Decentering Anthropocentrism

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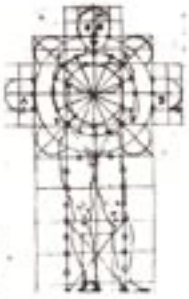
"L'homme est-il mort?...
Où 'ça parle', l'homme n'existe plus."
Michel Foucault, 1966[1]



Drawings by Francesco di Giorgio Martini (Florence, Bibliotheca Nazionale); plan of a church compared to the proportions of the human body

The expression *paradigm shift*, as introduced by Thomas S. Kuhn in his study on the structure of scientific revolutions, is not to be limited to the development of science but might with similar significance be applied to the realm of art production.[2] In architecture, the concept of paradigm shifts identifies transitions from an established system of beliefs to a fundamentally different structure of understanding. Such restructuring as applied to the historical development of architecture implies changes of accepted values, presuppositions, and ideological frameworks suggesting new attitudes for conceiving architecture.

This article traces the changes of paradigm in architecture concerning the analogy between the human body and the architectural artifact in view of the emergence of modern science. To do so entails a method that stresses the discontinuities in the role of the human body in specific formal, structural, and process-based analogies as employed in architecture discourse. Such a type of genealogy or archaeology renders ineffectual any traditional forms of historical treatment of the subject matter that would preclude disjunctions by theorizing it according to successive phases of an overall causal system.

Following from Kuhn's understanding that paradigms tend to crystallize around key validity claims that become the premises for thought in a specfic discipline, the legitimizing force of the centered, unitary, and self-directing human subject is ultimately refuted, thus casting doubt on anthropocentrism as a valid paradigm for current architecture discourse.

Formal Analogy

In *Architectural Principles in the Age of Humanism*, Rudolf Wittkower describes the accepted belief of the Renaissance period that since "man is the image of God and the proportions of his body are produced by divine will, so the proportions in architecture have to embrace and express the cosmic order."[3] A building was to mirror the proportions of the human body as given by nature. This was a demand which became universally accepted on Vitruvian authority. Vitruvius considered the human body as the model for symmetrical harmony which was

understood to represent the proper relation between the parts of a building integrated into a whole.[4]

As was expressed in the transfer of human proportions to architecture, artificial creation followed the order of nature. Francesco di Giorgio Martini, as Wittkower asserted, showed the correspondence between architecture and nature by developing anthropomorphically derived modular grids in which the proportions of the human body were used to determine plan, facade, and specific details of buildings.[5] By inscribing the human figure in a church plan and façade elevation as well as by superimposing the head of a man to drawings of column capitals, the connection between nature and architecture was established. The making of artifacts, the design of buildings, was derived from an order which was analogous to the order of natural creation.

Analogia in Greek means proportion and is translated in Latin as *proportio*. Analogy, in its broadest sense, was the mode of reasoning that depended on the recognition of a relationship of similarities and was applied to the art of building in the use of proportional systems to identify the comparison to nature. Architectural form was essentially representational, suggesting an analogy between natural and artificial production as founded on visual resemblances.

The analogy between nature and architecture was explicitly stated in Leon Battista Alberti's work. In his treatise on architecture, the analogy to the human body was made, not exclusively in reference to traditional understandings, but in view of a possible systematization of buildings in terms of functional criteria. Alberti repeatedly mentions that a building is organized liked a body, so that in the formation of architecture, this organization needed to cohere to the principles of nature. He writes: "That the Beauty of all Edifices arises principally from three Things, namely, the Number, the Figure and Collocation of the several Members."[6] Such a view supported the understanding of a building as a system, implying a systematic approach to architecture.

For Alberti the concept of entity and part played a significant role in conceiving architecture. He divided the building in various systems as Leonardo da Vinci and Vesalius would later do in their anatomical drawings and dissections of the human body. Alberti's systematization,

Leonardo da Vinci, drawings from his sketchbook c. 1510; sections through human skull

the division of a building into elements, which according to a specific system of relationships could be arranged to form an entity, pertained in its basis to an atomistic conception of the world.

