

Possibilities of Fact:

Reiser + Umemoto's *House in Sagaponac* as a Materialistic Approach to Novelty

The idea of the individual in our current networked society, according to the sociologist Ulrich Beck, is defined by the compulsion to lead one's own life, adopting only partial aspects of what might once have been regarded as a singular identity. Society today "relies on the fact that individuals are not integrated but only partly or temporarily involved as they wander between different functional worlds,"¹ and composed of what Beck goes on to define as an "elective" and ultimately "global biography". The space of this elective individualization is also becoming more differentiated and more localized, multiplying its possibilities and in turn resulting in contradictory versions of the self which exist in the same body at close or even overlapping proximity. This global self entity has become mobile, at times even "nomadic," adhering to many locations, spreading out and possibly occupying multiple spaces at the same time. The individual exists as Deleuze and Guattari would define as a multiplicity, or as it expands its connections, an assemblage.² In keeping with Buckminster Fuller's concept of UNIVERSE, the adoption of broadband networks, wireless devices, expedient air travel, syncopated informations and ultimately total access man has been integrated and dispersed globally regardless of his physical location in space and time. In this way he may be comprised of many hybrid identities and cultures continually being formulated, discarded and reformulated, communicating and cooperating with his environment rhythmically. If as Beck says "identity emerges through intersection and combination, and thus through conflict with other identities,"³ can not these emerging yet conflicted identities actively shape the physical environments they inhabit? And what are the methods they might utilize?

The Tokyo Bay Experiment studio at Columbia University of the late 90's, conducted by Reiser + Umemoto, deployed an urban growth model defined by the diagrammatic concept of the field gradient (**fig.4**) as a means to investigate the relationship between the variegated social identity of man and the physical urban structures he inhabits. In this proposed model the global is not constituted by an accumulation of the local as a means of generating the global "by default", rather it proposes to employ the field gradient as a structure of continuous variation involving the "interaction of differentiated systems that are coherent but not simple."⁴ For R+U the use of the field gradient as an urban developmental strategy (not reducible to a series of parts or accumulations of components) provides a method fixed not to a self similar repetitive structure, but conversely provides multiple possibilities to be utilized for the generation of many related yet differing formal urban outcomes.

In this sense the field gradient approach to formal generation and development may be seen in parallel to what Deleuze describes in the text "The Diagram," as Francis Bacon's own use of the idea throughout his explorations into the nonfigurative aspects of abstract painting. For Bacon "the diagram is thus the operative set of lines and areas, asignifying and nonrepresentative brushstrokes and daubs of color."⁵ The meaning of this statement for Deleuze is contingent upon the use of the word "operative" as a reflection of the diagram's function to "suggest", distinguishing it not as a simplified representation of an object or an illustration, but as the "possibility" of that object.⁶ Deleuze infuses the notion of the diagram with the concept of chaos (or catastrophe), which while overt and intentionally violent in its relation to the figurative, is at the same time carrying within it the possibility for a new order. Three avenues of painting describing the relationship between the nonfigurative chaos of the diagram and the possible new pictorial order of the figurative are described by Deleuze in the following ways: 1. The abstraction of the diagram to a minimum, as observed in Mondrain's orthogonal compositions which rely purely on the optical as a means for making space, reinforcing the internal boundary of the

picture plane and the location of the observer; 2. The abstract expressionist work of an artist like Pollack, who through a decomposition of matter extends the chaos of the diagram outward to become the material of the painting, producing a space that is boundless with no conception of inside or outside; 3. As seen in the work of Bacon specific figurations emerge from the chaos of the diagram only through an active process where by brushstrokes, color patches and lines must be abstracted and manually wiped away leaving only a trace to be later "utilized" during the formal act of painting. In this sense the optical frame of the painting exists, but in a warped state, distorted by concentrated moments of decomposition and localization facilitated indirectly by the chaos of the diagram.

The deployment of the diagram and the relationship to chaos it employs, may perhaps find its most prolific realization not in the domain of the visual art of abstract painting, but in the scientific realm of theoretical evolutionary biology. Although ideas explaining the generation of so called "natural" figuration have been propagated for millennium, the modern concept describing natural biological development devoid of preordained external influences, motivations, or notions of "progress", was founded on the concept of descent from a common ancestor by means of natural selection,⁷ and first soundly articulated by Charles Darwin in his 1859 book *On the Origin of Species, by means of Natural Selection, or Preservation of Favored Races in the Struggle for Life*.

