

REPRODUCTION AND PRODUCTION

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CORRESPONDENCE

Thresholds
Massachusetts Institute of Technology
Department of Architecture, 7-337
77 Massachusetts Avenue
Cambridge, MA 02139
thresh@mit.edu

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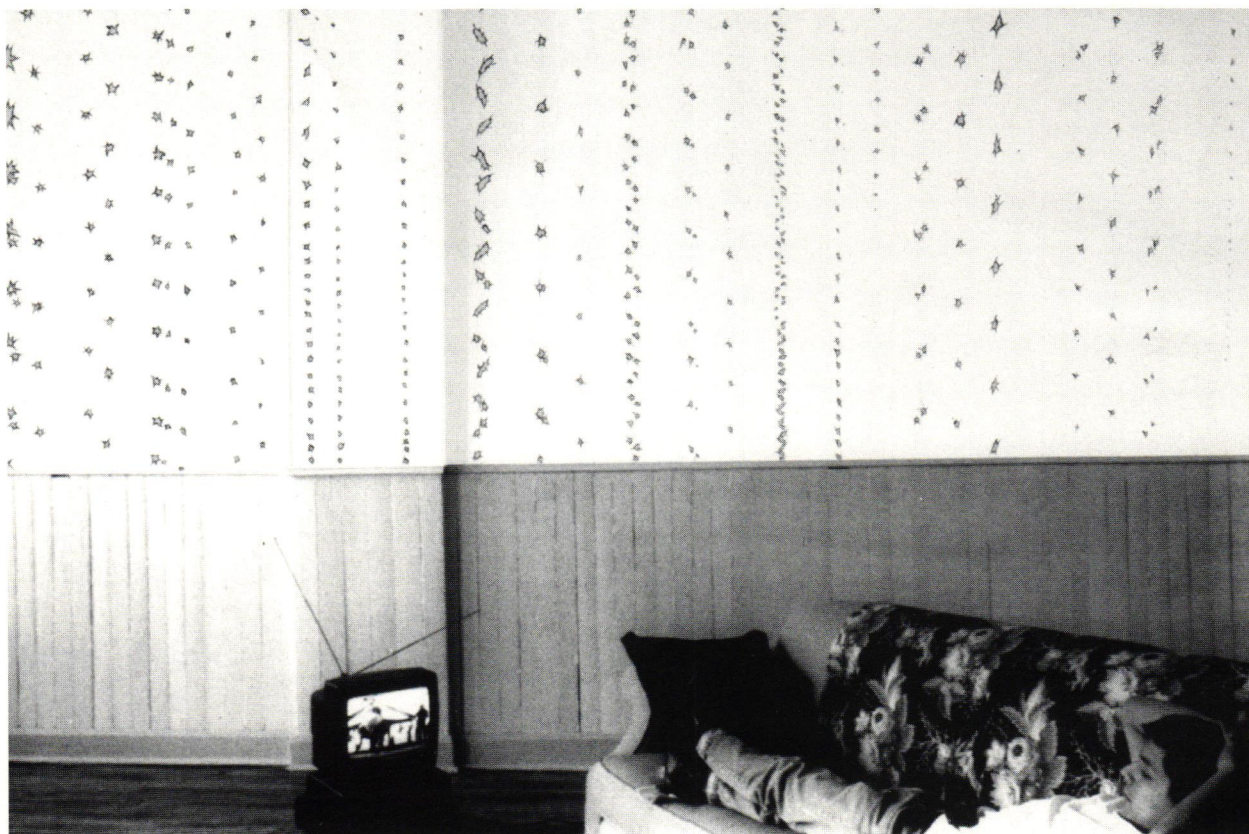
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Benjamin Fry, *chromosome 22*, detail
(see *Genomic Cartography*, pg. 26)
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Christine Tarkowski, 9mm Repeat in Residential Interior, gouache on photograph, 17" x 22", 1998

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ALIKI HASIOTIS INTRODUCTION

This issue of *Thresholds* explores the theme of "Reproduction and Production." The inversion of the processes of production and reproduction in the title of this issue suggests that the relationship between the two has been complicated in both theory and practice as digital and biotechnological reproduction affect the very definition of production. Innovations in science, industry, art, and architecture have developed amidst a preference for the particular, at a time of actual de-particularization in the form of globalization, media saturation, and rapid population growth. Since Walter Benjamin's seminal definition of the "aura," of the one-of-a-kind work of art, the distinction between the produced and reproduced has become increasingly unclear, calling into question what now constitutes an "original".¹ At the core of this issue is the question of authenticity, which is now no longer exclusive to the definition of works of art, but central to how we live, create, and define our very selves.

This issue does not provide answers to this question, but rather presents fifteen distinct interpretations of the theme from scholars, architects, designers, and artists. Sarah Rogers examines Houria Niati's subversion of

Eugene Delacroix's depiction of the traditional role of North African women in her essay on Niati's *No To Torture*. In *Genomic Cartography*, Benjamin Fry provides an unprecedented visual understanding of the scale and organization of the genetic code as he questions the role of representation in the production of scientific knowledge. John Fernandez's *Theory of Diversified Longevity* offers practical and theoretical strategies for renewing and enriching the built environment responsibly. Christine Tarkowski's work with a wide variety of printable media and printmaking techniques ranges from the traditional (paper, photography, screen-printing, and gouache) to the unexpected and more experimental (Tyvek, Reynobond, and gun fire). The work expands the definition of traditional art forms, but it also defies categorization in its combined form; it is neither printmaking nor sculpture, built nor unbuilt, produced nor reproduced. It is hoped that all of the work presented in this issue will serve to question where and how we look to find Benjamin's all important "aura" in a digital and biotechnological age.

¹ Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Illuminations: Essays and Reflections*, ed. Hannah Arendt, New York: Schocken Books, 1968.

PANOS MANTZIARAS

PERSPECTIVES OF TECHNOLOGY:

RUDOLF SCHWARZ ON THE ARTIFICE AND ITS REPRODUCABILITY

The architect Rudolf Schwarz (1897-1961), regarded as one of the most important German figures during the latter half of his life, and a major influence on Mies van der Rohe, published *Wegweisung der Technik* (*Perspectives of Technology*) in 1929.¹ Walter Riezler, editor of the review *Die Form*, considered *Wegweisung der Technik* one of the three most important contributions to the technological debate, along with Oswald Spengler's *Der Mensch und die Technik* and Friedrich Dessauer's *Philosophie der Technik*.² Despite the reception of Schwarz' book, his collection of essays has never played the role intended by him, nor his friend and collaborator Romano Guardini, a major figure in European Catholic Reform in the first half of the twentieth century. *Wegweisung der Technik* expands on Guardini's *Briefe vom Comer See* (*Letters from Lake Como*) of 1925, in which Guardini criticizes human excesses and expressed a desire to reverse what he saw as the emptiness of the contemporary world.³ *Wegweisung der Technik* is a complex philosophical-theological argument on the spiritual implications of the technological reproduction of the work of art. The book was written seven years before Walter Benjamin's seminal essay, yet the it remained marginal.⁴

In 1924, Schwarz studied with Hans Poelzig in Berlin and worked in planning with Fritz Schumacher in Cologne. These experiences constituted his first involvement with architecture, art, and the city, and coincided with his involvement in the Catholic Youth Movement, "Quickborn."⁵ In 1927, Schwarz became the chief editor of the Quickborn's review, *Die Schildgenossen*, which covered culture and politics in the Catholic community. Schwarz published works by architects such as Hans

Scharoun, Gottfried Böhm, and Mies van der Rohe and he used the review to express his own theoretical stance on architectural and urban matters.

