and identity. And like the body, inhabited space tends to recede from perception, to become familiar through habituation, what Leder describes as 'disappearance.'<sup>70</sup> Defined by those object appropriated by the body, inhabited space becomes part of the taken for granted apparatus of interaction with the world, an expression of the body's ability to 'dilate' or extend outwards into the world.<sup>71</sup> This outward extension enables the demands of the body, its need for food, rest, or ablution, to be prepared for in advance. Instead of suffering from hunger or fatigue, I can simply move toward a particular space, created and maintained in anticipation precisely in order to satisfy that need. In this way, domestic space can be seen as an ordering of the world to cope with the demands of the body, making interior sensations manifest in the external ordering of objects. Seen as comfort or convenience, however, domestic space can also be seen to 'silence' the body, to further effect its disappearance from view.<sup>72</sup>

---

continue inside one object the exploration which earlier hovered over them all, and in one movement I close up the landscape and open the object." Merleau-Ponty, *Phenomenology of Perception*, p. 67.

<sup>69</sup> "When I move about my house, I know without thinking about it that walking towards the bathroom means passing near the bedroom, that looking at the window means having the fireplace on my left, and in this small world each gesture, each perception is immediately located in relation to a great number of possible co-ordinates." pp. 129-130; "My flat is, for me, not a set of closely associated images. It remains a familiar domain round about me only as long as I still have 'in my hands' or 'in my legs' the main distances and directions involved, and as long as from my body intentional threads run out towards it." p. 130; "When I walk round my flat, the various aspects in which it presents itself to me could not possibly appear as views of one and the same thing if I did not know that each of them represents the flat seen from one spot or another, and if I were unaware of my own movements, and of my body as retaining its identity through the stages of those movements." p. 203.

<sup>70</sup> "As I go through the day, my extended body ebbs and flows, now absorbing things, now casting them back onto shore. I do not notice my body, but neither do I, for the most part, notice the bed on which I sleep, the clothes I wear, the chair on which I sit down to breakfast, the car I drive to work. I live in bodies beyond bodies, clothes, furniture, room, house, city, recapitulating in ever expanding circles aspects of my corporeality. As such, it is not simply my surface organs that disappear but entire regions of the world with which I dwell in intimacy." Leder, *The Absent Body*, p. 35.

<sup>71</sup> "Habit expresses our power of dilating our being-in-the-world, of changing our existence by appropriating fresh instruments." Merleau-Ponty, *Phenomenology of Perception*, p. 143.

<sup>72</sup> See Maldonado, "The Idea of Comfort," Tierney, *The Value of Convenience*, and Leder, *The Absent Body*. In "Policing the Body," Andrew Benjamin notes Descartes' omission of the body from his revolutionary project. Although promoting the destruction of existing philosophical systems, argues Benjamin, Descartes was eager to preserve the comfort afforded by his 'stove heated room.' Andrew Benjamin, "Policing the Body: Descartes and the architecture of change," In Neil Leach (ed.)



In his later work, Merleau-Ponty develops the idea of the body as a ‘thickness’ at the centre of perception through the concept of the ‘chiasm.’ The body’s tendency toward self-effacement during perception can be overcome in part through the reflexive application of touch. As the characteristic sense, touch reveals the surface of the body as a point of inflection, across which sensory experience of the world gives way to sensation of the body. These sensations, although different, together form that necessary exchange between self and world that makes perception possible. The surface of the body is a point of both crossing and connection between self and world, an ‘intertwining’ that enables our senses to interrogate the world. This connection, or ‘chiasm,’ is highlighted by the act of touching of one hand with another, revealing the inextricable link between our senses and the world. He writes:

“Between the exploration and what it will teach me, between my movements and what I touch, there must exist some relationship by principle, some kinship, according to which they are [...] the initiation to and the opening upon a tactile world. This can happen only if my hand, which is felt from within, is also accessible from without, itself tangible, for my other hand, for example, if it takes its place among the things it touches, is in a sense one of them, opens finally upon a tangible being of which it is also a part. Through this crisscrossing within it of the touching and the tangible, its own movements incorporate themselves into the universe they interrogate, are recorded on the same map as it; the two systems are applied upon one another, as the two halves of an orange.”<sup>73</sup>

This intertwining between self and world Merleau-Ponty calls *flesh*. Flesh is that primal element out of which subject and world are born in mutual relation, of which touching and the tangible are different, but interwoven, manifestations. Flesh is that relation of the sensible with itself that makes the lived body possible, which constitutes it in its incorporation in the world. Each of our senses, he writes, “[...] must be inscribed in the order of being that it discloses to us; he who looks must not himself be foreign to the world that he looks at. [...]

---

*Architecture and Revolution: Contemporary perspectives on Central and Eastern Europe*, London and New York: Routledge, 1999.

<sup>73</sup> Maurice Merleau-Ponty, *The Visible and the Invisible*, translated by Alphonso Lingis, Evanston Ill.: Northwestern University Press, 1973, p 133. Sartre also acknowledges this fundamental relationship: “The structure of the world demands that we cannot see without being visible.” Sartre, *Being and Nothingness*, p. 317.

he who sees cannot possess the visible unless he is possessed by it, unless he is *of it*".<sup>74</sup> Enmeshed in flesh, the senses intermerge: they are different manifestations of the one body. This is true not only of the various senses ("[...] every visible is cut out in the tangible, every tactile being in some manner promised to visibility"<sup>75</sup>) but also in the orientation of the body. The body is always *located*, its sense of its own position established in relation to an inhabited space, and in the relation to ground that it shares with all objects.

That parallel is also manifest in the intertwining of self and other through mutual perspective. Flesh opens out an 'intercorporeal' being, where the experience of sensation binds each to the other, as the connection between the sentient and the sensible encompasses all bodies. "each is bound to every other vision, to every other touch; [...] the little private world of each is not juxtaposed to the world of all the others, but surrounded by it, levied off from it [...]. Now why would this generality, which constitutes the unity of my body, not open it to other bodies?"<sup>76</sup> The intertwining of sentience and the sensible is particularly evident in the case of reflexive touch, the touching of one hand by the other. The reversibility of sensation is always imminent, never complete; there is a 'hiatus' between hands that touch as one always touching, the other being touched. In this way the opening out of the world into the sentient and the sensible, the separation of flesh through an initial 'fission' or 'dehiscence,' is prevented from disappearing as they fold back upon each other, forming identity in difference. The intertwinings are made possible by a 'thickness' between sentience and sensation that arises from their incomplete closure, and enables their transitivity to occur:

"[...] the thickness of flesh between the seer and the thing is constitutive for the thing of its visibility and for the seer of his corporeity; it is not an obstacle between them, it is their means of communication. [...] The thickness of the body, far from rivalling that of the world, is on the contrary the sole means I have to go unto the heart of the things, by making myself a world and by making them flesh."<sup>77</sup>

---

<sup>74</sup> Merleau-Ponty, *The Visible and the Invisible*, pp 134-135 (original italics). [Vision, of course, being a particular variant of touch, since it "[...] envelops, palpates, espouses the visible things." p. 133.]

<sup>75</sup> Merleau-Ponty, *The Visible and the Invisible*, p. 134.

<sup>76</sup> Merleau-Ponty, *The Visible and the Invisible*, p. 142.

<sup>77</sup> Merleau-Ponty, *The Visible and the Invisible*, p. 135.

Planar metaphors of the body, as having ‘two sides’ or ‘two leaves’ by which it is both sentient and sensible, are insufficient to describe the thickness of the body arising from this inexact folding. Instead the intertwining of one in the other can be seen as “[...] two circles, or two vortexes, or two spheres, concentric when I live naïvely, and as soon as I question myself, the one slightly decentered with respect to the other...”<sup>78</sup> The rich array of metaphors used by Merleau-Ponty reveal a self that is not predetermined by some interiority, but which emerges out of the variety of inversions, enfoldings, and decenterings that are the necessary consequence of the sensory engagement of the body in the world. The self emerges from the crossings, or ‘chiasms,’ that arise from the incomplete folding back upon itself of sensation and the sensible, their necessary thickness in *flesh*.

## Tactile Space

These phenomenological themes have come to influence a great deal of architectural theory and production during the twentieth century. The foremost proponent of phenomenology has been the Norwegian critic Christian Norberg-Schulz, whose celebration of ‘place’ instead of ‘space’ is derived largely from Heideggerian ontology.<sup>79</sup> The desire to apply modernism’s rationalist principles to the human or psychological dimension of architecture constitutes what Colin St John Wilson refers to as Modernism’s ‘uncompleted’ project, exemplified by the work of architects such as Hugo Haring and Hans Scharoun in Germany, and Alvar Aalto in Finland.<sup>80</sup> Aalto’s work in particular demonstrates an extensive concern for architecture as a mediator of human sensory experience.



**Figure 24:** Aalto, Pedagogical University, Jyvaskyla (author’s photo)

<sup>78</sup> Merleau-Ponty, *The Visible and the Invisible*, p. 138.

<sup>79</sup> Christian Norberg-Schulz, *Architecture: Presence, Language, Place*, Milan : Skira Editore, 2000; Norberg-Schulz, *The Concept of Dwelling: On the Way to Figurative Architecture*, Milan: New York: Electa; Rizzoli, 1985.

<sup>80</sup> St. John Wilson, *The Other Tradition of Modern Architecture*.

From the folding, turning circulation of the Library in Viipuri (1930-1935) to the open hall of the Villa Mairea (1938-39), Aalto continually highlights the importance of human movement. From the remarkable daylighting of the Library in Seinäjoki (1965) or the Church in Imatra (1957-59) to the courtyard of the experimental house at Muuratsalo (1953), his work emphasises architecture's role as a mediator between inhabited space and the natural environment, connecting the occupants to the landscape beyond. On the white walls of the Paimio Sanatorium (1929-33), Aalto introduced a slight shadow of grey around the handrails, to anticipate and counter the marks left by human hands. In his later work, this awareness led to the use of large and heavy brass doorhandles, left to slowly tarnish everywhere except where grasped by the hand, welcoming and recording human touch. With the handrails of the Institute building of the Pedagogical University, Jyväskylä (1957), Aalto extends the gesture to children, providing three different rails for them to grasp depending on height.<sup>81</sup> Through light and landscape, movement and materials, Aalto's work constantly reminds its inhabitants of the multiple dimensions of sensory experience.

The importance of multi-sensory experience in architecture has also been discussed by Juhani Pallasmaa.<sup>82</sup> In contrast to the classification of the five senses, Pallasmaa invokes descriptions of multiple and compound sensory modalities through which the body engages with the world. Vision and touch, for example, combine in the haptic, an anticipation of textural qualities through the reading of surface. Haptic vision necessitates shadow, that absence of light that



**Figure 25: Aalto,  
Pedagogical  
University,  
Jyväskylä**

**(author's photo)**

<sup>81</sup> On the importance of the balustrade in Aalto's work, see George Baird, Introduction, in *Alvar Aalto*, New York: Simon and Schuster, 1971.

<sup>82</sup> Juhani Pallasmaa, *The Eyes of the Skin: Architecture and the Senses*, London: Academy Editions, 1996. An earlier version of this essay was published as "An Architecture of the Seven Senses," in Steven Holl, Juhani Pallasmaa, and Alberto Pérez-Gómez, *Questions of Perception: Phenomenology of Architecture*, Tokyo: a+u publishing, 1994. pp. 27-37.

emphasises its movement among objects. By indicating those spaces and objects to which light does not reach, shadows serve to stimulate the imagination, inviting the hands to explore what the eye cannot see.<sup>83</sup> Hearing also touches space by measuring it in relation to our footsteps or voice, modifying the sounds of the body in accordance with its materials and size. Through reverberation, sound creates the very experience of interiority.<sup>84</sup> Spaces amplify the voice, or urge its restraint, creating through scale the sense of intimacy or intimidation.<sup>85</sup> Space can also embrace silence, quietening the mind to create a sense of tranquillity or eternity. Intimacy may also depend upon the warmth of a space, the smells it contains, or the memories it evokes.<sup>86</sup> Rich, well-worn, or polished surfaces may invite the touch of a hand, or may even invoke the urge to place objects in the mouth and experience their taste.<sup>87</sup> A door handle polished by the hands of countless others invites us to share their experience, to enter the space that has welcomed them.<sup>88</sup> Thus sensory experience, rather than leading to discrete readings of spatial information as sight, sound, smell, touch, or taste, combine together to establish a multi-dimensional relationship between the body and the space it occupies. Space is constantly measured in relation to the body, the body measured in relation to space, with pleasure arising from a resonance between them.<sup>89</sup>

---

<sup>83</sup> “Deep shadows and darkness are essential because they dim the sharpness of vision, make depth and distance ambiguous and invite unconscious peripheral vision and tactile fantasy.” Pallasmaa, *The Eyes of the Skin*, p. 32.

<sup>84</sup> “The space traced by the ear in the darkness becomes a cavity sculpted directly in the interior of the mind.” Pallasmaa, *The Eyes of the Skin*, p. 35.

<sup>85</sup> “Every building or space has its characteristic sound of intimacy or monumentality, invitation or rejection, hospitality or hostility. A space is conceived and appreciated through its echo as much as through its visual shape, but the acoustic percept usually remains an unconscious background experience.” Pallasmaa, *The Eyes of the Skin*, p. 35.

<sup>86</sup> “The most persistent memory of any space is often its odour.” Pallasmaa, *The Eyes of the Skin*, p. 37; “The experience of home is essentially an experience of intimate warmth.” p. 41. See also Lisa Heschong, *Thermal Delight in Architecture*, Cambridge, Mass.: MIT Press, 1979.

<sup>87</sup> “Deliciously coloured surfaces of *stucco lustro* and highly polished colour or wood surfaces frequently present themselves to the unconscious appreciation of the tongue.” Pallasmaa, *The Eyes of the Skin*, p. 42.

<sup>88</sup> “It is pleasurable to press a door handle shining from the hands of the thousands that have entered the door before us; the clean shimmer of ageless wear has turned into an image of welcome and hospitality. The doorhandle is the handshake of the building.” Pallasmaa, *The Eyes of the Skin*, p. 40.

<sup>89</sup> “We touch, listen, and measure the world with our entire bodily existence and the experiential world becomes organised and articulated around the centre of the body. [...] We feel pleasure and protection when the body discovers its resonance in space.” Pallasmaa, *The Eyes of the Skin*, pp. 45-47.

“Architectural experience” writes Pallasmaa, “brings the world into a most intimate contact with the body.”<sup>90</sup>

Another application of phenomenological themes can be found in the writings and work of Steven Holl. Holl explicitly adopts themes from Merleau-Ponty, such as his use of the title ‘Chiasma’ for his entry to the competition for a new Museum of Contemporary Art for Helsinki, held in 1992. His winning project, designed in collaboration with Pallasmaa, opened in 1998. Called ‘Kiasma’ to suit the Finnish language, the Museum contains 25 gallery spaces distributed over two main volumes. One, a rectilinear form aligned with the main city grid, is enveloped by a larger, curvilinear form to the north and east, while between them is the main atrium space that forms the entry to the Museum. The relation between them forms the basis of the strategies of ‘crossing’ or ‘intertwining’ at the heart of the design.

In a preliminary sketch made by Holl during a visit to the site, two entwined forms tie together a ‘line of culture,’ extending to Aalto’s Finlandia Hall and Eliel Saarinen’s National Museum, and a ‘line of nature,’ extending to Töölö Bay. On the same page, the forms are described as an ‘art park’, a large, storage type volume emphasised by a loading bay and freight elevator. The two forms, rather than being simply twisted together, are barely touching, like Merleau-Ponty’s chiasmic hands. Between them winds a complex circulation path, following the curved wall of the atrium up into the galleries, then folding back upon itself to follow the wall in



**Figure 26: Steven Holl, Kiasma (author’s photo)**



**Figure 27: Steven Holl, Kiasma (author’s photo)**

---

<sup>90</sup> Pallasmaa, *The Eyes of the Skin*, p. 42.

the opposite direction. Moving back and forth between the two volumes, the circulation cuts across the long enfilades of galleries, enabling each to be entered in a slightly different way. This movement combines with the variation in natural light admitted to each space to create an eerie familiarity, as the body's relation to each space is subtly shifted. Thus Holl deals not with sensation as such, but with its liminality, capturing the 'thickness' of the body in the threshold of its sensory adaptations.<sup>91</sup> Also, with many of the galleries being similar size and shape, the variations in circulation and lighting can be seen as kind of rehearsal of the way in which multiple perspectives of the same object or space can be built up through movement. To experience the one gallery type in many different ways demonstrates various possibilities for the openings of a room, and consequently, for the movement of the body through it. Taken together, these variations mimic the way the body might interrogate a space or form by moving toward, around, or through it in multiple combinations. The variation between the galleries gives rise to what might be perceived as a series of different experiences of the same space, an enactment of tactile appropriation. Along with the emphasis on the liminality of the senses, direction is focused toward the body, activating the strategies of reflexive identification by which the body may know itself. The senses are turned inwards, effecting the kind of 'dehiscence' described by Merleau-Ponty, the decentering of the concentric circles of sentience and sensation. Within a simple pair of twisted forms, Holl has woven paths of movement and light that serve to activate the perceptual mechanisms of the body, emphasising their interaction with space.

## **An Inner Self**

Derived from psychological studies of sensation, Merleau-Ponty's phenomenology demonstrates the role of the body in the constitution of experience, thereby challenging Descartes' conception of the self solely as a thinking being. With the *Cogito*, Descartes

---

<sup>91</sup>In *Parallax*, Holl identifies the importance of movement, the subtle shifts in position that give rise to the 'overlapping perspectives' necessary for the perception of form and space. "The movement of the body as it crosses through overlapping perspectives formed within spaces is the elemental connection between ourselves and architecture. [...] Our faculty of judgement is incomplete without this experience of crossing through spaces, the turn and twist of the body engaging a long and then a short perspective, an up-and-down movement, an open-and-closed or dark-and-light rhythm of geometries—

described a self that was largely independent of the body, a self whose very existence is founded upon the operation of the mind. Merleau-Ponty's work is but one of the many reformulations of the sense of self originating in Descartes. Along with the epistemological problems brought about by the dualism of mind and body, the separation of the thinking self from the context of action has been the subject of rigorous investigation throughout the last two centuries. Particularly in the fields of sociology and psychology, ideas of the self have been reformulated to take into account the significance of social and political action, of the engagement in work and the community, and of familial and religious affiliation. From Alexis de Tocqueville's study of American democracy<sup>92</sup> to Robert Bellah's *Habits of the Heart*,<sup>93</sup> from Marcuse's *One Dimensional Man*<sup>94</sup> to Goffman<sup>95</sup> and Giddens<sup>96</sup>, the modern self has been endlessly dissected. Many of these analyses reiterate Max Weber's characterisation of the 'disenchantment' of self and world that arises from the rejection of a theological world-view.<sup>97</sup> In acknowledging the significance of ethical agency in the constitution of selfhood, these studies suggest that experience necessarily takes into account some conception of the experience of others with whom one shares the world. As Merleau-Ponty suggests, the possibility that one's own experience is of a similar kind to that of others renders it an instance of an 'anonymous existence' of which one's own body is merely a part.<sup>98</sup> Yet the existence of others does more than merely confirm one's own experience of the world. It also gives rise to the possibility of shared social experience, and of interpretive practices through which common forms of meaning are established.

In terms of architectural representation, conceptions of the self as independent of the body are problematic, though not entirely infeasible. It is still possible to manifest representations of the self without the medium of the body, despite the profoundly physical

---

these are the core of the spatial score of architecture." Steven Holl, *Parallax*, New York: Princeton Architectural Press, 2000, p. 26.

<sup>92</sup> Alexis de Tocqueville, *Democracy in America*, New York: Knopf, 1953.

<sup>93</sup> Robert Bellah, et al., *Habits of the Heart*, Berkeley: University of California Press, 1985.

<sup>94</sup> Herbert Marcuse, *One Dimensional Man: Studies in the Ideology of Advanced Industrial Society*, London: Routledge and Kegan Paul, 1964.

<sup>95</sup> Erving Goffman, *The Presentation of Self in Everyday Life*, Harmondsworth: Penguin, 1971.

<sup>96</sup> Anthony Giddens, *Modernity and Self-Identity: Self and Society in the Late Modern Age*, Cambridge: Polity, 1991.

<sup>97</sup> Max Weber, *The Protestant Ethic and the Spirit of Capitalism*, translated by Talcott Parsons, second edition, London: Allen & Unwin, 1976.

<sup>98</sup> Merleau-Ponty, *Phenomenology of Perception*, p. 354.



nature of architecture and its experience. Yet what is more problematic is the conception of a self as a wholly interior thing, divorced from any shared or common context. It is not so easy, as Descartes suggests, to feign that one has no body,<sup>99</sup> when so much of the social is determined by often tacit assumptions of gender, race, or norms of appearance and ability. To address the role of the body in any social context it is necessary to go beyond matters of the body in general to ask *whose* body, and to examine ways in which the bodies of others differ from one's own. Indeed much of the criticism of the Enlightenment conception of the self centres upon the omission of difference from the constitution of the rational moral agent. As we have seen, anthropomorphism often has a normative purpose, presenting a model of ideal appearance, comportment, or behaviour, based upon the appearance of a 'well-composed' body. This is part of what Karsten Harries describes as the 'ethical' function of architecture: its role being to articulate a common *ethos*, that form of character, nature or disposition that is shared by a community.<sup>100</sup> Anthropomorphism is only one of the ways by which architecture may fulfil this 'function,' but it appears to be an important one. As a shared form of representation, architecture must confront the task of expressing common forms of identity while acknowledging difference. Reference to human form enables it to play out issues of the relation between individuals and the society to which they belong. In doing so, it is able to address tensions that arise between the two, in oppositions of interior and exterior, unity and fragmentation, surface and rupture, appearance and character, idea and action. What is needed for this are models of human identity that acknowledge the combined influence of internal and external conditions, in the ongoing negotiation between individual and shared determinants of the self.

Unfortunately, the modern sense of self is determined primarily according to internal standards of reason or preference independent of social context. According to Charles Taylor, this problem originates in Descartes. In *Sources of the Self*, Taylor describes how the modern sense of self results from an 'inward' turn, motivated by the desire to realise

---

<sup>99</sup>"[...] while I could feign that I had no body, that there was no world, and no place existed for me to be in, I could not feign that I was not; on the contrary, from the mere fact that I thought of doubting about other truths it evidently and certainly followed that I existed." Descartes, *Philosophical writings*, p. 32.

<sup>100</sup> Harries, *The Ethical Function of Architecture*, p. 4.

ideas of the human good.<sup>101</sup> Though developed from a tradition that reaches back to Plato, Descartes' formulation of the self solely as a thinking being constitutes a radical departure from that tradition. With his profound mistrust of anything but his own cognitive faculties, Descartes denies the possibility of knowledge as a correspondence with an external reality, and instead measures it according to internal standards of certainty or clarity. For Descartes, the power of thought is a capacity not to discern, but to construct an order of reality in accordance with internal standards of reason.<sup>102</sup> The rule of reason begins with Plato, for whom self-mastery involved establishing the correct relation between parts of the soul, with its higher forms (reason) needed to control its lower forms, passion and desire. The purpose of such self-mastery, however, is that it enables access to the transcendent order, to the order of the 'good' that lies beyond any individual conception of it. Reason, for Plato, is not something that takes place within, but is a means to connect to the larger order in which we participate.<sup>103</sup> The inward turn in search of moral sources continued with Augustine, who reinterpreted Platonic transcendentalism in light of Christian theology. For Augustine, the soul takes on an interiority that contrasts with the exteriority of the body. Although objects take their form through participation in divine Ideas, the soul within presents itself as a surer path to knowing God than does the world of objects. God can never be fully known, of course, but the path to knowledge lies in the 'inner light' of the soul.<sup>104</sup> The search for perfection is directed inward, since what is inside us is held to be connected with a perfection that is ultimately beyond. As Taylor describes it, "God is to be found in the intimacy of self-presence."<sup>105</sup>

---

<sup>101</sup> Charles Taylor, *Sources of the Self: The Making of the Modern Identity*, Cambridge: Cambridge University Press, 1989.

<sup>102</sup> Taylor writes: "The Cartesian option is to see rationality, or the power of thought, as a capacity we have to *construct* orders which meet the standards demanded by knowledge, or understanding, or certainty." Taylor, *Sources of the Self*, p. 147.

<sup>103</sup> "Reason reaches its fulness in the vision of the larger order, which is also the vision of the Good. [...] Once reason is substantively defined, once a correct vision of the order is criterial to rationality, then our becoming rational ought not most perspicuously to be described as something that takes place in us, but rather better as our connecting up to the larger order in which we are placed." Taylor, *Sources of the Self*, p. 123.

<sup>104</sup> "[...] our principal route to God is not through the object domain but 'in' ourselves. This is because God is not just the transcendent object or not just the principle of order of the nearer objects which we strain to see. God is also and for us primarily the basic support and underlying principle of our knowing activity. So the light of God is not just 'out there', illuminating the order of being, as it is for Plato; it is also an 'inner' light. [...] It is the light in the soul." Taylor, *Sources of the Self*, p. 129.

<sup>105</sup> Taylor, *Sources of the Self*, p. 134.

Although continuing to regard the source of knowledge as within, Descartes does not regard it as dependent upon a transcendent reality of Ideas. Thus the ontology of knowledge is reversed, from an external reality to an internal representation. In this way, the Cartesian mechanisation of the world can be interpreted as a negation of the world's participation in the manifestation of knowledge, a reduction of knowledge solely to an attribute of the mind. As Taylor writes, "[...] the cosmos is no longer seen as the embodiment of meaningful order which can define the good for us."<sup>106</sup> Instead, moral sources must be found within, in the agent's sense of dignity as a rational agent, their inner control of reason over passion. Thus Cartesian metaphysics gave rise to a new subjectivism, which placed *inside* the self what was previously located *within* both self and world. As we have already seen, Descartes found no evidence of the mind within the anatomised body, leading him to propose a location for it at a particular point (the pineal gland).<sup>107</sup> The mind or self is 'inside' the body, but not 'within' it, that is, it not co-extensive with it such that the two are different dimensions of the same thing. Ideas are withdrawn from the world, from their permeation of matter, to become the province of the mind. Thus Ideas are also withdrawn from the body, separating it from the self. This new form of inwardness is described by Taylor using the example of melancholy, the humour caused by black bile. "Black bile produces melancholy feelings, because these manifest what it is, its onto-logical status. The psychic is one of the media in which it manifests itself, if one likes, but black bile *is* melancholy, and not just in virtue of a psycho-physical causal link."<sup>108</sup> The modern duality of mind and body, of the mental and the physical, results from the inability to conceive of this kind of ontology. Thus the Cartesian mind-body dualism transforms the meaning of inwardness, from a permeation of the body by that which is also beyond it, to merely being inside the body without substantive connection.

---

<sup>106</sup> Taylor, *Sources of the Self*, p. 149.

<sup>107</sup> "[...] the part of the body in which the soul directly exercises its functions is not the heart at all, or the whole of the brain. It is rather the innermost part of the brain which is a certain very small gland situated in the middle of the brain's substance [...]"Descartes, *The Passions of the Soul*, p. 352. Descartes suggested this idea in a letter to Meyssonnier in 1640, explaining that this gland was the only part of the brain he could find that was not *double*, and therefore ought to be the place where impressions from paired organs (eyes, ears) unite with each other before being considered by the soul. Rene Descartes, *Philosophical Letters*, translated and edited by Anthony Kenny, Oxford: Clarendon Press, 1970. pp. 69-70.

<sup>108</sup> Taylor, *Sources of the Self*, p. 189.

Rather than being entirely dismissive of modern individualism, however, Taylor attempts to find value within it, suggesting ways in which shared moral sources may be developed from it.<sup>109</sup> The advantage of modern individualism, argues Taylor, lies in the affirmation of ‘ordinary life,’ in which the creative capacity of the individual is able to be developed. This originates in the rejection of elitist moral codes—most notably the honour ethic—in favour of a Judeo-Christian spirituality emergent in the reformation. This largely Protestant tradition is concerned with the maintenance of daily life, what Taylor describes as “[...] production and reproduction, that is, labour, the making of things needed for life, and our life as sexual beings, including marriage and the family.”<sup>110</sup> The pursuit of excellence in this domain, through self-exploration, personal commitment, and the development of self-responsible freedom and dignity, is open to all. In fact the freedom to find personal expression in the everyday has been one of the major gains of political reform in the modern era. Taylor writes: “What I have been calling the affirmation of ordinary life is another massive feature of the modern identity, and not only in its ‘bourgeois’ form: the main strands of revolutionary thought have also exalted man as producer, one who finds his highest dignity in labour and the transformation of nature in the service of life.”<sup>111</sup> This idea, which found its most potent expression in Marx, was fundamental to the reforms proposed by William Morris and the Arts and Crafts movement, and can still be found today in the celebration of the ‘ordinary’ in design.<sup>112</sup>

## Practice and Narrative Identity

The sense of selfhood described by Taylor builds upon the phenomenological conception of the body and its role in perception, knowledge, and identity. By stressing the importance of ‘everyday activity,’ the making of things needed for life, Taylor emphasises

---

<sup>109</sup> On ‘communitarian’ ethics, see also Michael Walzer, *Spheres of Justice: a Defense of Pluralism and Equality*, New York; Oxford: Basic Books; Martin Robertson, 1983; Michael J. Sandel, *Liberalism and the Limits of Justice*, Cambridge: Cambridge University Press, 1982.

<sup>110</sup> Taylor, *Sources of the Self*, p. 211.

<sup>111</sup> Taylor, *Sources of the Self*, p. 215.

<sup>112</sup> N. J. Habraken, *The Structure of the Ordinary: Form and Control in the Built Environment*, edited by Jonathan Teicher, Cambridge, Mass.: MIT Press, 1998; See also Deborah Berke and Steven Harris (eds.), *Architecture of the Everyday*, New York: Princeton Architectural Press, 1997.

the role of body not merely as sensory apparatus but as the focus of shared social practices. These social practices allow the demands of the body, its need for food, shelter, or hygiene, to be met in advance, in accordance with commonly established customs and traditions. Indeed it is through the very notion of practice that what might be described as a ‘hermeneutical’ sense of self arises, acknowledging identity as a negotiation between internal and external influences.<sup>113</sup> In this way, the self is seen as constructed neither from within nor without, but as emerging from the interpretive strategies by which each person relates to their social situation. The idea of ‘practice’ extends the notion of ‘tacit’ or embodied knowledge described by Michael Polanyi.<sup>114</sup> Just as an individual can know more than they are able to convey in language, so too what is known in this way is often tacitly shared or transmitted. A similar phenomenon was identified by Marcel Mauss, noting how many young French women had adopted a different gait after watching American cinema.<sup>115</sup> Mauss’ ideas were later developed by Pierre Bourdieu, who used the notion of the *habitus* in order to emphasise the habitual or assumed nature of social conduct.<sup>116</sup> *Habitus* is a form of practical belief, which takes the form of a ‘state of the body’ rather than a state of mind.<sup>117</sup> For Bourdieu, *habitus* mediates between the determinism of structures and the vagaries of individual behaviour, thereby denying the split between objectivism and subjectivism. This is because structures themselves are unable to determine practices unless people behave in accordance with those structures.<sup>118</sup> Through *habitus*, the body can be seen as a site for the negotiation of personal and social determinants, where incorporation, as “*the internalization of externality*,” meets objectification, “*the externalization of*

---

<sup>113</sup> See Stephen Turner, *The Social Theory of Practices: Tradition, Tacit Knowledge and Presuppositions*, Cambridge: Polity Press, 1994.