Alberti's rational model indicated a shift of emphasis from a philosophic to a scientific atomic theory. Atomism can be defined as the theory of nature being composed of relatively simple and immutable minute particles. While atomic theory traditionally supported the idea of order in nature including the aspect of a certain universal permanence, the new atomic theory within science, considered as an epistemological shift, changed the perception of nature insofar as it became a mechanical order. The laws of nature were not only the signs of the rationality of nature but also the means for its manipulation. The significance of scientific inquiry lay in the conviction that nature formed a unity which could be analyzed quantitatively as well as qualitatively. The relation between the forms of particles and the form of a compound could be determined in its structure allowing science to conceive of artificial processes through which nature could be transformed. The scientific atomic model, understood as an explanatory framework for natural phenomena, was essentially transferred to those disciplines which engaged in the physical making of the human environment.

Structural Analogy

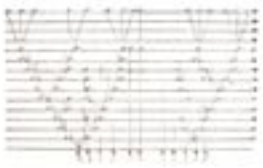
While geometry and number traditionally offered the metaphysical justification for a transfer of proportional systems from the human body to architectural form, the development of science in medicine and biology necessitated a redefinition of the established formal analogy. The sketch books of Leonardo da Vinci as well as Andreas Vesalius' treatise on anatomy in the early sixteenth century disclosed a new understanding of the human body. The study of man was no longer exclusively founded on formal characteristics as derived from the analysis of external features but instead determined by an analysis of internal structures.

Leonardo da Vinci's work was guided by the idea "to render everything visible."[7] In his anatomical drawings, as well as in the design of machines and structures, da Vinci contributed an analytical method for the representation of reality.[8] Since observation was followed by experiment, empiricism became experimentalism making way for active investigation. The descriptive method of observation used in his anatomical drawings, in which the different parts of the body were shown as separate functional entities, allowed him to systematically structure his technical constructions according to the purpose of their performance. Da Vinci's systematic approach proposed a unifying body of knowledge with rules and principles for the art of building. He describes the division of structures into parts, their systems of relation, and methods of assembly. Such attempts toward a systematization was essentially modern in its foundation, disclosing an affinity to the structure of scientific thought.

Andreas Vesalius' treatise, *De humani corporis fabrica*, was based on the conviction that the condition of a particular field of knowledge required preparatory work of precise observation and description of factual material.[9] Such an approach had to be rationally structured following systematic procedures of analysis. His publications on anatomy presented, through illustrative techniques, the results of scientific observation in comprehensible graphic images. The human body was depicted as a series of functional systems identifying its various parts with numbers and letters, thus exhibiting the analytical intention of Vesalius' method. His contribution to science was in the field of communicable techniques and the systematic organization of data. Ultimately, Da Vinci's and Vesalius's understanding of the human body through dissections proposed new methods of judging and seeking truth as the base for the formation of knowledge.

Theoretical work on architecture during succeeding centuries disclosed an interest in scientific thought allowing a transfer of principles from other disciplines, including anatomy and medicine, to its own discourse. The writings of Claude Perrault offered specific contributions to the understanding of architecture based on the structure of scientific thinking.[10] He had originally been trained as a physician and was appointed as a comparative anatomist to the *Académie des Sciences*.[11] His approach to architecture formed a departure from traditional architectural theory.[12] He questioned the premises of

Andreas Vesalius, anatomical drawing of muscle system; from De humani corporis fabrica, 1543.



Charles Darwin, diagram from The Origin of Species, Chapter "Natural Selection; or the Survival of the Fittest," 1858. The diagram illustrates "the probable effects of the action of natural selection through divergence of character and extinction, on the descendants of a common ancestor."

the "classical" doctrine by abandoning the idea that the forms and rules of architecture were something *a priori* given. The analogy to the human body as founded on proportional systems was therefore questioned. Architecture viewed as an evolving art paralleled the idea of scientific progress. Modern science was not regarded as a hermetic field but instead as being in ongoing development allowing the continuous development of knowledge and thus, of architecture.