The basic idea of Darwin's approach states that within any given community of individuals who reproduce with one another (species group), slight but distinguishable variations in both physical and behavioral characteristics may be observed between members of the group, these variable characteristics are passed down to each individual's offspring through the process of heredity. Over time members of the group will be exposed to different environmental pressures producing conditions more favorable to some members and less favorable to others. Members of the group who happen to be best adapted by way of their individual variations will in turn have the highest possibility of surviving, reproducing and passing those favorable genes onto their progeny. These favored variations will spread throughout the group until they become normalized (assuming the environmental conditions which selected them in the first place remain constant).⁸ (figs. 1-2) The integration of natural selection with Mendelian inheritance and population genetics, what has become known as the synthetic theory of the 30's and 40's, extends Darwin's original concepts to their inevitable conclusions. The underlying catalyst for this process is held within the individual variability of a population, where the individual is regarded not as an incomplete or imperfect version of an ideal type, but as an independent and unique actualization of the genome with no constant value to any overall group, what the preeminent biologist Ernst Mayr called "population thinking."⁹ This rejection of a typological definition of the individual and replaced by a variegated manifestation can be considered a corollary to the contemporary self outlined previously by Beck. However as the synthetic theory of evolution plays out, change within the system reveals itself slowly over time and is not ubiquitous. The internal "genomic diagram"¹⁰ of an individual is minimized to provoke small specific variations, resulting in a selection process of incremental changes or slow accumulations of difference that with each generation move towards an alternate order of complexity and possibly new formal structure. The development of novelty in this example is gradual and internalized.

While the functioning of natural selection as a process in the development of species has been widely accepted in the time since Darwin put forth his theory, its exclusive posture in the process of development as emphasized by the Neo-Darwinist¹¹ position surly has not. Stephen Jay Gould and Richard Lewontin, in a 1978 paper titled "The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme"¹² propose an alternative idea which incorporates an array of different forces, each with their own ability to impact the formal

generation of the individual by means ancillary to that of natural selection. These lines of force may come from any direction or location and in this sense are boundless; the result is a discontinuous, sporadic, and punctuated development of formal change.¹³(**fig. 3**) We should consider this a macro or pluralistic use of the genomic diagram, with similar implications to Pollack's use of the diagram in his paintings.

It has only been in the space of the last few years that research conducted on the genotypic structures of a wide variety of living creatures has produced the data necessary for a third deployment of the genomic diagram (neither exclusively gradual or punctuated) to emerge. This theory reflects a somewhat altered notion of an individual's genetic composition (genotype) and its resulting formal outcome (phenotype) from the previous two approaches. In this approach the selection forces undertaken by an individual never influence the genotype directly, but rather only indirectly through the structure of the phenotype. An organism's characteristics (its anatomy, physiology, and behavior) are only remotely connected to the DNA sequence through the complex processes of development, growth and metabolism. A change in DNA sequence is only indirectly correlated with change in the anatomy and physiology of the organism.¹⁴ In this sense the genomic diagram exists exclusively in its latent state below the surface, but continues to interact with the external environment through the physical localization of its chaotic potential. This interaction is not omni-directional, but rather reciprocal producing an informational feedback loop between them where the diagram itself may be altered.

The question for biologists that remains concerns the nature of the chaotic potential of the genomic diagram and its ability to produce meaningful complex adaptive change in organisms. Is the chaos totally random or is the interaction biased internally in such a way to generate meaningful change at more than just a random rate? Biologists Kirschner & Gerhart have proposed that variation in an organism's physiology, anatomy, or behavior arises predominantly from the use of conserved core processes in new combinations and at different times, places and amounts, rather than in their sudden drastic modification or by the invention of new processes all together (although this does happen rarely). The conserved core processes are fundamentally cellular processes that operate in many levels of development and molecular functioning of the organism. Core processes are conserved precisely because they have within their mechanism the greatest ability to produce a variety of possible range of states in response to environmental stimuli or genetic mutations, allowing them to readily facilitate meaningful variation with only minimal direct genetic modification¹⁵ As a method of development the concept of facilitated variation is one that does not reflect an ideal conception of form, or a movement towards a specific type of idealism, either by minimization and gradual change, or maximization and boundlessness, instead it moves towards a conception of materiality, or localized difference inherent to the individual and available to many different outcomes at the same time.