My aim here is to outline Schwarz's substantial, and all but forgotten work, which represents a "missing link" in the understanding of subsequent ideas about the relationship between art and technology. In addition, this discussion provides an opportunity for the presentation of photographs by Albert Renger-Patzsch, which accompanied the original edition of the book.⁶

ON THE INTEGRITY OF THE ARTIFACT

Schwarz introduces technology by denouncing two qualities it pretends to offer humanity: *Gewalt* and *Größe*, terms with multiple meanings in the German language. *Gewalt* suggests the violent dimension of power, such as vehemence, force, or dominion, whereas *Größe* describes magnitude, vastness, and bulk. Thus, Schwarz presents a range of possible interpretations of technology related to the fierce character of the technological "event." The originality of Schwarz' discussion of technology lies in his perception of the *Mensch*, the human, not as a poetic agent, but as a force which extends the product's move towards autonomy and away from its creator. In this sense, Schwarz believes humanity to be threatened by its own power and magnitude since the product of this power—technology—eventually escapes control.⁷

Nature and spirit are two dimensions of human existence considered to be in danger and distress when confronted

with technology: physical, moral, and psychological integrity are all questioned. However, the cause of danger is not disconnected from the human "being," whom Schwarz considers responsible for exceeding the limitations of Nature and Spirit with technology.⁸ The human, according to Rudolf Schwarz, has decided to differentiate itself from its inherent mental faculties. He writes:

The short day of the soul was already waning and the soul was denied even while the lost image of the so-called Greek center was forever being sought; and now, we approach a time which rejects the "soul." Contemporary time reveals itself, to a large extent, in the new "technical," work which is becoming its legitimate symbol.⁹

By its very nature, "'technical' work" accounts for the limits of human nature. "'Technical' work" also signifies the human reluctance to affirm the primacy of the soul over the spirit, an antithesis that remained marginal to the more celebrated "spirit versus matter." Schwarz's call for a return to the centered, Aristotelian Universe provides an outlet to criticize a scholastic approach spelled out in the thirteenth-century by Thomas Aquinas. At the time, Aquinas's adherence to an Aristotelian system limited mystical currents, particularly those proposed by Meister Eckhart. This famous Cologne-based medieval priest and philosopher is found in Schwarz's cultural references. The "loss of center" is one more way to bring to the discussion of the ideal of infinity another outcome of the systematic religious philosophy of the late Middle Ages. The hypothesis of infinity, as expressed by Galileo Galilei, Henry More, and Giordano Bruno, although initially applied to ideas about the Universe, was ultimately used as way to envision the human escaping its material and spiritual limitations.¹⁰ Here, Schwarz echoes Giordano Bruno's "heretic" belief that the universe is infinite. Although Bruno was burned alive in 1600 for his ideas, he anticipated the Scientific Revolution and the Counter-Reformation, which were both heavily criticized by German Catholics as catastrophic to the religious ideals of the Middle Ages.

Rudolf Schwarz puts forth the key terms of his argument: soul versus spirit, center versus infinity, art versus technology. In this sense, he anticipates the agonizing critique on *The Lost Center* delivered by Hans Sedlmayr in the late 1940s.¹¹ Simultaneously, Schwarz considers the technical

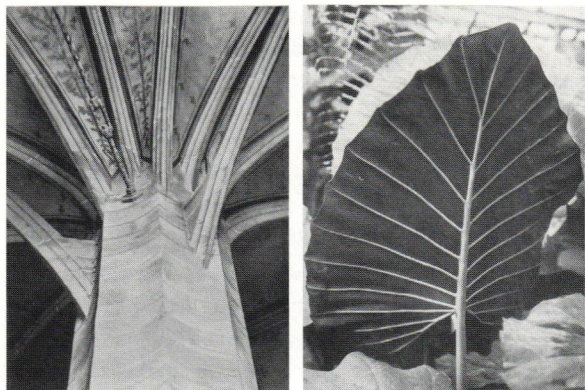
work as an emblem of modernity, countering (but only at first) the Catholic ideals of community, souls, and piety. Again, two decades before Guardini's 1950 *Ende der Neuzeit* (End of Modernity), technology, the artifact, and its value constitute the focus of his investigation. The opposition Schwarz poses between the "technical" and the "human" leads to fundamental questions concerning the possibility of "bearing" and controlling this new world, and operational value of technology in creating a higher order.

The ontological analysis of technology is therefore marked by moral considerations related to Schwarz's self-assumed responsibility, conditioned by the two sides of his persona. On the one hand Schwarz must answer to his deep Christian faith and the need for contemplation; on the other hand, as an architect-engineer, he regarded the act of construction positively. His Catholicism was informed by the phenomenological tradition, while his architectural sensibility was derived from the modernization process of the Weimar Republic.¹² Nevertheless, this new version of the age-old antithesis between the *vita contemplativa* and the *vita activa* originated from a normative will that tended towards universalistic values. In addition, Schwarz tried to understand the scientific evolution of scholastic philosophy, which put the Catholic world of the nineteenth and twentieth centuries into question.¹³ According to Schwarz, the essence of the technical work can be found in the quality of the product, rather than in its "technological" quality. Thus, two supposedly fundamental properties of the industrially produced object are rejected for their inability to provide substance, purpose, or calculation.¹⁴

The autonomy of an artifact with respect to its possible uses signifies the self-sufficiency of its essence, according to Schwarz. Although the object finds its justification internally, it maintains a direct relationship to the world. How are these two sides of its being related? Schwarz introduces a pair of opposing properties which refer to the "contemplative," *Innerlichkeit*, and the "relational," *Bezogenheit* characteristics of the object.¹⁵ He portrays the former as expressive and clear, drawing the artifact away from abstractness, a portrayal which fits within the Bergsonian tradition of the *élan vital*.¹⁶ If a contemplative existence carries its point of gravity in itself, the relational signifies an aim outside of the sphere of life, thus creating

a polar tension, (*Spannungsbogen*) which transposes the point of gravity somewhere between life and target. "Extensity" and the dynamic flow of relations thus replace the intensity, compactness, and concentration of the contemplative life.

Although it may seem that the antithesis Schwarz sets up between the relational and the contemplative is analogous to the "functional versus organic," he quickly resolves this dialectic antithesis, by recognizing in "extensity" a new contemplative condition. The flux of modern life finds purpose in its appeasement (*Beruhigung*). The contemplative nature of a domain of forms is only a flowing relation in which, according to Schwarz, "movement and stillness are realized one through the other and one inside the other."¹⁷



The transformation of the unstable *Bezogenheit* into a new *Innerlichkeit* reveals a possible way for the technical work to be upgraded from the level of "means." This initially sounds like a derogatory characterization; it seems to deprive the technical object of integrity, and suggests a "loss of value," despite the possible beauty and nobility the technical work might possess. The transformation lacks the transcendental value of the very life that it serves and in order to partake of its beauty, the technical work has to undergo a "transubstantiation," by which it becomes an object in and of itself.¹⁸ Only then is it also possible for the architect to understand his role as separate from that of the technician. Schwarz strives for a way to upgrade the technical work from subservient to meaningful.

This is made possible by the teleological organization of organic Nature, which realizes the miracle of being always and everywhere as a *whole*. How perfect and beautiful are the parts of a flower. Or the organic body which takes on appearance of the Spirit even when its gestures are the result of purpose and arbitrariness.¹⁹

Similarly, architectural work may transcend commodity. If buildings or cities are to function, they have to retain their integrity. Through material integrity, but despite its purposefulness, the artifact may attain a higher lever of spirituality. Its qualitative appreciation is, therefore, not a matter of calculation or quantification, for numbers can neither convey the constructive logic of the object nor transmit its "internal measure." The integrity and fabric of a work can only derive from what the "work teaches" (*Werklehre*), knowledge of the materials, reflection on basic laws of form giving, and on the reception of the work.