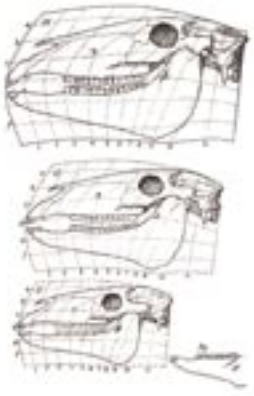
This modern concept of knowledge challanged the traditional view of the world. While the traditional view based its premises on universal order founded on the belief in transcendental causes, modern thought proceeded from a perfectly intelligible world, determined by the clarity of rational thought. In his writings Perrault questioned the pregiven value of a conceptual system which traditional philosophy postulated. Rather than limiting knowledge to one single and exclusive model, Perrault accepted the relativity of various positions; he thus viewed critically the importance given to *true causes*. Traditional metaphysical structure was overturned by a modern one that gave priority to the truth inherent within the conditions of reality.

Process-Based Analogy

An investigation of the anatomical analogy within architecture necessitates a more specific examination of the role of processes inherent to natural and artificial creation. Traditionally, nature and man were considered a product of Divine Creation, for God was the Maker of the world. The making of every plant and every animal was, to a certain degree, a unique event and was seen in analogy to the creation of objects by man. The assertion made by the major exponents of early modern science that there was no substantial difference between the products of art and those of nature maintained this belief in Divine Creation.[13]

The foundation of a new paradigm was established by Charles Darwin and other scientists in the mid-nineteenth century with the theory of evolution. With the publication of Darwin's works *The Origin of Species* and *The Descent of Man* a new understanding of natural processes was established.[14] Living organisms were considered to have developed into specific species through a continuous process of biological variation. This proposition, while advocating the variability of organic beings, considered natural selection and the survival of the best-adapted organism as the determining force in the creation of various species. In opposition to the traditional view of a 'designed' world, Darwin showed that it was possible to explain what appeared to be special creation by the chance variation of characteristics, followed by natural selection. Significant to the theory is the notion that type forms are established through the gradual modification and variation of pre-existing forms. Natural creation was considered a process rather than an unique act.

D'Arcy Thompson derived the development of natural bodies from scientific laws. In his study *On Growth and Form* emphasis was given to the parameters that



D'Arcy Thompson, illustration from On Growth and Form, 1917, diagrams of morphological transformation.

Illustrations from L'Art décoratif d'aujourd' hui, Le Corbusier, 1925. Catalogue of common objects representing type-forms for specific type-needs.

determined form focusing on the direct adaptation of living bodies to the physical forces of their surroundings. Furthermore, from the description of man-made objects understandings could be gained of the forces underlying the formation of natural bodies. Mathematics and physics, while of necessity for determining the configuration of iron girders, structural frames, and bridges, could similarly be applied to the study of organic forms such as the development of cell membranes or bone structures. An equivalence was herein suggested between biological and artificial creation as founded on physical laws.

This search for the foundations of biological processes was paralleled by similar developments within the domain of artificial production. Priority was gradually given to the processes inherent to the making of artifacts. The importance assigned to manufacturing and fabrication mirrored the significance given to processes within scientific inquiry. In architecture, the concept of process was similarly valued; the increasing reference to the exigencies of building construction was an indication that considerations of production were understood as constituent factors of architectural design. Rather than conceiving of architecture exclusively in terms of formal concerns, a new approach to the architectural object emphasized the processes of its making.