This conception of materiality as a method of actualization is one utilized in the design of a House in the architecturally saturated suburban Long Island community of Sagaponac by architects Reiser + Umemoto 2002, (**fig. 7**). Here again as in the earlier examples of abstract painting and evolutionary biology two conflicting concepts for understanding the generation of formal outcomes are negotiated by a third methodology. The first condition the house confronts is the idea of the classical modernist Pavilion in the landscape, typified by Mies' Farnsworth House (1951) and his idea of Universal space. Of the house Mies said in 1958 "When one looks at nature through the glass walls of the Farnsworth House it takes on a deeper significance than when one stands outside. More of nature is expressed - it becomes part of a greater whole."¹⁶ From the interior the line of glass is definite, although visually transparent; it delineates the outside as a separate realm of occupation elevating the internalized viewer to a higher order of experience through its presence. The second condition the house confronts concerns the general formal

organizational strategy of integration with the landscape, eliminating any significant boundary between inside and outside, blending with the ground and smoothing out transitions. Here the architecture does not demarcate, but rather infuses itself to produce an ambiguous reading between the architecture and landscape.

Reiser + Umemoto's design for the house negotiates these two conditions producing an architectural project not of idealism by way of complete internalization, or complete integration, but as R+U would define, of materialism. Mies' modernist concept of Universal space is redefined not as the space "to bring Nature, houses, and people together into higher unity,"¹⁷ but is described by R+U as the space of "ubiquitous difference...." and relies "...on diagrams derived from material systems whose repetition establishes a field of similarity that has the capacity to develop internal difference."¹⁸ The actualizations of these differences are apparent in the structural, compositional and tectonic organization of the house. The main living volume is a rectangular box, evoking the image of a Miesian-like pavilion, extending itself up over the ground plane and hovering along side the pool (**fig. 8**). However the structural system of the floating box reveals a complete divergence with the Miesian tradition remaining in a state of tension or "poise" not refinement, and reflects only one specific configuration of the slab plate, rod truss and column, which it is composed of while containing within itself the possibility of many others states. A change in the placement of the column is accommodated in a change of the stress field of the rod truss facade,¹⁹ the structure of the space does not dissolve into the landscape or provide a frame for viewing, and rather it actively participates with the occupant's experience of the space through its functional logic. The architectural effect is one facilitated by variability, transition and localization.

At the opposite end of the house a series of smaller scale boxes, containing the bedrooms and bathrooms, are splayed out from the floating volume each instigating a different relationship with the ground plane (**fig. 9**). One volume is simply placed on top of it, two volumes are stacked on top of each other and raised up slightly hovering and another is completely covered over as the surface of the ground flows overtop to meet the volume of the living volume behind. The house does not present a unified relationship to the earth, but rather provokes multiple profiles simultaneously reinforcing the concept of evolvability through its multiple potentials.

In the article "Toward a Well-Tempered Digital Design" Antoine Picon raises the notion that Reiser + Umemoto's house in Sagaponac plays "on the margins of the Modern heritage, blurring its contours, and making it more complex in an almost Mannerist way."²⁰ As a statement of historical reflection this is a reasonable view, however the more latent generative qualities the project possesses may only be considered through an assessment of the architectural potentialities held within the project. When considering the House as an activation of what we have previously referred to as the genomic diagram, relative to its use in the formation of biological structures, the nature of the architectural endeavor itself may be regarded as the manifestation of many divergent possibilities: interior and exterior, modern and contemporary, static and dynamic, local and global, integrated and articulated, all facilitated by the evolving realities of the contemporary environment, as well as the underlying currents of architecture's past. Although its greater complexities could be thought of as "almost Mannerist" they perhaps more readily reflect a reaction or rather a conception of the changeable contemporary space of life that man now participates. He exists in an environment of multiplicity and adaptability, where to survive he must conceive himself not statically, or even dynamically, but materially, composed of many latent possibilities and potentials waiting only to be selected into activity at simultaneous locations and moments in time.

Notes

1. Beck, Ulrich. "Living Your Life in a Runaway World: Individualisation, Globalisation and Politics" in *On The Edge Living With Global Capitalism*, ed. Hutton, Will and Giddens, Anthony (London: Vintage 2001.), 164-65.

2 Deleuze, Gilles and Guattari, Felix. *A Thousand Plateaus* (University of Minnesota Press: Minneapolis, 1987), 8.

3. Ibid., 169.

4. Reiser, Jesse and Umemoto, Nanako. *Tokyo Bay Experiment* (New York, NY: Columbia University, 1998)

5 Deleuze, Gilles. *The Logic of Sensation* (Minneapolis: University of Minnesota Press, 2003), 82.

6 Ibid., 89.

7 Williams, George C. *Adaptation and Natural Selection: A Critique of Some current Evolutionary Thought* (Princeton: Princeton University Press, 1966), 21-22, 34-36.

8 This definition is based primarily on Darwin's ideas first published in the following: Darwin, Charles *On the origin of Species by the Process of Natural Selection, or Preservation of Favored Races in the Struggle For Life* (London: Murray, 1859). But also incorporates general ideas gathered through the research process, see notes 7, 9, 12 and 14 and the list of bibliographic references.