THE LAW OF THE SERIES

In the second chapter of *Wegweisung der Technik*, Rudolf Schwarz focuses on the question of mass production. He attempts to evaluate it by applying the terminology of scholasticism. The objects produced under the "law of the series" appear in items of the same kind, form, content, and value—an idea that pertains to most of the images published in the book: barrels, cranes, etc. However, serially produced objects could not have the same identity because, according to Schwarz, identification of two objects would mean that one of the two "dies" or that both of them are fused together. On the contrary, this fundamental law of the series separates and equalizes the items. The logic of serial production is not formed by simplification and generalization, or by uniqueness and universality, but rather by multitude and concreteness.²⁰

The particular quality of uniqueness, much praised in the world of art, belongs to the domain of the Living and of the Organic, whereas the serially produced object does not lack inner organization or functionally differentiated members and has no capacity for autonomous growth.²¹ Despite the infinite length that a series might have, it has

1, 2

no inner ability to develop. It has nothing of the "interlacing" (*Ineinander*) or "confusion" (*Durcheinander*) of organic life, but only a condition of proximity (*Nebeneinander*) or even succession (*Nacheinander*); its members are only related to each other through the process of reproduction. For Schwarz, these alienating aspects of serial production are saved from oblivion by the assignment of a particular value to the "founding thought of the series," which also endows it with a particular kind of *Größe*. Despite the fact that it is not a newly established habit of production, it is new in its reproducibility, as he indicates, making it possible to experiment and to popularize previously inaccessible commodities.

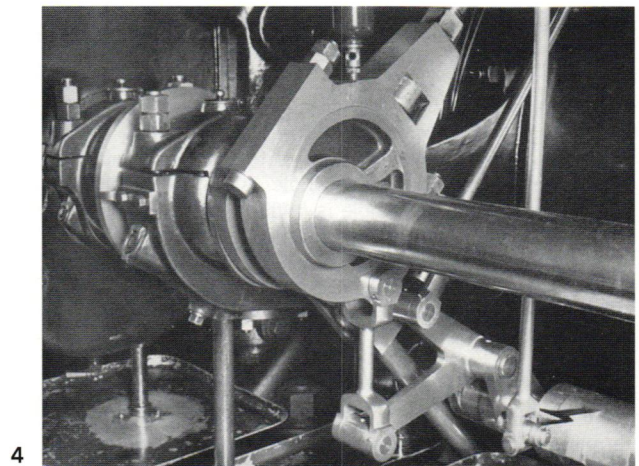


Does this establish a "comfortable fiction" of rationality? The author puts forth nightmarish images (common, for example, in modern cinema) of machines out of control, endlessly "spitting out" a product, undermining the positive character of technology. He warns his reader against the absence of a "unique master" (*einmaliger Meister*) who would give a unique "soul" to the product and control it.

The principle ridicules any rationality. With the violence of the unchained instinct, it hurls the same work into eternal repetition. For the impartial natural eye, this is a disturbing experience.²²

Despite this position towards the rationality of the industrial process, Rudolf Schwarz nuances his feelings; he does not seek things that cannot be serialized, since "there is no thought so fine, no work of art so noble, to be able to avoid multiplication."²³ He tries to understand what happens to an object in this new condition. What new relations, new formal laws, and new content exist in the industrially produced object? Is it, as Ferdinand Tönnies describes it, making "objects lying under its control *similar* and *free* in relation to each other, so that units may be combined and organized into systems in an arbitrary way?"²⁴

Things lose salvation and soul, but they gain the dark-magnificent qualities of violence, power, and superhuman greatness. They lose measure and familiarity but gain "eternity" and "vigor."



Aqueducts, defense towers, contemporary highways, rows of housing, Egyptian monuments, and "endlessly repeated ceremonial words," belong to a kind of serially reproduced object, inhumane and yet ardently desired, described with the term "recurrence" (*Wiederkehr*) by Schwarz. He sees the annihilation rather than the apotheosis of history, in the phenomenon of recurrence.

History is oddly blind against series: she scoffs at reproductions and refuses reproducers access to historic space and time. As series increase, the content of history becomes poorer.²⁵

The reason for this incompatibility between repetition and historical "content" is, according to Rudolf Schwarz, the

"playful" way in which history moves, against all laws of regularization, and always based on acts of foundation—that is, original acts as opposed to repetitive acts. In order to achieve nobler values, "a unique, truthful, and big act" has to be in the origin of the series.²⁵ The question remains, then, as to how to combine the two elements—the personal creative act and the serial production. Accepting serial production as a characteristic *sine qua non* of his time, Rudolf Schwarz seems to admit that:

...if the big form of time was to become exceptional again, this would occur on the basis of serial connections which it would traverse and overgrow. However, if time were to become a series, it would have to be supported and illuminated by real personal forces.²⁶

Is this co-existence of personal creativity and industrial *modus operandi* between soul and spirit an irresolvable conflict? Schwarz believes that it is not:

In this way, there emerges no ambivalent world, but a *polarized order*. From the state of being a pure member, man goes beyond to become simultaneously a member and a whole. This state required by the Law of the Whole is fulfilled in the life order of the individual. Accustomed to freedom and action, the individual still has the capacity, although tensely bound to the series, to pass to the inventive and founding achievement.²⁷

It is a polarized relation, where the serial work undergoes a peculiar change. While—or perhaps, because—it remains in its "dry" condition, it passes from the level of the tool to a more meaningful one: the product becomes a "natural event" (*Naturgeschehen*). As a member with respect to the Whole, it assumes its particular meaning. And this is:

...either to be bearer of a forceful exceptional event—as the bundle pillars of a cathedral; or (to be) the signpost for the monument which rises above monotony—like the aligned sculptures that led to the doors of the Egyptian temples.²⁸

This positive view of the serial product in no way establishes Schwarz in the position of thoroughly accepting technology. He stresses once more the responsibility of those who are in a position to judge the extent and limits

of the industrially produced world. He both defends the right of certain creations not to be subject to the laws of mechanical reproduction, and of the human being to gain distance to study this new reality "from the distance of a solitary space"—*aus der Ferne eines einsamen Raumes*. The action suggested here is transcendent, only possible through contemplation.²⁹

If one had to situate this text within the multitude of reflections on technology, it would be a "philosophy of culture," comparable to Max Scheler's early phenomenology, which has, in fact, served as a basis for Rudolf Schwarz's reflections. Nevertheless, as an architect—not a philosopher—Schwarz feels obliged in subsuming his activity under the principles of technical production and reproduction. His target is, therefore, not to discredit technology, but to find in it a deeper spiritual and moral value. At the same time, his conscience goes through a change: the scale of application becomes larger. Now, the constructed objects, the industrially organized tool and the building (the main fields of application of the industrial process) extends to the entire city. In fact, the publication of *Wegweisung der Technik* coincides with Schwarz' first article on the metropolis.³⁰ Schwarz considers the *Großstadt* as an artifice, in contrast to the organic metaphor. The only danger he warns against is the excessive control of its form, for rigidity might hinder the development of the life that technology is supposed to sustain.

In the early 1930s, Schwarz continued to discuss the "city-landscape."³¹ Interestingly, the attempt to control—by means of a severe spiritual discipline—the excesses of technology on the architectural scale is more evident in the work of Mies van der Rohe, who seems to have deeply internalized Schwarz's discourse.³² Mies seems to have tried to "exorcise" the technical world by limiting his presence to a symbolically essential one. It is, therefore, on the urban scale, that Schwarz applies his own thinking in a more emblematic way. On the one hand, he admits that the contemporary urban realm is produced under the impetus of technological activity. He turns down the senseless organization of the modern metropolis and reorganizes the traffic networks according to a topological scheme in which he compares his "city-landscape" to the layout of a cathedral. Industrial zones, on the other hand, are

regrouped not only for practical reasons, but also to form a material and spiritual process culminating in a "high city." For Rudolf Schwarz, the only role of technology is to offer the infrastructure for the spiritual and the noble.