<sup>114</sup> Michael Polanyi, *Personal Knowledge: Towards a Post-critical Philosophy*, London: Routledge & Kegan Paul, 1962. The idea of knowledge beyond language was also identified by Jerome Bruner. See J. S. Bruner, *Acts of Meaning*, Cambridge, Mass.: Harvard University Press, 1990; *Actual Minds, Possible Worlds*, Cambridge, Mass.: Harvard University Press, 1986; *Beyond The Information Given; Studies in the Psychology of Knowing*, New York: W. W. Norton and Co., 1973.

<sup>115</sup> Mauss, “Techniques of the Body.”

<sup>116</sup> Pierre Bourdieu, *Outline of a Theory of Practice*, translated by Richard Nice, Cambridge; New York: Cambridge University Press, 1977; see also Bourdieu, *The Logic of Practice*, translated by Richard Nice, Cambridge: Polity, 1990.

<sup>117</sup> Bourdieu, *The Logic of Practice*, p. 68.

<sup>118</sup> Thus Bourdieu describes *habitus* as “[...] structured structures predisposed to function as structuring structures.” Bourdieu, *Outline of a Theory of Practice*, p. 72.

*internality*.”<sup>119</sup> Thus while practices are written or inscribed on the body, so too the body is written or inscribed on the world.<sup>120</sup>

The role of practice in the constitution of identity is also addressed in the work of Alasdair MacIntyre.<sup>121</sup> Beyond the idea of practice as everyday action or activity, MacIntyre invokes a specific meaning for practice that is fundamental to his characterisation of virtue ethics. For MacIntyre, a practice is any cooperative form of human activity involving the common pursuit of standards of excellence inherent to that activity. Examples are fields of inquiry such as science or history, or arts such as painting, music, or architecture; or says MacIntyre, politics in the Aristotelian sense, or the making and sustaining of a family. Many of these practices are productive in that they involve the making of goods which can be distributed either among the participants in the practice or to those outside it. Goods produced in this manner may include food or shelter, knowledge or art. Even those practices which result in no material good, especially games such as chess or football, may be considered productive in that they improve the health, fitness, or skill of participants, or in leading to fame or prestige. MacIntyre distinguishes between two different types of goods; those ‘internal’ and those ‘external’ to a practice. External goods are practice independent, and are generally those goods which are consumed in the satisfaction of desire. Such goods must be possessed, which are then, by their nature, precluded from being possessed by another. In contrast, ‘internal’ goods are the ideas and works that participants create when attempting to progress toward and beyond the standards of excellence by which a practice is defined. They are ‘goods’ because their achievement transforms and enriches the practice in question, and they are ‘internal’ because achieving them is a task available only to those whose participate in the practice. To understand them requires at least some familiarity with the practice, its standards of excellence, and its definitive works, and such understanding is fundamental to involvement in the practice. Unlike external goods, internal goods are not consumed, but may be enjoyed

---

<sup>119</sup> Bourdieu, *Outline of a Theory of Practice*, p. 72 (original italics).

<sup>120</sup> “[...] the body is thus constantly mingled with all the knowledge it reproduces, and this knowledge never has the objectivity it derives from the objectification in writing and the consequent freedom with respect to the body.” Bourdieu, *The Logic of Practice*, p. 73.

<sup>121</sup> Alasdair MacIntyre, *After Virtue: A Study in Moral Theory*, second edition, London: Duckworth, 1985. See also Alasdair MacIntyre, *Three Rival Versions of Moral Enquiry*, London: Duckworth, 1990, and Alasdair MacIntyre, *Whose Justice? Which Rationality?* London: Duckworth, 1988.

by all those who participate in the practice. The distinction is fundamental to MacIntyre's definition of a practice:

“By a ‘practice’ I am going to mean any coherent and complex form of socially established cooperative human activity through which goods internal to that form of activity are realised in the course of trying to achieve those standards of excellence which are appropriate to, and partially definitive of, that form of activity, with the result that human powers to achieve excellence, and human conceptions of the ends and goods involved, are systematically extended.”<sup>122</sup>

For MacIntyre, the idea of a practice defined in this way is a necessary precondition for his characterisation of virtue. Practices provide the social context for human activity, providing standards that transcend the opinion of any single member. United by the common pursuit of excellence, practitioners form a *community*. The community includes, and is in part defined by, its previous practitioners, especially those whose achievements help to define the practice. The community exists prior to any individual practitioner, constituting an authority which they must confront, and from which they must learn. Practices constitute an ongoing tradition, which must be acceded to by those who enter into them, and which is continually transformed by the actions of its participants.<sup>123</sup> According to MacIntyre, to enter into a practice, to pursue, to achieve, and to extend its standards of excellence, requires particular human traits known as *virtues*. Courage is needed in striving to achieve the standards of excellence of a practice; humility, to acknowledge the authority of the practice and its participants; honesty, to accept one's own weaknesses in the face of that authority; and justice, to recognise the rights and obligations of each participant. According to MacIntyre, not to possess virtues such as these prevents the achievement of internal goods and thereby renders the practice meaningless except as a means of producing external goods.<sup>124</sup> Virtue is dependent upon the context of a practice to establish the relationship to others with whom are shared the same aims and standards of excellence. Virtues are character traits definitive not of an individual but of their relationship to others within a practice.

---

<sup>122</sup> MacIntyre, *After Virtue*, p. 187.

<sup>123</sup> See also Edward Shils, *Tradition*, London: Faber, 1981.

MacIntyre's account of the virtues is derived largely from that of Aristotle, as set out in the Eudemian and Nicomachean ethics.<sup>125</sup> The virtues are necessary in order to achieve *eudaimonia*, loosely happiness or well being, the good of a life well lived. For Aristotle, the good of life must be considered *teleologically*, that is, in relation to the end as an answer to the question "What is the best kind of life for a human being like me to lead?"<sup>126</sup> Virtues are those character traits necessary to achieve the end of a good of a life, and are also a necessary part of that life. In contrast to the Enlightenment project of providing rational justifications for questions of the good, the account of moral identity in terms of *virtue* reinstates the social determinants of moral judgement, and rejects the possibility of moral evaluations as mere expressions of personal preference. So, too, is rejected the prospect of exercising judgement according to rational principles. Instead, the social or practical context of action necessitates the key virtue of *phronêsis*, or practical wisdom, an ability to determine the right course of action in a particular situation.<sup>127</sup> *Phronêsis* is an intellectual virtue that enables the virtues of character to be applied in context, such that the contingencies of that context are related to broader notions of the good.

Architecture is readily interpreted as a 'practice' in the sense described by MacIntyre, especially since he uses it as an example. It is a practical activity with internal standards of excellence, developed and maintained over many centuries. It requires the application of general principles to specific contexts, the outcome of which can not be predetermined.<sup>128</sup> This requires skill in judgement, or practical wisdom (*phronesis*), not unlike that used in legal practice.<sup>129</sup> The idea of practice can also allow architecture to be seen as a search for the good life, where a concern for the built environment can transform everyday activities

---

<sup>124</sup> MacIntyre, *After Virtue*, p. 191.

<sup>125</sup> *Aristotle's Eudemian Ethics, books I, II, and VIII*, translated by Michael Woods, Oxford; New York: Clarendon Press, 1982; *The Nicomachean ethics of Aristotle*, translated by Sir David Ross, London: Oxford University Press, 1969.

<sup>126</sup> MacIntyre, *After Virtue*, p. 275.

<sup>127</sup> MacIntyre, *After Virtue*, p. 154.

<sup>128</sup> The role of *phronesis* or practical wisdom in the design of the built environment has been explored by Bent Flyvbjerg in his "Aristotle, Foucault and Progressive Phronesis: Outline of an applied ethics for sustainable development," *Planning Theory* 7-8 1992, pp. 65-83.

<sup>129</sup> This analogy was noted and explored by Peter Collins, in *Architectural Judgement*, London: Faber and Faber, 1971.



from the banal to the poetic, giving rise to a heightened sense of living in the world.<sup>130</sup> In this way, architecture can be seen not as the design of buildings per se, but as a means of realising shared *values* about the inhabitation of space. In the present context, however, what is significant for architecture is that within the notion of a practice is a conception of identity dependent upon social context. In contrast to the interiority of the Enlightenment rational agent, the identity of persons engaged in a practice emerges through their engagement with others in pursuit of excellence. The standards of any practice are beyond the determination of any individual practitioner, and are subject to transformation as part of the ongoing tradition of that practice. Thus identity must be understood as being both socially and temporally extended, emerging through the engagement with others over the course of a life. Such identity, according to MacIntyre, must be determined *narratively*, through interpretive strategies that tie events together into a meaningful whole.<sup>131</sup> Considered teleologically, practices provide the context in which to view life as ordered to a given end. Moreover, practices require action, and the identity of practitioners is determined as much by the actions they take as by the conditions by which they find themselves required to act. Through this narrative conception of self, identity is dependent upon interpretations already in play, that is, upon the prejudices and preconditions occurring within the context of action.<sup>132</sup>

The idea of ‘narrative identity’ has also been addressed by Paul Ricoeur.<sup>133</sup> For Ricoeur, identity emerges out of a reflexive interpretation, an understanding of oneself through the ongoing process of *describing* the self to the self.<sup>134</sup> Any conception of a

---

<sup>130</sup> See Bill Hubbard, *A Theory for Practice: Architecture in Three Discourses*, Cambridge, Mass.: MIT Press, 1995, pp. 88-97 and passim.

<sup>131</sup> MacIntyre, *After Virtue*, pp. 204-221.

<sup>132</sup> MacIntyre writes: “I can only answer the question ‘What am I to do?’ if I can answer the prior question ‘Of what story or stories do I find myself a part?’ We enter human society, that is, with one or more imputed characters—roles into which we have been drafted—and we have to learn what they are in order to be able to understand how others respond to us and how our responses to them are apt to be construed.” MacIntyre, *After Virtue*, p. 216.

<sup>133</sup> The idea of ‘narrative identity’ was first explored by Ricoeur in *Time and Narrative*, 3 volumes: translated by Kathleen McLaughlin and David Pellauer, Chicago and London: University of Chicago Press, 1984-1988, and later developed in *Oneself as Another*, Translated by Kathleen Blamey, Chicago: University of Chicago Press, 1992. See also Anthony Paul Kerby, *Narrative and the Self*, Bloomington and Indianapolis: Indiana University Press, 1991.

<sup>134</sup> “Our own existence cannot be separated from the account we can give of ourselves. It is in telling our own stories that we give ourselves an identity. We recognize ourselves in the stories that we tell about ourselves.” Paul Ricoeur, “History as Narrative and Practice,” *Philosophy Today*, Fall, 1985, p.

‘present’ self emerges from the narrative connecting past actions with future possibilities. The perception of physical and temporal continuity results in an awareness of the ‘connectedness of life’ by which individual events are interpreted together.<sup>135</sup> This continuity is also reflected in the self as a permanence of character, that “[...] finite, unchosen perspective through which we accede to values and the use of our powers.”<sup>136</sup> Through this continuity, the self emerges as the locus of both acquired identifications and habituated actions, giving rise to lasting dispositions that are recognisable as character. Borrowing from MacIntyre’s conception of practice, Ricoeur identifies the ‘twofold principle of determination’ by which practices are transformed and practitioners develop narrative identity. “Nothing”, he writes, “is more propitious for narrative configuration than this play of double determination.”<sup>137</sup> Practices reveal the shared nature of identity, the search for excellence in a field of action where the actions of others are, of necessity, taken into account.<sup>138</sup> For Ricoeur, narrative strategies are not exclusively reflexive. They are also amenable to eversion, allowing an identification with, and thus an ethical consideration of, the *other*.

### **Institution, Memory, and Imagination**

The many reactions against modernism in late twentieth century architecture have been dominated by themes characteristic of this hermeneutical sense of self. Against the desire for clarity has been an acknowledgment of ambiguity; against the elimination of ornament has come an acknowledgment of architecture’s role as a manifestation of collective memory; and against the rationality of function has come a renewed interest in architecture’s narrative dimension. In *Complexity and Contradiction in Architecture*, demonstrating the multiple readings to which architecture is amenable, Venturi shows how internal determinants, such as structure and function, and external determinants, especially the relationship to the city,

---

214; as cited in Anthony Paul Kerby, *Narrative and the Self*, Bloomington and Indianapolis: Indiana University Press, 1991, p 40.

<sup>135</sup> Ricoeur, *Oneself as Another*, p. 115.

<sup>136</sup> Ricoeur, *Oneself as Another*, p. 119.

<sup>137</sup> Ricoeur, *Oneself as Another*, p. 158.

<sup>138</sup> Ricoeur, *Oneself as Another*, p. 155.

rarely find a pure and unambiguous resolution.<sup>139</sup> The prospect of a correspondence between interior and exterior, an idea reaching back to Viollet-le-Duc,<sup>140</sup> is rejected by Venturi. Instead he celebrates the role of architecture as the enclosure of space, separating inside from outside in order to provide physical, as well as psychological, privacy.<sup>141</sup> The tension between contradictory forces does not, argues Venturi, obviate the possibility of unity; rather it necessitates the demonstration of the tenuous nature of unity that arises when contradictions are acknowledged rather than ignored.<sup>142</sup>

The differentiation of interior from exterior is particularly evident in the work of Louis Kahn. In contrast to the modernist efforts to reduce the opacity of spatial boundaries, Kahn regularly emphasised the thickness between internal and external surfaces. This thickness enabled a more dramatic moderation of light to the interior, and also enabled Kahn to utilise *poché*, servant spaces carved into the wall.<sup>143</sup> Examples include the Trenton Bathhouse (1955) and the Indian Institute of Management, Ahmedabad (1962-74).<sup>144</sup> Kahn's efforts to define rather than dissolve interior space relate to his interest in architecture as a manifestation of 'institution.'<sup>145</sup> For Kahn, 'institutions' such as schools, libraries, laboratories, and gymnasia originate in the needs, shared by all human beings, to question, to learn, and to live.<sup>146</sup> Architecture begins with the making of a room, that "[...] world

---

<sup>139</sup> Venturi, *Complexity and Contradiction in Architecture*, p. 16.

<sup>140</sup> "For if there is one thing worthy of the architects' best consideration, it is the perfect agreement between all the parts of the building, that correspondence between the case and what it contains,—the frank expression outside of the arrangement within, not only in point of structure, but of ornamentation, which ought to be in close alliance with it." Eugène-Emanuel Viollet-le-Duc, *Discourses on Architecture*, Grove Press, New York, 1959 (1889); as cited in Cornelius van de Ven, *Space in Architecture: The evolution of a new idea in the theory and history of the modern movements*, Third edition. Assen: Van Gorcum, 1987, p. 61.

<sup>141</sup> Venturi, *Complexity and Contradiction in Architecture*, p. 70.

<sup>142</sup> "[...] an architecture of complexity and contradiction has a special obligation toward the whole; its truth must be in its totality or its implications of totality. It must embody the difficult unity of inclusion rather than the easy unity exclusion." Venturi, *Complexity and Contradiction in Architecture*, p. 16.

<sup>143</sup> On the origins of *poché*, see Michael Dennis, *Court & Garden: from the French Hôtel to the City of Modern Architecture*, Cambridge, Mass.: MIT Press, 1986.

<sup>144</sup> Klaus-Peter Gast, *Louis I. Kahn: the Idea of Order*, translated by Michael Robinson, Basel; Berlin; Boston: Birkhauser, 2001.

<sup>145</sup> Alessandra Latour, (ed.) *Louis I. Kahn: Writings, Lectures, Interviews*, New York: Rizzoli, 1991. "I believe it is the duty of the architect to take every institution in the city and think of it as his work, that his work is to redefine the progress brought by these institutions." p. 101. On 'institution in Kahn, see also Romaldo Giurgola, *Louis I. Kahn*, Barcelona: Gustavo Gili, 1989.

<sup>146</sup> "The measure of a city is its institutions." Latour, *Louis I. Kahn: Writings*, pp. 281.

within a world” that “offers [you] a measure of yourself.”<sup>147</sup> Rooms enable different activities that lie at the heart of institutions. A library, for example, begins when “A man with a book goes to the light.”<sup>148</sup> In the Phillips Exeter Academy Library (1965-71), this activity becomes transformed into an arrangement between shelves, carrels, and external skin that becomes the generator of the plan. In this way, the nature of the institution determines the arrangement of rooms: “The plan is a society of rooms.”<sup>149</sup> By providing a place for people to meet, architecture mediates between individual and social needs.<sup>150</sup> As the manifestation of an institution, architecture becomes an expression of the convergence of individual and social needs, an embodiment of their satisfaction in an idealised form.

In the work of Aldo Rossi, the narrative identity of a city and its inhabitants is acknowledged through an exploration of architecture’s theatrical dimension. In projects such as the *Little Scientific Theatre* (1978) and the *Teatro del Mondo* for the Venice Biennale of 1980, architecture becomes the setting for the real and imagined activities of the city.<sup>151</sup> In his writings, Rossi emphasises the city as an artifact constructed by its inhabitants, a manifestation of the collective lives of its citizens.<sup>152</sup> The city is both an artifact and the setting for its own making, at once demonstrating permanence and change as its elements evolve. “Architecture,” writes Rossi, “attesting to the tastes and attitudes of generations, to public events and private tragedies, to new and old facts, is the fixed stage for human events. The collective and the private, society and the individual, balance and confront one another in the city.”<sup>153</sup> Moreover, as Graham Livesey identifies, architecture not only provides the stage on which events of the city occur, it can also incorporate narrative structures, physically embodying stories and invoking their recollection through memory and

---

<sup>147</sup> Latour, *Louis I. Kahn: Writings*, pp. 263; 294.

<sup>148</sup> Latour, *Louis I. Kahn: Writings*, p. 76.

<sup>149</sup> Latour, *Louis I. Kahn: Writings*, p. 264.

<sup>150</sup> “The city stems from the inspiration to meet. It is very important, there shall be places to meet, meeting is the most important part of a city plan.” Latour, *Louis I. Kahn: Writings*, p. 315.

<sup>151</sup> See Dianne Ghirardo, “The Theatre of Shadows,” In Morris Adjmi (ed.) *Aldo Rossi: Architecture, 1981-1991*, New York: Princeton Architectural Press, 1991, pp. 11-15.

<sup>152</sup> Aldo Rossi, *The Architecture of the City*, translated by Diane Ghirardo and Joan Ockman, Cambridge, Mass.: MIT Press, 1982; Aldo Rossi, *A Scientific Autobiography*, translated by Lawrence Venuti, Cambridge, Mass.: MIT Press, 1981.

<sup>153</sup> Rossi, *The Architecture of the City*, p. 22.

imagination.<sup>154</sup> In this way, the ‘fleeting and contingent’ nature of human events becomes connected to the ‘enduring and essential’ qualities of architecture. The city itself takes on the characteristics of its inhabitants, in an idealised, abstracted, form. “With time,” writes Rossi, “the city grows upon itself; it acquires a consciousness and memory.”<sup>155</sup> The meeting of past and present, of both individual and collective memory, occurs through the idea of ‘type.’ Types are both the elements of the city and the ingredients for its imaginative reconstruction. Rossi’s architecture consists of endless combinations of primary elements, abstracted into Platonic forms that provide idealised but recognisable images of the city. Each of these elements embodies both an idea of itself, and a memory of its former use. Types are important elements of the ‘analogous’ city, the counterpart of the real city that occurs in memory and imagination.<sup>156</sup> Columns, pediments, plazas, and towers are combined in ways that inspire a dreamlike image of urban space. Sometimes, as with the Elementary School in Fagnano Olona, (1972-1976) this image is taken directly from Renaissance conception of the ideal city.

Types are the means by which narratives of human identity are given form and permanence in architecture. They are thus an image of the body, presented, through abstraction, in an idealised form. Types also serve to remind us of architecture’s civic importance. Amenable to combination and invention, types enable the expression of individuality, yet in their evocation of ideal forms, they present models of appropriate appearance and bearing in the city. Through typology, architecture is able to acknowledge the private whilst addressing its essentially public character. With both Rossi and Kahn, the body reappears in architecture in an idealised form that lies at the heart of the city and its institutions. Through the abstractions of type, the presence of the body is transformed into a monument to the ideals of the city. As monument, the presence of the body reveals a city formed not only through memory and imagination, but also from the pain and suffering of those who built the city and its institutions. For Rossi, abstraction is most evident in the architecture of commemoration and death, such as the haunting Cemetery of San Cataldo in

---

<sup>154</sup> Graham Livesey, “Fictional Cities,” *Chora* 1, 1994, pp. 109-122. “Architecture is a vehicle for the unfolding of events; it represents a society’s efforts to make new stories and embody history.” p. 116.

<sup>155</sup> Rossi, *The Architecture of the City*, p. 21.

<sup>156</sup> Peter Eisenman, “The Houses of Memory: The Texts of Analogy,” in Aldo Rossi, *The Architecture of the City*, Cambridge, Mass.: MIT Press, 1982; pp. 3-11.

Modena (1971). Memory is necessary ultimately to prevent pain and death from being forgotten. It is this issue, of pain in the architectural body, to which we now turn.

## Chapter 5

# **Monstrous Bodies: Architecture and the Play of Appearance**

“Self-understanding always occurs through understanding something other than the self, and includes the unity and integrity of the other.”  
Hans-Georg Gadamer<sup>1</sup>

Attempts to reintroduce the body into architecture addressed in the previous chapter sought to counter the fragmenting tendency of modernity in a therapeutic manner, presenting strategies of unification based upon the ‘lived body’ as a model of unity that includes the mind, or self, or soul. However, much of the recent interest in the body in architecture focuses instead on the impossibility of such a task. In the work of architects such as Coop Himmelblau, Bernard Tschumi, and Daniel Libeskind, representations of the body are used to reveal the violence of modernity, to describe the damage and distortion, pain and suffering inflicted upon the body through the imposition of order. The satisfaction of the needs of the body through material wealth can be seen as a form of violence, deadening the sensuous appreciation of the world and creating a condition of anxiety. With Marxist critiques in particular, the provision of comfort can be viewed as a form of discipline, a scheme for

---

<sup>1</sup> Gadamer, *Truth and Method*, p. 97.

social control in order to maximise the productivity of labour.<sup>2</sup> This is exacerbated by the ‘alienation’ of the worker, their separation from the social context in which their products are consumed. Along with these forms of violence, there is also the very literal forms of violence to which workers were exposed as labour shifted from craft based production to the operation of potentially dangerous machinery. When this potential was put to use in the mechanisation of warfare during the twentieth century, the utopian vision of a world freed from suffering by technology was severely challenged.<sup>3</sup> This potential for violence presents a view of objects beyond the notion that they merely extend or amplify the powers of the body. Instead, it reveals how objects in turn act upon the body, disrupting its order through the impact upon the senses. To understand how architecture might be influenced by this ‘disrupted’ body, it is necessary, firstly, to acknowledge the significance of pain in the constitution of the body, and secondly, to explore the ways in which sensory experience, including pain, can give rise to distortions of bodily order. In acknowledging the potential for distortions or disruptions of bodily order, what emerges, in alternative to the static, unified image of Vitruvian Man, is a *monstrous* or *grotesque* body, a body endlessly becoming.

### **Pain and Pleasure: the Sublime**

The feeling of pleasure that accompanies the experience of particular objects was first described under the name of the ‘aesthetic’ by Alexander Baumgarten in the eighteenth century.<sup>4</sup> Later, Edmund Burke described how the experience of immense objects could invoke a different emotion, a feeling of fear, followed by relief when it was recognised that there was no reason to be afraid.<sup>5</sup> This Burke described as the *sublime*. Since fear is an apprehension of pain, it follows that pleasure and pain are not opposites, but are in fact connected. The sublime may give rise to a feeling of pleasure that is manifest as admiration

---

<sup>2</sup> Terry Eagleton, *The Ideology of the Aesthetic*, Oxford: Blackwell, 1990; Chapter 8, “The Marxist Sublime.”

<sup>3</sup> See Tim Armstrong, *Modernism, Technology, and the Body: A Cultural Study*, Cambridge: Cambridge University Press, 1998, Chapter 3, and passim; also Jay Winter, *Sites of Memory, Sites of Mourning: the Great War in European cultural history*, Cambridge; New York: Cambridge University Press, 1995.

<sup>4</sup> Alexander Gottlieb Baumgarten, *Aesthetica*, Hildesheim: G. Olms, 1961 (1750).

<sup>5</sup> Edmund Burke, *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*, edited by Adam Phillips, Oxford; New York: Oxford University Press, 1990 (1759).



or respect, while the elimination of pain or fear can give rise to a feeling of *delight*. The fear invoked by such objects arises partly from the recognition that experiencing them is a task that exceeds the senses. Burke described how in the experience of the sublime, the mind is so occupied by its object that it cannot adequately reason about that object, resulting in astonishment.<sup>6</sup> Thus vastness or the infinite, magnificence or terror invoke the limitation of the body and its senses in their presence. Burke also identifies a further connection between pain and pleasure in relation to the effort needed to sustain life. He describes how the labour necessary to avoid the weakening of the body through inactivity, while itself a form of pain, results in the pleasure derived from self-preservation, with the result that pain can be a cause of delight.<sup>7</sup>

Immanuel Kant's consideration of the aesthetic relies heavily upon the ideas of Baumgarten and Burke. For Kant, it was the immensity or danger of nature that was seen to characterise the sublime, with mountains or an ocean storm able to invoke a feeling of both enjoyment and terror.<sup>8</sup> For Kant, the sublime invokes a combination of attraction and repulsion, at once enticing the faculties and threatening to reveal their limits. In the constitution of experience, described in the *Critique of Pure Reason*, the imagination must first reproduce the variety of sensory experience so that it can be brought together under a concept of understanding. With aesthetic experience, there is no *a priori* concept of understanding to which the imagination must conform. The imagination, free to provide its own concepts, is no longer subservient to understanding. Judgement is then *reflective*, resulting in a harmony between imagination and understanding, described as 'free play' or 'lively play'.<sup>9</sup> This harmony gives rise to a 'quickenings' of the faculties, and is experienced as a feeling of pleasure. This is neither a sensate pleasure, nor a pleasure in the object being judged. Rather, it is the pleasure taken in the act of judgement itself, in the feeling of the suitability of the faculties for judgement and for cognition in general. The sublime, however, invokes a feeling of 'negative pleasure' or 'displeasure,' arising from the 'inadequacy of the imagination.'<sup>10</sup> The sublime, either in magnitude (the *mathematically* sublime) or might (the

---

<sup>6</sup> Burke, *The Sublime and Beautiful*, p. 53.

<sup>7</sup> Burke, *The Sublime and Beautiful*, pp. 122-123.

<sup>8</sup> Kant, *Critique of Judgement*, §28, p. 113.

<sup>9</sup> Kant, *Critique of Judgement*, §9, p. 58.

<sup>10</sup> Kant, *Critique of Judgement*, §23, p. 91.

*dynamically* sublime), is beyond human powers of understanding and mastery. The prospect of pleasure or pain revealed in the sublime shows the reliance of consciousness on corporeality, grounding cognition in the ‘feeling of life’ that results from the maintenance or otherwise of the vital forces: “For, of itself alone, the mind is all life (the life-principle itself), and hindrance or furtherance has to be sought outside it, and yet in the man himself, consequently in the connexion with his body.”<sup>11</sup>

## A Sociology of Artifacts

For Kant, the sublime is most easily found in the immensity of nature, although he does acknowledge the “[...] bewilderment [which] seizes the visitor upon first entering St Peter’s in Rome.”<sup>12</sup> But by the twentieth century, it was products of industrial technology that inspired awe and terror, with the Futurists, for example, describing a racing car as “[...] more beautiful than the winged victory of Samothrace.”<sup>13</sup> In particular, the technology used to control and dominate nature provided the modern experience of the sublime. David Nye argues that feats of engineering such as canals, railroads, bridges and dams used to domesticate the American landscape usurped the wonder of nature, showing instead the extraordinary capacity for human achievement.<sup>14</sup> With later technological advances such as atomic physics and space exploration, Nye shows how the sublime continues to be defined by the frontiers or limits of the exploration of the natural world. The making of artifacts on a scale that challenges the natural sublime can be seen as an extreme version of the use of tools to extend the powers of the body. Nietzsche described this continual desire to exert control over nature under the ‘will to power.’<sup>15</sup> Yet as a form of extension of the body, such artifacts can also be understood through Burke’s idea of labour and its relation to the connection between pain and pleasure in the sublime. The sustained or focussed effort involved in the making of artifacts is endured not merely in order to meet the immediate

---

<sup>11</sup> Kant, *Critique of Judgement*, §29, p. 131.

<sup>12</sup> Kant, *Critique of Judgement*, §26, p. 100.

<sup>13</sup> Banham, *Theory and Design in the First Machine Age*, p. 103.

<sup>14</sup> David Nye, *American Technological Sublime*, Cambridge, Mass.: MIT Press, 1996. See also Leo Marx, *The Machine in the Garden; Technology and the Pastoral ideal in America*, New York: Oxford University Press, 1964.

<sup>15</sup> Friedrich Nietzsche, *The Will to Power*, translated by Walter Kaufmann and R.J. Hollingdale, New York: Vintage Books, 1968.

needs of the body, but in order to counter the terror of the sublime, through which the limited powers of the body are made ‘painfully’ apparent.

The idea of labour as a means to overcome suffering is also evident in the writings of Karl Marx. For Marx, bodily labour was the foundation of culture, with society seen to result not from ideology (as did Hegel), but from the control of labour and resources in material production. In *Capital*, Marx describes the shift to mechanised production in terms of its disruption to the relation between objects and the body.<sup>16</sup> With craft production, both tools and the artifacts that they are used to produce are an extension of the body, which can then be used in a meaningful manner. But with the shift to factory production, the body of the worker becomes a mere ‘appendage’ to the machine, reversing the prosthetic relationship.<sup>17</sup> Moreover, the worker is rewarded not through the reciprocation of the made object or another of equal worth, but only in an amount necessary to reproduce their own labour. Artifacts then enter circulation as commodities, with the choice among them motivated by desire. Eventually, commodities become fetishised, charged with a sexual energy through advertising, promising to make up for the suffering caused by alienation.<sup>18</sup> Freud also described the way objects can compensate for deficiencies, being ‘prosthetic’ in the sense of making up for bodily damage or deficiency.<sup>19</sup> In a similar way, objects can also be used to make up for the sense of absence or loss occasioned by desire. Freud makes frequent reference to the body as a lack, with compensation for the loss of a parent or companion often sought in objects, or acts of making such as writing.<sup>20</sup>

Through a consideration of pain, labour, and desire in the relation between objects and the body, anthropomorphism can be seen as more than merely an ascription of human form to objects. In an article titled “Where are the Missing Masses?” Bruno Latour describes the way in which labour can be ‘delegated’ to objects.<sup>21</sup> In this article, Latour develops the

---

<sup>16</sup> Karl Marx, *Capital: A Critique of Political Economy*, introduced by Ernest Mandel; translated by Ben Fowkes, Harmondsworth: Penguin, 1976.

<sup>17</sup> Marx, *Capital*, p. 548.