The concept of process found its manifestation in the architecture of the early twentieth century. The analogy between the evolution of the human body and architectural production suggested the idea of the building as an organic entity. In *Vers une architecture*, Le Corbusier described the creation of standards in reference to a biological model, the idea of the survival of the fittest organism: "When once a standard is established, competition comes at once violently into play. It is a fight; in order to win you must do better than your rival in every minute point, ..." After stating that "all men have the same organism, the same functions," he concludes: "Standardization is imposed by the law of selection and is an economic and social necessity."[15]

Implying an essential correspondence between artificial and natural processes, this idea was taken to its logical conclusion in the work of Hannes Meyer. His assertion that "building is a biological process" and "not an aesthetic process" suggests an explicit reference to Darwinian theory as applied to architecture. While refuting the concept of design, Meyer emphasizes the directness of operational criteria as founded on biological efficiency. Architecture, he writes, is "a product of the formula: (function times economy)."[16] In addressing the processes that lead to the creation of objects, Meyer's position specifically emphasized the role of reproduction within industrialized production. Here a tenet of Modern Architecture was defined: objects, artifacts, and buildings were seen in their inherent structure as pertaining to the processes that contributed to their creation - a concept that fundamentally altered the architectural paradigm of the twentieth century.

Within this context, the trace of a different relationship between the natural and the artificial can be discer-

Hannes Meyer and Hans Wittwer, League of Nations Competition, Geneva, Switzerland, 1927; plan of main floor with diagrams for acoustics and circulation

ned. The reference to nature is not considered at a metaphorical level, nor within analogical comparisons. Science, in the sense of the German word *Wissenschaft*, referring to the system of man's knowledge, offers within the epistemological structure of the twentieth century the possibility for considering an equivalence between natural and artificial production. Nature is as much 'naturally' given as it is considered an artificial, intellectual construct. Mechanisms and organisms are not perceived as counterparts, but as different models for addressing understandings of the world. Traditional science was founded on a materialistic philosophy of nature, whereas its modern equivalent introduces the concept of nature as a model pertaining to the interaction of organic entities.[17] This concept, as applied to the domain of art knowledge and production, suggests a fundamental change of attitude as well as of approach to the making of artifacts. Architecture is considered in accordance with the natural and the artificial as equivalent industries of production. As asserted by Gilles Deleuze and Félix Guattari, "Industry is then no longer considered from the extrinsic point of view of utility but rather from the point of view of its fundamental identity with nature as production of man and by man."[18]

Decentering Man

Changes of paradigm, in general, paradoxically point out a certain *arbitrariness* in the production of knowledge, whether in science or architecture. Insofar as knowledge production has always operated according to paradigms based on validity claims of a specific time, whether it be the Renaissance, The Enlightenment, or the succeeding centuries, discursive propositions must be treated as historically contingent - propositions subject to idiosyncratic cultural determinations that regulate their respective signification of man. Such an understanding casts doubt on the autonomy and inviolate status of governing discourses. Man is rendered as a *cultural construct* determined by fixed conceptions of the world. Such an understanding suggests not only the fallibility of paradigms in general, but of the very concepts of man and the world on which they are based.

In this respect, any attempts to generate a unified and linear historic unfolding of the discourses of man in science or architecture, in terms of providing a basis for truth, must be rejected. Such a history is always the history of reason, a construction, a narrative written from the point of view of gradual discoveries and progressive clarifications. An alternative treatment of the subject matter must reject the typical narratives of history that adhere to a teleology which aligns disparate discourse-practices into a coherent and truthful body of knowledge. Such a treatment recounts ruptures and interpretations that make certain statements valid and rule out others. Thus, to maintain a standard view of the past, in the interest of reflection, only provides an illusory reassurance of a supposed truth of the past, in which the objectivity of the researcher is covertly secured, and the historian is secretly maintained as the authoritative subject.

This article aims at an *antitranscendent* reading of history to constitute a way of thinking about the "unmaking" of the various constructions known as *man* without either detaching specific moments in history from their culturally contingent relationships, or moving toward a model of a total system that presupposes an origin, a beginning or an end. What is denounced are interpretations of narratives of architecture that are impoverished by being rewritten according to the paradigm of another narrative, that of *man*, which is assumed to be the ultimate hidden or unconscious meaning of the first. Therefore, to read this text *only* as an historical analysis would be to overlook how the cultural constructions of man as presented here maintain and continue to legitimate just such a reading. Reading without this acknowledgement is reading still in the name of man.