Notes

¹ *Wegweisung der Technik* did not initially appear in its completed form. In the edition of Potsdam: Müller & Kiepenheuer Verlag, 1928 only the first two chapters, "Gespräch und Denken über 'Technik'" and "Das Gesetz der Serie," were published preceded by a "Vorbemerkung." A pre-print of the second half of the third chapter, "Vom Sterben der Anmut," was published in the 1927/28 *Die Schildgenossen*, review of the Catholic Youth Movement, Quickborn. The work was published in its entirety, together with the entire third and fourth chapters, "Werkziele" and a "Nachwort," in 1979 in *Rudolf Schwarz, Wegweisung der Technik und andere Schriften zum Neuen Bauen, 1926-1961*, edited by Maria Schwarz and Ulrich Conrads, Wiesbaden: Fr. Vieweg & Sohn, Braunschweig. This last publication will constitute the reference basis of the present analysis.

² Oswald Spengler, *Der Mensch und die Technik, Beitrag zu einer Philosophie des Lebens*, Munich: C. H. Beck'sche Verlagsbuchhandlung, 1931.

³ Romano Guardini, *Letters from Lake Como*, translated by Geoffrey W. Bromiley, Grand Rapids, Mich.: W.B. Eerdmans, c1994.

⁴ Walter Benjamin, *Das Kunstwerk im Zeitalter seiner technischen Reproduzierbarkeit, drei Studien zur Kunstsoziologie*, Frankfurt am Main: Suhrkamp Verlag, 1963.

⁵ The origins of Quickborn are to be traced to 1909 in Neisse at Überslesien, where three young priests, members of the Kreuzbund (Union of the Cross), the doctor Bernhard Strehler (1872-1945), the Franciscan monk Klemens Neumann (1873-1928), and the professor Hermann Hoffmann (1878-1972), broke with traditional religious teaching methods. In 1917 there were already 7,000 members. In 1919 the organization was installed in the Burg Rothenfels, near Frankfurt, a medieval castle, which soon became the symbol for the Catholic youth of the country. Rudolf Schwarz provided the plans for the rehabilitation of its run down premises in 1926. It followed a resolutely modern and minimalist aesthetic.

⁶ Schwarz did not explain the accompanying photos, perhaps, because he believed that reading his text would suffice. I also offer the reader an unbiased display of the photographs, where ideas about growth, repetition, integrity, dependence, naturalism, and artificiality are put on display.

⁷ *Wegweisung der Technik*, 12. M. Heidegger, *Vorträge und Aufsätze*, Pfullingen: Neske Verlag, 1959, 80. "Der Wille zum Wille erzwingt sich als seine Grundformen des Erscheinens die Berechnung und die Einrichtung von Allem, dies jedoch nur zur unbedingt fortsetzbaren Sicherung seiner selbst. Die Grundform des Erscheinens, in der dann der Wille zum Willen im Ungeschichtlichen der Welt der vollendeten Metaphysik sich selbst einrichtet und berechnet, kann bundig die 'Technik' heißen."

⁸ On the whole, the approach of *Wegweisung der Technik* is based on basic philosophic notions concerning *Form* (form), *Seele* (soul), *Leib* (corpse), and *Wesen* (Being). The use of these terms demonstrate Rudolf Schwarz's erudition in scholasticism, although with strong mystical influences.

⁹ *Wegweisung der Technik*, 12.

¹⁰ Hannah Arendt, *The Human Condition* (1958), Chicago: The University of Chicago Press, 1989, 250. "Precisely when the immensity of the available space on earth was discovered, the famous shrinkage of the globe began, until eventually in our world...each man is as much an inhabitant of the earth as he is an inhabitant of his country.... Only the wisdom of hindsight sees the obvious, that nothing can remain immense if it can be measured, that every survey brings together distant parts and therefore establishes closeness where distance ruled before."

¹¹ Hans Sedlmayr, *Verlust der Mitte: die bildende Kunst des 19. und 20. Jahrhunderts als Symptom und Symbol der Zeit*, Salzburg: Otto Müller Verlag, 1948; Alexandre Koyré, *Du monde clos à l'univers infini*, Paris: Gallimard, 1973. Discusses Giordano Bruno and the question of the infinite space.

¹² Philosophers Max Schell and Max Scheler influenced the early stages of phenomenological currents.

¹³ The period 1900-1930 saw a considerable number of publications of Catholic origin, which assumed the task to found a new, different "humanism"

that would be closer to religious precepts. It is, I believe, exactly this antithesis which explodes so desperately in Rudolf Schwarz's text and which makes it so difficult for him to decide the role and worth of technology. Moreover, as an architect, he feels obligated to contribute to the creation of one of the most outspoken expressions of the technical world, the modern city.

¹⁴ *Wegweisung der Technik*, 14.

¹⁵ *Ibid.*, 14.

¹⁶ Henri Bergson, *L'évolution créatrice*, Paris: Félix Alcan, 1907, 14-15. For Rudolf Schwarz classical antiquity, the *ottonische* period in Germany, and Michelangelo's works exemplify this outstanding condition.

¹⁷ *Ibid.*, 16-17.

¹⁸ Barbara Miller Lane, *Architecture and Politics in Germany, 1918-1945*, Cambridge: Harvard University Press, 1968, 125-146. Rudolf Schwarz wrote this passage when the discussions on functionalism and on modern architecture in Germany were extensive. Architecture was seen for the first time as a technical discipline, destined to provide rational solutions for a society in need of basic commodities. Architects like Le Corbusier and Walter Gropius were introducing "scandalous" semantic analogies between mechanical products and architectural masterpieces, in which the house was being presented as a *machine à habiter*. All this necessarily brought the question as to what extent architecture could still retain the qualities of art. Counter-currents, mostly led by conservative architects like Paul Schultze-Naumburg and Paul Schmitthenner, were objecting to this *Neue Sachlichkeit* and were proposing traditional approaches.

¹⁹ *Wegweisung der Technik*, 17. Emphasis in the original.

²⁰ *Ibid.*, 31.

²¹ The term *körperliche Gestalt* used by Schwarz can be translated as figure, body or, physique but in French it also means natural space, where something can grow (*terroir où croit quelque chose*).

²² *Ibid.*, 33.

²³ *Ibid.*, 35.

²⁴ *Ibid.*, 32-35. Ferdinand Tönnies, *Gemeinschaft und Gesellschaft, Abhandlung des Communismus und des Sozialismus als empirischer Kulturformen*, 1887.

²⁵ *Wegweisung der Technik*, 36. Quotation marks and emphasis in the original.

²⁶ *Ibid.*, 37.

²⁷ *Ibid.*, 39.

²⁸ *Ibid.*, 40.

²⁹ *Ibid.*, 45. Emphasis in the original.

³⁰ *Ibid.*, 43

³¹ *Ibid.*, 45.

³² Rudolf Schwarz, "Die Großstadt als Tatsache und Aufgabe." *Die Schildgenossen* vol. IV, 1927, 301-307.

³³ Rudolf Schwarz, *Von der Bebauung der Erde*, Heidelberg: Verlag Lambert Schneider, 1949.

³⁴ Fritz Neumeyer, *Mies van der Rohe: Das kunstlose Wort, Gedanken zur Baukunst*, Berlin: Siedler, 1986. On the deep influence of Schwarz on Mies's thought.