<sup>18</sup> Armstrong, *Modernism, Technology and the Body*, p. 79; see also Emily Apter and William Pietz (eds). *Fetishism as Cultural Discourse*, Ithaca, N.Y.: Cornell University Press, 1993.

<sup>19</sup> Sigmund Freud, *Civilization and its Discontents*, translated by Joan Riviere, edited by James Strachey, London: Hogarth Press, 1963.

<sup>20</sup> See also Armstrong, *Modernism, Technology and the Body*, p. 77.

<sup>21</sup> Bruno Latour, “Where are the Missing Masses? The Sociology of a Few Mundane Artifacts,” in Wiebe Bijker and John Law (eds.), *Shaping Technology/Building Society: Studies in Sociotechnical*

idea of anthropomorphism in the context of his wider study of the sociology of knowledge, examining the way in which science comes to be adapted in society, especially in the form of technology.<sup>22</sup> Latour's work can be seen to form part of the recent interest in the social significance of technology, addressed by authors such as Jacques Ellul,<sup>23</sup> Albert Borgmann,<sup>24</sup> and Don Ihde<sup>25</sup>, including the reading of technological systems as 'socially constructed,' led by John Law.<sup>26</sup>

Latour's description of objects as embodied labour begins with the hinge, which, he explains, enables a door to temporarily convert an impenetrable barrier (wall) into a penetrable one, thus enabling people to pass through. The hinge is an artifact that obviates labour, in this case, the labour of breaking a hole in the wall in order to create an opening, and then rebuilding it in order to restore the wall as barrier.<sup>27</sup> The hinge enables the opening to be returned to its position as a wall, itself obviating the labour of policing the boundary.<sup>28</sup> The ability to assign work to an artifact Latour describes as an act of "*displacement or translation or delegation or shifting*," and the objects to which that work is delegated as 'nonhuman.'<sup>29</sup> Such artifacts are 'anthropomorphic,' firstly, because they are made by humans, and secondly, because they perform work that would otherwise need to be done

*Change*, Cambridge, Mass.: MIT Press, 1992, pp. 225-258. See also Bruno Latour, "Technology is Society Made Durable," in John Law (ed.) *A Sociology of Monsters: essays on Power, Technology, and Domination*, London; New York: Routledge, 1991, pp. 103-131.

<sup>22</sup> His works include *The Pasteurization of France*, translated by Alan Sheridan and John Law, Cambridge, Mass., and London, England: Harvard University Press, 1988; *Aramis, or The Love of Technology*, translated by Catherine Porter. Cambridge, Mass.: Harvard University Press, 1996; *We Have Never Been Modern*, translated by Catherine Porter, New York: Harvester Wheatsheaf, 1993; and *Pandora's Hope: Essays on the Reality of Science Studies*, Cambridge, Mass.: Harvard University Press, 1999.

<sup>23</sup> Ellul, *The Technological Society*.

<sup>24</sup> Albert Borgmann, *Technology and the Character of Contemporary Life: A Philosophical Inquiry*, Chicago: University of Chicago Press, 1984.

<sup>25</sup> Don Ihde, *Philosophy of Technology: An Introduction*, New York: Paragon, 1993.

<sup>26</sup> See Wiebe Bijker and John Law, (eds.) *Shaping Technology/Building Society: studies in sociotechnical change*, Cambridge, Mass. : MIT Press, 1992; also Wiebe Bijker, Thomas Hughes, and Trevor Pinch, (eds.) *The Social Construction of Technological Systems: new directions in the sociology and history of technology*, Cambridge, Mass.: MIT Press, 1987.

<sup>27</sup> "[...] instead of driving a hole through walls with a sledgehammer or a pick, you simply gently push the door [...]; once you have passed through the door you do not have to find trowel and cement to rebuild the wall you have just destroyed; you simply push the door gently back." Latour, "Where are the Missing Masses?" pp. 227-228.

<sup>28</sup> "If you do not want to imagine people destroying walls and rebuilding them every time they wish to leave or enter a building, then imagine the work that would have to be done to keep inside or outside all the things and people that, left to themselves, would go the wrong way." Latour, "Where are the Missing Masses?" p. 228.

by a human. Rarely, however, do such objects perform their delegated task entirely independently. The labour, instead of being completely eliminated, is instead reduced; a major effort is ‘transformed’ into a minor one. In the case given, the task of breaking open and rebuilding the wall is reduced to the simple act of opening and closing the door. The task having been delegated can then be forgotten, except in as much as it gives rise to another task. Having people perform this task, however, requires that they be *disciplined*, that is, that they be familiar with what is required of them, and behave accordingly. Thus artifacts are ‘anthropomorphic,’ thirdly, because of the way they shape human behaviour. That discipline, however, is not always successful; doors are left open. One option is to delegate that task to another ‘nonhuman,’ in this case a door closer or ‘groom.’<sup>30</sup> This also determines the behaviour of its users, in this case demanding some effort in order to open the door.<sup>31</sup> While such artifacts may appear impartial, the need to exert effort in fact discriminates against some users.<sup>32</sup> The behaviour that ‘nonhumans’ impose upon their users Latour describes as ‘prescription,’ which gives to mechanisms their moral and ethical dimension: “We have been able to delegate to nonhumans not only force as we have known it for centuries, but also values, duties, and ethics. [...] The sum of morality does not only remain stable but increases enormously with the population of nonhumans.”<sup>33</sup>

This can be seen through the use of doors as a means of exclusion, with the task of making judgements about who is to enter transferred from the figure of the guard to the artifacts of locks and keys, or other security devices.<sup>34</sup> As a technology of social order, the door provides a way of controlling admission to the spatial hierarchies afforded by walls. In this way, they can be seen as a manifestation of ideology, determining an acceptable balance

---

<sup>29</sup> Latour, “Where are the Missing Masses?” p. 229.

<sup>30</sup> “‘groom’ is a French trademark that is now part of the common language.” Latour, “Where are the Missing Masses?” p. 231.

<sup>31</sup> Latour, “Where are the Missing Masses?” p. 232.

<sup>32</sup> Latour, “Where are the Missing Masses?” pp. 232-234.

<sup>33</sup> Latour, “Where are the Missing Masses?” p. 232.

<sup>34</sup> Neil Leach cites Kafka’s “Before the Law,” a short story in which an unopened door provides an allegory for the denial of justice, as illustrative of practices of exclusion. Leach writes: “The opening of the door reveals the wall as a wall, just as, in illuminating the limit, transgression exposes the limit as limit. The door provides the key for understanding the whole question of limit and transgression, of openness and exclusion.” Leach, *Rethinking Architecture*, pp. xix-xx.

between privacy and social interaction.<sup>35</sup> In Latour's reading, the use of a door closer embodies an ideal of equality, allowing anybody to enter, although the practice of establishing statistical norms or standards for anthropometrics works against those who fall in the outer percentiles.<sup>36</sup> Even when inclusion is guaranteed, as with 'automatic' doors, this is invariably achieved through the consumption of fossil fuels, the most frequently used form of 'nonhuman' energy. In that case, the delegation effects a demarcation between humans and nature, with human labour reduced at environmental expense.

## The Body in Pain

The relationship of labour to the sensations of pain and pleasure also forms the subject of Elaine Scarry's *The Body in Pain*.<sup>37</sup> Echoing Burke's description of labour as pain endured in the pursuit of self-preservation, Scarry describes artifacts as a 'projection' of the body out into the world, which are made in anticipation of their 'reciprocation' back upon the body.<sup>38</sup> Typically, such artifacts show an excess of reciprocation, with the contribution to the preservation and maintenance of the body being greater than the effort expended in making them. Thus artifacts act as a 'lever,' serving to amplify the relation between projection and reciprocation, in turn reducing the need to constantly attend to the maintenance of the body. By overcoming the unmediated impact of the world upon the body, artifacts enable attention to be focused outward, away from the body. Moreover, since the effect of such objects is cumulative, attention can be focused at ever increasing distances.<sup>39</sup>

---

<sup>35</sup> See also Robin Evans, "Figures, Doors, and Passages," in *Translations from Drawing to Building and Other Essays*, Cambridge, Mass.: MIT Press, 1997, pp. 55-92; Robin Evans, "The Rites of Retreat and the Rites of Exclusion: Notes towards the Definition of Wall," In *Translations from Drawing to Building and Other Essays*. Cambridge, Mass.: MIT Press, 1997, pp. 34-53; and Robin Evans, "Rookeries and Model Dwellings: English Housing Reform and the Moralities of Private Space," *Architectural Association Quarterly*, 10/1, 1978, pp. 24-35.

<sup>36</sup> See the discussion of 'normality' in chapter 3, based upon Ian Hacking's *The Taming of Chance*.

<sup>37</sup> Elaine Scarry, *The Body in Pain: The Making and Unmaking of the World*, New York; Oxford: Oxford University Press, 1985.

<sup>38</sup> Scarry, *The Body in Pain*, pp. 307-326.

<sup>39</sup> Scarry, *The Body in Pain*, pp. 38-39.

Projection begins as objects replicate or enhance the functions of bodily parts; tools extend the hand, telescopes the eye, telephone the ear and voice.<sup>40</sup> Artifacts may also extend bodily capacities or needs, with modes of recording (writing, photography) acting as externalised memory, vehicles replicating the capacity for movement, other artifacts acting to externalise thought, labour, spirit, or desire.<sup>41</sup> Finally, artifacts can be seen as a projection not of any particular bodily part or capacity, but of sentience itself, the feeling of ‘aliveness’ that characterises embodied experience.<sup>42</sup> The shift of projection from bodily parts, to bodily capacities, to sentience in general represents a progressively more internalised conception of the body, a movement deeper toward the interior of felt experience. In the making of artifacts that acknowledge or anticipate the needs of the body, the projection of sentience is achieved through the acknowledgment of the potential *aversiveness* of sentience. That is, artifacts are a manifestation of the notion “perceived-pain-wished-gone.”<sup>43</sup> Sentience, in the form of pain, is projected outward from the body, into artifacts that contain within themselves a sympathy toward human suffering, manifest as a capacity to prevent pain. In the making of artifacts, the world is ‘remade,’ deprived of its immunity or indifference to the problems of sentience.<sup>44</sup> In exchange, the body absorbs some of the “blissful immunity” of inanimate objects, becoming (if temporarily) released from the burden of pain.<sup>45</sup> Echoing Husserl’s description of the ‘radical discontinuity’ between self and world that occurs at the surface of the body, Scarry describes this exchange as a ‘turning inside-out’ of the body, a reversal of its internal and external surfaces resulting from acts of making. She writes:

---

<sup>40</sup>Parts that may be extended prosthetically also include legs, skin, heart, lungs, brain, womb, and phallus. Scarry, *The Body in Pain*, pp. 281-283.

<sup>41</sup> Scarry, *The Body in Pain*, pp. 283-284.

<sup>42</sup> Scarry, *The Body in Pain*, p. 281.

<sup>43</sup> “The shape of the chair is not the shape of the skeleton, the shape of body weight, nor even the shape of pain-perceived, but the shape of perceived-pain-wished-gone.” Scarry, *The Body in Pain*, pp. 289-290.

<sup>44</sup> “[...] it is part of the work of creating *to deprive the external world of the privilege of being inanimate*—of, in other words, its privilege of being irresponsible to its sentient inhabitants on the basis that it is itself nonsentient.” Scarry, *The Body in Pain*, p. 285.

<sup>45</sup> “[...] by transporting the external object world into the sentient interior, that interior gains some small share of the blissful immunity of inert, inanimate, objecthood; and conversely, by transporting pain out onto the external world, that external environment is deprived of its immunity to, unmindfulness of, and indifference toward the problems of sentience.” Scarry, *The Body in Pain*, p. 285.

“The interchange of inside and outside surfaces requires *not* the literal reversal of bodily linings but the making of what is originally interior and private into something exterior and sharable, and, conversely, the reabsorption of what is now exterior and sharable into the intimate recesses of individual consciousness.”<sup>46</sup>

The projection of interior states outward into the world of objects, and the reabsorption of exterior states back into the body, emphasises the ‘radical discontinuity’ that occurs at the surface of the body by acting to overcome it. The ‘turning inside-out’ of the body through the making of artifacts reduces the experience of embodiment as pure interiority, bringing about a *disembodiment*. Through their cumulative effects, objects divert attention away from the body, as well as diverting attention away from their own essence as the embodiment of sentience.<sup>47</sup> Moreover, the cumulative nature of artifacts continually recreates the body, diverting attention away from the body *qua* body, bringing it to presence in its recreated form, and thereby inspiring yet further acts of projection.<sup>48</sup> Scarry’s concept of the ‘turning inside-out’ of the body reveals its surface as a point of inflection, across which the complexity and extent of acts of projection mirror the complexity and depth of sentience. The further these move outward, away from the surface of the body, the less evident is the central role of the body in acts of making.<sup>49</sup> When the body does become an object of attention, it is often a result of a breakdown or disruption of the function of objects intended to reduce the aversiveness of sentience, giving rise to an experience of frustration, or even pain. This can happen in several ways.

Firstly, an object by its failure or absence may give rise to precisely the kind of pain that it was intended to prevent. Through malfunction, the normally unproblematic relation between body and object breaks down, undergoing what Leder describes as ‘dys-appearance.’<sup>50</sup> In Heidegger’s terms, the object demonstrates “a certain un-readiness-to-hand,” being unusable because it is damaged, or missing, or because its use is precluded by the demands of another activity. For Heidegger, an object may demonstrate an ‘un-

---

<sup>46</sup> Scarry, *The Body in Pain*, p. 284.

<sup>47</sup> Scarry, *The Body in Pain*, p. 325.

<sup>48</sup> “Through objects, human makers recreate themselves, and now this newly recreated self finds that it is no longer expressed in the existing object world, and thus goes on to project and objectify its new self in new objects (which will in turn recreate the maker, and so again necessitate new forms of objectification).” Scarry, *The Body in Pain*, p. 320.

<sup>49</sup> Scarry, *The Body in Pain*, p. 325.

<sup>50</sup> Leder, *The Absent Body*, Chapter 3, p. 69.



readiness-to-hand' by being *conspicuous* (present-to-hand but not useable), *obtrusive* (being present-to-hand when what is needed is absent) or *obstinate* (by 'standing in the way' of our concern).<sup>51</sup> (Latour's study of anthropomorphism referred to above began with such an instance, as he noticed a sign on the door of La Halle aux Cuirs at La Villette in Paris: "*The Groom Is On Strike, For God's Sake, Keep The Door Closed.*"<sup>52</sup>)

Secondly, an object by breakdown or accident may *inflict* pain, upon its user, or upon an unwitting or innocent passer-by. As Scarry suggests, this is an 'aberrant' condition in the relation between body and object, one that may become the subject of litigation. Such cases attempt to discover how such a situation arose in the first place, why those who both made and used the object did not anticipate its failure, and why they did not act to prevent it.<sup>53</sup> From the compensation for those injured in the workplace, to the apportionment of blame in product liability trials, such inquiries also try to establish how the damage might be counteracted or reversed, and who should be responsible for such an undertaking. In such cases, Scarry explains, there are "only two real subjects, the nature of the human body and the nature of artifice, the ease with which 'hurting' occurs and the responsibility with which 'making' must therefore occur."<sup>54</sup>

Finally, the very nature of artifacts as a means to reduce the aversiveness of sentience can be fundamentally inverted with the intentional infliction of pain upon the body in acts of torture and war. In the transformation from *tool* to *weapon*, an artifact that is an extension of one body out into the world is used to counteract the extensions of another, to delimit the attentions of the other inward towards the body. What differentiates 'tool' from 'weapon' writes Scarry, is not the object itself, but the surface on which it falls.<sup>55</sup> To intentionally damage or destroy artifacts made to extend the body, to intentionally damage or destroy the body itself, constitutes an act so antithetical to projection that Scarry describes it as 'unmaking'. Through inflicting pain, the outward focus of attention is prevented by making the interior of the body so pervasive, so compelling in the aversiveness of sensation, that no

---

<sup>51</sup> Heidegger, *Being and Time*, pp. 102-104.

<sup>52</sup> Latour, "Where are the Missing Masses," p. 245.

<sup>53</sup> Scarry, *The Body in Pain*, pp. 296-297.

<sup>54</sup> Scarry, *The Body in Pain*, p. 301.

<sup>55</sup> "What we call a weapon when it acts on a sentient surface we call a 'tool' when it acts on a nonsentient surface." Scarry, *The Body in Pain*, p. 173.

other thought is possible. The intentional infliction of pain Scarry regards as an act of such insensitivity to the problems of sentience that it can only be described as *stupidity*.<sup>56</sup>

## The Architecture of Violence

Ideas of pain and violence provided a common theme for architects of the late twentieth century. Peter Eisenman's early work highlighted the omission of the body in modernism by interpreting architecture as a form of Chomskian semiotics, testing its ability to form 'well-formed-forms' by challenging the anthropomorphic origins of function.<sup>57</sup> In Bernard Tschumi's *Manhattan Transcripts*, images of cinematic violence are appropriated and used to generate architectural form, based upon narratives of violence and death.<sup>58</sup> Tschumi even makes the preposterous claim that "To really appreciate architecture you may even need to commit a murder."<sup>59</sup> Architects Coop Himmelblau also invoke fictional violence in their celebration of the aesthetics of the architecture of death, calling for an architecture that 'bleeds,' 'burns,' 'blazes,' and 'dies.'<sup>60</sup> In a less frivolous gesture, Daniel Libeskind (whose writing machines are reminiscent of the one described by Kafka in "The Penal Colony") derives the form of his Jewish Museum in Berlin from a mapping of the histories of Holocaust victims.<sup>61</sup>

Several recent commentaries, focussing upon the work of these architects, have attempted to place their use of the body within the context of the history of anthropomorphism in architecture. Foremost among these is Anthony Vidler, who addresses the significance for architecture of the body's capacity for sensation, and the close proximity of pleasure and pain. In "The Building in Pain,"<sup>62</sup> Vidler suggest that the renewed

---

<sup>56</sup> Scarry, *The Body in Pain*, p. 278.

<sup>57</sup> Peter Eisenman, *House X*, New York: Rizzoli, 1982; Peter Eisenman, *Houses of Cards*, New York: Oxford University Press, 1987.

<sup>58</sup> Bernard Tschumi, *Manhattan Transcripts*, second edition, London: Academy Editions, 1994.

<sup>59</sup> Bernard Tschumi, *Bernard Tschumi: Architectural Manifestoes*, London: Architectural Association, 1979, unpag. As cited in Michael J. Ostwald and R. John Moore, *Disjecta Membra: Architecture and the Loss of the Body*, Sydney: Archadia, 1998, p. 15.

<sup>60</sup> Coop Himmelblau (Wolf Prix and Helmut Swiczinsky), *Coop Himmelblau: Die Faszination der Stadt/The Power of the City*, edited by Oliver Gruenberg, Robert Hahn, and Doris Knecht Austria, George Büchner 1988.

<sup>61</sup> Daniel Libeskind, *Countersign*, London: Academy Editions, 1991.

<sup>62</sup> Anthony Vidler, "The Building in Pain: The Body and Architecture in Post-Modern Culture," *AA Files* 19 (Spring 1990): pp. 3-10. With revisions, the article was later included as a chapter in *The Architectural Uncanny: Essays in the Modern Unhomely*, Cambridge, Mass.: MIT Press, 1992.

interest in corporeal metaphors shown by architects in recent years is based upon a body radically different to that of humanism. Instead, he writes, “It is a body which seems to be fragmented, if not contorted, deliberately torn apart and mutilated almost beyond recognition.”<sup>63</sup> Vidler argues that the architecture of Coop Himmelblau, Tschumi, and Libeskind results from the subjection of the centering, stabilising, bodies of humanism and modernism to various forms of violence. For Vidler, a new conception of the body emerges, one which constitutes a radical departure from theories of architecture that “pretend to accommodation and domestic harmony.” By bringing into question the unity and integrity of the body, attacking the boundaries by which its identity has been secured, a new, ‘post-humanist’ body is revealed.<sup>64</sup>

According to Vidler, the violence enacted against the body attempts to avoid the simplicity of post-modernism as either a return to or inversion of historical sources. Instead, he argues, the fragmented body represents the culmination of an historical process whereby the metaphorical connection between body and building is gradually severed. Based upon Scarry’s concept of projection as moving from parts, to capacities, to sentience, Vidler describes the anthropomorphic relation between body and building as progressing through three stages. The first sees a literal relationship of “building as body”: the second sees the building as epitomising “states of mind based on bodily sensation”; while the third sees “the environment as a whole endowed with bodily, or at least, organic characteristics.”<sup>65</sup> Vidler relates these stages to the historical development of anthropomorphism, suggesting that the history of architecture has been characterised by an increasing abstraction of the body. He writes:

“The history of the body in architecture, from Vitruvius to the present, might in one sense be described as a progressive distancing of the body from the building, a gradual extension of the anthropomorphic analogy into wider and wider

---

<sup>63</sup> Vidler, “The Building in Pain,” p. 3.

<sup>64</sup> “Its limits, interior or exterior, seem infinitely ambiguous and extensive; its forms, literal or metaphorical, are no longer confined to the recognizably human, but embrace all of human existence, from the embryonic to the monstrous; its power no longer lies in the model of unity, but in the intimation of the fragmentary, the morsellated, the broken.” Vidler, “The Building in Pain,” p. 3.

<sup>65</sup> Vidler, “The Building in Pain,” pp 3-4.

domains, leading insensibly but inexorably to the final ‘loss’ of the body as an authoritative foundation for architecture.”<sup>66</sup>

Vidler identifies the first, literal stage of projection (‘building as body’) with the classical tradition, the almost literal use of the body firstly by Vitruvius, and later by Alberti, Francesco di Giorgio, and Filarete. The emergence of the modern period, and the interest in the ability to evoke emotions of terror and fear suggested by Burke’s aesthetics of the sublime, is then associated with the second stage, the objectification of physical and mental states. Described by the then emergent field of psychology as ‘projection,’ the ability of artifacts to reflect our interior states was first applied to architecture by Heinrich Wölfflin. “‘We always,” wrote Wölfflin, “project a corporeal state conforming to our own; we interpret the whole outside world according to the expressive system with which we have become familiar through our own bodies.”<sup>67</sup> According to Vidler, architects eager to represent the vitality of the new, healthy body and mind of modernism capitalised upon the abstraction of the body into its affective states.<sup>68</sup> The emergence of the third, ‘animistic’, stage, Vidler associates with the modernists’ desire to recreate the whole environment, thereby projecting ‘aliveness’ onto the world of objects. This, he suggests, has continued throughout the twentieth century.

It is in the transition from the corporeal to the psychological, Vidler argues, that the Freudian sense of ‘lack’ or ‘loss’ becomes evident, resulting from “the move away from the archaic, almost tactile, projection of the body in all its biological force.”<sup>69</sup> This loss of the unified body, and the resultant fragmentation, arises from the emphasis upon temporal and sensory experiences of the Romantic sublime. From this sense of loss, Vidler develops his theory of the ‘unhomely’ (or ‘*unheimlich*’), later elaborated in *The Architectural Uncanny*.<sup>70</sup> Referring to Lacan’s essay on “The Mirror Stage,” Vidler explains how the ‘morsellated’ or fragmented body is suppressed when an externalised image of the body is

---

<sup>66</sup> Vidler, “The Building in Pain,” pp. 3-4.

<sup>67</sup> Heinrich Wölfflin, “Prolegomena to a Psychology of Architecture” cited in Vidler, “The Building in Pain,” p. 5.

<sup>68</sup> Citing Geoffrey Scott: “‘The centre of that architecture was the human body; its method, to transcribe in stone the body’s favourable states; and the moods of the spirit took visible shape along its borders, power and laughter, strength and terror and calm.’” Vidler, “The Building in Pain,” p. 4.

<sup>69</sup> Vidler, “The Building in Pain,” p. 7.

available. The mirror performs an orthopaedic function, providing a sense of totality in lieu of the fragmentary nature of bodily experience. Yet in the shift toward identification with the image, the morsellated body becomes repressed to the unconscious. Events which cause the morsellated body to be experienced invoke a feeling of the ‘uncanny’ described by Freud, the strangely familiar sense of revisiting that which is presumed lost. Such experience is brought about by the distortion of conventions of bodily movement and enclosure, through which the body is ‘placed in question.’ The discomfiting of the body is further emphasised by the resistance to the domestic aspects of architecture—the homely—in Himmelblau’s work. Deliberately eschewing the provision of comfort, such architecture acts as a critique of modernism by denying the utopian ideal. Modernity’s therapeutic inscription of a ‘new body’ is overturned in favour of a decentred, destabilised body. Vidler observes that such distortions of bodily convention constitute a form of violence against the body of the user.<sup>71</sup>

Vidler’s adoption of the threefold characterisation of making described by Scarry suggests that the alleviation of pain occurs through increasing abstraction of the body. Architecture replicates the body firstly as protection or enclosure, secondly in its capacity for dwelling, and thirdly as a representation of projection itself.<sup>72</sup> In contrast, the infliction of pain can take on an increasing precision, from the destruction of artifacts made to represent

---

<sup>70</sup> Anthony Vidler, *The Architectural Uncanny: Essays in the Modern Unhomely*, Cambridge, Mass.: MIT Press, 1992.

<sup>71</sup> He writes: “Confronting the architecture of Himmelblau, or, less dramatically, of Tschumi, the owner of a conventional body is undeniably threatened, as the reciprocal distortions and absences which are *felt* in response to the reflected projection of bodily empathy operate almost viscerally on the body. We are contorted, racked, cut, wounded, dissected and intestinally revealed, impaled and immolated; we are suspended in a state of vertigo, or thrust into a confusion between belief and perception.” Vidler, “The Building in Pain,” p. 7.

<sup>72</sup> “In normal contexts, the room, the simplest form of shelter, expresses the most benign potential of human life. It is, on the one hand, an enlargement of the body: it keeps warm and safe the individual it houses in the same way the body encloses and protects the individual within; like the body, its walls put boundaries around the self preventing undifferentiated contact with the world, yet in its windows and doors, crude versions of the senses, it enables the self to move out into the world and allows that world to enter. But while the room is a magnification of the body, it is simultaneously a miniaturization of the world, of civilization. Although its walls, for example, mimic the body’s attempt to secure for the individual a stable internal space—stabilizing the temperature so the body spends less time in this act; stabilizing the nearness of others so that the body can suspend its rigid and watchful postures; acting in these and other ways like the body so that the body can act less like a wall—the walls are also, throughout all this, independent objects, objects which stand apart from and free of the body, objects which realize the human being’s impulse to project himself out into a space beyond the boundaries of the body in acts of making, either physical or verbal, that once multiplied, collected, and shared are called civilization.” Scarry, *The Body in Pain*, pp. 38-39.

the body to the direct destruction of the body in torture and war.<sup>73</sup> As Scarry identifies, the use of domestic objects and spaces to inflict pain marks torture as directly antithetical to the kindness of accommodation.<sup>74</sup> Yet there is also that form of ‘violence’ caused by an excess of comfort leading to the loss of bodily sensation. This is the violence against which architects like Coop-Himmelblau can be seen to react. Theirs is a violence against violence, an attempt to reawaken the senses anaesthetised by the comforts of modernity. Although this takes the form of violence against the body, it is in fact aimed at the body as manifest in previous representations. The violence of suppression or control associated with forms of bodily representation is resisted with violence that aims to disrupt those forms.<sup>75</sup>

### **From Tradition to Revolution**

These anthropomorphic readings reveal architecture as both a means to avoid pain and a representation of pain as an interior state. It begins with the imagination, as pain is remembered or anticipated, and therefore prevented. For Scarry, pain and imagination are each others missing intentional counterpart: the experience of pain prompts the imagining of a state in which that pain is absent. Through work, the imagination moves from a wholly internal state to being projected into the world, made manifest in the form of an object. What can be imagined will always greatly exceed what can be made, but once made, an object is able to continually perform its task of reducing pain, which in turn frees the imagination to focus upon other objects. Moreover, objects, and the labour of producing them, can be shared.<sup>76</sup> Through accumulation, the collective work of many people made manifest as artifacts can exceed the imagination of any one person.<sup>77</sup> However, shared

---

<sup>73</sup> Jean-Paul Sartre: “My body is everywhere: the bomb which destroys my house also damages my body in so far as the house was already an indication of my body.” *Being and Nothingness: An Essay on Phenomenological Ontology*, translated by Hazel E. Barnes, London: Routledge, 1998 (1958), p. 325.

<sup>74</sup> “The domestic act of protecting becomes an act of hurting and in hurting, the object becomes what it is not, an expression of individual contraction, of the retreat into the most self-absorbed and self-experiencing of human feelings, when it is the very essence of these objects to express the most expansive potential of the human being, his ability to project himself out of his private, isolating needs into a concrete, objectified, and therefore sharable world.” Scarry, *The Body in Pain*, p. 41.

<sup>75</sup> Ostwald and Moore, for example, describe Vitruvian Man as the target of post-humanist violence. See *Disjecta Membra*, passim.

<sup>76</sup> This Scarry describes as the “collective work of artifice.” Scarry, *The Body in Pain*, p. 171.

<sup>77</sup> Scarry, *The Body in Pain*, pp. 171-172.

labour depends firstly upon a shared imagination, a distillation of the imaginings of many down to that which can be imagined in common. When unable to be shared, products of the imagination are deemed fantasy or madness; when easily transformed into common projects, they are regarded as practical or sensible. The relation between imagination and sensation therefore depends on those practices by which ideas are transformed into artifacts.

This collective effort of dealing with the needs of the body can bring people together, united in the pursuit of common goals and interests. Working from Scarry's injunction against the infliction of pain, Richard Rorty claims that solidarity can result simply from the recognition that "cruelty is the worst thing we can do."<sup>78</sup> He argues that in spite of the 'contingencies' of language, self, and community identified by European philosophers in the nineteenth century, there is still the possibility, indeed the necessity, of working together to avoid pain and suffering. Similarities arising from our vulnerability to pain and humiliation are enough to outweigh differences of race, religion, or custom.<sup>79</sup> Similarly, Alfonso Lingis argues that the capacity for suffering binds together all people into a community, even those who have nothing in common.<sup>80</sup>

Yet in the dialectic of 'making and unmaking,' Scarry also alerts us to a dimension of ethics beyond the injunction against cruelty. As independent objects, the action of artifacts as a 'lever' is not tied to any particular body, but can be shared. When shared, the balance between 'reciprocation' and 'projection' is transformed into the socio-political question of how each person's benefit is measured against their contribution. One political ideology may focus upon the 'site of projection,' protecting each person's right to choose the manner of their participation in collective effort, while another may focus upon the 'site of reciprocation,' protecting each person's right to benefit from that collective effort.<sup>81</sup> That is, the question of 'rights' tends to focus upon either the distribution of labour, or the distribution of the advantage arising from that labour. Moreover, the question of solidarity is usually defined by the boundary between those included in a particular system of shared

---

<sup>78</sup> Richard Rorty, *Contingency, Irony, and Solidarity*, Cambridge: Cambridge University Press, 1989, p. 85, and passim.

<sup>79</sup> Rorty, *Contingency, Irony, and Solidarity*, p. 192.

<sup>80</sup> Alfonso Lingis, *The Community of Those who have Nothing in Common*, Bloomington and Indianapolis: Indiana University Press, 1994.

<sup>81</sup> The first she associates with the political ideology of the United States; the second with that of the Soviet Union. Scarry, *The Body in Pain*, p. 309.

effort and gain and those who are excluded, between those who would together alleviate suffering and those who threaten to cause it.