To paraphrase Michel Foucault, "there where discourse speaks, man no longer exists."

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Nam June Paik, Moonman performing Paik's Concerto for TV cello, 1971, Gallery Bonino, New York

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3 Rudolf Wittkower, Architectural Principles in the Age of Humanism (1949), W.W. Norton & Company, Inc. (New York), 1971, p. 101.
4 Vitruvius, The Ten Books on Architecture, translated by Morris Hicky Morgan, Dover Publication (New York), 1960, p. 72.
5 See Francesco di Giorgio Martini, Trattati di Architettura Ingegneria & Arte Militare, edited by Corrado Maltese, Edizioni Il Polifilo (Milano), 1967.
6 Leon Battista Alberti, Ten Books on Architecture, translated into Italian by Cosimo Bartoli and into English by James Leoni, edited by Joseph Rykwert, Alec Tiranti (London), 1955, Book IX, Ch.V, p. 194.
7 C. Maltese, "Il pensiero architettonico e urbanistico di Leonardo," in Leonardo, saggi e ricerche per le onoranze di Leonardo da Vinci nel quinto anniversario della morte (1954); quoted from Paolo Rossi, Philosophy, Technology and the Arts in the Early Modern Era, Harper & Row (New York), 1970, p. 24.
8 Leonardo da Vinci, The Notebooks of Leonardo da Vinci, edited by Jean Paul Richter, Dover Publication, Inc. (New York), 1970. See also Leonardo da Vinci, Leonardo on the Human Body, translation, text, & introduction by Charles D. O'Malley & J.B. De C.M. Saunders, Dover Publications, Inc. (New York), 1983.
9 Andreas Vesalius, The Anatomical Drawings of Andreas Vesalius, edited by J.B. De C.M. Saunders & Charles D. O'Malley, Crown Publishers, Inc. (New York), 1982.
10 The significance of Perrault's work in relation to the origins of modern architecture has been pointed out by Eduard F. Sekler in Wren and his Place in European Architecture, The Macmillan Company (New York), 1956, pp. 37-57. See also Joseph Rykwert, "Positive and Arbitrary,"The First Moderns, MIT Press (Cambridge, MA), 1980, chapter 2; and Alberto Pérez-Gómez, "Claude Perrault and the Instrumentalization of Proportion," Architecture and the Crisis of Modern Science, MIT Press (Cambridge, MA), 1983, chapter 1.
11 A summary of Perrault's scientific career is given by J. Lévy-Valensi, La Médecine et les Médecins Français au XVIIe Siècle., 1933, pp. 521 ff.
12 Claude Perrault, Ordonnance des Cinque Espèces de Colonnes,selon la Méthode des Anciens (1683); A Treatise of the Five Orders in Architecture, translated by John James (1722). See Wolfgang Herrmann, The Theory of Claude Perrault, (London), 1973.
13 also "The Nature-Art Relationship and the Machine of the World" by Paolo Rossi, Philosophy and the Arts in the Early Modern Era, Harper & Row (New York), 1970
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16 Hannes Meyer, "Bauen" (1928) and "Mein Hinauswurf aus dem Bauhaus" (1930), in Bauten, Projekte und Schriften, edited by Claude Schnaidt, Verlag Arthur Niggli AG (Teufen), 1965, pp. 95-97, 100-105.
17 See Alfred North Whitehead, Science and the Modern World (1925), The Free Press (New York), 1967, pp. 102, 103, 131.
18 Gilles Deleuze and Félix Guattari, L'Anti-Oedipe (1972), Anti-Oedipus. Capitalism and Schizophrenia, translated from the French by R. Hurley, M. Seem, and H. R. Lane, University of Minnesota Press (Minneapolis), 1983, p. 4.