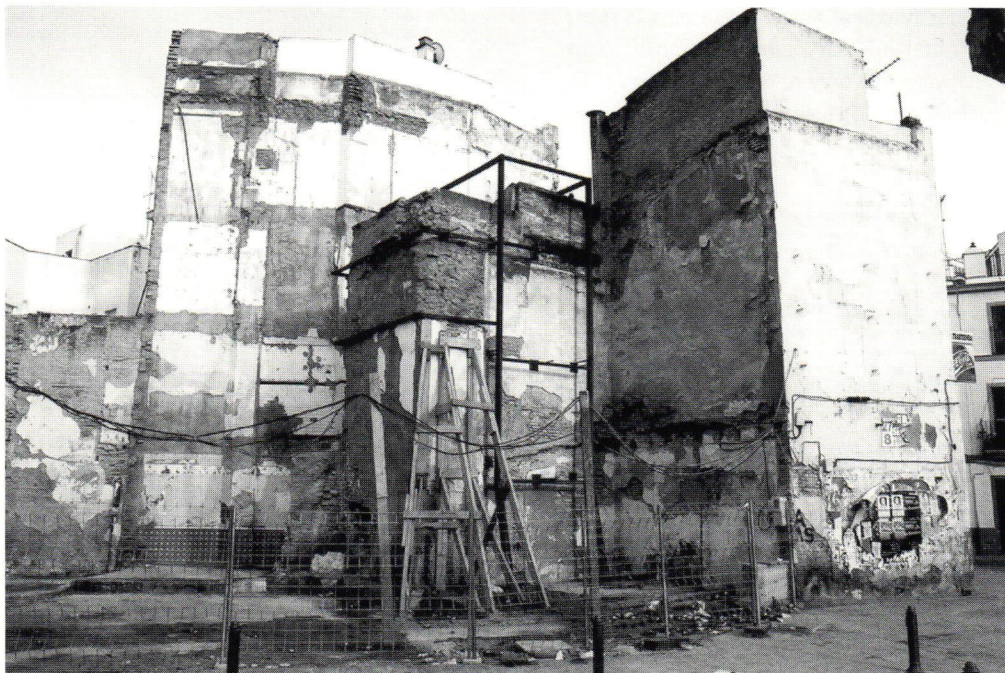
Illustrations

Fig. 1: Albert Ranger-Patsch, *Gothic Column*, 1929.

Fig. 2: Albert Ranger-Patsch, *Leaf*, 1929.

Fig. 3: Albert Ranger-Patsch, *Cranes*, 1929.

Fig. 4: Albert Ranger-Patsch, *Machine*, 1929.



1

Buildings in Transition



2

Nonremovable embedded components

JOHN E. FERNANDEZ
DIVERSIFIED LONGEVITY:
ORCHESTRATED OBSOLESCENCE FOR INTELLIGENT CHANGE



"L'architecture est celle qui fait des belles ruines"

Auguste Perret

The very basis of architecture's fidelity to human needs has been its constancy—its unwavering humble service to the fundamental physical requirements of a species not very well suited to living, unprotected, in the elements. The ability of architecture to efficiently provide protective, secure, rigid, and habitable shells has been challenged by the hyperactive flux of contemporary life, characterized by changing patterns of living and working, highly mobile populations, and the increasing capitalization of the world's economy. These forces have often confounded schools of thought intent on establishing a permanence of forms and have often acted to render impotent the designer's best predictions of use and occupation. Our buildings fall prey to contradictory visions. We are increasingly accustomed to frenetic changing modes of production, information dissemination, technological innovation and social norms, while we continue to insist on a permanence of buildings. The common question, "Why can't we design and build architecture that lasts," is not only on the mind of a self-proclaimed critic like the Prince of Wales, but also in the thoughts of almost anyone inquiring about building today. However, a more relevant question to ask may be, "Why can't we design buildings that easily change?"

Part of the answer lies in our ideas about the permanence of buildings. The sight of abandoned buildings—indeed, buildings in most any state of change—still easily depress-

es us; construction annoys us and the process of renovation confounds us in its seemingly primitive techniques. In light of this, as change continually flutters around us, our buildings are still difficult to modify and involve the expensive processes of mobilizing construction capacity to the specific site of the building. During our lifetimes, or at least during those periods of time that any of us spend living in particular locations, the permanence of the structures that we use is a welcome counterpoint to the flux of most everything else. Besides the obvious functional roles that buildings play, the psychological value of the permanence of structures is an important component to the formulation of a sense of place, and as such, of community. And yet, these same buildings, viewed within the larger span of decades do begin to exhibit the kinds of organic evolution that we identify with smaller, more 'liquid' objects. In fact, looking a little closer, it is clear that buildings have always accommodated change through a shearing of systems layers, as demonstrated by Frank Duffy, or through their simple disappearance.¹

Our buildings are simply representative of the contradictory priorities that contemporary societies place on the relative value of permanence vs. flexibility, durability vs. low embodied energy, and commitment to craft vs. first costs and speed of construction. Our buildings embody permanence while sustaining the continual efforts to adapt them to the evolving needs of their use. Edward Ford reminds us of the continuing contradictions of contemporary construction through the following listing of sometimes mutually exclusive priorities:

Good construction equals minimal material.

Architectural form is temporal.

Architecture is the expression of permanence through solidity and mass, regardless of the quantity of material required.²

Ford offers the example of Norman Foster's Sainsbury Center for the Visual Arts, built in 1975 and renowned for its adamant adherence to a use of minimal material. Ten years later, the building's exterior skin was almost completely replaced due to leaks through the roof and walls that eventually damaged the structure. Similarly, the Centre Pompidou in Paris (Fig. 3) has recently completed an extensive renovation costing 576 million francs (1999). The renovation addressed the premature aging of the polymer glazing and the failure of the exterior envelope. While some of the problems arose from the project's attempt to be a grand experiment, others were a result of the complexity of form and the proliferation of components born of an ideology that valued lightness and minimal material use. These buildings were meant to demonstrate flexibility, allow for evolution of form and optimize patterns of use.

The areas given have been estimated [to be] sufficient for the full exercise of all activities presently foreseen. No extension of the building is to be planned, as the collections will be periodically renewed...On the other hand, the Centre's internal flexibility should be as large [i.e., great] as possible. In a living and complex organism such as the Centre, the evolution of needs is to be especially taken into account.

Piano and Rogers, Arup Competition Team.³

It may seem that a museum, with its flux of exhibits as well as visitors would be the ideal model for a flexible, "adaptable" building. However, the kinds of buildings that are required to change quickly, that evolve and grow appendages, and shake off entire sections are those that house large scale processes: commercial office buildings, manufacturing facilities, distribution centers, warehouses, and other industrial- and commerce-related architecture. Functional buildings are tools for manufacturing, distribution, and storage and are links in a system for the production and delivery of goods and services. The same forces that engendered their existence require these structures to respond to change—quickly, effectively, and precisely.

While these kinds of buildings must change swiftly, they are also subject to receive severe and rapid decommissioning orders from those who control the needs of the production flow. Decommissioning has produced wastelands of discarded buildings, from the steel mills of Pennsylvania to the empty ghost towns of Midwestern downtown business districts. Indeed, interest in refurbishment has led some researchers to analyze the potential inherent in Brownfield sites as a large-scale, unclaimed resource for future development.⁴ One need only spend an afternoon walking through Detroit's downtown to realize that the exodus of business can be so extreme and unexpected that the remains resemble abandoned Hollywood stage sets—empty, grand, and richly ornamental testaments to visions that never achieved a graceful and dignified old age. As Kenneth Frampton points out, these abandoned industrial landscapes remain "meaningless ruin[s] of regional dimensions."⁵



Misperceptions about the direction of growth, technologies, urban form and architectural needs are no more egregious in their errors than the innumerable mistakes made about any future technology or material enterprise. However, the difference between the end of the life of a large-scale building and the end of the utility of an object, such as a car, is the inability of the building to easily cease to be present, and our incapacity to easily remove it from its context. Buildings, for reasons of their sheer size, material cache, and need to enclose large volumes, are literally rooted in a site—a piece of land.

Buildings not only mark the landscape but also contain an almost unrecoverable material resource. The materials used in the building are forever wedded in their service to

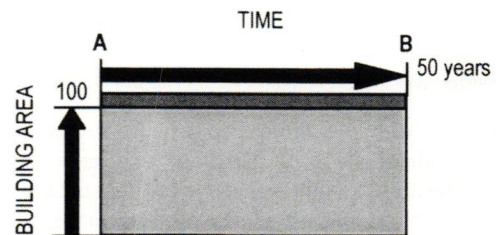
that particular facility. Once that service has been completed, the material, and therefore its continued value are no longer recoverable. Using a real estate term, the material has no designated exit strategy.