With the ‘communitarian’ critique of liberalism, the issue of ‘rights’ to effort or reward is rejected in favour of questions of *justice*, which depends upon an equitable balance between the two. Its proponents, including Charles Taylor and Alasdair MacIntyre, build upon the notion of ‘distributive’ justice developed by Michael Walzer.<sup>82</sup> With MacIntyre’s virtue ethics, the relation between effort and reward is mediated by the social context of production, the common pursuit of excellence within a practice.<sup>83</sup> The ability to achieve excellence is what determines distribution of ‘external’ goods, the material benefit gained from the production of artifacts. But for MacIntyre, the ability of artifacts to satisfy wants or needs is secondary to their ability to make manifest the human capacity to achieve excellence. In relation to Scarry’s characterisation of the shift in projection from bodily parts, to capacities, to sentience itself, the importance of ‘internal’ over ‘external’ goods in MacIntyre’s work also reflects the social context of acts of making. By moving beyond the requirements of the body, the pursuit of excellence in the production of artifacts transforms them into an ever deeper representation of the human capacity for projection. The more a particular good transcends the satisfaction of need, the more it is able to represent projection itself, the more widely it can be shared among those within a practice as an ‘internal’ good. Artifacts made according to the standards of excellence of a practice do not merely represent the particular instance in which they satisfy bodily need, but begin to represent the entire social tradition in which such a need has been identified, interpreted, and overcome. In this way, ‘solidarity’ is that which arises between members of a community as they share the benefits of each other’s labour, made manifest as common meaning rather than simply as material reward.

Within a community, the viability of imagined artifacts is measured firstly against the collective experience of its members, in relation to the tradition in which similar artifacts have been previously made. Yet that tradition also brings with it forms of representation

---

<sup>82</sup> Michael Walzer, *Spheres of Justice: a Defense of Pluralism and Equality*, New York; Oxford: Basic Books; Martin Robertson, 1983; On communitarianism, see also Sandel’s, *Liberalism and the Limits of Justice*, which addresses the deficiencies of liberalism through a direct critique of the work of John Rawls.

<sup>83</sup> MacIntyre, *After Virtue*.



developed by previous participants. Each tradition must evolve, as its modes of representation describe its current participants as well as its former ones. The task of imagining artifacts, like that of producing them, must be shared. Questions of distributive justice in relation to the sharing of labour and its benefits can therefore be extended to the way in which imagination is shared, the way in which participants take part in the ‘making-up’ of artifacts to be made through common effort. Those who feel themselves inadequately represented may resort to violence against inherited forms. As Georges Bataille identifies, common modes of representation are often the target of revolutionary violence. Although commonality is often achieved through the use of idealised forms, those ideals invariably reflect hierarchies of power. He writes:

“Architecture is the expression of the very being of societies, in the same way that the human physiognomy is the expression of the being of individuals. However, it is more to the physiognomies of official characters (prelates, magistrates, admirals) that this comparison must be referred.”<sup>84</sup>

Idealised forms, instead of representing people in general, become an expression of authority, which instead of speaking for a people, can impose silence upon them. Perceived as a form of violence, the imposition of idealised forms can be responded to with the violence of revolution. Thus Bataille continues:

“It is obvious, actually, that monuments inspire socially acceptable behaviour, and often a very real fear. The storming of the Bastille is symbolic of this state of affairs: it is difficult to explain this impulse of the mob other than by the animosity the people hold against the monuments which are their true masters.”<sup>85</sup>

Instead of representing an official ideal, through already extant externalised processes and forms, it is possible to seek alternative forms, forms that more closely represent the current participants of a tradition. Not yet externalised, these forms must be found within, in ‘interior’ states, “[...] psychological processes that are most incompatible with social

---

<sup>84</sup> Georges Bataille, “Architecture,” translated by Paul Hegarty, in Neil Leach, *Rethinking Architecture: A Reader in Cultural Theory*, New York: Routledge, 1996, p. 21.

<sup>85</sup> Georges Bataille, “Architecture.”

stability.’<sup>86</sup> Since in architecture this may constitute a reaction against the forms of the body, these forms of violence may give rise to what Bataille describes as a ‘bestial monstrosity’.<sup>87</sup>

## Monstrous Bodies

Like the sublime, the monstrous contests the limits of the body. The monstrous or grotesque body originates in the fear of disruption to the unity of the body through fragmentation or multiplicity, of the ‘many in the one.’<sup>88</sup> It challenges both natural and geometric order, and arouses feelings of disgust. As described by Mikhail Bakhtin, the monstrous or grotesque body is not static, but is ever in the act of becoming, active in its exchange with the world. The grotesque body emphasises not the smooth, impenetrable surfaces of the body, but the ‘orifices and convexities’ where exchange occurs, and which lead into the depths of the body.<sup>89</sup> Thus monsters which inhabit the surface of architecture, as ornamentation in the form of gargoyles, are also an expression of depth. This is evident in the myths of origin retold by Ruskin, indicating an excess of pleasure, or an outpouring of an uncontrolled imagination.<sup>90</sup>

Marco Frascari’s interpretation of the body in architecture brings together Bakhtin’s idea of the monstrous with Merleau-Ponty’s idea of the ‘chiasm’ to explore the role of the senses in the productive power of the imagination. To begin, Frascari laments the almost complete loss of the body in architectural practice. In a consideration of the drawings of

---

<sup>86</sup> Georges Bataille, “Architecture.”

<sup>87</sup> “Men seem to represent only an intermediary stage in the morphological process that goes from apes to great edifices. Forms have become ever more static, ever more dominant. Moreover, the human order is bound up from the start with the architectural order, which is nothing but a development of the former, such that if you attack architecture, whose monumental productions are now the true masters all across the land, gathering the servile multitudes in their shadow, enforcing admiration and astonishment, order and constraint, you are in some ways attacking man. A whole worldly activity, without doubt the most brilliant in the intellectual order, currently tends in this direction, denouncing the inadequacy of human predominance: thus, strange though it may seem, when it is a question of a creature as elegant as the human being, a way opens [...] towards a bestial monstrosity; as if there were no other possibility for escape from the architectural galley.” Georges Bataille, “Architecture” p. 21.

<sup>88</sup> See Mark Dorrian, “On the Monstrous and the Grotesque,” in *Word and Image*, 16/3, July/Sept 2000, pp. 310-17. “Monstrous and grotesque figures are generated by operations upon the periphery of the body, undoing its coherence and thereby its separation from other bodies and from the world.” p. 313.

<sup>89</sup> Mikhail Bakhtin, *Rabelais and His World*, translated by Helene Iswolsky, Cambridge, Mass.: MIT Press, 1968, pp. 317-318.

<sup>90</sup> Paulette Singley, “Devouring Architecture: Ruskin’s Insatiable Grotesque,” in *Assemblage* 32, April 1997, pp. 110-125.

Carlo Scarpa,<sup>91</sup> Frascari differentiates between various modes by which reference to the body is included in built form. In Scarpa's drawings for the Brion Cemetery, Frascari identifies a series of small circles at head height, used to represent the head. With these, he argues, attention is directed to movement through the space, via a kind of 'self-caricature.' The effect is metonymic, rather than metaphoric, with the head alluding to a series of experiences that have been anticipated by Scarpa, who has imaginatively placed himself in the work. This metonymy differs from the predominant role of the human figure within contemporary architectural drawings, whose presence is necessitated by the lack of any human reference in the architecture itself. This, argues Frascari, was not always the case: "In older representations, the scale relation between drawing and building itself was mediated by a design method in which the human figure was incorporated into the elements of architecture by simile and metaphor, by an organic use of stone and rendering." He continues: "The goal was the transubstantiation of architectural artifact into human presence, and vice versa; it was understood as a productive system that operated simultaneously on two levels, the rhetorical and the physical one. The world constructed by this twofold process of view thus became experience translated into a visual and tactile manifestation of thinking."<sup>92</sup>

Although Scarpa's metonymic representation differs from the figural use of the body, what is still evident is the inter-relation of the rhetorical and the physical, the translation of experience into artifact. The nature of that translation is further explored in articles which address fundamental domestic spaces, namely, the bathroom and kitchen. In "The Pneumatic Bathroom,"<sup>93</sup> Frascari laments the reduction of bathing to a matter of hydraulic efficiency, the loss of water's sacred status. He argues that the bathroom, as the last remaining place where the sacred and the profane meet, is the ideal place for restoring architecture to its role in fostering happiness, the 'beatific' life. In water is present *pneuma* or *spiritus* that can make dwellings 'numinous' places, places that are "inhabited by a

---

<sup>91</sup> Marco Frascari, "The Body and Architecture in the Drawings of Carlo Scarpa," *RES* 14, Autumn 1987, pp. 123-142.

<sup>92</sup> Frascari, "The Body and Architecture in the Drawings of Carlo Scarpa," p. 123.

<sup>93</sup> Marco Frascari, "The Pneumatic Bathroom," In Nadir Lahiji and D. S. Friedman (eds.) *Plumbing: Sounding Modern Architecture*, New York: Princeton Architectural Press, 1997, pp. 162-180.

human or spirit that elicits in most of us the reaction of awe or memory.<sup>94</sup> Water's role in activating the senses elicits memory, which in turn gives access to the imagination. This not the Kantian imagination, relating experience to a concept of understanding, but is that described by Giambattista Vico, founded upon a theory of the *image*.<sup>95</sup> Frascari writes:

“For Vico, the *pneuma* is a sacred odor of memory. Smell, the strongest sense of memory, is the key to the door of the *mundus imaginalis*. From this point of view, bathrooms are the modern locus of the odor of sanctity, an aroma for mental sanity, pneumatic iconostases, the current golden gates to a beatific life.”<sup>96</sup>

The importance of the senses is also addressed in Frascari's consideration of architecture and gastronomy.<sup>97</sup> Critical of the 'nefarious puritan ideology' of the modern movement, he argues instead for reconsideration of the sensory dimension of knowledge. “Contemporary architecture is almost entirely tasteless,” he writes, its concern for visual processes of signification obviating the tactile pleasures that are significant for judgement. The sensory origins of taste, as a mode of discernment of edibles, became transformed into the judgement of all types of intellectual and aesthetic works. Because incorporative, taste is reliant upon internalised modes of evaluation, such as sensitivity and intuition. In contrast to reductive procedures of rational judgement, taste involves a productive search for correspondences between things, whether flavours or architectural artifacts. Taste, writes Frascari, is thus a tactile procedure of sign production and interpretation, evident in the seventeenth-century notion of 'productive taste': “Productive taste is a form of knowledge which results from the chiasmatic relationship between knowledge which takes pleasure and pleasure which knows.”<sup>98</sup>

---

<sup>94</sup> Frascari, “The Pneumatic Bathroom,” p. 177.

<sup>95</sup> Donald Philip Verene, *Vico, Science of Imagination*, Ithaca: Cornell University Press, 1981.

<sup>96</sup> Frascari, “The Pneumatic Bathroom,” p. 172.

<sup>97</sup> Frascari, “Taste in Architecture,” pp. 2-7. See also Frascari, “Take as Much You Please of Some Unknown Material,” and Frascari, “Architects, Never Eat Your Pasta Without a Proper Sauce! A short anti-Cartesian meditation on the nature of architectural imagination.”

<sup>98</sup> Frascari, “Taste in Architecture,” p. 4.

Frascari compares productive taste with a particular mode of reasoning described by the American pragmatist philosopher Charles Sanders Peirce.<sup>99</sup> To the modes of deduction and induction already described by logicians at the time, Peirce added a third mode, which he called *abduction*. The three modes relate to the inference of the unknown component in the relationship *rule-case-result*. Deductive reasoning involves the generation of a *result* from the application of a known rule to a particular case. This is the simplest mode, a calculation requiring no further inference. Inductive reasoning involves the inference of a *rule* from the known or measured results of one or more cases; this is the mode at work in the discovery of mathematical or scientific rules. Here judgement (or method!) is required to establish what constitutes a valid combination of cases and results, as is an element of conjectural reasoning in order to establish possible rules that can then be subjected to scrutiny (*refutation*, in Karl Popper's terminology). Peirce's third mode, *abductive* reasoning, involves the generation of a *case* to which will apply various rules and from which will arise particular results. Here results are desired, not known, and judgement is necessary to mediate the conflicting or incommensurable influence of many rules. As Frascari explains, "abduction is a highly productive procedure. New understandings are continually generated." Moreover, abduction "is a power concerned with the reality of external objects and not with the ideal picture."<sup>100</sup>

Dealing with the reality of objects is necessitated by the reality of the body, since it is in order to satisfy the needs of the body that 'useful' arts of gastronomy and architecture are developed. Through abduction, material reality is transformed into artifacts which best meet the body's need for food or shelter. Abduction is practical, that is, it arises in the context of a 'practice,' the productive response to needs where the outcome is not yet known. Frascari writes: "Abduction helps to produce within practice, since it is an inference based on the sign interpreted by the 'labile body' in search of taste (*sapor*), or pleasure in discerning, that is *sapienza*."<sup>101</sup> The relation of taste to knowledge makes spaces for the preparation and consumption of food the phenomenological core of architecture.

---

<sup>99</sup> A consideration of Peirce's work in relation to architectural design can also be found in Lionel March, "The Logic of Design and the Question of Value," In Lionel March, (ed.) *The Architecture of Form*, Cambridge, N.Y.: Cambridge University Press, 1976.

<sup>100</sup> Frascari, "Taste in Architecture," p. 7.

<sup>101</sup> Frascari, "Taste in Architecture," p. 7.

## The Sensory Imagination

Abduction as a productive mode of reasoning within practical contexts relies upon the activation of memory or imagination, and once again the senses provide the key. Through the synaesthetic nature of experience, taste and smell give access to a mental glossary of images wherein new ‘cases,’ new realities, can be formed. In contrast to the reductive nature of deductive or inductive thought, which give rise to the ‘intelligible universals’ of Cartesian rationality, Frascari invokes Vico’s theory of ‘imaginative universals.’ In his *New Science*, Vico raised the possibility of generating philosophical understanding not from rational categories but from the *image*.<sup>102</sup> Vico argues for the power of the image to represent theoretical knowledge without abstracting it from its practical context. Thus Frascari argues for a ‘theory of the image,’ in which the practical is no longer regarded as an a-theoretical condition. Instead the theory of image acknowledges the unity of instrumental and symbolic representations: “As in the hermetic visual tradition, this theory of image holds that images not only represent but capture something of, or participate in the nature of, what is represented.”<sup>103</sup>

The communicative nature of images is especially evident in the frontispieces of Renaissance architectural treatises. Frontispieces present an allegorical image that provides a key to reading the text within, presenting a summary of the proposed rules of composition and proportion. Also included are characters whose appearance explain or justify the architecture in social or ethical terms. As Frascari explains, “the frontispieces [develop] a dialogue between the bodies of the personifications and the body of the architectural construction.”<sup>104</sup> This dialogue is critical for grounding the treatise in a framework of virtue. Through mythical symbolism, the architecture is described in human terms, establishing a proper relation between appearance and character. The practical is given theoretical justification, or more accurately, the good is made manifest in objects, thus connecting the worldly and the spiritual.

---

<sup>102</sup> Marco Frascari, “Maidens ‘Theory’ and ‘Practice’ at the Sides of Lady Architecture.” *Assemblage* 7, 1988, pp. 14-27. See also Verene, *Vico, Science of Imagination*.

<sup>103</sup> Frascari, “Maidens ‘Theory’ and ‘Practice’,” p. 18.

<sup>104</sup> Frascari, “Maidens ‘Theory’ and ‘Practice’,” p. 19.

## Into the Labyrinth

The theory of images also acknowledges a network of possible associations that are denied by analytic methods. Unlike rational taxonomies, where connections are severed in order to classify in accordance with pre-determined categories, images allow multiple connections through various forms of association and analogy.<sup>105</sup> This network of associations Frascari describes as a *labyrinth*, where any point can potentially be connected with any other.<sup>106</sup> Labyrinthine thought acknowledges a complexity of meaning that can only be reached through multiple associations and interpretational possibilities. It acknowledges the productive potential of indirection, disorientation, and serendipity. In the labyrinth can be found *monsters*, the outcome of ‘inconceivable unions.’<sup>107</sup> Architecture, as the search for unknown outcomes, involves an engagement with the monstrous. Architectural drawings, then, are a ‘demonstration,’ rendering conceivable that which was inconceivable:

“‘Monster’ is a derivation of the Latin verb *monstrare*, to show or point out, which in itself derives from the verb *moneo*, to make think. In other words, these monsters show how to bring together a constructing with a construing, through a demonstration, rather than through a preposterous prescription, i.e., design and construction drawings based on merely graphic conventions. [Monsters] demonstrate the possibility of union between different kind of realities. They are not abnormalities but rather extraordinary phenomena that indicate the way for architecture, a way by which designs and drawings are not separate entities but symbols.”<sup>108</sup>

Since a symbol is both the thing itself and its meaning, the forging of connections between previously unrelated elements involves the joining together of objects and ideas. The rendering conceivable of inconceivable unions relies upon a demonstration of their connection. In architecture, this occurs in the details, which, Frascari explains, are the

---

<sup>105</sup> See also Barbara Maria Stafford, *Visual Analogy: Consciousness as the Art of Connecting*, Cambridge, Mass.: MIT Press, 1999.

<sup>106</sup> Marco Frascari, “A New Angel/Angle in Architectural Research: The Ideas of Demonstration,” *JAE* 44/1, November 1990, pp. 11-19.

<sup>107</sup> Frascari, “The Ideas of Demonstration,” p. 13.

<sup>108</sup> Frascari, “The Ideas of Demonstration,” pp. 13-14.

medium of both understanding and making; a “chiasma of construing and constructing.”<sup>109</sup> This concept, set out in “The Tell-the-Tale Detail,”<sup>110</sup> appears throughout Frascari’s work. The idea of detail as the unit of both construction and signification gives rise to an ‘object-hermeneutics,’ in which the body is the means of interpretation of architecture. The chiasm of construal and construction gives new meaning to the idea of technology in architecture. Frascari argues that technology’s instrumental focus, as logos of *technè* (construction), ignores its semiotic significance, the possibility of a *technè* of *logos* (construal). Technology is therefore seen to have a “double-faced role [...] which unifies the tangible and the intangible of architecture.”<sup>111</sup>

Theories of composition in architecture, especially those based upon Aristotle’s theory of unity from the *Poetics*, establish a relation of part to whole that enable a work of architecture to be understood. As with a text, interpretation relies upon a symbiotic emergence of meaning, where the order of the whole is imposed upon that of the parts, and the order of the parts in turn affects that of the whole. This order is traditionally imposed upon architecture through ideas of geometry and proportion, which establish a ‘proper’ relation of part to whole. This relationship enables meaning to be derived from the necessarily partial acts of engagement as the body moves through a building. Citing Walter Benjamin, Frascari refers to the appropriation of architecture through touch, ‘by habit and often in a state of distraction.’<sup>112</sup> He writes:

“In architecture, feeling a handrail, walking up steps or between walls, turning a corner, and noting the sitting of a beam in a wall, are coordinated elements of visual and tactile sensations. The location of those details give birth to the conventions that tie a meaning to a perception. The conception of the architectural space achieved in this way is the result of the association of the visual images of details, gained through the phenomenon of indirect vision, with the geometrical propositions embodied in forms, dimensions, and location, developed by touching and by walking through buildings.”<sup>113</sup>

---

<sup>109</sup> Frascari, “The Ideas of Demonstration,” p. 13.

<sup>110</sup> Marco Frascari, “The Tell-the-Tale Detail,” *Via* 7, 1984, pp. 23-37.

<sup>111</sup> Frascari, “The Tell-the-Tale Detail,” p. 23.

<sup>112</sup> Walter Benjamin, “The Work of Art in the Age of Mechanical Reproduction.”

<sup>113</sup> Frascari, “The Tell-the-Tale Detail,” p. 28.



Because of the body's role in the perception of architecture, the chiasma of construal and construction engenders a chiasma of body and building. The hermeneutic duality of interpretation, where the interpretation of any text involves the reader in self-interpretation, becomes somatic; the body is understood in and through the building. Like Lacan's mirror, the building becomes a way to unify the fragmentary nature of experience, as the architecture provides clues for the relation of part (detail) to whole. As each detail has meaning in relation to the whole, so too the act of engaging with it relates individual sensations to a unified sense of embodiment. In *Monsters of Architecture*, Frascari describes this chiasma of interpretation as a 'radical anthropomorphism.' He writes:

“Just as we think architecture with our bodies, we think our bodies through architecture. The rhetoric embodied in the above sentence displays a monstrous chiasm that implies a radical anthropomorphism in the concerns of architectural representation. This anthropomorphism can be understood as the ascription of human characteristics and attributes to buildings and edifices and it has long been a part of architectural theory.”<sup>114</sup>

A dialectic arises from the chiasmic exchange between buildings and bodies, in which the partial unity of the body can be understood. Architecture is able to represent the body as a destabilised entity, in a process of continual becoming. Frascari is critical of current architectural practice for failing to maintain the ongoing task of representing the body in this manner. “Architects can no longer do without the identification of the human body and its elements in the architectural body.”<sup>115</sup> This identification requires more than the literal representation of bodily images. Instead, it requires bodily and corporeal tropes through which the 'essence' of architecture is revealed.<sup>116</sup> Citing Merleau-Ponty's discussion of the visible and the invisible, Frascari describes architecture as a making evident of the body's unseen dimension, a perspicuous representation of the body as lived. “The role of the architect is to make visible that which is invisible.”<sup>117</sup> The key to these tropes lies in the recognition of the 'monstrous' nature of the lived body. Through fantasy or the imagination, inconceivable unions are generated from known images. Derived through transformations

---

<sup>114</sup> Frascari, *Monsters of Architecture*, p. 1.

<sup>115</sup> Frascari, *Monsters of Architecture*, p. 4.

<sup>116</sup> Frascari, *Monsters of Architecture*, p. 1.

<sup>117</sup> Frascari, *Monsters of Architecture*, p. 4.

and combinations, these unions result in the generation of new forms; “this is a production of monsters.”<sup>118</sup> The lived body comes to understand the world not by merely incorporating things into itself, but by making things out of itself and transforming itself into them.<sup>119</sup> The monstrous is encountered at the boundaries of the known; as Frascari explains, monsters were used in medieval Psalters to define the limits of the known, appearing both at the edges of maps and in the margins of texts. “There they transcend the text, first, by making the relationship between the part and the whole an enigma, and second, by placing events within our vision that are capable of putting our thought out of place, of determining a buried but real possibility of meaning.”<sup>120</sup> In the same way, architecture defines boundaries. By defining and delimiting the actions or activities of the lived body in space, architecture defines the place of the body and thereby signifies the limits of the body in an unlimited world:

“The signs of the built environment substantiate the human *ekstasis*, which is done by providing events in edifices; the taking place of events and the putting out of place of events generates a building. The edges of walls, the capitals, the keystones, and all the possible architectural elements that express the nature of constructional joints are the places that articulate these monstrous events. These events/joints are architectural monsters that make people think about their environment. [...] Architecture is the monstrous frame of the ‘depiction’ of life.”<sup>121</sup>

As an outward extension of the boundaries of the body, both as object and event, architecture is able to represent the body as a destabilised unity. Conversely, the work of architecture that represents the body in this way is itself incomplete, awaiting the habitation of its occupants, the lived experience of its spaces and details. Thus unity emerges neither in body nor building, but through their interaction. The limits or boundaries of each are constantly negotiated through the interplay of expression and experience. Both body and building are always in a process of becoming, awaiting completion from one other. The body of architecture is the grotesque body described by Bakhtin, a body that redefines the notion of the whole. Frascari writes:

---

<sup>118</sup> Frascari, *Monsters of Architecture*, p. 46.

<sup>119</sup> Frascari, *Monsters of Architecture*, pp. 49-50.

<sup>120</sup> Frascari, *Monsters of Architecture*, p. 16.

“At the basis of the grotesque imagery is a special concept of the body as a whole and of the limits of this whole. In grotesque architecture, the *limina* between bodies and buildings differ sharply from the neoclassical models as well as from the naturalistic picture of the human body. The grotesque body is a body in the act of becoming. It is never finished, never completed; it is continually built, continually created; and it is the principle of others’ bodies. The logic of a grotesque image ignores the smooth and impenetrable surface of the neoclassical bodies, and magnifies only excrescences and orifices, which lead into the bodies’ depths. The outward and inward details are merged. Moreover the grotesque body swallows and is swallowed by the world. This takes place in the openings and the boundaries, and the beginning and end are closely linked and interwoven.”<sup>122</sup>

## The Play of Imagination

The idea of the monstrous can be seen to arise as the demonstration of new combinations challenges the limits of understanding. Monsters arise in the interplay between the known and the unknown, in the play of limits that challenges the bounds of reason. As a demonstration, the monstrous can be seen to emerge from the play of mimesis in art. As well as being a source of fear like that of the sublime, monsters are *ludicrous*, an absurdity that results from the ‘ludic,’ from play that is prior to reason.<sup>123</sup> In western metaphysics, art has long been considered a form of play, and the aesthetic turn in Germany in the eighteenth century can be seen as attempt to bring art and play under the control of reason. Kant, for example, posits the threefold source of subjective knowledge—intuitive apprehension, imaginative reproduction, and conceptual recognition—as a necessary means of overcoming the mere ‘play of appearances.’<sup>124</sup> Without being reproduced in the imagination, the play of appearances remains empty, and prevents the senses from being a source of knowledge.<sup>125</sup> But later, in the *Critique of Judgement*, ‘play’ is used to describe the relation between the faculties of imagination and understanding in aesthetic experience, their relation reversed due to the lack of an *a priori* concept. This reversal is brought about by the different kind of judgement that characterises aesthetics. “Judgement,” says Kant, “is the faculty of thinking

---

<sup>121</sup> Frascari, *Monsters of Architecture*, pp. 16-17.

<sup>122</sup> Frascari, *Monsters of Architecture*, p. 32.

<sup>123</sup> Dorrian, “On the Monstrous and the Grotesque,” p. 315.

<sup>124</sup> Immanuel Kant, *Critique of Pure Reason*, translated by Norman Kemp Smith, New York: St Martins Press, 1965, p. 133 (A101).

the particular as contained under the universal.”<sup>126</sup> Where the universal is given, as is the case in the comprehension of nature, judgement is *determinant*. But for aesthetic judgement, no universal is available, and must be provided. The imagination, free to provide its own concepts, is no longer subservient to the understanding. The harmony reached between the two when the concept is provided by the imagination is referred to as ‘free play’ or ‘lively play’. This harmony gives rise to a ‘quickenings’ of the faculties, a feeling of pleasure in the act of judgement, in the suitability of the faculties for judgement and cognition. Play, like art, is pleasurable because of its disinterestedness, its ‘purposiveness without purpose,’ enjoyed for its own sake rather than for the sake of cognition.<sup>127</sup>

In this way, the arbitrary play of sensory experience is transformed into an orderly play between imagination and understanding.<sup>128</sup> Play is brought under the service of reason in its enculturated forms. This is especially so as the wild play of Nature (evident in the sublime) is transformed, through mimesis, into the play of art.<sup>129</sup> Following Kant, Friedrich Schiller redeemed play from its association with frivolity, raising it to a state of seriousness identified as the very being of man.<sup>130</sup> For Nietzsche, however, the possibility of bringing play under the domain of reason was rejected. Instead, he identified play with forces prior to reason, the archaic forces, described by the Pre-Socratics, of a world in eternal conflict. The ‘will to power’ is a form of such prerational play, a violent, arbitrary, and ecstatic play of forces, beyond good and evil, through which worlds are created and destroyed.<sup>131</sup> The dramatic consequences of Nietzsche’s ‘will to power’ are tempered by Heidegger, who describes the play of physical forces or ‘world-play’ (*Welt-Spiel*) as a ‘play of Being’ that takes the form

<sup>125</sup> See also Mihai Spariosu, *Dionysus Reborn: Play and the Aesthetic Dimension in Modern Philosophical and Scientific Discourse*, Ithaca and London: Cornell University Press, 1989, p. 35.

<sup>126</sup> Kant, *Critique of Judgement*, Introduction, IV.

<sup>127</sup> In the ‘Analytic of the Beautiful,’ Kant describes four ‘moments’ of the judgement of taste, according to the categories of quality, quantity, relation, and modality. The first moment is the experience of the beautiful with disinterested pleasure. The second is where the object deemed to be beautiful is claimed to be universally so. The third moment is the recognition of finality (purposiveness) without purpose. And the fourth is the claim that the pleasure is free from concepts. Kant, *Critique of Judgement*, Analytic of the Beautiful.

<sup>128</sup> Spariosu, *Dionysus Reborn*, p. 40.

<sup>129</sup> Kant, *Critique of Judgement*, § 45.

<sup>130</sup> “Man plays only when he is in the full sense of the word a man, and he is only wholly man when he is playing.” Friedrich Schiller, *On the Aesthetic Education of Man, In a Series of Letters*, translated by Reginald Snell, New York: Fredrick Ungar, 1965, p. 80.

<sup>131</sup> Spariosu, *Dionysus Reborn*, pp. 67-99.

of human *being*.<sup>132</sup> The resultant shift of ontological primacy reveals man as both player and plaything, a participant in and consequence of the play of Being. Eugen Fink reiterated the ontological shift by identifying the way that players lose themselves in the world of play.<sup>133</sup>

The primacy of play is also emphasised by Johan Huizinga's description of the human capacity for play (as *Homo Ludens*) as more fundamental than those of thought (*Homo Sapiens*) or making (*Homo Faber*).<sup>134</sup> Responding to Huizinga, Roger Caillois developed a typology of play within which the various games of any culture could be understood.<sup>135</sup> Caillois describes four types of play: competition ('*agôn*'), chance ('*alea*'), simulation ('*mimicry*'), and vertigo ('*ilinx*'). Each of these reveals a bodily dimension of play, a testing of limits against others or the world. In competitive games, players test their skills against one another, in abstracted forms of the original conflict of battle. Games of chance, through the simple addition of a wager, transform random or unpredictable events into a test of fate, where the player risks loss in exchange for the possibility of gain. With games of vertigo (such as mountain climbing) the limits of the body are tested against the forces and resistances of the world, in an active confrontation with the sublime: giving rise to what Caillois describes as 'pleasurable torture' or 'voluptuous panic.'<sup>136</sup> Pleasure and pain are combined as the body is literally thrown around by the forces of nature, extending sensory experience while risking harm or death. With simulation, finally, the limits of the body are tested in their credibility, that is, against the 'willing suspension of disbelief' of an audience.<sup>137</sup> This is a play of appearances, originally manifest in the 'presentation' of gods in rituals and festivals, a 'mimetic monstration' achieved through the use of costume and

---

<sup>132</sup> Spariosu, *Dionysus Reborn*, pp. 99-124.

<sup>133</sup> Eugen Fink, "The Ontology of Play," in E. Gerber and W. Morgan (eds.), *Sport and the Body: A Philosophical Symposium*, second edition, Philadelphia: Lea and Febiger, 1979, p. 79.

<sup>134</sup> Huizinga, J. *Homo Ludens: A Study of the Play Element in Culture*, translated by R.F.C. Hull, London: Routledge and Kegan Paul, 1949.

<sup>135</sup> Roger Caillois, *Man, Play and Games*, translated by Meyer Barash, New York: Free Press, 1961.

