George Hersey

*The Monumental Impulse:
Architecture's Biological Roots*

(Cambridge, Massachusetts: MIT Press, 1999).

Reviewed by Michael Ostwald

In 1988 George Hersey published *The Lost Meaning of Classical Architecture*, which argued that the classical orders (Doric, Ionic and Corinthian) are not only metaphorically anthropomorphic but that they are also symbols of ancient sacrificial rites.¹ While Joseph Rykwert's 1996 book *The Dancing Column*² is now viewed as the ultimate reference work on the topic of metaphorical and symbolic connections between the orders and bodies, Hersey's philological and symbolic reading of the topic is still widely regarded as an original and provocative piece of research. In particular, Hersey's close analysis of the tropic function of ornamental detail on column capitals is an excellent example of how organic or biological shapes can be translated into architecture through both formal and symbolic operations. In the same year that Rykwert published his seminal analysis of this issue, Hersey published *The Evolution of Allure*—a curious and idiosyncratic musing on the topic of sexuality, bodily form and human proportion covering everything from Renaissance art to comic books.³ For admirers of his earlier research this next work was slightly disappointing as it failed to further the connection Hersey previously proposed between architecture and biology. However, in 1999 Hersey completed *The Monumental Impulse* and in 2001 he published *Architecture and Geometry in the Age of the Baroque*, both of which seem to return to directions set in his earlier works, although now with a more geometric and mathematical basis.⁴ This shift is evident in the introduction to his most recent work wherein Hersey openly credits the writings of Robin Evans, Lionel March, Alberto Pérez-Gómez and Louise Pelletier with shaping his writings on mathematics and geometry. Despite this, it would be fair to say that his approach to both mathematics and geometry remains highly idiosyncratic.⁵ This is particularly the case in *The Monumental Impulse*.

In the opening paragraph of *The Monumental Impulse* Hersey recalls Nikolaus Pevsner's famous aphorism that "A bicycle shed is a building; Lincoln Cathedral a piece of architecture." Hersey disagrees with Pevsner, proposing instead that not only is a bicycle shed architecture, but so too are "a beehive, a bird's nest, and even certain molecules, cells, and body parts."⁶ Once almost everything in the universe has been redefined as potentially architectural, it is possible for Hersey to argue that a common feature of both synthetic and natural architecture is its desire for monumentality. Indeed, for Hersey, humanity may have developed this impulse from a close observation of animal species, natural geometry and human biology. Thus, "the first hexagons humans ever saw could well have been in honeycombs; the first domes, birds' eggs; the first

skyscrapers, termitaries (high rise mound dwellings built by termites); the first tents, those of African weaver ants; the first gridded walls or suspension structures, those of birds or spiders.”⁷ All of these are common visual (or formal) observations which imply that human architecture is mimetic of natural architecture. Given Hersey’s poststructuralist penchant for widely inclusive definitions, it is difficult to fault this simple assertion, even though it is almost impossible to prove. This type of argument, which many will find lacking in critical rigour, underpins the remainder of the work. Despite this, if we accept the obvious inconsistencies in such an approach which oversimplifies and over-generalises concepts, the book provides a range of fascinating insights and proposes some new methods of analysis and description which are genuinely original in architecture.

Following his original description of visual, formal, and metaphorical connections between human architecture and natural architecture, Hersey offers further examples of the proposed connection culminating in an account of abstract conceptual structures. Here Hersey notes that arborescent structures—that is abstract, tree-like, branching diagrams—are used to explain the evolution of architectural styles in an early edition of Bannister Fletcher. Similar hierarchical abstract structures are also used in science, biology, and many other fields as a way of visualising information. Such epistemological structures in philosophy and spatial systems bear little actual connection to nature or biology.⁸ What they do signal for the reader is that Hersey is willing to accept a wide range of possible linkages between architecture and biology, including visual, mimetic, tectonic, symbolic, allegorical, tropic, philological, metaphorical, analogical, epistemological, and hermeneutic. Given his inclusive definition of architecture and this wide selection of possible strategies for linkage, it is no wonder that he unearths fascinating and erudite, if sometimes bizarre, links to biology.

Some of the most interesting connections Hersey draws between architecture and biology are geometric and formal. For example, a ring of 60 carbon atoms forms a truncated icosahedral cage which is visually reminiscent of a Buckminster Fuller dome albeit at a vastly different scale. Similarly the double spiral, or helical, pattern of DNA is compared with a double spiral staircase in an eighteenth-century architectural manuscript and then to the spiral columns of Bernini’s baldacchino in St. Peter’s, which possesses a loose similarity to the form of Keratin protean molecule, which in turn connects to Vladimir Tatlin’s famous design for *Monument to the Third International*, and so on. This style of argument by exposition is rarely convincing and Hersey seems to realise as much. For example, in drawing a connection between an abstracted illustration of the cross section of a typical living cell and Pieter Bruegel the Elder’s painting *The Tower of Babel*, Hersey admits that the connection is becoming tenuous and that perhaps the similarity is only because the scientific illustration may have been unconsciously influenced by Bruegel’s famous painting. However, Hersey denies that the exact connection is significant because, “what binds the images together” are that the cells in the artists’ hands are similar.⁹