THE THEORY OF DIVERSIFIED LONGEVITY

Various theories have been promoted for the production of a flexible architecture. Strategies for making flexible architecture remain rather vague, due in part to the enormous complexity inherent in regulating the relationship between hundreds of distinct components serving various independent and semi-independent building systems. The most specific guides have been lists of rules that organize the kinds of design strategies to determine the making of a flexible architecture through component design.⁶ The Theory of Diversified Longevity that I propose offers an alternative. Rather than depend on the design of flexible components as the only strategy for a flexible architecture, a consideration of the embedded longevity of large-scale building sections could yield a more flexible architecture simply by varying the lifetimes of the sections themselves. That is, the longevity of a building—the predetermined obsolescence—usually considered to be one length of time (Fig. 4), such as 50, 65, or 75 years, can be composed of several separate service lives, assigned distinct durations and distributed throughout different sections of a large building (Fig. 5). Large-scale buildings may be best considered in terms of a range of lifetimes that easily allow for a variety of futures. The needs of the original occupants and the range of future occupation possibilities should determine this longevity distribution and the range of lifetimes for the future. The overall intent is to allow a greater flexibility of present use and accommodation of anticipated and unanticipated future uses. Therefore, while there is ongoing work to determine the single service life of a facility, the problem of accurately predicting future use remains.⁷ However, by diversifying lifetimes, an accurate divination of the future is not necessary. The value of such a process—the planned diversity of decrepitude—resides in the fact that the building then possesses a range of lifetimes, and by consequence, a range of embedded attributes such as embodied energies, adaptive reuse possibilities, materials systems, rearrangement options, initial cost, and durability. The building therefore, in its production, has been imbued with a diversified range of obsolescence codes. Each section of the building carries within itself a genome that specifies its longevity.

This alternative method allows for a redefinition of the necessary initial investment and the resultant real estate value of large-scale facilities. A simple example can be rendered as follows: a building may be designed, specified, and built with the typical 50-year life, as defined by contemporary practice. Alternatively, that same building may be designed with a range of lifetimes distributed over the built area in a mix, for example, of 5% at 3 years, 10% at 10 years, 20% at 25 years, 50% at 50 years, and 15% at 100 years and beyond.

Clearly, the 15% of the building built beyond the typical 50-year limit will be more expensive to build. More durable materials and greater care in construction will normally place a premium on this portion of the building. That added expense may be offset by the 35% built at a shorter duration than the 50-year mark. The precise calculation of an optimal mix would depend on the correlation between needs and the specific material systems and construction techniques employed. However, the ramifications of such a strategy would yield interesting results.



4

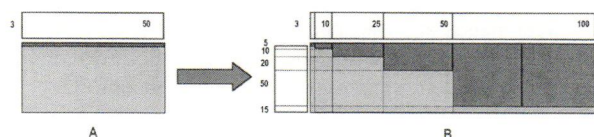
Homogeneous lifetime model

Diagram A in Figure 6 shows a simple 50-year life design; Diagram B shows the diversified lifetime model with each section charted in terms of its area contribution and service life. First, the tenant would be obliged to reconsider their space demands at the end of 3, 10, and 25 years before the building reached the commonly accepted lifetime limit of 50 years. While this is an added responsibility in the use of the building, it would also allow an incremental reconsideration of the facility's needs, and provide a method for acting on that reassessment. At any of these three points during the use of the building, the owner could decide to remove those sections of the building permanently. If the space is not needed, the owner could reuse or even place back into the market the materials of that section. Furthermore, the underutilized section would not be incurring running costs, such as energy, lighting,

Project Component	Percentage of total project area	Lifetime (years)
Section 1	5	3
Section 2	10	10
Section 3	20	25
Section 4	50	50
Section 5	15	(+) 100

Diversified Longevity Distribution

maintenance etc., and the removal of the piece would allow for a net savings to the owner. On the other hand, if the piece is essential to the owner, it could be rebuilt, now with the option of a service life longer or even shorter than the original. Thus, the owner would have options for the manipulation of the physical facility that are not available otherwise.



From homogeneous lifetime to diversified longevity model

Second, the overall building could be built with a lower total embodied energy. A building of diverse lifetimes could orchestrate a more precise delineation between user needs and the embodied energy costs incurred. Also, at the end of the service lives of individual sections, the materials of that section could be circulated back into the building or reused elsewhere. Third, a building of diverse lifetimes may evolve to suit an evolving business or process more readily than monolithic single-life construction. Production factories would be able to reassess the performance needs placed on their facilities at discrete increments and act to remove or modify those portions. Fourth, the exit strategy for each section would be a liberated store of potentially useful material. These components could be an ongoing material transfer to the community. Fifth, the building would have the ability to enter into a lifetime of use in the next generation for the portion designated to last far into the future—100-300+ years. However, the next use would most likely not be in the service of the original owner and therefore, the embedded value of the long-lived section would transfer to the community or another owner.

And finally, a diversified lifetimes approach would acknowledge the uncertainty of the intensity of future use by providing a range of evolutionary patterns. As a result the under- or over-utilization of the building and the site would be reduced.

5

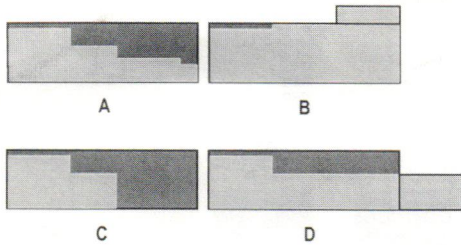
Using the same graphic introduced above, with time charted horizontally from left to right and occupied space on the vertical axis, the profile of the building's evolution over time could resemble any one of the diagrams shown in Figure 7. Each diagram shows the profile of the occupied space over time. In A, the building decommissions each separate section as it reaches ultimate age; B shows the building's expansion over 50 years; in C, the building contracts dramatically and ceases to provide for any occupied space; and in D, the building's occupation extends beyond 50 years. Reassessing user needs during the building's occupation and accessing the diversified lives embodied within the distinct building sections can accommodate each of these scenarios.

6

The ability to accommodate the scenarios above, individually or in any combination, also results in a lowering of the overall risk to the owner. A building that may accommodate change during various scales of time will reduce the risk that the facility will become underutilized or overstressed. Each terminal date also provides a period of renewal in which the facility lifetime may be reassessed and the design and construction of any additional pieces may respond better to a more accurate picture of the users' needs.

The result is a building of lower life cycle cost, (Fig. 8 and 9). The ability to change with the production needs may be satisfied by a building that has, embedded within in its genome, a variety of lifetimes. These traits are particularly useful for large-scale facilities and collections of buildings. Corporate campuses, large-scale industrial facilities, and other types of production-oriented buildings could benefit from such an arrangement. Figure 11 shows an example of the evolution of a building plan, and its dominant typology through time by following the disappearance and reappearance of various volumes with a diversified set of designated longevitys.

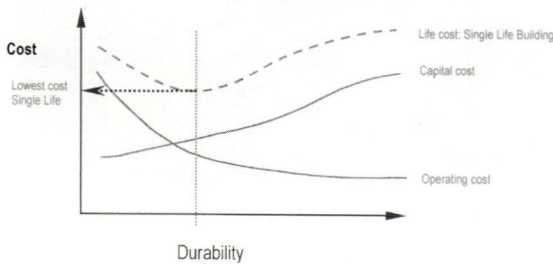
The principal component of Diversified Longevity is, what I am calling here, the Architecture of Disengagement. This phrase refers to the strategy of embedding into the design of components and assemblages their own strategy for



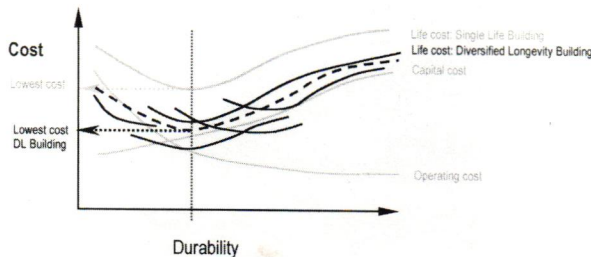
7

Various modes of evolution for a diversified longevity building

disengaging from the building. In addition, disengagement will also occur at the level of large-scale building masses. As a result, the materials of a building will not need to remain in place once their useful service to that particular building has ended. A full rendering of the Architecture of Disengagement will be reserved for a future paper. However, an example is shown in Figure 10, in which a building module composed of biocomposite panels, reclaimed timber superstructure, earthen foundations, and thermoplastic polycarbonate sheeting for glazing are all completely removed from the site it occupies after the lifetime of 3 – 7 years. The remnants of the foundations are in its place with the possibility of a community garden.