<sup>136</sup> "The last kind of game includes those which are based on the pursuit of vertigo and which consist of an attempt to momentarily destroy the stability of perception and inflict a kind of voluptuous panic upon an otherwise lucid mind." Caillois, *Man, Play and Games*, p. 23.

<sup>137</sup> "*Mimicry* is incessant invention. The rule of the game is unique: it consists in the actor's fascinating the spectator, while avoiding an error that might lead the spectator to break the spell, the spectator must lend himself to the illusion without first challenging the décor, mask, or artifice which for a given time he is asked to believe in as more real than reality itself." Caillois, *Man, Play and Games*, p. 23.

mask.<sup>138</sup> With simulation, the body as an expression of the character within is transformed into the expression of another through the adjustment of voice, gesture, or appearance. In each kind of play, the engagement of the player means that there is a potential for gain, or for loss; of status, wealth, life, or meaning. Thus play constitutes an active engagement with the world, where the body is put at risk, inviting both pleasure and pain in one and the same gesture.

## Play as Festival and Symbol

The idea of play, especially as performance or festival, is also important for Gadamer's explication of hermeneutics. Critical of the natural sciences for providing only a limited notion of understanding, Gadamer turns instead to art, using it to illustrate modes of knowledge characteristic of human sciences such as philosophy, theology, and history. The experience of art, according to Gadamer, requires an active engagement between the viewer and the work, giving rise to forms of truth beyond those permitted by scientific method. He writes: "[...] the work of art has its true being in the fact that it becomes an experience that changes the person who experiences it."<sup>139</sup> The truth available to us through hermeneutic experience is a truth 'in which one must *try to share*.'<sup>140</sup> To explain the active engagement between subject and object in the experience of art, Gadamer refers to the 'to-and-fro' movement characteristic of play.<sup>141</sup> Play is not something performed by a subject with a particular goal in mind, which, when reached, brings the play to an end. For play to 'fulfil its purpose,' a player must become 'lost' in the play.<sup>142</sup> Becoming lost in play is an engagement that effects a shift in ontological primacy, where the player as subject is given over to the play itself.<sup>143</sup> Play depends not upon the subject who plays it, but on 'the

---

<sup>138</sup> See Michael Echeruo, "Redefining the Ludic: Mimesis, Expression, and the Festival Mode," in Ronald Bogue and Mihai Spariosu (eds.) *The Play of Self*, Albany: State University of New York Press, 1994, pp. 137-156.

<sup>139</sup> Gadamer, *Truth and Method*, p. 102.

<sup>140</sup> Gadamer, *Truth and Method*, p. xxiii.

<sup>141</sup> Gadamer, *Truth and Method*, Part I, Section II, "The Ontology of the Work of Art and its Hermeneutic Significance."

<sup>142</sup> Gadamer, *Truth and Method*, p. 102.

<sup>143</sup> "[...] play is not to be understood as something a person does. As far as language is concerned, the actual subject of play is obviously not the subjectivity of an individual who, among other activities, also plays but is instead the play itself." Gadamer, *Truth and Method*, p. 104.

movement as such.<sup>144</sup> Once begun, the movement maintains itself; the player, drawn into the play, needs neither will nor effort to sustain it.<sup>145</sup> Play has its own momentum, which is maintained by the player merely by responding to the play in the required manner. If the player fails to respond, the play stops. Through its momentum, play exacts from the player actions or decisions in order that it be maintained. During play, the openness of possibility is transformed into the necessity of commitment. To give oneself over to the play, to invite the shift in ontological primacy, is, for Gadamer, a ‘risk’ for the player, which constitutes the very attraction of play.<sup>146</sup> He writes: “[...] all playing is a being played. The attraction of a game, the fascination it exerts, consists precisely in the fact that the game masters the players.”<sup>147</sup>

By surrendering to the play, the player forgoes the differentiation from nature that arises from their status as rational beings, and instead becomes part of the ‘natural’ movement evident in the play of light, or the play of forces, or the play of animals. According to Gadamer, this play of nature exhibits a “phenomenon of excess.”<sup>148</sup> Having no purpose or end outside of itself, play merely ‘presents itself’; its meaning is ‘pure self-presentation.’<sup>149</sup> Gadamer writes: “The players are not the subjects of play; instead play merely reaches presentation (*Darstellung*) through the players.”<sup>150</sup> Art, as representation, is that form of play which makes a game of presentation.<sup>151</sup> Moreover, through the work of art, the self-presentation of play can be re-presented for another. Play has a directedness, such that its

---

<sup>144</sup> “The movement backward and forward is obviously so central to the definition of play that it makes no difference who or what performs this movement. The movement of play as such is, as it were, no substrate. It is the game that is played—it is irrelevant whether or not there is a subject who plays it. The play is the occurrence of the movement as such.” Gadamer, *Truth and Method*, p. 103.

<sup>145</sup> “Play clearly represents an order in which the to-and-for motion of play follows of itself, it is part of play that the movement is not only without goal or purpose but without effort. It happens, as it were, by itself. [...] the structure of play absorbs the player into itself, and thus frees him from the burden of taking the initiative, which constitutes the actual strain of existence.” Gadamer, *Truth and Method*, p. 105.

<sup>146</sup> “[...] the game itself is a risk for the player. [...] The attraction that the game exercises on the player lies in this risk. One enjoys a freedom of decision which at the same time is endangered and irrevocably limited.” Gadamer, *Truth and Method*, p. 106.

<sup>147</sup> Gadamer, *Truth and Method*, p. 106.

<sup>148</sup> Gadamer, *The Relevance of the Beautiful*, p. 23.

<sup>149</sup> “Play is really limited to presenting itself. [...] First and foremost, play is self-presentation.” Gadamer, *Truth and Method*, p. 108.

<sup>150</sup> Gadamer, *Truth and Method*, p. 103.

<sup>151</sup> “Only because play is always presentation is human play able to make representation itself the task of a game.” Gadamer, *Truth and Method*, p. 108.

‘presentation’ can become a ‘representation’ for someone else.<sup>152</sup> With play as performance or theatre, in particular, this representation ‘opens out’ the closed world of play, letting down one of its walls so that it can be seen by an audience. This ‘opening’ allows the audience to be drawn into the play, becoming more than mere spectators; becoming, in fact, those in whom the play is played.<sup>153</sup> The engagement of the audience in the play can also be understood from the origin of play as festival or ceremony. The purpose of any religious ceremony is to invoke the presence of gods through imitation, using dance, costume, song, and ritual. The ‘play’ of festival makes visible that which is invisible, bringing to presence otherwise absent gods, forming a narrative that provides a meaningful whole for those present.<sup>154</sup> The ontological shift from the players to the play means that the participants give themselves over to the rite or festival, forgoing the distinction between individuals in favour of the identity and meaning available through community.<sup>155</sup> Festivals, ceremonies, and rites are what bring communities together.<sup>156</sup>

Seen as play or festival, art reveals a mode of interpretation that depends upon the active engagement of the viewer with the work.<sup>157</sup> This is made possible by the separation of the work from the play through which it is brought to presence. In the play of art, the phenomenon of excess is manifest in the resultant work. Art is a ‘practical’ form of knowing, through which the work becomes ‘separated’ from the activity involved in its making.<sup>158</sup> In art, as in play, something comes into presence that has never been there

<sup>152</sup> “All presentation is potentially a representation for someone.” Gadamer, *Truth and Method*, p. 108.

<sup>153</sup> “A complete change takes place when play as such becomes a play. It puts the spectator in the place of the player. He—and not the player—is the person for and in whom the play is played.” Gadamer, *Truth and Method*, p. 110.

<sup>154</sup> “The presentation of a god in a religious rite, the presentation of a myth in a play, are play not only in the sense that the participating players are wholly absorbed in the presentational play and find it in their heightened self-representation, but also in that the players represent a meaningful whole for an audience.” Gadamer, *Truth and Method*, p. 109.

<sup>155</sup> “If there is one thing that pertains to all festive experiences, then it is surely the fact that they allow no separation between one person and another. A festival is an experience of community and represents community in its most perfect form. A festival is meant for everyone.” Hans-Georg Gadamer, *The Relevance of the Beautiful and Other Essays*, edited by Robert Bernasconi, translated by Nicholas Walker, Cambridge: Cambridge University Press, 1986, p. 39.

<sup>156</sup> “A procession as part of a religious rite is more than a spectacle, since its real meaning is to embrace the whole community.” Gadamer, *Truth and Method*, p. 109.

<sup>157</sup> “It should also be true of the play of art that there is in principle no radical separation between the work of art and the person who experiences it.” Gadamer, *The Relevance of the Beautiful*, p. 28.

<sup>158</sup> “What is common to the craftsman’s producing and the artist’s creating, and what distinguished such knowing from theory or from practical knowing or deciding is that a work becomes separated from the activity.” Gadamer, *The Relevance of the Beautiful*, p. 12.



before; the work is made present, *presented*, through play. This emergence of the work Gadamer describes as a ‘transformation into structure.’ He writes:

“I call this change, in which human play comes to its true consummation in being art, *transformation into structure*. [...] Only now does it emerge as detached from the representing activity of the players and consist in the pure appearance (*Erscheinung*) of what they are playing. As such the play [...] is in principle repeatable and hence permanent. It has the character of a work, of an *ergon* and not only of *energeia*. In this sense I call it a structure (*Gebilde*).”<sup>159</sup>

The nature of art as presentation (or representation) is further elaborated through the concept of *symbol*. Against the belief in art as an unconscious product of genius inherited from Kant, Gadamer invokes the original, metonymic, meaning of symbol as an object whose presence corresponds to something absent, something of which it is a part. This originates in the Greek use of symbol to denote the *tessera hospitalis*, or token of remembrance (‘hospitality shard’). The *tessera* was that half of an object (usually a fired clay piece) broken in two by a host and given to his guest, while keeping the other piece for himself. Many years later, if the guest or a member of his family should return to the house, the pieces could be fitted together to form a whole, serving as an act of recognition. A symbol thus provides a means of recognition for something already familiar, but long distant from experience.<sup>160</sup> Gadamer also relates the idea of symbol to Plato’s story in the *Symposium*, where Aristophanes describes humans as spherical creatures who were punished for their misbehaviour by being cut in two by the gods. These fragmentary creatures wander the world longing for completion, seeking to be made whole again by finding their corresponding half. The experience of love is one way in which the longing arising from fragmentation can be overcome, replaced instead by a feeling of wholeness.

Taken together, these reveal symbol as a fragment, an object whose meaning is derived both from the sensory experience of its material presence, as well as from that which is denoted by its absence. A symbol is thus a fragment that invokes unity. This applies not only to the object, but also to the events associated with it. In this way a symbol also

---

<sup>159</sup> Gadamer, *Truth and Method*, p. 110.

<sup>160</sup> “In its original technical sense, the symbol represented something like a sort of pass used in the ancient world: something in and through which we recognize someone already known to us.” Gadamer, *The Relevance of the Beautiful*, p. 31.

inspires a feeling of wholeness, promising to overcome the experience of fragmentation. A symbol connects immediate sensory experience to distant objects or events not by referring to them, but by taking part in them. By invoking wholeness, symbols help to overcome the fragmentary nature of experience, connecting events together into a comprehensible whole. Through symbol, the meaning of events is also placed in a broader social context in which they occur. A symbol gives meaning to shared experience, to events which bring people together into a community. A symbol is thus a tangible manifestation of the identity of that community, a means by which members of a community are able to recognise each other.<sup>161</sup>

Interpreted as play, festival, and symbol, Gadamer reveals art as far more than the product of genius.<sup>162</sup> Instead art is seen as a form of self-presentation, through which what was not previously there is able to ‘come to presence’ or ‘present itself.’ This relates to the original Greek notion of ‘mimesis’ not as imitation but as bringing something to presence or enabling it to appear. What is brought to presence, according to Gadamer, is ‘Being.’ Art thus constitutes a bridge between Being and appearance, a metonymic expression of the relationship between beings and Being. Since what emerges in this way is necessarily fragmented or broken, art also constitutes a ‘counterplay’ of revealing and concealing.<sup>163</sup> A work of art is ‘there,’ at the same time as it allows what is not there to present itself.<sup>164</sup> Because its meaning lies beyond itself, a work of art resists interpretation, or alternatively, can be interpreted inexhaustibly, precisely because it is indeterminate.<sup>165</sup> The purpose of art, for Gadamer, is to convey meaning that is otherwise inaccessible, to make available an experience of wholeness through the medium of the fragment.<sup>166</sup>

---

<sup>161</sup> “Symbol [...] is not limited to the sphere of the logos, for a symbol is not related by its meaning, but its own sensory existence has a ‘meaning.’ As something shown, it enables one to recognise something else, as with the tessera hospitalis and the like. Obviously a symbol is something which has its value not only because of its content, but because it can be ‘produced’—i.e., because it is a document by means of which the members of a community recognize one another”. Gadamer, *Truth and Method*, pp. 172-73.

<sup>162</sup> Gadamer, *The Relevance of the Beautiful*, pp. 3-53.

<sup>163</sup> Gadamer, *The Relevance of the Beautiful*, p. 33.

<sup>164</sup> “In its irreplaceability, the work of art is no mere bearer of meaning – as if the meaning could be transferred to another bearer. Rather the meaning of the work lies in the fact that it is there. [...] The symbolic does not simply point toward a meaning, but rather allows that meaning to present itself. The symbol represents meaning.” Gadamer, *The Relevance of the Beautiful*, pp. 33-34.

<sup>165</sup> Gadamer, *Truth and Method*, pp. 74-75.

<sup>166</sup> “In the case of the symbol, [...] the particular represents itself as a fragment of being that promises to complete and make whole whatever corresponds to it. Or, indeed, the symbol is that other fragment that has always been sought in order to complete and make whole our own fragmentary life. [...] the

This hermeneutic conception of the fragment has also been explored by Dalibor Vesely.<sup>167</sup> For Vesely, the concern for fragmentation as a source of isolation, disintegration, and potential chaos arises as a consequence of the mathematical view of reality promoted by the natural sciences. In such a view, the various dimensions of the world can be described elementally, in a ‘piecemeal’ fashion, through isolated areas of scientific inquiry. Rejecting the idea of a pre-established harmony of the world, this scientific worldview maintains a conception of universality only as an aggregation of its parts. In contrast, however, Vesely suggests an alternative view, appearing within poetry and art, in which fragmentation can in fact engender a sense of wholeness and contribute to the formation of meaning. This ‘restorative’ or ‘symbolic’ meaning Vesely identifies with the architecture of ‘spoils’ beginning in the Middle Ages, in Renaissance collections of curiosities, or in the Romantic cult of the ruin.<sup>168</sup> In this century, the fragment is also identified with Cubism and Surrealism, especially in their radical reformulation of space and spatial relations. The juxtaposition of fragments allows similarities to emerge between ostensibly different objects, revealing on a deeper level what is common to them.<sup>169</sup> The fragments also act as a metaphor, extending the similarity to the objects from which they originate. Through the use of fragments, art can be symbolic and restorative, serving to reveal new meanings in the relation between things. Art, writes Vesely, “[...] can also overcome the limits of its isolation through a restorative work, by recognizing the presence of the latent world which waits for articulation.”<sup>170</sup>

Without adopting this restorative potential of the fragment, the focus upon the body in recent architecture merely continues the modernist project of seeking understanding of the whole through strategies of division, partition, and fragmentation.<sup>171</sup> This contrasts with the classical ideal of unity, in which the importance of the whole takes precedence over the individual parts. Within the hermeneutic reading however, fragmentation and unity are

---

experience of the beautiful, and particularly the beautiful in art, is the invocation of a potentially whole and holy order of things, wherever it may be found.” Gadamer, *The Relevance of the Beautiful*, p. 32.

<sup>167</sup> Dalibor Vesely, “Architecture and the Ambiguity of Fragment,” in Robin Middleton (ed.) *The Idea of the City*, London: Architectural Association, 1996, pp. 108-121.

<sup>168</sup> Vesely, “Architecture and the Ambiguity of Fragment,” p. 111.

<sup>169</sup> Vesely, “Architecture and the Ambiguity of Fragment,” p. 114.

<sup>170</sup> Vesely, “Architecture and the Ambiguity of Fragment,” p. 115.

essential dimensions of the dialectic relationship between part and whole. Transformed into architecture, the body can act as a symbol, invoking unity through fragmentation, and coming to presence in built form.

---

<sup>171</sup> Linda Nochlin, *The Body in Pieces: The Fragment as a Metaphor of Modernity*, New York: Thames and Hudson, 1995.

## Chapter 6

### **Architectural Bodies**

This thesis originated in a consideration of attitudes to the body in Modern architecture, seeking to account for an apparent discrepancy between intention and outcome. The ways in which Modernism transformed architecture are by now well known; the use of new materials, the rejection of ornament, the separation of structure from enclosure, and the abstractions of form and space. In physical terms, Modern architecture accommodated the body and its needs, providing levels of comfort and hygiene for all members of society, at a level previously enjoyed only by the wealthy. In retrospect, this can be seen as part of a necessary revolution in urban hygiene, introducing facilities and practices in order to prevent the epidemics that troubled European cities well into the nineteenth century. Yet in spite of its success in practical terms, Modernism appears to have enjoyed a somewhat limited acceptance. Its widespread adoption by corporate and industrial institutions worldwide has been mirrored by a resistance to its use in domestic contexts. In stylistic terms, the cleansing of architecture of its allusions to memory and tradition through ornament – precisely what postmodernism sought to reinstate – appears to have been a little too discomfiting, thereby preventing popular acceptance. In Australia, for example, where speculative development now accounts for more than 95% of all new houses, the majority of these are imbued with

some sort of stylistic theme – Georgian, Tuscan, Federation – positing Modernism as a phase of history that is best forgotten.

Modernism's lack of popular acceptance suggest that while it provided a high level of comfort, it did so in purely physical terms, with the resulting representation of the body difficult to recognise in comparison with its stylised forms. To say that Modernism framed the body scientifically, as an object of medical observation and attention, is not of course new. Yet the hygienic concerns of Modernism form an integral part of the long and ongoing tradition of anthropomorphism, of using the body as a source of architectural form. What that tradition reveals is that the body is a central linking term through which knowledge from various fields is brought to bear upon architecture. In this way, the complex set of understandings and interpretations of the body as both a natural and cultural artifact, as a site of both individual experience and collective customs and practices, can be negotiated through transformation into built form. Connected to the demonstrations of interior order inspired by Renaissance anatomy, and back to the origins of ornament in sacrificial ritual, the discourse on architectural hygiene appears less a matter of fashion than as one more instance of efforts to come to terms with the interior workings of the body, and to render them visible on the surface. In contrast, later explorations of the body as *lived* provide a model of interiority unaccounted for by anatomical inquiry. The intention here is not to promote a model of identity as subjectively determined, but to illustrate how the transformation of lived experience into architectural form is an essential part of the cultural constitution of the body. While these comparisons have made for a rather broad trajectory in historical terms, they have revealed a consistent need to deal with dualities of embodiment, rather than attempting to resolve them by focussing exclusively on one or other polarity. In this way, architecture acts to mediate between culturally-constituted and lived subjectivity, resulting, as it were, from a double determination of intrinsic and extrinsic forces. By negotiation of these various dualities – part and whole, unity and fragmentation, living and dead, object and text, surface and depth – architecture can be given meaning through its relation to lived experience.

## Review

In Chapter Two, the role of body in architecture was seen to originate in efforts to capture the soul or spirit that connected physical and spiritual realms. Through sacrifice, the

life force found in bodies was thought to be transferred to buildings, a demonstration of their right to ‘take place’ in the world.<sup>1</sup> Like Melville’s Polynesian mariner Queequeg, patterns used to mark the body initially described a relation between heaven and earth, providing a navigational aid for movement between the two. Taken from the body, the markings used to decorate buildings reiterate the correct relationship between objects and the world. Based on ideals of bodily form, ornament such as a column makes visible an ideal body, promoting the adoption of natural order within society. During the Renaissance, this role of ornament continued in the principle of *decorum*, allowing each person’s position in the social order to be demonstrated. Through *decorum*, buildings are able to reflect the relation of the body to society, a relation sanctioned by the Vitruvian ideal of bodily order. This social function is emphasised by Francesco di Giorgio’s description of the ‘well-composed’ body as the source of all art and reason in architecture. At the same time, however, changes to the understanding of the body were taking place, part of the broader challenge to religious authority by those who favoured direct methods of investigation. While the effect of Renaissance science upon architecture is well known in terms of changes to cosmology, the scientific exploration of the body also influenced architectural anthropomorphism. In fact, the principles and practices of science that have so often been emulated in architecture appear to have emerged in large part from anatomical investigation. The dialectic of unity and fragmentation originating in rituals of sacrifice continued as bodies were dissected to reveal their inner workings. As investigations of the body became increasingly detailed, ideas of propriety gradually shifted toward a demonstration of internal order.

In Chapter Three, an understanding of the internal workings of the body was also seen as central to the organisation of the modern city. Rapid growth resulting from industrialisation led to new levels of density as cities became crowded with their new labour force. Epidemics became common, and were only prevented through infrastructure for the provision of water and the elimination of waste. A nascent understanding of the processes of contagion combined with a more general olfactory intolerance to lead to new practices of personal hygiene. The suffusion of urban fabric with plumbing and drainage enabled a new

---

<sup>1</sup> “The artist’s imitation is not making something that *looks* like something else, but rather something that has a *way of being* like something else. Houses cannot be required to look like people—that would

level of intimacy with water, resulting in a redefinition of individual space. Architects responded to the introduction of water not only by designing spaces for cooking, cleaning and bathing, but by making architecture that conformed to standards of cleanliness. The cleansing of architectural surface using whitewash and glass enabled architects to take part in the revolution of urban health during the nineteenth century, and to enjoy some of the prestige afforded their counterparts in medicine. Buildings, like bodies, became transparent to the gaze of professionals in the interest of the health of the city.

Along with the prevention of disease, a great deal of medical research in the nineteenth century sought to provide explanations of sensory experience. In Chapter Four, these studies were seen to form part of the then emergent science of psychology, reflecting an interest in exploring the depths of the mind. The study of sensations was an important means to overcome Cartesian dualism, and the resultant division between inner and outer worlds. These studies also provided substance for explanations of aesthetic experience. The theory of empathy, originated by Vischer and later adopted by Wölfflin, portrayed objects as an expression of the sentience of their maker. An empathic accord between the body and objects it experiences is possible only because they are made of the same basic matter. This correspondence also provided the basis of phenomenological critiques of science, calling into question descriptions of the world that failed to acknowledge the body's role within it. For Merleau-Ponty in particular, the world is not something to be viewed, but something to be actively engaged in, 'projecting' ourselves into the world in the course of our endeavours, or *projects*. Touch, not vision, thus becomes the paradigmatic sense. While this gives rise to the possibility of architecture that celebrates sensory experience, it also requires acknowledgement of the extent to which projects are shared with others. The world we go out into is as much a social world as a physical one, with projects often entailing working in common to deal with common needs. Recognising the role of the body in shared projects and practices necessitates an understanding of identity as beyond the determination of any one person. With communitarian notions of identity, the self is understood as socially or intersubjectively determined, as each person's engagement with others is interpreted through narrative. In metaphoric terms, this reinforces the idea of double determination, with surface

---

clearly be absurd; instead they need to 'occupy a place in the world' analogous to the way that persons take their place in it." Rykwert, *The Dancing Column*, p. 385.



as a register of both internal and external forces. Further, it suggests an architecture that is able to contribute to narratives of identity, an expression of the memory and imagination of its inhabitants. In particular, it emphasises the importance of architecture as commemoration, a narrative of pain and loss suffered on behalf of the community.

In Chapter Five, pain was also seen as an essential part of the dialect of unity and fragmentation revealed through a hermeneutic reading of the body. In simple terms, pleasure and pain are opposites that serve to enhance or detract from the sensation of bodily unity. Pleasure is welcomed by the body, giving an experience of completion or fullness, while pain is experienced as alien or other, a threat to the stability of the body, and so a threat to order. In the sublime, however, pain and pleasure are revealed not as opposites, but as connected, in a dialectic that determines the limits of the body. Pain may be risked or endured in order to increase the feeling of aliveness, by expanding the limits of bodily sensation. The dialectic of part and whole thus begins with the body, in sensations that are both fragmentary and integrative. In the making of artifacts, that dialectic extends outward into the realm of objects. By transforming interior sensations into exterior artifacts, they can be given a permanence and an objectivity that implies or promises unity. Like strategies of narrative or ritual, the making of artifacts can give meaning to fragmentary experience, and allows that experience to be shared. Through the making of artifacts, however, the dialectic of fragmentation and unity is also played out in the exchange between interior and exterior occurring across the boundary of the body. Artifacts extend the powers of the body, making up for its absences or deficiencies, compensating for its lack of unity. Yet in doing so, they shift the focus of attention outward and away from the body, bringing about a disembodiment. Artifacts, in their ability to ease or prevent aversive sensation, direct attention away from the body, making the body itself no longer an object of attention. The body is turned 'inside-out,' its interior sensations projected onto the world of objects, their objectivity absorbed into the body. By diverting attention away from the body, artifacts can give rise to further forms of fragmentation, through which the body is affected by feelings of disembodiment, alienation, or fetishisation. Alternatively, artifacts can focus attention toward the body manifesting inner sensations, and enabling us, as with Lacan's mirror, to 'see' ourselves. What is seen in this way is both familiar and unfamiliar, unified and fragmented, pleasurable and painful; it is the 'uncanny' described by Vidler. These alternatives can be seen to be manifest in the architectures of modernity and of deconstruction, respectively.

Both, however, are founded upon strategies of fragmentation, and are thus part of the continuing tradition of finding the meaning of the whole by separating it into parts. Through the adoption of scientific metaphors, Modernist architects fragmented the body, reducing it to a series of mechanical functions; later, as deconstructivist architects sought to formulate a 'post-humanist' body through the infliction of violence, they were attacking a body already dead.

In the hermeneutic reading of the relationship between body and objects, unity and fragmentation are not alternatives, but necessary counterparts. Made objects are not merely a means to overcome aversive sensation, bringing comfort and pleasure. They are also symbols, through which the interior states of the body are given presence in the world, rendering them available for interpretation. As symbols, artifacts are necessarily fragmentary, a partial presence that invokes what is absent. In doing so they also invoke unity, since the fragment contains a promise of the whole. What is invoked in this way, what is 're-presented' in artifacts, are states experienced within the body, which themselves have no external referent. Moreover, according to Gadamer, what is invoked are also states that are experienced *through* the body. For Gadamer, the representative function of artifacts goes beyond subjective experience. Instead, there occurs an ontological shift of engagement characterised by play, in which the players lose themselves in play, and allow the play to present itself. What comes to presence in this way, in the 'play' of art, is *truth*. The 'transformation into structure' is a transformation into the true.<sup>2</sup> With the shift away from the subject, play also brings to presence a truth that is beyond the experience of any individual. Seen as festival, art brings people together to experience that truth in common, forming identity and meaning as a community. In this way, symbol also overcomes the fragmentation arising from individual experience, instead representing the community as a whole. By representing events which bring people together into a community, artifacts are able to act as symbols, invoking wholeness while acknowledging the fragmentary nature of experience.

This symbolic nature of artifacts is particularly evident with architecture. Firstly, architecture enables a community to come together by forming a site in which the activities of

---

<sup>2</sup> Gadamer, *Truth and Method*, pp. 112-113. "[...] the concept of transformation characterizes the independent and superior mode of being of what we call structure. From this viewpoint 'reality' is defined as what is untransformed, and art as the raising up (*Aufhebung*) of this reality into its truth."

that community can ‘take place.’ Secondly, it is able to represent the effort and suffering involved in the making of that place. In its permanence and scale, architecture connects together the members of a community across time as well as space, commemorating those members of a community who enabled it to come together. A building that can provide comfort and security becomes a work of architecture only when it mediates between the pleasure of its use and the effort of its making. In this way architecture connects individual experience to the experience of others in a community. It represents difficulties faced together, giving strength to those who would encounter them again. It also demonstrates the necessary connection between comfort and suffering, between pleasure and pain. In this way, architecture provides a way to connect the fragmentary nature of individual experience together into a meaningful whole. Yet its task of doing so is problematised by the ongoing nature of human experience. The continual redetermination of bodily form in the various historical periods explored above suggest that any characterization of bodily order is a temporary solution from which further distortions and fragmentations ensue. While the simplified formal unity of the body in classical architecture provided meaning in opposition to the apparent chaos of the world, other models became necessary as perceptions of order evolved. Thus, at the other end of our historical spectrum, the celebration of fragmentation in deconstructivist architecture can be seen as a reaction against the limiting effects of an apparent excess of order. In between these two extremes lies an understanding of anthropomorphism as a means of interpreting body and building in relation to one other. The goal is not the representation of the body as such, but of embodied experience, of states experienced within and through the body. This depends upon an understanding of the body as more and other than an object, a body liable to sensations of pleasure and pain, capable of memory and imagination, a body whose limits are continually negotiated through sensory exchange with the world.<sup>3</sup> Through a ‘playful’ search for correspondence between

---

<sup>3</sup> See Paul Hirst, and Penny Woolley, *Social Relations and Human Attributes*, London and New York: Tavistock, 1982; Nikolas S. Rose, *Inventing Our Selves: Psychology, Power, and Personhood*, Cambridge and New York: Cambridge University Press, 1996; and Nikolas S. Rose, *Governing the Soul: The Shaping of the Private Self*, London; New York: Routledge, 1990. Rose writes: “[T]he questions to be addressed concern not ‘the constitution of the self’ but the linkages established between the human and other humans, objects, forces, procedures, the connection and flows made possible, the becomings and capacities engendered, the possibilities thus foreclosed, the machinic connections formed that produce and channel the relations humans establish with themselves, the assemblages of which they form elements, relays, resources, or forces.” Rose, *Inventing Ourselves*, p. 182.

experience and objects we are able to come to terms with these changing limits, and celebrate them in architectural form. The architecture that results is neither pure interiority nor exteriority, neither unified nor fragmented. It is instead a mutable, adaptable, and permeable *surface*, on which are registered a variety of often conflicting forces that together contribute to lived experience.

## Surface

The idea of architecture as surface is explored in Gottfried Semper's *Der Stil*, first published in 1863, in which he identifies architecture's origins in the processes of textile production that result from the urge to bind materials together using knots.<sup>4</sup> Semper's work was inspired in large part by that of biologist Georges Cuvier, whose initiative was to adopt a classification based on function rather than appearance. According to Semper, the urge to cover the body extended to the use of textiles to provide shelter from wind and rain, giving rise not only to divisions of space, but to opportunities for pattern and decoration through the use of dyes. Semper's ideas were widely read, and are likely to have influenced the development of the curtain wall.<sup>5</sup> Cuvier's ideas were further developed by D'Arcy Wentworth Thompson, whose studies of morphology were frequently cited by Le Corbusier.

Recent developments in biological morphology have continued to interest architects. Developments in genetics, especially the identification of DNA and the ongoing project of mapping the human genome, have provided a new level of understanding of human form and its evolutionary processes. Computer technology is also providing new ways to map the human body, especially with the virtual model of the Visible Human Project. In 1993, the body of executed criminal Joseph Paul Jernigan was frozen, sliced, and digitised, a bizarre

---

<sup>4</sup> Joseph Rykwert, "Semper and the Conception of Style," in *The Necessity of Artifice*, London: Academy Editions, 1982, pp. 122-130; Gottfried Semper, *Der Stil in den technischen und tektonischen Künsten; oder, Praktische Aesthetik. Ein Handbuch für Techniker, Künstler und Kunstfreunde*, Munich: Bruckman, 1878-1879 (1863). On surface in architecture, see also Christy Anderson and Karen Koehler (eds.) *The Built Surface*, two volumes, Aldershot, Hants, England; Burlington, VT, USA: Ashgate, 2001; and David Leatherbarrow and Mohsen Mostafavi, *Surface Architecture*, Cambridge, Mass.: MIT Press, 2002.