9 Campbell, Neil A. *Biology Third Edition* (Benjamin/Cummings: Redwood City, CA 1993), 418.

10 The term *genomic diagram* is one devised here to define not simply the physical genome of an individual produced by a specific sequence of base units A, T, G, and C, but more specifically the potentiality held within an individual's code ready to be activated or selected for depending upon the specific environmental stimuli of a given place and time. These changing stimuli should be considered conceptual corollaries to that of catastrophe, or chaos described in the Deleuzian conception of the diagram of abstract painting.

11 The term Neo-Darwinism is not completely agreed upon throughout the scientific community, but I use it here as it is used by Steven Jay Gould in much of his writing (see Gould, Stephen J. "The Return of Hopeful Monsters," *Natural History* 86 (June/July): 1980, 22-30). His use of the term refers to the extreme version of the synthetic theory (that merged of the Darwin's conception of natural selection with Mendelian inheritance of characteristics and population genetics), emphasizing the position that natural selection is the exclusive process by which species develop.

12 Gould, Stephen J. & Lewontin, Richard C. "The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme." (*Proc. R. Soc. Lond. B* 205: 1979), 581-598.

13 Other concepts of adaptive change ancillary to natural selection are *genetic drift* (micro evolution caused by changes in the gene pool of a small population due to chance events), *the production of non-adaptive structures by developmental correlation with selected features* (Darwin called this the mysterious “correlation of growth”), *the decoupling of adaptation and selection* (variation in physical form without any change in the genome, phenotypic plasticity), *multiple adaptive peaks* (members of the same species may develop different adaptive solutions to the same problem with generally no basis for asserting that one peak is better than the other) and *current utility as epiphenomenon of non-adaptive structures* (exaptation or the emergence of novelty not by error, but as a byproduct then appropriated to serve a specific function not directly built by natural selection). Gould provides two architectural examples of exaptations when he describes the spandrels in the cathedral of San Marco as the result of the structural system of four intersecting arches and in the King’s College chapel ceiling’s blank areas between individual fan vaults. Both of these structures are residual and have been adopted to display symbolic artwork. Gould’s point is that they were not originally designed for this purpose, but are rather byproducts of another system and in no way the direct result of natural selection (**figs. 5-6**).

14 Gerhart, John C. and Kirschner, Marc *Plausibility of Life: Resolving Darwin’s Dilemma* (New Haven: Yale University Press, 2005)

15 Gerhart and Kirschner, *Plausibility of Life*, 34-35.

16 Tegethoff, Wolf. *Mies van der Rohe: The Villas and Country Houses*, English edition (New York: Museum of Modern Art, 1985, 130. Quoted from Christian Norberg-Schultz, “Ein Gespräch mit Mies van der Rohe,” *Baukunst und Werform*, Vol. 11, No. 11 November 1958, pp. 615 f.

17 Ibid., 131.

18 . Reiser, Jesse and Umemoto, Nanako, “Sagaponac House.” <<http://www.reiser-umemoto.com>>. Cited 19 May 2008.

19 Reiser, Jesse and Umemoto, Nanako. *Atlas of Novel Tectonics* (New York: Princeton Architectural Press, 2006), 96-97, 104-105.

20 Picon, Antoine. “Towards a Well-Tempered Digital Design, The Architecture of Reiser + Umemoto.” *Harvard Design Magazine*, Fall2006/Winter 2007 No. 25, pp. 77-83.

Figure Credits

1. Haeckel's Tree of Life

<http://www.bact.wisc.edu/themicrobialworld/origins.html>

2. Graduated Species Formation in Time

Dobzhansky, Theodosius. "Species After Darwin" from *A Century of Darwin*. ed Barnett, S. A. (Harvard University Press: Cambridge, MA, 1958), 50.

3. Punctuated Species Formation

<http://www.ideacenter.org/contentmgr/showdetails.php/id/1232>

4. Field Gradient

Reiser, Jesse and Umemoto, Nanako. *Tokyo Bay Experiment* (New York, NY: Columbia University, 1998), 28.

5. Spandrels of San Marco

<http://www.evolutionarybiologist.blogspot.com/2007/10/this-week-citation-classic.html>

6. King's College Ceiling

<http://www.cambridge2000.com/gallery/html/p7117484.html>

7. House in Sagaponac Plans

<http://www.reiser-umemoto.com>

8. House in Sagaponac Living Volume

<http://www.reiser-umemoto.com>

9. House in Sagaponac Bedroom Volumes

<http://www.reiser-umemoto.com>