8



9

(top) Value for investment, single life building
(adapted from [8] Best and de Valence, 1999)
(bottom) Value for investment, diversified life building

10

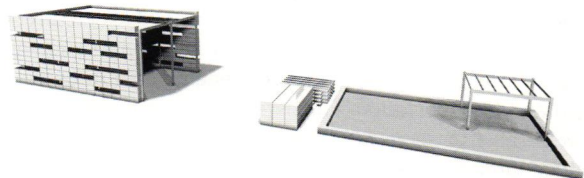
This module is simply one of many modules, of varying lifetimes, that come together to form the overall volume of the building.

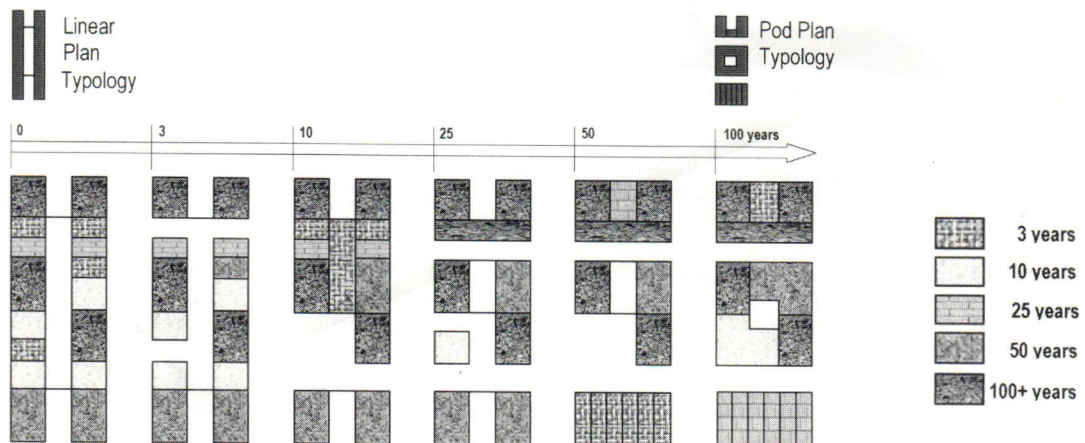
CASE STUDY: BRITISH PETROLEUM HEAD-QUARTERS, ABERDEEN, SCOTLAND

The principles outlined above derive from the initial stages of an ongoing building and research project for the new Exploration Headquarters for British Petroleum in Aberdeen, Scotland.⁸ As part of a research project funded by the Cambridge-MIT Institute, British Petroleum has granted the inclusion of a research agenda within the normal design process for their new 36,000m² facility. The project is an ideal test case for BP as they have decided to commission a new building in Aberdeen to replace the existing space. While the building to be decommissioned is not quite 30 years old (Fig. 12 and 13), it has been deemed too difficult to adapt to current needs. Corporate projections show that the production levels in the North Sea oil fields will be decreasing dramatically over the next fifteen years. As a result, the size of the work force in Aberdeen will also decrease dramatically. These conditions call for a building that is carefully diversified to allow for an uncertain future.

In addition, the overall work force in the facility varies dramatically according to oil price. In 1998, the work force numbered 1,250. In the fall of 2000, it reached 1,670 and is projected to increase to 1,800 through various acquisitions in the period between 2003 and 2005. However, significant variations on these numbers depend on the health and stability of the oil industry.⁹

Therefore, in the short term the building needs to accommodate significant flexibility both in its internal organization and spatial definition as well as its overall size, gross area, and volume capture. Over a long-term period—50





11

Evolution of a building from one plan typology to another

years and beyond—the forces acting on the facility may go well beyond the level of flexibility articulated by the authors of BP's design brief. Anticipating the overall work force and area needs for the facility beyond 50 years is no better than guess work. Accommodating change through an intelligent resource management design that addresses the long term is the goal of the principles of diversified lifetimes.

THE EUTHANASIA OF ARCHITECTURE

Without significant attention to the subject of obsolescence and the longevity of architecture, we will inevitably find ourselves committing an increasing number of acts of euthanasia on buildings that have reached a painful and premature end. A building that cannot commit itself to the future by disengaging its valued components will become a drain on nonrenewable material resources. The current BP headquarters in Aberdeen, built for BP in 1976, is one case of a building decommissioned before its time. the facility is a mere 300 yards from the site of the future building but has been determined unsuitable for current and future modes of business. Such a decommissioning results in huge material waste and energy cost in demolition and transportation. Furthermore, these buildings will not be able to serve future generations in a positive way, either through their continued use and adaptive reuse or their decommission and reclamation of materials and components. The large-scale owners that have the ability



12



13

to consider a more holistic assignment of a diversified set of lifetimes will also benefit in the short term, as their investment exposure will be reduced. The Theory of Diversified Longevity is meant to address the need for buildings to become more responsive to their eventual demise, reuse, irrelevance, expansion, and overall ability to provide options to future generations.

Notes

- 1 S. Brand, *How Buildings Learn*, New York: Penguin Books, 1994, 13.
- 2 Edward Ford, "The Theory and Practice of Impermanence," *Harvard Design Magazine* (Fall 1997): 12.
- 3 Nathan Silver, *The Making of Beaubourg. A Building Biography of the Centre Pompidou, Paris*, Cambridge: MIT Press, 1994, 24.
- 4 R. Ball, "Developers, regeneration and sustainability issues in the reuse of vacant industrial buildings," *Building Research & Information* 27(3) (1999): 140-148.
- 5 Kenneth Frampton, "Intimations of Durability, Notes on Architecture and the Theme of Time," *Harvard Design Magazine* (Fall 1997): 22-28.
- 6 E. S. Slaughter, "Design strategies to increase building flexibility," *Building Research & Information* 29(3), (2001): 208-217.
- 7 T. Nireki, "Service life design," *Construction and Building Materials* (1996): 403-406. G. Soronis, "Standards for design life of buildings: utilization in the design process," *Construction and Materials*, (1996): 487-490. R. Best, and G. de Valance, *Building in Value (Pre-design Issues in Construction)*, London: Arnold, 1999.
- 8 British Petroleum, *Design Team Brief for New Exploration HQ Building*. Internal BP document, September 2001.
- 9 Ibid.



WINNIE WON YIN WONG
DISCLAIMER: REPRODUCING NEGATIVE THOUGHT

Culture Jammer's

MANIFESTO

We will take on the archetypal mind polluters and beat them at their own game.

We will uncool their billion-dollar brands with uncommercials on TV, subvertisements in magazines and anti-ads right next to theirs in the urban landscape.

We will seize control of the roles and functions that corporations play in our lives and set new agendas in their industries.