<sup>5</sup> Rykwert, "Semper and the Conception of Style," p. 130.

latter-day sacrifice that has created the first truly virtual body. Yet while there are obvious similarities in the three-dimensional technologies used to describe bodies and buildings, it is the processes of adaptation and evolution that have proved most influential. In biology, computational models have been used not simply to describe forms, but to generate them in relation to processes of growth, response, and decay characteristic of living organisms. With the resulting 'new biology,' form is seen to emerge from complex systems of information transfer and environmental response. These programs have been directly applied to architecture, changing the role of the architect from that of generating form to that of determining the conditions or parameters that are to be used to initiate generative processes.<sup>6</sup>

These biological processes depend upon an understanding of surface as a point of interaction between organism and environment. Yet the study of surface in architecture has also borrowed the idea of topology from geometry and mathematics. The three-dimensional computer modelling software used to map complex surfaces and their distortions are used in mathematics to describe topological similarities and operations. When surfaces can be distorted, their shape is less relevant than their spatial relationships and connections. A cube, for example, can be distorted into a cylinder or sphere, but cannot be transformed into a torus (or doughnut) without introducing new surface connections. Applied to architecture, topology gives rise to dynamic forms of space that provide an alternative to the infinite and homogenous space of Cartesian geometry.<sup>7</sup> It allows architecture to become involved in complexity through flexibility.<sup>8</sup> This model of architecture as a flexible or pliant surface differs from earlier explorations of 'folding' in architecture.<sup>9</sup> Unlike the discontinuous folds used by Peter Eisenman or Bahram Shirdel, inspired largely by the deconstructivist writings of Jacques Derrida, the biological models give rise to a surface of continuous differentiation. The influence of conflicting conditions, rather than being expressed through discontinuity, is

---

<sup>6</sup> Ali Rahim (ed.) *Contemporary Techniques in Architecture*, Chichester: Wiley-Academy, 2002; Bob Fear (ed.) *Architecture + Animation*, Chichester: Wiley-Academy, 2001; Ali Rahim (ed.) *Contemporary Processes in Architecture*, Chichester: Wiley-Academy, 2000.

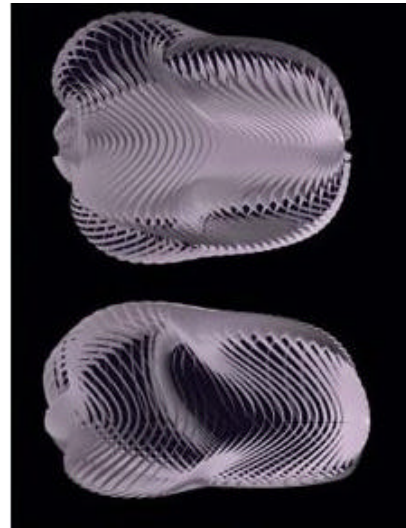
<sup>7</sup> Giuseppa Di Cristina, "The Topological Tendency in Architecture," In Giuseppa Di Cristina (ed.) *Architecture and Science*, Chichester: Wiley-Academy, 2001, pp. 6-13.

<sup>8</sup> Di Cristina, "The Topological Tendency in Architecture," p. 8.

<sup>9</sup> Greg Lynn (ed.) *Folding in Architecture*, London: Academy Editions, 1993.

instead accommodated via adaptive response, through processes of ‘continuous transformation’.<sup>10</sup>

One of the major proponents of this ‘topological’ architecture is Greg Lynn. In various papers and projects developed over the last decade, Lynn identifies the possibility of a new kind of architectural body, one that acknowledges the dynamic interplay of internal and external forces in the determination of form.<sup>11</sup> In contrast to the static determinacy of classical bodies, Lynn describes the idea of a ‘multiplicitious’ body, one whose unity is dependent upon provisional stabilities and alliances formed between local elements or particularities. The order of such a body emerges not from a single, unifying principle, but from a process of



**Greg Lynn, Embryologic Houses.**

Image: Greg Lynn.

continuous differentiation through which free elements are brought into relation by external forces or events. Because of multiple possibilities for combining elements, a supple and flexible order emerges that is able to incorporate vicissitudes and contingencies, resulting in a provisional order, capable of continuous transformation and mutation.<sup>12</sup> The biological basis of Lynn’s designs is particularly evident in the ‘Embryologic Houses,’ a series of mass-produced, non-identical repetitive forms made possible by the application of contemporary manufacturing techniques to architecture.<sup>13</sup> Such forms are intended to imitate biological processes of evolution through genetic variation.

---

<sup>10</sup> Di Cristina, “The Topological Tendency in Architecture,” p. 7.

<sup>11</sup> Greg Lynn, “Multiplicitious and Inorganic Bodies,” *Assemblage* 19, 1992, pp. 32-49; Greg Lynn, “Body Matters,” in Andrew Benjamin (ed.) *The Body*. London; Berlin: Academy Editions; Ernst and Sohn, 1993, pp. 60-69. Both articles appear in Greg Lynn, *Folds, Bodies & Blobs: Collected Essays*. Brussels: La Lettre Volee, 1998.

<sup>12</sup> Lynn, “Body Matters,” p. 62-65.

<sup>13</sup> Greg Lynn, “Embryologic Houses,” In Ali Rahim (ed.) *Contemporary Processes in Architecture*, Chichester: Wiley-Academy, 2000, pp. 26-35.

**Greg Lynn, Embryologic House, prototype.** Image: Greg Lynn.



The imitation of biological processes of adaptive response in the generation of architectural form is one of many aspects of the application of computer technology to architecture. As a technology of both vision and thought, computers are certain to reconfigure the relationship between architecture and the body, as they affect everything from sensory experience to manufacturing techniques. The change to architectural representation alone is of a scale not seen since the birth of printing during the Renaissance.<sup>14</sup> Of particular interest is the prospect of disembodiment entailed by virtual reality.<sup>15</sup> In the present thesis, however, such issues have been avoided in order to focus on the continued question of embodiment, and the way this is given meaning through projection into architecture.

Lynn's work, for example, while originating in scientific models such as D'Arcy Thompson's work on biological form or Elias Canetti's study of crowds,<sup>16</sup> are also heavily influenced by the philosophical writings of Giles Deleuze and Felix Guattari. This influence comes in part from psychological themes of the body as a medium of experience, not an object: what Deleuze and Guattari describe as a "body without organs".<sup>17</sup> It also comes

---

<sup>14</sup> Mario Carpo, *Architecture in the Age of Printing: Orality, Writing, Typography, and Printed Images in the History of Architectural Theory*, translated by Sarah Benson, Cambridge, Mass.: MIT Press, 2001, pp. 1-15.

<sup>15</sup> Elizabeth Grosz, *Architecture from the Outside: essays on virtual and real space*, Cambridge, Mass.: MIT Press, 2001; Jennifer Whyte, *Virtual Reality and the Built Environment*, Oxford: Architectural Press, 2002; John Beckmann (ed.) *The Virtual Dimension: Architecture, Representation, and Crash Culture*, New York: Princeton Architectural Press, 1998.

<sup>16</sup> Elias Canetti, *Crowds and Power*, Farrar, Straus and Giroux, New York, 1984.

<sup>17</sup> "November 28, 1947: How Do You Make Yourself a Body Without Organs?" in Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, translated by Brian Massumi, London: Athlone Press, 1987, pp.149-166.

from Deleuze's study of Baroque aesthetics, of 'folding' as a metaphor of conceptual thought.<sup>18</sup> Various authors have sought to interpret these themes in architecture, including Bernard Cache and John Rajchman.<sup>19</sup> Principles of 'folding' can be identified in a range of architectural projects, from the complex forms of Frank Gehry's architecture to the exploration of 'hypo-surface' by Mark Goulthorpe and dECOi.<sup>20</sup> Significant projects include the Möbius House in Het Gooi, Netherlands, 1993-97, by Ben van Berkel and Caroline Bos of UN-Studio<sup>21</sup> (based on the Möbius Strip, a continuous surface with no differentiation between inside and outside), and the recently completed Yokohama International Port Terminal in Japan by Foreign Office Architects. Explorations in architectural surface can also be found in recent Australian architecture. In Melbourne's Federation Square project by Lab Architecture Studio in association with Bates Smart, the so called 'fractal façade' of nested triangular geometries is delicately folded and fractured to create dynamic surface modulations. In the work of Lyons Architects, such as the Box Hill Institute of Tafe or the Victoria University Online Training Centre at St. Albans in Melbourne, layers of materials and printed images are used to create a semblance of materiality on an otherwise flat surface.

In many of these projects, the notion of 'force' is interpreted primarily in physical or biological terms, with various influences identified as 'attractors' which give rise to deformations of building fabric. Instead of allowing outward appearance to be determined solely by internal conditions, a common aim of Modernism,<sup>22</sup> such architecture also responds to external features or conditions, such as landmarks or circulations routes. For Australian architects, eager to overcome inherited architectural traditions, the external condition most often invoked is that of climate or landscape. Notable examples occur in the work of architects such as Glen Murcutt or Greg Burgess, with their celebration of

---

<sup>18</sup> Gilles Deleuze, *The Fold: Leibniz and the Baroque*, translated by Tom Conley, Minneapolis: University of Minnesota Press, 1993.

<sup>19</sup> Bernard Cache, *Earth Moves: The Furnishing of Territories*, translated by Anne Boyman, edited by Michael Speaks, Cambridge Mass.: MIT Press, 1995; John Rajchman, *Constructions*, Cambridge, Mass.: MIT Press, 1998.

<sup>20</sup> "dECOi: aegis hyposurface, autoplasic to alloplastic," *Architectural Design* 69/9-10 (Sept.-Oct. 1999), pp.60-65.

<sup>21</sup> Ben van Berkel, *Mobile Forces*, edited by Kristin Feireiss, Berlin: Ernst & Sohn, 1994.



landscape in its rural or indigenous forms. In urban contexts, ideas of landscape are also invoked, with Lab's Federation Square in Melbourne positing nature as the principal source of architectural order, while Lyons Architects regard the various interpretations of nature in science and art as a 'cultural landscape' that can be represented in architecture. This idea of a cultural landscape could also be seen to inform celebrations of urban or suburban life in Australian architecture, especially in the work of architects Edmund and Corrigan.<sup>23</sup>

The response to enculturated forms of exteriority indicates that the conception of force as purely physical is insufficient for architecture. Indeed any response to an external force must be seen as part of the social and temporal extensions of identity characterised by hermeneutics. To acknowledge external forces is to engage in an ongoing process of incorporation, while any response is part of an ongoing process of objectification. A force can never be regarded as a single, atemporal event, since its interpretation makes it part of the shared social practices in which architecture operates. In other words, the very act of response is an essential part of the double determination of architecture, as it is given meaning through mediation between internal and external forces.

The idea of double determination can be seen in the work of Melbourne architect Kerstin Thompson. The celebration of sensory experience is a common theme in Thompson's work, from the crunch of gravel underfoot in the Webb Street house to the curious 'Bleat' printed on the Hallam Bypass sound walls.<sup>24</sup> In other projects, especially the Napier Street Housing in Melbourne's Fitzroy, the play of light and material is



**Figure 28: Kerstin Thompson Architects, Napier Street Housing, Fitzroy, Victoria.**

Photo: Patrick Bingham Hall.

<sup>22</sup> See Thomas L. Schumacher, "The Outside is the Result of an Inside': Some Sources of One of Modernism's Most Persistent Doctrines," *Journal of Architectural Education*, 56/1 (September 2002): pp. 23-33.

<sup>23</sup> Conrad Hamann, *Cities of Hope: Australian Architecture and Design by Edmond and Corrigan, 1962-1992*, Melbourne; New York: Oxford University Press, 1993.

<sup>24</sup> Goad, Philip, *New Directions in Australian Architecture*, edited by Patrick Bingham-Hall, Balmain, N.S.W.: Pesaro Publishing, 2001.

carefully constructed in relation to both the domestic and industrial forms of the surrounding suburb.<sup>25</sup> The reinterpretation of local forms and materials shows an effort to respect the history and tradition of this working class suburb even in the course of its gentrification. The relation between program and context evident in each of these projects is described through the concept of ‘gradient architecture.’<sup>26</sup> Through ‘gradient’ architecture, Thompson seeks to emphasise the conditions between traditional opposites, such as light and dark, private and public, inside and outside, architecture and landscape. By highlighting gradations of light, privacy, or enclosure, boundaries between opposites are dissolved, and are instead revealed as interstitial conditions in a field of continuous transformation. The result is a ‘differentiated whole’ achieved not as an aggregate of distinct parts but as a continuum of sensory qualities experienced through movement. This is an architecture that mediates between modes of occupation, between the space of inhabitation and the broader social and cultural context in which it occurs. It is a mediation that is formal as well as experiential, connecting inside and outside through both symbolism and sensory experience.

Such connections may be seen as little more than contextual references necessary to satisfy planning regulations. Alternatively, they can be seen as an effort to provide continuity to the narrative identity invested in architecture. While a rich local context simplifies this task, it does so because it overcomes the discontinuity caused by modernism’s attempt to deny the temporality of architecture. Instead of conceiving of the body in objective terms, architecture must respond to the modes of identity that determine its inhabitation, to in turn play a part in the determination of that identity. Only through an awareness of embodiment, in its ever changing forms is architecture able to contribute to this ongoing project, and give life and meaning to built space.

---

<sup>25</sup> Shane Murray, “Medium Density,” *Architecture Australia* 91/2 (Mar.-Apr 2002), pp. 50-55.

<sup>26</sup> Kerstin Thompson “Gradient Architecture,” *Architecture Australia*, 90/3 (May-June 2001): pp. 66-71.

# Bibliography

- Aalto, Alvar. *Alvar Aalto*, New York: Simon and Schuster, 1971.
- Adams, Annemarie. *Corpus Sanum in Domo Sano: The Architecture of the Domestic Sanitation Movement*. Montreal: Canadian Centre for Architecture, 1991.
- Adjmi, Morris (ed). *Aldo Rossi: Architecture, 1981-1991*. New York: Princeton Architectural Press, 1991.
- Agacinski, Sylviane. "Incorporation." In Davidson, Cynthia (ed). *Anybody*. New York; Cambridge, Mass.: Anyone Corp.; MIT Press, 1997.
- Agrest, Diana, Patricia Conway, and Leslie Kanes Weisman (eds). *The Sex of Architecture*. New York: Harry N. Abrams, 1996.
- Alberti, Leon Battista. *On the Art Of Building in Ten Books*. Translated by Joseph Rykwert, Neil Leach, and Robert Tavernor. Cambridge, Mass.: MIT Press, 1988.
- Alexander, Christopher. *The Timeless Way of Building*, New York: Oxford University Press, 1979.
- Alexander, Christopher. *Notes on the Synthesis of Form*, Cambridge: Harvard University Press, 1964.
- Alexander, Christopher, et al, *A Pattern Language: Towns, Buildings, Construction*. New York: Oxford University Press, 1977.

- Angelil, Mark M. "Technique and the Metaphysics of Science: The Rational-Irrational Element of Science-Technology within the Making of Architecture." *Harvard Architecture Review* Vol. 7, 1989: pp. 62-75.
- Appleyard, Bryan. *Understanding the Present: Science and the Soul of Modern Man*. London: Pan Books, 1992.
- Arendt, Hannah. *The Human Condition*. Chicago and London: University of Chicago Press, 1958.
- Argan, G. C. "On the Typology of Architecture." Translated by Joseph Rykwert. *Architectural Design*. December 1963, pp. 564-565.
- Aries, Philippe. *The Hour of Our Death*. Translated by Helen Weaver. Harmondsworth: Penguin, 1981.
- Aristotle. *Aristotle's Eudemian Ethics, books I, II, and VIII*. Translated by Michael Woods. Oxford; New York: Clarendon Press, 1982.
- Aristotle. *The Poetics of Aristotle*. Translated by S. H. Butcher. London; New York: MacMillan, 1895.
- Aristotle. *The Nicomachean ethics of Aristotle*. Translated by Sir David Ross. London: Oxford University Press, 1969.
- Aristotle. *On the Soul*. Translated by W. S. Hett. Cambridge, Mass.: Harvard University Press, 1935.
- Aristotle. *The Parts of Animals*. Translated by A.L. Peck. London: Heinemann, 1937.
- Armstrong, Tim. *Modernism, Technology, and the Body: A Cultural Study*. Cambridge: Cambridge University Press, 1998.
- Arnheim, Rudolf. *The Split and the Structure: twenty-eight essays*. Berkeley: University of California Press, 1996.
- Arnheim, Rudolf. *The Dynamics of Architectural Form*. Berkeley and Los Angeles: University of California Press, 1977.
- Asendorf, Christoph. *Batteries of Life: On the History of Things and their Perception in Modernity*. Translated by Don Reneau. Berkeley: University of California Press, 1993.
- Bachelard, Gaston. *Air and Dreams: An Essay on the Imagination of Movement*. Dallas Institute of Humanities and Culture, 1988.
- Bachelard, Gaston. *Water and Dreams: An Essay on the Imagination of Matter*, translated by Edith R. Farrell: Dallas: Pegasus Foundation, 1983.

- Bachelard, Gaston. *The Poetics of Space*. Translated by Maria Jolas. Boston: Beacon Press, 1969.
- Bachelard, Gaston. *The Psychoanalysis of Fire*. Translated by A.C.M. Ross. Preface by N.Erye. Boston: Beacon Press, 1964.
- Bakhtin, Mikhail. *Rabelais and His World*. Translated by Helene Iswolsky. Cambridge, Mass.: MIT Press, 1968.
- Bandini, Micha. "Typology as a Form of Convention." *AA Files* 6, May 1994, pp. 73-82.
- Banham, Reyner. *Theory and Design in the First Machine Age*. London: The Architectural Press, 1960.
- Banham, Reyner. *The Architecture of the Well-Tempered Environment*. 2nd ed. Chicago: University of Chicago Press, 1984.
- Barkan, Leonard. *Nature's Work of Art: The Human Body as Image of the World*. New Haven: Yale University Press, 1975.
- Barnett, Ronald. *The Limits of Competence: Knowledge, Higher Education and Society*. Buckingham: Open University Press. 1994.
- Bataille, Georges, "Architecture." Translated by Paul Hegarty. In Neil Leach, *Rethinking Architecture: A Reader in Cultural Theory*, New York: Routledge, 1996, p 21.
- Baumgarten, Alexander Gottlieb. *Aesthetica*. Hildesheim: G. Olms, 1961 (1750).
- Bédard, Jean-François. "The Measure of Expression: Physiognomy and Character in Lequeu's 'Nouvelle Méthode'." *Chora* 1, 1994, pp. 35-56.
- Bellah, Robert, et al. *Habits of the Heart*. Berkeley: University of California Press, 1985.
- Benevolo, Leonardo. *The History of the City*. Translated by Geoffrey Culverwell. London: Scholar Press, 1980.
- Benevolo, Leonardo. *The Architecture of the Renaissance*. Translated by Judith Landry. London and Henley: Routledge and Kegan Paul, 1978.
- Benhabib, Seyla. *Situating the Self: Gender, Community and Postmodernism in Contemporary Ethics*. Cambridge: Polity Press. 1992.
- Benjamin, Andrew. "Policing the Body: Descartes and the Architecture of Change." In Neil Leach (ed.) *Architecture and Revolution: Contemporary perspectives on Central and Eastern Europe*. London and New York: Routledge, 1999.

- Benjamin, Andrew (ed). *The Body*. London: Berlin: Academy Editions; Ernst & Sohn, 1993.
- Benjamin, Walter. "The Work of Art in the Age of Mechanical Reproduction." In *Illuminations*. Translated by Harry Zohn. Third edition, London: Fontana, 1992 (1968).
- Berke, Deborah, and Steven Harris (eds). *Architecture of the Everyday*. New York: Princeton Architectural Press, 1997.
- Bernstein, Richard J. *Beyond Objectivism and Relativism: Science, Hermeneutics and Praxis*. Philadelphia: University of Pennsylvania Press, 1983.
- Bichat, Xavier. *Recherches physiologiques sur la vie et la mort*, Paris, 1799.
- Bijker, Wiebe E., Thomas P. Hughes, and Trevor J. Pinch, (eds.) *The Social Construction of Technological Systems: new directions in the sociology and history of technology*. Cambridge, Mass.: M.I.T. Press, 1987.
- Bijker, Wiebe E., and John Law, (eds.) *Shaping Technology/Building Society: studies in sociotechnical change*. Cambridge, Mass.: MIT Press, 1992.
- Biraben, Jean-Noël. "Pasteur, Pasteurization, and Medicine." in Schofield, Roger, David Reher, and Alain Bideau (eds.) *The Decline of Mortality in Europe*. Oxford: Clarendon Press, 1991.
- Blanchot, Maurice. *The Unavowable Community*. Translated by Pierre Joris. Barrytown, N.Y.: Station Hill Press, 1988.
- Bloomer, Kent C., and Charles W. Moore. *Body, Memory, and Architecture*. New Haven: Yale University Press, 1977.
- Blondel, Jacques-François. *Cours d'architecture, ou traité de la décoration, distrubution & construction des bâtiments*. Paris, 1771-7.
- Boffrand, Germain. *Livre d'Architecture*. Paris, 1745.
- Bogue, Ronald, and Mihai Spariosu (eds.) *The Play of Self*. Albany: State University of New York Press, 1994.
- Bordo, Susan. *Unbearable Weight: Feminism, Western culture, and the Body*. Berkeley: University of California Press, 1993.
- Borgmann, Albert. *Crossing the Postmodern Divide*. Chicago: University of Chicago Press, 1992.
- Borgmann, Albert. *Technology and the Character of Contemporary Life: A Philosophical Inquiry*. Chicago: University of Chicago Press, 1984.

- Bourdieu, Pierre. *The Logic of Practice*. Translated by Richard Nice. Cambridge: Polity, 1990.
- Bourdieu, Pierre. *Distinction: A Social Critique of the Judgement of Taste*. Translated by Richard Nice. London: Routledge, 1984.
- Bourdieu, Pierre. *Outline of a Theory of Practice*. Translated by Richard Nice. Cambridge; New York: Cambridge University Press, 1977.
- Broadbent, Geoffrey. *Design in Architecture: Architecture and the Human Sciences*. Chichester: John Wiley and Sons, 1973.
- Bruner, Jerome S. *Acts of Meaning*. Cambridge, Mass.: Harvard University Press, 1990.
- Bruner, Jerome S. *Actual Minds, Possible Worlds*. Cambridge, Mass.: Harvard University Press, 1986.
- Bruner, Jerome S. *Beyond The Information Given; Studies in the Psychology of Knowing*. New York: W. W. Norton and Co., 1973.
- Burckhardt, Jacob. *The Architecture of the Italian Renaissance*. Translated by James Palmes; edited by Peter Murray. London: Secker & Warburg, 1985.
- Burgin, Victor. "The City in Pieces." In Gabriel Brahm Jr. and Mark Driscoll (eds). *Prosthetic Territories: Politics and Hypertechnologies*. Boulder: Westview Press, 1995, pp. 5-20.
- Burke, Edmund. *A Philosophical Enquiry into the Origin of our Ideas of the Sublime and Beautiful*. Edited by Adam Phillips. Oxford; New York: Oxford University Press, 1990 (1759).
- Burkert, Walter. *Homo Necans: The Anthropology of Ancient Greek Sacrificial Ritual and Myth*. Translated by Peter Bing. Berkeley, University of California Press, 1983.
- Burnett, John. "Housing and the Decline of Mortality." in Schofield, Roger, David Reher, and Alain Bideau (eds.) *The Decline of Mortality in Europe*. Oxford: Clarendon Press, 1991.
- Bynum, William F., and Roy Porter (eds.) *Medicine and the Five Senses*. Cambridge: Cambridge University Press, 1993.
- Cache, Bernard. *Earth Moves: The Furnishing of Territories*. Translated by Anne Boyman. Edited by Michael Speaks. Cambridge Mass.: MIT Press, 1995.
- Caillois, Roger. *Man, Play and Games*. Translated by Meyer Barash, New York: Free Press, 1961.

- Camper, Petrus. *Dissertation sur les variétés naturelles qui caractérisent la physiognomie des hommes des divers climats et des différens ages*. Paris and the Hague, 1791.
- Camporesi, Piero. *Juice of Life: The Symbolic and Magic Significance of Blood*. Translated by Robert Barr. New York: Continuum, 1995.
- Canetti, Elias. *Crowds and Power*. Farrar, Straus and Giroux, New York, 1984.
- Campo, Mario. *Architecture in the Age of Printing: Orality, Writing, Typography, and Printed Images in the History of Architectural Theory*. Translated by Sarah Benson. Cambridge, Mass.: MIT Press, 2001.
- Carroll, John. *Humanism: The Wreck of Western Culture*. London: Fontana, 1993.
- Carson, Rachel. *Silent Spring*. Boston: Houghton Mifflin, 1962.
- Carter, Michael. *Putting a Face on Things: Studies in Imaginary Materials*. Sydney: Power Publications, 1997.
- Casey, Edward. *The Fate of Place: A Philosophical History*. Berkeley: University of California Press, 1997.
- Casey, Edward. *Getting Back into Place: Toward a Renewed Understanding of the Place-World*. Bloomington: Indiana University Press, 1993.
- Chadwick, Edwin. *Report on the Sanitary Conditions of the Labouring Population of Great Britain*. Edinburgh: Edinburgh University Press, 1965.
- Chevalier, Louis. *Labouring Classes and Dangerous Classes in Paris During the First Half of the Nineteenth Century*. Translated by Frank Jellinek. London: Routledge and Kegan Paul, 1973.
- Clark, Paul. "Ludwig Mies van der Rohe's Scrupulous Building of the Hygienic House." in *Building as a Political Act*, (Proceedings of the 1997 ACSA International Conference) New York: ACSA Press, 1998.
- Classen, Constance, David Howes and Anthony Synnott. *Aroma: The Cultural History of Smell*. London and New York: Routledge. 1994.
- Coleman, Debra, Elizabeth Danze, and Carol Henderson (eds). *Architecture and Feminism: Yale Publications on Architecture*. New York: Princeton Architectural Press, 1996.
- Collins, Peter. *Architectural Judgement*. London: Faber and Faber. 1971.



- Colomina, Beatriz. "The Medical Body in Modern Architecture." In Davidson, Cynthia (ed). *Anybody*. New York; Cambridge, Mass.: Anyone Corp.; MIT Press, 1997, pp. 228-239.
- Colomina, Beatriz (ed). *Sexuality & Space*. New York: Princeton Architectural Press, 1992.
- Colonna, Francesco. *Hypnerotomachia Poliphili: the Strife of Love in a Dream*. Translated by Joscelyn Godwin. London: Thames & Hudson, 1999.
- Cooper, Gail. *Air-Conditioning America: Engineers and the Controlled Environment, 1900-1960*. Baltimore: Johns Hopkins Press, 1998.
- Corbin, Alain. *The Foul and the Fragrant: Odour and the Social Imagination*. Translated by Miriam Kochan, Roy Porter, and Christopher Prendergast. London: MacMillan, 1996 (1986).
- Cornford, Francis MacDonald. *Plato's Cosmology: the Timaeus of Plato*. London: Routledge and Kegan Paul, 1937.
- Costa, Xavier. 'Ground Level.' In Nadir Lahiji, and D. S. Friedman (eds.) *Plumbing: Sounding Modern Architecture*, New York: Princeton Architectural Press, 1997, pp. 93-102.
- Cowan, Ruth Schwartz. *More Work for Mother: The Ironies of Household Technology from the Open Hearth to the Microwave*. New York: Basic Books, 1983.
- Coyne, Richard. *Technoromanticism: Digital Narrative, Holism, and the Romance of the Real*. Cambridge, Mass.: MIT Press, 1999.
- Coyne, Richard, Adrian Snodgrass, and David Martin. "Metaphors in the Design Studio." *Journal of Architectural Education* 48/2, November 1995, pp. 113-125.
- Crary, Jonathan. *Suspensions of Perception: Attention, Spectacle, and Modern Culture*. Cambridge, Mass.: MIT Press, 2000.
- Crary, Jonathan. *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. Cambridge Mass.: MIT Press, 1992.
- Crary, Jonathan, and Sanford Kwinter (eds). *Zone 6: Incorporations*. New York: Urzone, 1992.
- Cuff, Dana. *Architecture: The Story of Practice*. Cambridge Mass.: MIT Press, 1991.
- Cullen, Gordon. *Townscape*. London: Architectural Press, 1961.

- Cunningham, Andrew. *The Anatomical Renaissance: The Resurrection of the Anatomical Projects of the Ancients*. Aldershot: Scolar Press, 1997.
- Davidson, Cynthia (ed). *Anybody*. New York; Cambridge, Mass.: Anyone Corp.; MIT Press, 1997.
- Deleuze, Gilles. *The Fold: Leibniz and the Baroque*. Translated by Tom Conley. Minneapolis: University of Minnesota Press, 1993.
- Deleuze, Gilles, and Félix Guattari. *A Thousand Plateaus: Capitalism and Schizophrenia*. Translated by Brian Massumi. London: Athlone Press, 1987.
- Deleuze, Gilles, and Félix Guattari. *Anti-Oedipus: Capitalism and Schizophrenia*. Translated by Robert Hurley, Mark Seem, and Helen R. Lane. New York: Viking Press, 1977.
- Della Porta, Giambattista. *De Humana Physiognomonia*. Naples, 1586.
- Dennis, Michael. *Court & Garden: from the French Hôtel to the City of Modern Architecture*. Cambridge, Mass.: MIT Press, 1986.
- Descartes, Rene. *Philosophical Letters*. Translated and edited by Anthony Kenny. Oxford: Clarendon Press, 1970.
- Descartes, Rene. *The Philosophical works of Descartes*, translated by Elizabeth S. Haldane and G. R. T. Ross, London, Cambridge University Press, 1967.
- Descartes, Rene. *Philosophical writings*. A selection translated and edited by Elizabeth Anscombe and Peter Thomas Geach. London: Nelson, 1954.
- Di Cristina, Giuseppa (ed.) *Architecture and Science*. Chichester: Wiley-Academy, 2001.
- Dijksterhuis, Eduard Jan. *The Mechanization of the World Picture*. Translated by C. Dikshoorn. London: Oxford University Press, 1961.
- Diller, Elizabeth, and Ricardo Scofidio. *Flesh: Architectural Probes*; Teyssot, Georges. *The Mutant Body of Architecture*. New York: Princeton Architectural Press, 1994.
- Diprose, Rosalyn, and Robyn Ferrell, (eds.) *Cartographies: Poststructuralism and the Mapping of Bodies and Spaces*. Sydney: Allen and Unwin, 1991.
- Donzelot, Jacques. *The Policing of Families*. Translated by Robert Hurley. New York: Pantheon Books, 1979.
- Dorrian, Mark. "On the Monstrous and the Grotesque." In *Word and Image*, 16/3, July/Sept. 2000, pp. 310-17.