Probably the most original and thought provoking section in the book outlines an extreme simplification of the botanical concept of phyllotaxis, which refers to the geometry and spatial relationship of flowers, leaves and stems. For Hersey, phyllotaxis can be used to describe complex naturalistic decoration on historic column capitals in John Ruskin's watercolour paintings and in Mycenaean pottery. This is an intriguing idea which, while largely undeveloped, has great potential for use in describing irregular or organic forms in architecture. Hersey uses phyllotaxis as a means of approaching spiral geometry, the Golden mean and the Fibonacci sequence. Surprisingly, Hersey outlines some of the main weaknesses with seeking Fibonacci sequences in nature. Specifically he alludes to the fact that for small sets below ten, "40% of all numbers in this group are Fibonacci"¹⁰ and above ten the gap between Fibonacci numbers is vastly increased—a problem that plagued Le Corbusier's attempts to define the Modulor and eventually resulted in the syncopated red and blue sequences.¹¹ Having outlined this difficulty, Hersey then promptly records a whole range of Fibonacci examples drawn from nature, some of which fall within this problematic zone. Hersey follows this with a return to some tantalising and rewarding morphological arguments about spirals and topological mapping to describe sea shells and Baroque architecture. Along with the introduction to phyllotaxis, the discussion of mapping spirals is potentially of interest to those wishing to criticise organic architecture and describe complex bio-organic forms. In contrast, the section that follows charts the connection between human sexual organs and architecture. While there is a long tradition of both primitive and modern architecture that is sexually inspired, there is a great danger that unless such an account is suitably critical, then every tall building is immediately rendered phallic, all caverns become *yonis* and all truncated domes *linga*.¹² Hersey cites the noted eighteenth-century theorist Richard Payne Knight's infamous view that all architecture is essentially sexual.¹³ While undoubtedly relevant to the wider topic covered in *The Monumental Impulse* the sexual connection seems strangely attenuated in Hersey's thesis.

Hersey returns to mathematics and geometry with his closing analysis of fractal geometry both as a limited form of asexual reproduction and as an analogical connection to cladistics. The supposed relationship between architecture and fractal geometry has been debated over the last twenty years. Mandelbrot himself started the debate with his unfortunate contention in the late 1970s that Beaux Arts architecture is fractal. Alberto Pérez-Gómez is one of many scholars to reject this viewpoint as over-simplistic but the strong visual correlation between the plan forms of Hindu temples and Baroque churches make them fertile grounds for those seeking to argue that historic architecture has intuitively followed various natural rules. Hersey's reconstruction of Bramante's 1506 project for St Peter's provides a case in point for the manner in which similar patterns of domes appear in plan at multiple scales. But rather than drawing a simplistic connection back to iteration Hersey uses this as a means to examine the abstract ordering device called a *clade*. A clade (from the Greek κλάδος) is a group of some sort and cladistic systems are reminiscent of arborescent systems, in that they are usually tree-like, hierarchical, systems for ordering data. More specifically, in the science of evolution,

cladistic trees show family relationships as a hierarchy of increasingly complex iterations. Surprisingly Hersey sees architectural heritability in the cladistic diagram and its echoes in fractal geometry. Here Hersey avoids the more obvious and problematic option of drawing too many direct connections between nature and architecture by way of fractal geometry in favour of equating iteration and evolution as processes which render architecture biological.

Hersey's *The Monumental Impulse* will leave some readers excited by the myriad of possibilities he generates and others completely unconvinced. Poststructuralist philosophy would praise the positive "weakness" of his argument precisely because it denies easy solutions, simplistic definitions, and limiting conclusions. In this sense, Hersey's argument is open ended and its possibilities of extension are limitless. Conversely, those seeking a more sustained argument in this area of research may need to look further afield.

Notes

1. George Hersey, *The Lost Meaning of Classical Architecture* (MIT Press: Cambridge Massachusetts, 1988).
2. Joseph Rykwert, *The Dancing Column: On Order in Architecture* (MIT Press: Cambridge Massachusetts, 1996).
3. George Hersey, *The Evolution of Allure: Sexual Selection from the Medici Venus to the Incredible Hulk* (MIT Press: Cambridge Massachusetts, 1996).
4. George Hersey, *Architecture and Geometry in the Age of the Baroque* (Chicago: The University of Chicago Press, 2000).
5. Robin Evans, *The Projective Cast: Architecture and its Three Geometries* (MIT Press: Cambridge Massachusetts, 1995); Lionel J. March, *Architectonics of Humanism: Essays on Number in Architecture* (London: Academy Editions, 1998); Alberto Pérez-Gómez and Louise Pelletier, *Architectural Representation and the Perspective Hinge* (Cambridge, MIT Press: Cambridge Massachusetts, 1997).
6. George Hersey, *The Monumental Impulse: Architecture's Biological Roots* (MIT Press: Cambridge Massachusetts, 1999, xii).
7. *Ibid.*, xiii.
8. See: Gilles Deleuze and Felix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia* (University of Minnesota Press: Minneapolis, 1987); Michael J. Ostwald, "Structuring Virtual Urban Space: Arborescent Schemas," ppl. 451-482 in Peter Droege, ed., *Intelligent Environments: Spatial Aspect of the Information Revolution* (Elsevier: North Holland, 1997).
9. Hersey, *The Monumental Impulse*, 21.
10. *Ibid.*, 36.
11. Le Corbusier, *The Modulor: A Harmonious Measure to the Human Scale Universally Applicable to Architecture and Mechanics* (Faber and Faber: London, 1954).

12. A similar analysis is contained in: Aaron Betsky, *Building Sex: Men, Women, Architecture, and the Construction of Sexuality* (New York: William Morrow and Company, 1995).
13. See: Beatriz Colomina ed. *Sexuality and Space* (New York: Princeton Architectural Press, 1992).

About the Reviewer

Michael J. Ostwald lectures in architectural history and theory at the University of Newcastle in Australia. He has written extensively on the relationship between architecture and geometry. He is the book review editor of the *Nexus Network Journal*.