- Douglas, Mary. *Purity and Danger: An Analysis of Concepts of Pollution and Taboo*. London: Routledge and Kegan Paul, 1966.
- Douglas, Mary. *Natural Symbols: Explorations in Cosmology*. London: Barrie & Rockliff, The Cresset Press, 1970.
- Dovey, Kim. *Framing Places: Mediating Power in Built Form*. London; New York: Routledge, 1999.
- Drake, Scott, "Monstrous Bodies: Architecture and the Play of Appearance," *Architectural Theory Review*, 6/1, April 2001, pp. 117-133.
- Drake, Scott, "Anatomy and Anthropomorphism: Architecture and the Origins of Science," in *Edinburgh Architecture Review*, 27, September 2000, pp. 17-36.
- Drake, Scott. "The Architectural Antimephitic: Modernism and Deodorisation." *Architectural Theory Review*, 2/2, November 1997, pp. 17-28.
- Dripps, R.D. *The First House: Myth, Paradigm, and the Task of Architecture*. Cambridge, Mass.: MIT Press, 1997.
- Duboy, Philippe. *Lequeu: An Architectural Enigma*. Translated by Francis Scarfe. London: Thames and Hudson, 1986.
- Durand, Jacques-Nicolas-Louis. *Précis des Leçons d'Architecture*. Paris, 1802.
- Durand, Jacques-Nicolas-Louis. *Recueil et Parallèle des Edifices de Tout Genre, Anciens et Modernes*. Paris, 1801.
- Eagleton, Terry. *The Ideology of the Aesthetic*. Oxford: Blackwell, 1990.
- Eagleton, Terry. "Self-Undoing Subjects." In Roy Porter (ed.) *Rewriting the Self: Histories from the Renaissance to the Present*. London and New York: Routledge, 1997, pp. 262-269.
- van Eck, Caroline. *Organicism in Nineteenth-Century Architecture: An Inquiry into its Theoretical and Philosophical Background*. Amsterdam: Architectura & Natura Press, 1994.
- Eisenman, Peter. *Houses of Cards*. New York: Oxford University Press, 1987.
- Eisenman, Peter. *House X*. New York: Rizzoli, 1982.
- Eisenman, Peter. "The Houses of Memory: The Texts of Analogy." In Aldo Rossi, *The Architecture of the City*. Cambridge, Mass.: MIT Press, 1982; pp. 3-11.
- Eisenstein, Elizabeth L. *The Printing Press as an Agent of Change: Communications and Cultural Transformations in Early-modern Europe*. Cambridge: Cambridge University Press, 1979.

- Eldridge, Richard. *On Moral Personhood: Philosophy, Literature, Criticism, and Self-Understanding*. Chicago and London: University of Chicago Press, 1989.
- Elleb-Vidal, Monique, avec Anne Debarre-Blanchard. *Architectures de la Vie Privée: Maisons et Mentalités, XVII<sup>e</sup> - XIX<sup>e</sup> siècles*. Bruxelles: Archives d'Architecture Moderne, 1989.
- Elias, Norbert. *The Civilising Process*. Translated by Edmund Jephcott. Oxford and Cambridge: Blackwell, 1994 (1939).
- Elliott, Cecil D. *Technics and Architecture: the Development of Materials and Systems for Buildings*. Cambridge, Mass.: MIT Press, 1992.
- Elkins, James. *Pictures of the Body: Pain and Metamorphosis*. Stanford: Stanford University Press, 1999.
- Ellul, Jacques. *The Technological Society*. Translated by John Wilkinson. New York: Vintage, 1964.
- Enzensberger, Christian. *Smut: An Anatomy of Dirt*. Translated by Sandra Morris. London: Calder and Boyars, 1972 (1968).
- Etlin, Richard. *The Architecture of Death: The Transformation of the Cemetery in Eighteenth-Century Paris*. Cambridge, Mass.: MIT Press, 1984.
- Evans, Robin. *The Fabrication of Virtue: English Prison Architecture, 1750-1840*. Cambridge; New York: Cambridge University Press, 1982.
- Evans, Robin. *Translations from Drawing to Building and Other Essays*. Cambridge, Mass.: MIT Press, 1997.
- Evans, Robin. "Figures, Doors, and Passages." In *Translations from Drawing to Building and Other Essays*. Cambridge, Mass.: MIT Press, 1997, pp. 55-92.
- Evans, Robin. "The Rites of Retreat and the Rites of Exclusion: Notes towards the Definition of Wall." In *Translations from Drawing to Building and Other Essays*. Cambridge, Mass.: MIT Press, 1997, pp. 34-53.
- Evans, Robin, "Rookeries and Model Dwellings: English Housing Reform and the Moralities of Private Space," *Architectural Association Quarterly*, 10/1, 1978, pp. 24-35.
- Falk, Pasi. *The Consuming Body*. London: Sage Publications, 1994.
- Featherstone, Mike, Mike Hepworth, and Bryan S. Turner (eds). *The Body: Social Process and Cultural Theory*. London: Sage, 1991.

- Feher, Michel, Ramona Naddaff and Nadia Tazi (eds). *Zone 3-5: Fragments For a History of the Human Body*. New York, NY: Cambridge, Mass.: Zone; MIT Press, 1989.
- Feher, Michael, and Sanford Kwinter (eds). *Zone 1/2: The Contemporary City*. New York: Urzone, 1987.
- Fernandez-Galiano, Luis. *Fire and Memory: On Architecture and Energy*. Translated by Gina Cariño. Cambridge, Mass.: MIT Press, 2000.
- Feyerabend, Paul. *Against Method*. Third edition. London: Verso, 1993.
- Filarete. *Treatise on Architecture: Being the Treatise by Antonio di Piero Averlino, Known as Filarete*. Translated by John R. Spencer. Volume 2: The Facsimile. New Haven: Yale University Press, 1965.
- Fink, Eugen. "The Ontology of Play." In E. Gerber and W. Morgan (eds). *Sport and the Body: A Philosophical Symposium*. Second edition, Philadelphia: Lea and Febiger, 1979.
- Flötotto, Christina. "Building the new, hygienic, healthy man in modern architecture: Freidrich Wolf and the 'Neues Bauen'." *EAR* 27, September 2000, pp. 87-99.
- Flyvbjerg, Bent. "Aristotle, Foucault and Progressive Phronesis: Outline of an applied ethics for sustainable development." *Planning Theory* 7-8 1992, pp. 65-83.
- Ford, Edward R. *The Details of Modern Architecture*. Two Volumes. Cambridge, Mass.: MIT Press, 1990; 1996.
- Forty, Adrian. *Words and Buildings: A Vocabulary of Modern Architecture*. London: Thames & Hudson, 2000.
- Foster, Hal. *Compulsive beauty*, Cambridge, Mass.: MIT Press, 1993.
- Foucault, Michel. *Discipline and Punish: The Birth of the Prison*. Translated by Alan Sheridan. Second Vintage Books ed. London: Allen Lane, 1977.
- Foucault, Michel. *The Birth of the Clinic: An Archaeology of Medical Perception*. Translated by A.M. Sheridan Smith. New York: Vintage Books, 1975.
- Foucault, Michel. *The Order of Things: an Archaeology of the Human Sciences*. London: Tavistock Publications, 1970.
- Foucault, Michel. *Madness and Civilization: A History of Insanity in the Age of Reason*. Translated by Richard Howard. London: Tavistock, 1967.

- Franck, Karen A., and R. Bianca Lepori. *Architecture Inside Out*. Chichester: Wiley Academy, 2000.
- Frank, Arthur W. *The Wounded Storyteller: Body, Illness, and Ethics*. Chicago: University of Chicago Press, 1995.
- Frascari, Marco. "Take as Much You Please of Some Unknown Material." Unpublished article; October 2, 2001. (<http://www.waac.vt.edu/material/takesome.html>).
- Frascari, Marco. "Architects, Never Eat Your Pasta Without a Proper Sauce! A short anti-Cartesian meditation on the nature of architectural imagination." Unpublished article; June 11, 2001. (<http://www.waac.vt.edu/material/pasta.html>).
- Frascari, Marco. "The Pneumatic Bathroom." In Nadir Lahiji and D. S. Friedman (eds.) *Plumbing: Sounding Modern Architecture*. New York: Princeton Architectural Press, 1997, pp. 162-180.
- Frascari, Marco. *Monsters of Architecture: Anthropomorphism in Architectural Theory*. Savage, Maryland: Rowman & Littlefield, 1991.
- Frascari, Marco. "A New Angel/Angle in Architectural Research: The Ideas of Demonstration." *JAE* 44/1, November 1990, pp. 11-19.
- Frascari, Marco. "Maidens 'Theory' and 'Practice' at the Sides of Lady Architecture." *Assemblage* 7, 1988, pp. 14-27.
- Frascari, Marco. "The Drafting Knife and Pen." In Rob Miller *et al*, *Implementing Architecture: Exposing the Paradigm Surrounding the Implements and the Implementation of Architecture*. Atlanta: Nexus Press, 1988.
- Frascari, Marco. "The Body and Architecture in the Drawings of Carlo Scarpa." *RES* 14, Autumn 1987, pp. 123-142.
- Frascari, Marco. "Semiotica Ab Edendo, Taste in Architecture." *Journal of Architectural Education*, 40/1, Fall 1986, pp. 2-7.
- Frascari, Marco. "Function and Representation in Architecture." *Design Methods and Theories* 19/1, 1985, pp. 200-216.
- Frascari, Marco. "The Tell-the-Tale Detail." *Via* 7, 1984, pp. 23-37.
- French, Roger Kenneth. *Dissection and Vivisection in the European Renaissance*. Aldershot, U.K.; Sydney: Ashgate, 1999.
- Freud, Sigmund. *Civilization and its Discontents*. Translated by Joan Riviere. Edited by James Strachey. London; Hogarth Press: 1963.

- Friedman, Alice T. "Domestic Differences: Edith Farnsworth, Mies van der Rohe, and the Gendered Body." In Christopher Reed (ed.), *Not at home: The Suppression of Domesticity in Modern Art and Architecture*. London: Thames and Hudson, 1996, pp. 179-192.
- Frith, Stephen. "Competent Qualities: The Problem of Virtue in Architectural Education." In Desley Luscombe and Steve King (eds.), *Aspects of Quality in Australian Architectural Education*. Sydney: Royal Australian Institute of Architects, 1995, pp. 5-15.
- Fuenmayor, Jesús, Kate Haug, and Frazer Ward. *Dirt and Domesticity: Constructions of the Feminine*. New York: Whitney Museum of American Art, 1992.
- Gadamer, Hans-Georg. *Truth and Method*. Second Edition. London: Sheed and Ward, 1989.
- Gadamer, Hans-Georg. *The Relevance of the Beautiful and Other Essays*. Robert Bernasconi, ed., translated by Nicholas Walker. Cambridge: Cambridge University Press, 1986.
- Gadamer, Hans-Georg. *Reason in the Age of Science*. Translated by Fredrick G. Lawrence. Cambridge, Mass.: MIT Press, 1981.
- Gadamer, Hans-Georg. *Philosophical Hermeneutics*. Translated and edited by David E. Linge. Berkeley: University of California Press, 1976.
- Galison, Peter, and Emily Thompson (eds). *The Architecture of Science*. Cambridge, Mass.: MIT Press, 1999.
- Gast, Klaus-Peter. *Louis I. Kahn: the Idea of Order*. Translated by Michael Robinson. Basel; Berlin; Boston: Birkhauser, 2001.
- Gastelaars, Marja. "The Water Closet: Public and Private Meanings." *Science as Culture*, 1996, Vol.5, No.4(25), pp.483-505.
- Gay, Peter. *The Bourgeois Experience: Victoria to Freud; Volume 1, Education of the Senses*. New York; Oxford: Oxford University Press, 1984.
- Gelernter, Mark. *Sources of Architectural Form: A Critical History of Western Design Theory*. Manchester: Manchester University Press, 1995.
- Gent, Lucy, and Nigel Llewellyn (eds). *Renaissance Bodies: The Human Figure in English Culture, 1540-1660*. London: Reaktion Books, 1990.
- Gergen, Kenneth J. *The Saturated Self: Dilemmas of Identity in Contemporary Life*. New York: Basic Books, 1991.

- Ghirardo, Dianne. "The Theatre of Shadows." In Morris Adjmi (ed.) *Aldo Rossi: Architecture, 1981-1991*. New York: Princeton Architectural Press, 1991, pp. 11-15.
- Gibson, James J. *The Senses Considered as Perceptual Systems*. Boston: Houghton Mifflin Company, 1966.
- Giddens, Anthony. *Modernity and Self-Identity: Self and Society in the Late Modern Age*. Cambridge: Polity, 1991.
- Giedion, Siegfried. *Space, Time and Architecture: the growth of a new tradition*. 5th edition. Cambridge: Harvard University Press, 1967.
- Gille, Didier. "Maceration and Purification," translated by Bruce Benderson, in Michael Feher and Sanford Kwinter, eds. *Zone 1/2: The Contemporary City*, New York: Urzone, 1987. pp. 226-281.
- Gilligan, Carol. *In a Different Voice: Psychological Theory and Women's Development*. Cambridge, Mass.: Harvard University Press, 1982.
- Girouard, Mark. *Cities & People: a Social and Architectural History*. New Haven: Yale University Press, 1985.
- Giurgola, Romaldo. *Louis I. Kahn*. Barcelona: Gustavo Gili, 1989.
- Goffman, Erving. *The Presentation of Self in Everyday Life*. Harmondsworth: Penguin, 1971.
- Gombrich, E. H. *Art and Illusion: a study in the psychology of pictorial representation*. 5th edition. London: Phaidon, 1977.
- Goubert, Jean-Pierre. *The Conquest of Water: The Advent of Health in the Industrial Age*. Translated by Andrew Wilson. Princeton, New Jersey: Princeton University Press. 1989.
- Graafland, Arie. *The Socius of Architecture: Amsterdam, Tokyo, New York*. Rotterdam: 010 Publishers, 2000.
- Graafland, Arie. *Architectural Bodies*. Edited by Michael Speaks. Rotterdam : 010 Publishers, 1996.
- Grosz, Elizabeth. *Architecture From the Outside: Essays on Virtual and Real Space*. Cambridge, Mass.: MIT Press, 2001.
- Grosz, Elizabeth. *Volatile Bodies: Toward a Corporeal Feminism*. St. Leonards, N.S.W.: Allen & Unwin, 1994.
- Guillerme, Jacques, and Heline Vérin. "The Archaeology of Section." *Perspecta* 25, 1989, pp. 226-257.



- Guyer, Paul. *Kant and the Claims of Taste*. Second edition. Cambridge; New York: Cambridge University Press, 1997.
- Habraken, N. J. *The Structure of the Ordinary: Form and Control in the Built Environment*. Edited by Jonathan Teicher. Cambridge, Mass.: MIT Press, 1998.
- Hacking, Ian. *Rewriting the Soul: Multiple Personality and the Science of Memory*. Princeton, NJ: Princeton University Press, 1995.
- Hacking, Ian. *The Taming of Chance*. Cambridge; New York: Cambridge University Press, 1990.
- Hacking, Ian. "Making Up People." In T. Heller *et al* (eds.), *Reconstructing Individualism*. Stanford, 1986, pp. 222-236.
- Hacking, Ian. *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science*. Cambridge: Cambridge University Press, 1983.
- Haigh, Elizabeth. *Xavier Bichat and the Medical Theory of the Eighteenth Century*. London: Wellcome Institute for the History of Medicine, 1984.
- Hale, Jonathan A. *Building Ideas: An Introduction to Architectural Theory*. New York: John Wiley, 2000.
- Hankins, Thomas L., and Robert J. Silverman. *Instruments and the Imagination*. Princeton, N.J.: Princeton University Press, 1995.
- Harries, Karsten. *The Ethical Function of Architecture*. Cambridge, Mass.: MIT Press, 1997.
- Harris, Melissa (ed) *The Body in Question*. New York: Aperture Foundation, 1990.
- Hart, Vaughan, and Peter Hicks (eds). *Paper Palaces: The Rise of the Renaissance Architectural Treatise*. New Haven: Yale University Press, 1998.
- Harvey, William. *An Anatomical Essay Concerning the Movement of the Heart and the Blood in Animals*. London: 1628.
- Hays, K. Michael (ed). *Architecture Theory since 1968*. Cambridge, Mass.: MIT Press, 1998.
- Heidegger, Martin. *Basic Writings*. Edited by David Farrell Krell. London: Routledge, 1993.
- Heidegger, Martin. *The Question Concerning Technology and Other Essays*. Translated by W. Lovitt. New York: Harper and Row, 1977.

- Heidegger, Martin. *Being and Time*. Translated by John Macquarrie and Edward Robinson. Oxford: Basil Blackwell, 1962.
- Hersey, George. *The Monumental Impulse: Architecture's Biological Roots*. Cambridge, Mass.: MIT Press, 1999.
- Hersey, George. *The Lost Meaning of Classical Architecture: Speculations on Ornament from Vitruvius to Venturi*. Cambridge, Mass.: MIT Press, 1988.
- Hersey, George. *Pythagorean Palaces: Magic and Architecture in the Italian Renaissance*. Ithaca: Cornell University Press, 1976.
- Heschong, Lisa. *Thermal Delight in Architecture*. Cambridge, Mass.: MIT Press, 1979.
- Hirst, Paul Q. *Foucault and Architecture*. Sydney, Australia: Local Consumption Publication, 1984.
- Hirst, Paul, and Penny Woolley. *Social Relations and Human Attributes*. London and New York: Tavistock, 1982.
- Holl, Steven. *Parallax*. New York: Princeton Architectural Press, 2000.
- Holl, Steven, Juhani Pallasmaa, and Alberto Pérez-Gómez. *Questions of Perception: Phenomenology of Architecture*. Tokyo: a+u publishing, 1994.
- Hollier, Denis. *Against Architecture: The Writings of Georges Bataille*. Trans. by Betsy Wing. Cambridge, Mass.: MIT Press, 1989.
- Hoy, Suellen. *Chasing Dirt: The American Pursuit of Cleanliness*. Oxford and New York: Oxford University Press, 1995.
- Hubbard, Bill. *A Theory for Practice: Architecture in Three Discourses*. Cambridge, Mass.: MIT Press, 1995.
- Huizinga, Johan. *Homo Ludens: A Study of the Play Element in Culture*. London: Routledge and Kegan Paul, 1949.
- Husserl, Edmund. *The Crisis of European Sciences and Transcendental Phenomenology: An Introduction to Phenomenological Philosophy*. Translated with an introduction by David Carr. Evanston: Northwestern University Press, 1970.
- Ignatieff, Michael. *A Just Measure of Pain: The Penitentiary in the Industrial Revolution, 1750-1850*. London: Macmillan, 1978.
- Ihde, Don. *Philosophy of Technology: An Introduction*. New York: Paragon, 1993.

- Ihde, Don. *Technology and the Lifeworld: From garden to earth*. Bloomington and Indianapolis: Indiana University Press, 1990.
- Jameson, Fredric. *Postmodernism, or, The Cultural Logic of late Capitalism*. Durham: Duke University Press, 1991.
- Jay, Martin. *The Dialectical Imagination: A History of the Frankfurt School and the Institute of Social Research, 1923-1950*. Berkeley: University of California Press, 1996.
- Jay, Martin. *Downcast Eyes: The Denigration of Vision in Twentieth Century French Thought*. Princeton, NJ: Princeton University Press, 1993.
- Jaynes, Julian. *The Origin of Consciousness in the Breakdown of the Bicameral Mind*. Harmondsworth: Penguin, 1993.
- Johnson, Mark. *Moral Imagination: Implications of Cognitive Science for Ethics*. Chicago: University of Chicago Press, 1993.
- Johnson, Mark. *The Body in the Mind: The Bodily Basis of Meaning, Imagination, and Reason*. Chicago: University of Chicago Press, 1987.
- Johnson, Paul-Alan. *The Theory of Architecture: Concepts, Themes, & Practices*. New York: Van Nostrand Reinhold, 1994.
- Jordanova, Ludmilla. "Medicine and Genres of Display." In Lynne Cooke and Peter Wollen (eds). *Visual Display: Culture Beyond Appearances*. Seattle: Bay Press, 1995.
- Kant, Immanuel. *Critique of Pure Reason*. Translated by Norman Kemp Smith. New York: St Martins Press, 1965.
- Kant, Immanuel. *Critique of Judgement*. Translated by James Creed Meredith. Oxford: Clarendon Press, 1952.
- Karvouni, Maria. "Demas: The Human Body as a Tectonic Construct." In Alberto Pérez-Gómez and Stephen Parcell (eds.) *Chora 3: Intervals in the Philosophy of Architecture*. Montreal and Kingston: McGill-Queen's University Press, 1999, pp. 103-124.
- Kearney, Richard. *The Wake of Imagination: Toward a Postmodern Culture*. London: Routledge, 1994 (1988).
- Kearney, Richard. *The Poetics of Imagining: from Husserl to Lyotard*. London: Routledge, 1991.
- Kemp, Martin. "Temples of the Body and Temples of the Cosmos: Vision and Visualisation in the Vesalian and Copernican Revolution." In Brian S. Baigrie

- (ed.) *Picturing Knowledge: Historical and Philosophical Problems Concerning the Use of Art in Science*. Toronto; Buffalo: University of Toronto Press, 1996, pp. 40-85.
- Kerby, Anthony Paul. *Narrative and the Self*. Bloomington and Indianapolis: Indiana University Press, 1991.
- Kern, Stephen. *Anatomy and Destiny: A Cultural History of the Human Body*. Indianapolis: Bobbs-Merrill, 1975.
- Kern, Stephen. *The Culture of Time and Space, 1880-1918*. Cambridge, Mass.: Harvard University Press, 1983.
- el-Khoury, Rodolphe. "Polish and Deodorise: Paving the City in Late-Eighteenth-Century France," *Assemblage*, 31 (1997): pp. 6-15.
- Kira, Alexander, *The Bathroom*, Second Edition. New York: Viking, 1976.
- Kleinman, Arthur. *The Illness Narratives*. New York: Basic Books, 1988.
- Kockelmans, Joseph J. (ed.) *Phenomenology: The Philosophy of Edmund Husserl and its Interpretation*. Garden City, N.Y: Anchor Books, 1967.
- Kohane, Peter, and Michael Hill. "The eclipse of a commonplace idea: decorum in architectural theory." *ARQ: Architectural Research Quarterly*, 5/1, 2001, pp. 63-77.
- Kostof, Spiro (ed). *The Architect: Chapters in the History of the Profession*. Oxford; New York: Oxford University Press, 1977.
- Krell, David Farrell. *Archetecture: Ecstasies of Space, Time, and the Human Body*. Albany, NY: State University of New York Press, 1997.
- Krier, Rob. *Architectural Composition*. London: Academy editions, 1988.
- Kruft, Hanno-Walter. *A History of Architectural Theory: From Vitruvius to the Present*. Translated by Ronald Taylor, Elise Callander, and Antony Wood. London; Zwemmer, 1994.
- Kuhn, Thomas S. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press, 1962.
- Lahiji, Nadir, and D. S. Friedman (eds). *Plumbing: Sounding Modern Architecture*. New York: Princeton Architectural Press, 1997.
- Lakatos, Imre. *Proofs and Refutations: the Logic of Mathematical Discovery*. Edited by John Worrall and Elie Zahar. Cambridge; New York: Cambridge University Press, 1976.

- Lakoff, George, and Mark Johnson. *Philosophy in the Flesh: The Embodied Mind and its Challenge to Western Thought*. New York: Basic Books, 1999.
- Lakoff, George, and Mark Johnson. *Metaphors We Live By*. Chicago: University of Chicago Press, 1980.
- Langmuir, Erica. *The National Gallery Companion Guide*. London: National Gallery Company, 1994.
- Latour, Alessandra (ed). *Louis I. Kahn: Writings, Lectures, Interviews*. New York: Rizzoli, 1991.
- Latour, Bruno. *Pandora's Hope: Essays on the Reality of Science Studies*. Cambridge, Mass.: Harvard University Press, 1999.
- Latour, Bruno. *Aramis, or The Love of Technology*. Translated by Catherine Porter. Cambridge, Mass.: Harvard University Press, 1996.
- Latour, Bruno. *We Have never Been Modern*. Translated by Catherine Porter. New York: Harvester Wheatsheaf, 1993.
- Latour, Bruno. "Where are the Missing Masses? The Sociology of a Few Mundane Artifacts." In Wiebe Bijker and John Law (eds.), *Shaping Technology/Building Society: Studies in Sociotechnical Change*. Cambridge, Mass.: MIT Press, 1992, pp 225-258.
- Latour, Bruno. "Technology is Society Made Durable." In John Law (ed.) *A Sociology of Monsters: essays on Power, Technology, and Domination*. London; New York: Routledge, 1991, pp. 103-131.
- Latour, Bruno. *The Pasteurization of France*. Translated by Alan Sheridan and John Law. Cambridge, Mass., and London, England: Harvard University Press. 1988.
- Latour, Bruno. "Opening one eye while closing the other ... a note on some religious paintings." In Fyfe, Gordon, and John Law (eds.) *Picturing Power: Visual Depiction and Social Relations*. London: Routledge, 1988, pp. 15-38.
- Latour, Bruno. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, Mass.: Harvard University Press, 1987.
- Latour, Bruno, and Steve Woolgar. *Laboratory Life: The Social Construction of Scientific Facts*. Beverly Hills: Sage Publications, 1979.
- Leach, Neil. *Rethinking Architecture: A Reader in Cultural Theory*. New York: Routledge, 1996.
- Leatherbarrow, David, and Mohsen Mostafavi. *Surface Architecture*. Cambridge, Mass.: MIT Press, 2002.

- Le Brun, Charles. *Conférence sur l'expression générale et particulière des passions*. Paris, 1698.
- Le Camus de Mézières, Nicolas. *The Genius of Architecture, or the Analogy of that Art with our Sensations*. Translated by D. Britt. Santa Monica: Getty Centre for the History of Art and the Humanities, 1992 (1780).
- Le Corbusier. *Precisions: On the present state of architecture and city planning*. Translated by Edith Schreiber Aujame. Cambridge, Mass.: MIT Press, 1961.
- Le Corbusier. *Towards a New Architecture*. Translated by Frederick Etchells. London: Architectural Press, 1946.
- Leder, Drew. *The Absent Body*. Chicago and London: University of Chicago Press, 1990.
- Leder, Drew. "A Tale of Two Bodies: The Cartesian Corpse and the Lived Body." in Donn Welton (ed), *Body and Flesh: A Philosophical Reader*. Malden, Mass., and Oxford, UK: Blackwell Publishers, 1998.
- Ledoux, Claude-Nicolas. *L'Architecture de Claude-Nicolas Ledoux*, edition Ramee, Princeton, New Jersey: Princeton Architectural Press, 1983.
- Lefaivre, Liane. *Leon Battista Alberti's Hypnerotomachia Poliphili: Recognizing the Architectural Body in the early Italian Renaissance*. Cambridge, Mass.: MIT Press, 1997.
- Lefebvre, Henri. *The Production of Space*. Translated by Donald Nicholson-Smith. Oxford: Blackwell. 1991.
- Le Guérer, Annick. *Scent: The Mysterious and Essential Powers of Smell*. Translated by Richard Miller. New York: Turtle Bay Books. 1993.
- Levin, David Michael. *The Body's Recollection of Being: Phenomenological Psychology and the Deconstruction of Nihilism*. London; Boston: Routledge & Kegan Paul, 1985.
- Libeskind, Daniel. *Countersign*. London: Academy Editions, 1991.
- Lindeboom, G. A. *Descartes and Medicine*. Amsterdam : Rodopi, 1979.
- Lingis, Alfonso. *The Community of Those who have Nothing in Common*. Bloomington and Indianapolis: Indiana University Press, 1994.
- von Linne, Carl. *Systema Naturae*. Stockholm: Rediviva, 1977 (1735).
- Livesey, Graham. "Fictional Cities." *Chora* 1, 1994, pp. 109-122.

- Loomis, Louise Ropes. *Aristotle: On Man in the Universe*. New York: Gramercy, 1971.
- Loos, Adolf. *Spoken into the Void: Collected Essays, 1897-1900*. Translated by Jane O. Newman and John H. Smith. Cambridge, Mass.: MIT Press, 1982.
- Lotz, Wolfgang. "The Rendering of the Interior in Architectural Drawings of the Renaissance." In *Studies in Italian Renaissance Architecture*, Translated by Margaret Breitenbach, Renate Franciscano, and Paul Lunde, Cambridge, Mass.; MIT Press, 1977.
- Lotze, Hermann. *Microcosmus: An Essay Concerning Man and His Relation to the World*. Translated by Elizabeth Hamilton and E.E. Constance Jones. New York: Scribner and Wellford, 1886.
- Lupton, Ellen, and J. Abbot Miller, "Hygiene, Cuisine, and the Product World of Early Twentieth-Century America," in Jonathan Crary and Sanford Kwinter, (eds.) *Incorporations*. New York: Urzone, 1992. pp. 496-515.
- Lupton, Ellen, and J. Abbot Miller, *The Bathroom, the Kitchen, and the Aesthetics of Waste: A Process of Elimination*, New York: Kiosk, 1992.
- Lynch, Kevin. *Good City Form*. Cambridge, Mass.: MIT Press, 1981.
- Lynn, Greg. *Folds, Bodies & Blobs: Collected Essays*. Brussels: La Lettre Volee, 1998.
- Lynn, Greg. "Body Matters," in Andrew Benjamin (ed.) *The Body*. London; Berlin: Academy Editions; Ernst and Sohn, 1993, pp. 60-69.
- Lynn, Greg. "Multiplicitious and Inorganic Bodies." *Assemblage* 19, 1992, pp. 32-49.
- Lyons, John O. *The Invention of the Self*. Carbondale: Southern Illinois University Press, 1978.
- McAnulty, Robert. "Body Troubles." In John Whiteman, Jeffrey Kipnis, and Richard Burdett (eds.) *Strategies in Architectural Thinking*. Cambridge Mass.: MIT Press, 1992, pp. 180-197.
- McCarthy, Christine. "Drawing and Quartering, 'Mort Safes and Dissection Rooms: Divisions of the anatomical and the abject criminality of the architectural section.'" in Stephen Cairns and Philip Goad (eds.), *Building Dwelling Drifting: Migrancy and the Limits of Architecture*, papers from the third 'Other Connections' conference, Faculty of Architecture, Building and Planning, University of Melbourne, 1997.
- McHale, John. *The Future of the Future*. New York: G. Braziller, 1969.

- MacIntyre, Alasdair. *Three Rival Versions of Moral Enquiry*. London: Duckworth, 1990.
- MacIntyre, Alasdair. *Whose Justice? Which Rationality?* London: Duckworth, 1988.
- MacIntyre, Alasdair. *After Virtue: A Study in Moral Theory*. Second edition. London: Duckworth, 1985.
- McLaughlin, Terence. *Coprophilia: or, a peck of dirt*. London: Cassell, 1971.
- Magli, Patrizia. "The Face and the Soul." *Zone* 4, 1989, pp. 87-127.
- Maldonado, Tomás. "The Idea of Comfort." in Margolin, Victor, and Richard Buchanan, (eds.) *The Idea of Design: A Design Issues Reader*. Cambridge, Mass.: MIT Press, 1995, pp 248-256.
- Mallgrave Harry Francis, and Eleftherios Ikonomou (eds.) *Empathy, Form, and Space: Problems in German Aesthetics 1873-1893*. Santa Monica: The Getty Centre for the History of Art and the Humanities, 1994.
- Marble, Scott, et al (eds). *Architecture and Body*. New York: Rizzoli, 1988.
- March, Lionel. "The Logic of Design and the Question of Value." In Lionel March, ed. *The Architecture of Form*. Cambridge, N.Y.: Cambridge University Press, 1976.
- Marcus, George H. *Le Corbusier: Inside the Machine for Living*. New York: Monacelli Press, 2000.
- Marcuse, Herbert. *One Dimensional Man: Studies in the Ideology of Advanced Industrial Society*. London: Routledge and Kegan Paul, 1964.
- Markus, Thomas A. *Buildings & Power: Freedom and Control in the Origin of Modern Building Types*. London; New York: Routledge, 1993.
- Martini, Francesco di Giorgio. *Trattati di architettura, ingegneria e arte miliatre*. Edited by Corrado Maltese and Livia Degrassi Maltese. Milan: Il Polifilo, 1967.
- Marx, Karl. *Capital: A Critique of Political Economy*. Introduced by Ernest Mandel; translated by Ben Fowkes. Harmondsworth: Penguin, 1976.
- Marx, Leo. *The Machine in the Garden; Technology and the Pastoral ideal in America*. New York: Oxford University Press, 1964.
- Mauss, Marcel. "Techniques of the Body." In *Sociology and Psychology: Essays*. Translated by Ben Brewster. London; Boston: Routledge and Kegan Paul, 1979.



- Mayne, Alan James Christian. *Fever, Squalor and Vice: Sanitation and Social Policy in Victorian Sydney*. St. Lucia, Qld.: University of Queensland Press, 1982.
- Mazzio, Carla, and David Hillman (eds). *The Body in Parts: Fantasies of Corporeality in Early Modern Europe*. London and New York: Routledge, 1997.
- Merleau-Ponty, Maurice. *The Visible and the Invisible*. Translated by Alphonso Lingis. Evanston Ill.: Northwestern University Press, 1973.
- Merleau-Ponty, Maurice. *Sense and Non-sense*. Translated by Hubert L. Dreyfus and Patricia Allen Dreyfus. Evanston, Ill.: Northwestern University Press, 1964.
- Merleau-Ponty, Maurice. *Phenomenology of Perception*. Translated by Colin Smith. London: Routledge & Kegan Paul, 1962.
- Mertins, Detlef (ed.) *The Presence of Mies*. New York: Princeton Architectural Press, 1994.
- Miller, William Ian. *The Anatomy of Disgust*. Cambridge, Mass., and London: Harvard University Press, 1997.
- Moneo, Rafael. "On Typology." *Oppositions* 13, Summer 1978, pp. 22-45.
- Montagu, Ashley. *Touching: The Human Significance of the Skin*. 3rd ed. New York: Perennial Library, 1986.
- Mort, Frank. *Dangerous Sexualities: Medico-Moral Politics in England Since 1830*. London and New York: Routledge & Kegan Paul, 1987.
- Mumford, Lewis. *The City in History: its Origins, its Transformations, and its Prospects*. Harmondsworth: Penguin, 1991 (1961).
- Mumford, Lewis. *The Myth of the Machine: Technics and Human Development*. London: Secker & Warburg, 1967.
- Mumford, Lewis. *Technics and Civilization*. London: Routledge and Kegan Paul, 1934.
- Nagel, Thomas. *The View from Nowhere*. Oxford: Oxford University Press. 1986.
- Nancy, Jean-Luc. *The Inoperative Community*. Edited by Peter Connor; translated by Peter Connor, Lisa Garbus, Michael Holland, and Simona Sawhney. Minneapolis, MN: University of Minnesota Press, 1991.
- Nast, Heidi J., and Steve Pile (eds). *Places Through the Body*. London; New York: Routledge, 1998.

- Nesbitt, Kate (ed). *Theorizing a New Agenda for Architecture: An Anthology of Architectural Theory 1965-1995*. New York: Princeton Architectural Press, 1996.
- Nietzsche, Friedrich. *The Will to Power*. Translated by Walter Kaufmann and R.J. Hollingdale. New York: Vintage Books, 1968.
- Nochlin, Linda. *The Body in Pieces: The Fragment as a Metaphor of Modernity*. New York: Thames and Hudson, 1995.
- Norberg-Schulz, Christian. *Architecture: Presence, Language, Place*. Milan : Skira Editore, 2000.
- Norberg-Schulz, Christian. *The Concept of Dwelling: On the Way to Figurative Architecture*. Milan: New York: Electa; Rizzoli, 1985.
- Norberg-Schulz, Christian. *Genius Loci: Towards a Phenomenology of Architecture*. New York: Rizzoli, 1980.
- Norberg-Schulz, Christian. *Intentions in Architecture*. Cambridge, Mass.: MIT Press, 1965.
- Nye, David. *Electrifying America: Social Meanings of a New Technology*. Cambridge, Mass.: MIT Press, 1990.
- Nye, David. *Consuming Power: A Social History of American Energies*. Cambridge, Mass.: MIT Press, 1997.
- Nye, David. *American Technological Sublime*. Cambridge, Mass.: MIT Press, 1996.
- Ogle, Maureen. *All the Modern Conveniences: American Household Plumbing, 1840-1890*. Baltimore: Johns Hopkins Press. 1996.
- Oldroyd, David. *The Arch of Knowledge: An Introductory Study of the History of the Philosophy and Methodology of Science*. Sydney: New South Wales University Press, 1989.
- Ong, Walter J. *Orality and Literacy: The Technologizing of the Word*. London; New York: Methuen, 1982.
- Ong, Walter J. *Ramus: Method and the Decay of Dialogue*. Cambridge, Mass.: Harvard University Press, 1958.
- Onians, John. *Bearers of Meaning: The Classical Orders in Antiquity, the Middle Ages, and the Renaissance*. Princeton, N.J.: Princeton University Press, 1988.

- Ostwald, Michael J., and R. John Moore. *Disjecta Membra: Architecture and the Loss of the Body*. Sydney: Archadia, 1998.
- Ostwald, M.J., and R.J. Moore. "The Disappearing Body: Three strategies for de-anthropomorphism in architecture." *Exedra*, 5/4, 1994, pp. 19-27.
- Outram, Dorinda. *The Body and the French Revolution: Sex, Class and Political Culture*. New Haven, Connecticut: Yale University Press, 1989.
- Palladio, Andrea. *The Four Books of Architecture*. Translated by Isaac Ware. New York: Dover Publications; 1977.
- Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the Senses*. London: Academy Editions, 1996.
- Pallasmaa, Juhani. "An Architecture of the Seven Senses." In Steven Holl, Juhani Pallasmaa, and Alberto Pérez-Gómez, *Questions of Perception: Phenomenology of Architecture*. Tokyo: a+u publishing, 1994, pp. 27-37.
- Palmer, Phyllis M., *Domesticity and Dirt: Housewives and Domestic Servants in the United States, 1920-1945*, Philadelphia: Temple University Press, 1989.
- Payne, Alina A. *The Architectural Treatise in the Italian Renaissance: Architectural Invention, Ornament, and Literary Culture*. Cambridge: Cambridge University Press, 1999.
- Pearson, Christopher. "Le Corbusier and the Acoustical Trope: An Investigation of Its Origins." *JSAH*, 56/2 (June 1997): pp. 168-183.
- Pérez-Gómez, Alberto, and Louise Pelletier. *Architectural Representation and The Perspective Hinge*. Cambridge, Mass.: MIT Press, 1997.
- Pérez-Gómez, Alberto. "Chora: The Space of Architectural Representation." *Chora* 1, 1994, pp. 1-34.
- Pérez-Gómez, Alberto. *Architecture and the Crisis of Modern Science*. Cambridge, Mass.: MIT Press, 1983.
- Perrault, Charles. *Parallèle des Ancients et Modernes*. 4 vols., Paris, 1692-1696.
- Perrault, Claude. *Ordonnance des Cinq Espèces de Colonnes*, Paris, 1683.
- Pevsner, Nikolaus. *An Outline of European Architecture*. Sixth edition. Harmondsworth, Middlesex: Penguin, 1960.
- Pile, Steve. *The Body and the City: Psychoanalysis, Space, and Subjectivity*. London; New York: Routledge, 1996.

- Polanyi, Michael. *Personal Knowledge: Towards a Post-critical Philosophy*. London: Routledge & Kegan Paul, 1962.
- Pompa, Leon. *Vico: A Study of the 'New Science'*. Cambridge: Cambridge University Press, 1975.
- Poovey, Mary. *Making a Social Body: British Cultural Formation, 1830-1864*. Chicago: University of Chicago Press, 1995.
- Popper, Karl R. *Conjectures and Refutations: the Growth of Scientific Knowledge*. 4th edition (revised). London: Routledge & Kegan Paul, 1972.
- Popper, Karl R. *The Logic of Scientific Discovery*. London: Hutchinson, 1972.
- Porteous, J. Douglas. *Landscapes of the Mind: worlds of sense and metaphor*. Toronto: University of Toronto Press, 1990.
- Porter, Roy. *The Greatest Benefit to Mankind: Medical History of Humanity from Antiquity to the Present*. London: Harper Collins, 1997.
- Porter, Roy (ed.) *Rewriting the Self: Histories from the Renaissance to the Present*. London and New York: Routledge, 1997.
- Porter, Roy. "The Rise of Physical Examination." in William Bynum and Roy Porter (eds.) *Medicine and the Five Senses*. Cambridge: Cambridge University Press, 1993.
- Porter, Roy. *Mind-forg'd Manacles: A History of Madness in England from the Restoration to the Regency*. London: Athlone, 1987.
- Porter, Roy. *A Social History of Madness: Stories of the Insane*. London: Weidenfeld and Nicolson, 1987.
- Prak, Niels L. *Architects: The Noted and the Ignored*. New York: John Wiley and Sons, 1984.
- Prix, Wolf, and Helmut Swiczinsky. *Coop Himmelblau: Die Faszination der Stadt/The Power of the City*. Edited by Oliver Gruenberg, Robert Hahn, and Doris Knecht. Austria, George Büchner 1988.
- Quételet, Lambert-Adolphe-Jacques. *A Treatise on Man and the Development of his Faculties*. London, 1842.
- Quetglas, Josep. *Fear of Glass: Mies van der Rohe's pavilion in Barcelona*. Translated by John Stone and Rosa Roig. Basel; Boston: Birkhauser, 2001.
- Rabinbach, Anson. *The Human Motor: Energy, Fatigue, and the Origins of Modernity*. New York: Basic Books, 1990.

- Rabinow, Paul, ed. *The Foucault Reader*. Penguin. 1991.
- Ragon, Michel. *The Space Of Death: A Study of Funerary Architecture, Decoration, and Urbanism*. Translated by Alan Sheridan. Charlottesville: University Press of Virginia, 1983.
- Rand, Ayn. *The Fountainhead*. London: Grafton 1972 (1947).
- de Ras, Marion, and Victoria Grace, (eds). *Bodily Boundaries, Sexualised Genders & Medical Discourses*. Palmerston North, N.Z.: Dunmore Press, 1997.
- Raschke, Carl A. *Fire and Roses: Postmodernity and the Thought of the Body*. New York: State University of New York Press, 1996.
- Reiger, Kerreen. M. *The Disenchantment of the Home: Modernising the Australian Family 1880-1940*. Oxford: Oxford University Press. 1985.
- Reiser, Stanley Joel. *Medicine and the Reign of Technology*. Cambridge: Cambridge University Press, 1978.
- Richardson, Ruth. *Death, Dissection, and the Destitute*. London; New York: Routledge & Kegan Paul, 1987.
- Ricoeur, Paul. *Oneself as Another*. Translated by Kathleen Blamey. Chicago: University of Chicago Press, 1992.
- Ricoeur, Paul. *Time and Narrative*. 3 volumes: translated by Kathleen McLaughlin and David Pellauer, Chicago and London: University of Chicago Press, 1984-1988.
- Ricoeur, Paul. *The Rule of Metaphor: Multi-Disciplinary Studies of the Creation of Meaning in Language*. Translated by Robert Czerny; with Kathleen McLaughlin and John Costello. London: Routledge & Kegan Paul, 1978.
- Ricoeur, Paul. *The Symbolism of Evil*. Translated by Emerson Buchanan. Boston: Beacon Press, 1969.
- Rindisbacher, Hans. J. *The Smell of Books: A Cultural-Historical Study of Olfactory Perception in Literature*. Ann Arbor: University of Michigan Press, 1992.
- Rivlin, Robert, and Karen Gravelle. *Deciphering the Senses: The Expanding World of Human Perception*. New York: Simon and Schuster, 1984.
- Roche, Daniel. *A History of Everyday Things: The Birth of Consumption in France, 1600-1800*. Translated by Brian Pearce. Cambridge: Cambridge University Press, 2000.

- Rodaway, Paul. *Sensuous Geographies: Body, Sense, and Place*. London; New York: Routledge, 1994.
- Rokeach, Milton. *The Nature of Human Values*. New York: Free Press, 1973.
- Rorty, Richard. *Objectivity, Relativism, and Truth: Philosophical Papers Volume 1*. Cambridge: Cambridge University Press. 1991.
- Rorty, Richard. *Contingency, Irony, and Solidarity*. Cambridge: Cambridge University Press. 1989.
- Rorty, Richard. *Philosophy and the Mirror of Nature*. Oxford: Blackwell, 1980.
- Rose, Nikolas S. *Inventing Our Selves: Psychology, Power, and Personhood*. Cambridge and New York: Cambridge University Press, 1996.
- Rose, Nikolas S. *Governing the Soul: The Shaping of the Private Self*. London; New York : Routledge, 1990.
- Rossi, Aldo. *The Architecture of the City*. Translated by Diane Ghirardo and Joan Ockman. Cambridge, Mass.: MIT Press, 1982.
- Rossi, Aldo. *A Scientific Autobiography*. Translated by Lawrence Venuti. Cambridge, Mass.: MIT Press, 1981.
- Rouse, Joseph. *Engaging Science: How to Understand its Practices Philosophically*. Ithaca: Cornell University Press, 1996.
- Rouse, Joseph. *Knowledge and Power: Toward a Political Philosophy of Science*. Ithaca: Cornell University Press, 1987.
- Rowe, Colin, and Robert Slutzky. *Transparency*. Basel: Birkhäuser Verlag, 1997.
- Rowe, Colin, and Fred Koetter. *Collage City*. Cambridge, Mass.: MIT Press, 1978.
- Rowe, Peter. *Modernity and Housing*. Cambridge, Mass.; MIT Press, 1993.
- Rowland, Ingrid D., and Thomas Noble Howe (eds.) *Vitruvius: Ten Books on Architecture*. Translated by Ingrid D. Rowland. Cambridge: Cambridge University Press, 1999.
- Rozahegy, Mark. "Vitruvius, Nietzsche, and the Architecture of the Body." In Alberto Pérez-Gómez and Stephen Parcell (eds.) *Chora 3: Intervals in the Philosophy of Architecture*. Montreal and Kingston: McGill-Queen's University Press, 1999, pp. 179-200.
- Rykwert, Joseph. *The Dancing Column: On Order in Architecture*. Cambridge, Mass.: MIT Press, 1996.

- Rykwert, Joseph. "Body and Mind." *Storia Delle Idee Problemi e Perceptive Seminario Inter* 49, October 1987, pp. 157-168.
- Rykwert, Joseph. *The Necessity of Artifice*. London: Academy Editions, 1982.
- Rykwert Joseph. *The First Moderns: The Architects of the Eighteenth Century*. Cambridge, Mass.: MIT Press, 1980.
- Rykwert Joseph. *On Adam's House in Paradise: The Idea of the Primitive Hut in Architectural History*. New York: Museum of Modern Art, 1972.
- Saint, Andrew. *The Image of the Architect*. New Haven: Yale University Press, 1983.
- Sallis, John. *Spacings: Of Reason and Imagination in texts of Kant, Fichte, Hegel*. Chicago and London: University of Chicago Press, 1987.
- Sandel, Michael J. *Liberalism and the Limits of Justice*. Cambridge: Cambridge University Press, 1982.
- Sanders, Joel (ed). *Stud: Architectures of Masculinity*. New York: Princeton Architectural Press, 1996.
- Sartre, Jean-Paul. *Being and Nothingness: An Essay on Phenomenological Ontology*. Translated by Hazel E. Barnes. London: Routledge, 1998 (1958).
- Sawday, Jonathan. *The Body Emblazoned: Dissection and the Human Body in Renaissance Culture*. London; New York: Routledge, 1995.
- Sawday, Jonathan. "Self and Selfhood in the Seventeenth Century." In Roy Porter (ed.) *Rewriting the Self: Histories from the Renaissance to the Present*. London and New York: Routledge, 1997, pp. 29-48.
- Scamozzi, Vincenzo. *Discorsi sopra l'antichità di Roma di Vincenzo Scamozzi architetto vincentino*. Venice: Francesco Ziletti, 1582.
- Scarry, Elaine. *The Body in Pain: The Making and Unmaking of the World*. New York; Oxford: Oxford University Press, 1985.
- Scarry, Elaine. *Resisting Representation*. New York; Oxford: Oxford University Press, 1994.
- Schiller, Friedrich. *On the Aesthetic Education of Man, In a Series of Letters*. Translated by Reginald Snell. New York: Fredrick Ungar, 1965.
- Schilling, Chris. *The Body and Social Theory*. London: Sage Publications, 1993.

- Schofield, Roger, David Reher, and Alain Bideau (eds.) *The Decline of Mortality in Europe*. Oxford: Clarendon Press, 1991.
- Schopenhauer, Arthur. *The World as Will and Representation*. Translated by E.F.J. Payne. New York: Dover, 1966.
- Schultz, Bernard. *Art and Anatomy in Renaissance Italy*. Ann Arbor: UMI Research Press, 1985.
- Schumacher, Thomas L. "‘The Outside is the Result of an Inside’: Some Sources of One of Modernism’s Most Persistent Doctrines," *Journal of Architectural Education*, 56/1 (September 2002): pp. 23-33.
- Scott, Geoffrey. *The Architecture of Humanism*. London: Methuen, 1961 (1914).
- Scruton, Roger. *The Aesthetics of Architecture*. Princeton, New Jersey: Princeton University Press, 1979.
- Selzer, Richard. *Mortal Lessons: Notes on the Art of Surgery*. London: Chatto & Windus, 1981.
- Sennett, Richard. *Flesh and Stone: The Body and the City in Western Civilization*. London: Faber and Faber. 1994.
- Sennett, Richard. *The Conscience of the Eye: The Design and Social Life of Cities*. London: Faber and Faber, 1991.
- Serlio, Sebastiano. *Tutte l’opere d’architettura*, (1537-51) Venice 1619.
- Shils, Edward. *Tradition*. London: Faber, 1981.
- Singley, Paulette. "Devouring Architecture: Ruskin’s Insatiable Grotesque." *Assemblage* 32, April 1997, pp. 110-125.
- Slater, Keith, *Human Comfort*, Springfield, Ill.: Charles C. Thomas, 1985.
- Snodgrass, Adrian. "Is Designing Hermeneutical?" *Architectural Theory Review* 1/1, April 1996, pp. 30-47.
- Snodgrass, Adrian, and Richard Coyne. "Can Design Assessment be Objective?" *Architectural Theory Review*, 2/1, April 1997, pp. 65-97.
- Snodgrass, Adrian, and Richard Coyne. "Hermeneutics and the Application of Design Rules." Working Paper. Faculty of Architecture, University of Sydney, 1991.
- Snodgrass, Adrian, and Richard Coyne. "Hermeneutics, Objectivity and Design Evaluation." Working Paper. Faculty of Architecture, University of Sydney, 1991.



- Snodgrass, Adrian, and Richard Coyne. "Models, Metaphors and the Hermeneutics of Designing." Working Paper. Faculty of Architecture, University of Sydney, 1991.
- de Solà-Morales, Ignasi. "Absent Bodies." In Davidson, Cynthia (ed). *Anybody*. New York; Cambridge, Mass.: Anyone Corp.; MIT Press, 1997.
- Sommer, Robert. *Personal Space: the Behavioural Basis of Design*. Englewood Cliffs, N.J.: Prentice-Hall, 1969.
- Sontag, Susan. *Illness as a Metaphor*. New York: Farrar, Straus and Giroux, 1978.
- Spariosu, Mihai I. *Dionysus Reborn: Play and the Aesthetic Dimension in Modern Philosophical and Scientific Discourse*. Ithaca and London: Cornell University Press, 1989.
- St. John Wilson, Colin. *The Other Tradition of Modern Architecture: The Uncompleted Project*. London: Academy Editions, 1995.
- Stafford, Barbara Maria. *Visual Analogy: Consciousness as the Art of Connecting*. Cambridge, Mass.: MIT Press, 1999.
- Stafford, Barbara Maria. *Artful Science: Enlightenment, Entertainment, and the Eclipse of Visual Education*. Cambridge, Mass.: MIT Press, 1994.
- Stafford, Barbara Maria. *Body Criticism: Imaging the Unseen in Enlightenment Art and Medicine*. Cambridge, Mass.: MIT Press, 1991.
- Star, Susan Leigh. "Power, Technology and the Phenomenology of Conventions: On Being Allergic to Onions." In John Law (ed.) *A Sociology of Monsters: essays on Power, Technology, and Domination*. London; New York: Routledge, 1991, pp. 26-56.
- Steadman, Philip. *The Evolution Of Designs: Biological Analogy in Architecture and the Applied Arts*. Cambridge; New York: Cambridge University Press, 1979.
- Stoddart, D. Michael. *The Scented Ape: The Biology and Culture of Human Odour*. Cambridge: Cambridge University Press. 1990.
- Summers, David. *The Judgment of Sense: Renaissance Naturalism and the Rise of Aesthetics*. Cambridge; New York: Cambridge University Press, 1987.
- Synnott, Anthony. *The Body Social: Symbolism, Self and Society*. London; New York: Routledge, 1993.

- Tafuri, Manfredo. *Architecture and Utopia: Design and Capitalist Development*. Translated by Barbara Luigia La Penta. Cambridge, Mass.: MIT Press, 1976.
- Tarnas, Richard. *The Passion of the Western Mind: Understanding the Ideas that Have Shaped Our World View*. New York: Ballantine Books, 1991.
- Tavernor, Robert, and George Dodds (eds). *Body and Building*. Cambridge, Mass.: MIT Press, 2002.
- Tavernor, Robert. *On Alberti and the Art of Building*. New Haven and London: Yale University Press, 1998.
- Taylor, Charles. *Sources of the Self: The Making of the Modern Identity*. Cambridge: Cambridge University Press, 1989.
- Taylor, Charles. *The Ethics of Authenticity*. Cambridge, Mass: Harvard University Press, 1991.
- Taylor, Mark C. *Disfiguring: Art, Architecture, Religion*. Chicago: University of Chicago Press, 1992.
- Temkin, Owsei. *Galenism: Rise and Decline of a Medical Philosophy*. Ithaca and London: Cornell University Press, 1973.
- Teysot, Georges, "Water and Gas on all Floors: Notes on the extraneousness of the home," *Lotus International*, 44 (1985): pp. 82-93.
- Thompson, D'Arcy Wentworth. *On Growth and Form*. Abridged edition. Edited by John Tyler Bonner. Cambridge: Cambridge University Press, 1961.
- Tierney, Thomas F. *The Value of Convenience: A Genealogy of Technical Culture*. Albany: State University of New York Press. 1993.
- de Tocqueville, Alexis. *Democracy in America*, New York: Knopf, 1953 (1840).
- Tschumi, Bernard. *Manhattan Transcripts*. Second edition. London: Academy Editions, 1994.
- Tschumi, Bernard. *Bernard Tschumi: Architectural Manifestoes*, London: Architectural Association, 1979.
- Tufte, Edward R. *Visual Explanations: Images and Quantities, Evidence and Narrative*. Cheshire, Conn.: Graphics Press, 1997.
- Tufte, Edward R. *Envisioning Information*. Cheshire, Conn.: Graphics Press, 1990.

- Tufte, Edward R. *The Visual Display of Quantitative Information*. Cheshire, Conn.: Graphics Press, 1983.
- Turner Bryan S. *The Body and Society: Explorations in Social Theory*. 2nd ed. London : Sage Publications, 1996.
- Turner, Bryan S. *Medical Power and Social Knowledge*. London: Sage, 1987.
- Turner, Stephen. *The Social Theory of Practices: Tradition, Tacit Knowledge and Presuppositions*. Cambridge: Polity Press, 1994.
- Valverde, Mariana. *The Age of Light, Soap, and Water: Moral Reform in English Canada, 1885-1925*. Toronto: McClelland & Stewart, 1991.
- van de Ven, Cornelius. *Space in Architecture: The evolution of a new idea in the theory and history of the modern movements*. Third edition. Assen: Van Gorcum, 1987.
- Venturi, Robert. *Complexity and Contradiction in Architecture*. New York: Museum of Modern Art, 1966.
- Vesely, Dalibor. "Architecture and the Ambiguity of Fragment." In Robin Middleton (ed) *The Idea of the City*, London: Architectural Association, 1996, pp. 108-121.
- Vesely, Dalibor. "On the Relevance of Phenomenology." *Pratt Journal of Architecture* 2, 1988, pp. 59-62.
- Vesely, Dalibor. "Architecture and the Poetics of Representation." *Daidalos* 25, September 15, 1987, pp. 22-36.
- Vesely, Dalibor. "Architecture and the Conflict of Representation." *AA Files* 8, Spring 1985, pp. 21-39.
- Vicinus, Martha. *Independent Women: Work and Community for Single Women: 1850-1920*. London: Virago, 1985.
- Vidler, Anthony. *Warped Space: Art, Architecture, and Anxiety in Modern Culture*. Cambridge, Mass.: MIT Press, 2000.
- Vidler, Anthony. *The Architectural Uncanny: Essays in the Modern Unhomely*. Cambridge, Mass.: MIT Press, 1992.
- Vidler, Anthony. *Claude-Nicolas Ledoux: Architecture and Social Reform at the end of the Ancien Regime*. Cambridge, Mass.: MIT Press, 1990.
- Vidler, Anthony. *The Writing of the Walls: Architectural Theory in the Late Enlightenment*. Princeton, N.J: Princeton Architectural Press, 1987.

- Vidler, Anthony. "The Building in Pain: The Body and Architecture in Post-Modern Culture." *AA Files* 19 (Spring 1990): pp.3-10.
- Vidler, Anthony. "The Third Typology." *Oppositions* 7, 1976, pp. 1-4.
- Vidler, Anthony. "The Production of Types." *Oppositions* 8, 1977, p. 93.
- Vidler, Anthony. "The Idea of Type: The Transformation of the Academic Ideal, 1750-1830." *Oppositions* 8, 1977, pp. 94-115.
- Vigarello, Georges. *Concepts of Cleanliness: Changing Attitudes in France since the Middle Ages*. Translated by Jean Birrell. Cambridge: Cambridge University Press. 1988.
- Villari, Sergio. *J.N.L. Durand (1760-1834): Art and Science of Architecture*. New York: Rizzoli, 1990.
- Vinikas, Vincent. *Soft Soap, Hard Sell: American Hygiene in an Age of Advertisement*. Ames, Iowa: Iowa State University Press, 1992.
- Viollet-le-Duc, Eugène-Emanuel. *Discourses on Architecture*. Grove Press, New York, 1959 (1889).
- Vischer, Robert. *On the Optical Sense of Form: a Contribution to Aesthetics*. In Harry Francis Mallgrave and Eleftherios Ikonomou (eds.) *Empathy, Form, and Space: Problems in German Aesthetics 1873-1893*, Santa Monica: The Getty Centre for the History of Art and the Humanities, 1994, pp. 89-123.
- Vitruvius Pollio. *The Ten Books on Architecture*, Translated by Morris Hickey Morgan 1914. New York: Dover Publications, 1960.
- Vitruvius Pollio. *De Architectura*. Translated by F. Granger. London: Loeb Library, 1931.
- Walzer, Michael. *Spheres of Justice: a Defense of Pluralism and Equality*. New York; Oxford: Basic Books; Martin Robertson, 1983.
- Warnock, Mary. *Imagination*. London: Faber & Faber, 1976.
- Watkin, David. *Morality and Architecture: The Development of a theme in Architectural History and Theory from the Gothic Revival to the Modern Movement*. Oxford: Clarendon Press, 1977.
- Weber, Max. *The Protestant Ethic and the Spirit of Capitalism*. Translated by Talcott Parsons. Second edition. London: Allen & Unwin, 1976.
- Welton, Donn, (ed). *The Body: Classic and Contemporary Readings*. Oxford: Blackwell, 1999.

- Welton, Donn, (ed). *Body and Flesh: A Philosophical Reader*. Malden, Mass.: Blackwell Publishers, 1998.
- Weschler, Judith (ed). *On Aesthetics in Science*. Cambridge, Mass.: MIT Press, 1978.
- Wigley, Mark. *White Walls, Designer Dresses: The Fashioning of Modern Architecture*. Cambridge, Mass.: MIT Press. 1995.
- Wigley, Mark. "Recycling Recycling." In Amerigo Marras (ed.) *ECO-TEC: Architecture of the in-between*. New York: Princeton Architectural Press, 1999, pp. 38-49.
- Williams, Bernard. *Ethics and the Limits of Philosophy*. London: Fontana. 1993.
- Williams Simon J., and Gillian Bendelow. *The Lived Body: Sociological Themes, Embodied Issues*. London; New York: Routledge, 1998.
- Wilton-Ely, John. *Piranesi as Architect and Designer*. New York; New Haven: Pierpont Morgan Library; Yale University Press, 1993.
- Winter, Alison. *Mesmerized: Powers of Mind in Victorian Britain*. Chicago: University of Chicago Press, 1998.
- Wittkower, Rudolf. *Architectural Principles in the Age of Humanism*. Fourth edition. London; New York: Academy Editions: St. Martin's Press, 1988.
- Wölfflin, Heinrich. *Prolegomena to a Psychology of Architecture*. In Harry Francis Mallgrave and Eleftherios Ikonomou (eds.) *Empathy, Form, and Space: Problems in German Aesthetics 1873-1893*. Santa Monica: The Getty Centre for the History of Art and the Humanities, 1994, pp. 149-190.
- Wollheim, Richard (ed). *The Image in Form: selected writings of Adrian Stokes*. Harmondsworth: Penguin, 1972.
- Wollheim, Richard. *Art and its Objects*. Harmondsworth: Penguin, 1968.
- Woods, Robert. "Public Health and Public Hygiene: The Urban Environment in the Late Nineteenth and Early Twentieth Centuries." in Schofield, Roger, David Reher, and Alain Bideau (eds.) *The Decline of Mortality in Europe*. Oxford: Clarendon Press, 1991.
- Worringer, Wilhelm. *Abstraction and Empathy*. New York, International Universities Press, 1953 (1908).
- Wright, Gwendolyn. *Moralism and the Model Home: Domestic Architecture and Cultural Conflict in Chicago, 1873-1913*. Chicago and London: University of Chicago Press. 1980.

Yates, Frances. *The Art of Memory*. London: Routledge and Kegan Paul, 1966.

Zaner, Richard. *The Problem of Embodiment: Some Contributions to a Phenomenology of the Body*. The Hague: M. Nijhoff, 1964.