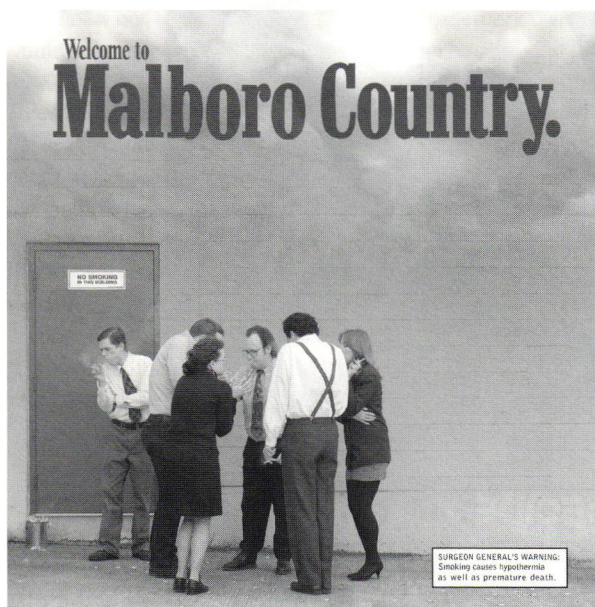
We will jam the pop-culture marketers and bring their image factory to a sudden, shuddering halt.

On the rubble of the old culture, we will build a new one with a non-commercial heart and soul.

These images, provided by the *Adbusters Media Foundation*, reproduce, in satirical fashion, the legally registered trademarks of *McDonald's*, *Smirnoff*, *Nike*, *Volkswagen*, and *Marlboro*.¹ Is it legal for *Thresholds* to (re)publish these images? Registered trademarks are defined by the United States Patent and Trademark Office as, "any word, phrase, symbol, or design, or a combination of words, phrases, symbols or designs, that identifies and distinguishes the source of the goods of one party from those of others."² However, in American history, the rights of the trademark owner over images made of the registered trademark have always been a point of contention, situated between the principles of free speech and private property. In *Adbusters'* satirical (re)production of registered trademarks, the problem resurfaces with a circular result: Can reproduction of the images of capitalist power have a serious impact in criticizing the capitalist practices and messages, when all such images are already owned by those same capitalist powers?

The artists who make these images rely on anonymity. The images are freely distributed and are intended for anonymous application to empty billboards, as posters, in underground publications, etc. *Thresholds*, on the other hand, is reproducing these images in a journal owned by an identifiable entity—the MIT Corporation. In the interest of public culture, Judge Alex Kozinski has designated that "Nominative Fair Use" is allowed for "purely referential usages of the mark...only when the product or service cannot be identified without use of the mark and no sponsor-

might even be interested in this work. When I told him that we were interested because he seemed to be aligning himself with an artistic practice we call the “avant-garde,” he answered: “I don’t know anybody here who thinks of what we do as an ‘artform.’ To me this is another kind of ‘speak.’ Artspeak. Marketingspeak. Maybe a kind of Academicspeak.”



4

Lasn here is using the rhetorical negative thought. Say no to your accuser’s charges. Claim that you are the first. Claim that your movement cannot be defined. Lasn’s refusal to subscribe to the artistic avant-garde, however, is strange, considering his constant reference to his artistic predecessors. He claims that *Adbusters* “engage in what German philosopher Immanuel Kant called ‘beautiful acts’ rather than ‘moral acts.’” Lasn also quotes the “revolutionary situationist,” Guy Debord with great frequency in his book, *Culture Jam* (US\$13.00, Canada \$19.95). Moreover, *Adbusters* writes Manifestos—whether the manifesto printed here, or the 2000 *First Things First Manifesto*—urging designers not to sell their artistic souls to evil corporate power.

However, the most problematic aspect of *Adbusters*’ method of production is, that in addition to providing a

global network of Culture Jammers with free images and ideas, purchasing TV time for “uncommercials,” and subversively pasting anti-ads on billboards, *Adbusters*’ primary activity is the publication of a glossy magazine; a 10 issue subscription costs \$40. Why should I buy a magazine which purports to say that being a consumer ruins my spiritual and cultural life? Yes, you say, but they have to be funded *somehow*.



If you polluted the air in the 80’s,
here’s your chance to redeem yourself.

Riders wanted. 

www.adbusters.org

5

Lasn also argues that his use of capitalist techniques should be overlooked considering that *Adbusters* work is “social marketing” rather than “product marketing.” In other words, *Adbusters* distinguishes its goals. It does not seek to be profit-making based on a material good that is bought and sold, but it seeks to capitalize on ideas, or what Lasn calls the “mental environment.” However, what else are advertising fictions—images that say smoking *Marlboros* makes you an outdoorsy kind of manly man—if not “ideas?” To the question, “What is the difference between the mental environment and the marketplace?”

Lasn answers, "I don't think there is a need to draw a line."

Again, Lasn's statement reveals the inherent contradictions of *Adbusters'* work. Drawing the line between the mental environment (the field as the artist conceives it) and the marketplace (the larger capitalist structure in which the artist produces) is exactly what *Adbusters* tries to do—to show the difference between capitalism's production of consumer society and real society as we should live it.

My attempt to engage Lasn in articulating the relationship between the mode of production of *Adbusters*, and the messages that *Adbusters* makes, led him to assert that the culture jamming movement, like all movements, "will eventually be co-opted. That's the nature of culture." Perhaps, this is the clearest statement of Lasn's position. Co-optation of criticism into the structures of capitalist production is the goal of his form of negative thought. "Culture" is co-optation. If this is the case, reproduction occurs not only when advertising campaigns use superficial and false Post-Seattle, Anti-WTO, and environmentalist messages to sell us SUVs, but also when an avant-garde movement reproduces the cool of the uncool (or is it the uncool of cool?) At least one thing is reproduced: the supremacy of design and visuality as a mode of production itself. Perhaps that is something on which *Thresholds* can capitalize.

Notes

¹ The Adbusters Media Foundation is based in Vancouver, Canada. It serves as a central meeting point for "Culture Jammers," an international movement representing a variety of political positions and activities including environmentalism, anti-globalization, anti-secularism, and anti-mass-media. The majority of these groups use protest, performance, and parody images to contest the supremacy of corporate power and consumerism.

² United States Patent and Trademark Office, "Basic Facts about Trademarks."

³ For an extensive study of the cultural appropriations of trademarks, see Rosemary J. Coombe, *The Cultural Life of Intellectual Properties: Authorship, Appropriation and the Law*, Duke University Press, 1998.

amass enough background in the field to judge which scientific terminology or diagrams serve to confuse rather than inform.

The table is read counter-clockwise, the first letter across the top, the second from the left, and the final from below. I depicted what I thought to be an interesting relationship in how each of the three letter codes were determined predominantly by the first letter, as the last letter was rarely unique (methionine and tryptophan being exceptions). The arrangement does not account for errors that occur during the copying of genetic data, which caused by a basic failing of the machinery, or whether that failing is further induced by something like radiation.

		Second Position				Third Position
		U	C	A	G	
First Position	U	UUU Phe	UCU	UAU Tyr	UGU Cys	U
	U	UUC	UCC	UAC	UGC	C
	U	UUA Leu	UCA	UAA Stop	UGA Stop	A
	U	UUG	UCG	UAG Stop	UGG Trp	G
C	C	CUU	CCU	CAU His	CGU	U
	C	CUC	CCC	CAC	CGC	C
	C	CUA Leu	CCA	CAA Gln	CGA	A
	C	CUG	CCG	CAG	CGG	G
A	A	AUU	ACU	AAU Asn	AGU Ser	U
	A	AUC	ACC	AAC	AGC	C
	A	AUA Ile	ACA	AAA Lys	AGA Arg	A
	A	AUG Met (start)	ACG	AAG	AGG	G
G	G	GUU	GCU	GAU Asp	GGU Gly	U
	G	GUC	GCC	GAC	GGC	C
	G	GUA Val	GCA	GAA Glu	GGA	A
	G	GUG	GCG	GAG	GGG	G

4

UUU phe	UCU	UAU	tyr	UGU	cys
UUC	UCC	UAC		UGC	
UUA leu	UCA	UAA	stop	UGA	stop
UUG	UCG	UAG		UGG	trp
CUU	CCU	CAU	his	CGU	
CUC	CCC	CAC		CGC	arg
CUA leu	CCA	CAA	gln	CGA	
CUG	CCG	CAG		CGG	
AUU	ACU	AAU	asn	AGU	ser
AUC	ACC	AAC		AGC	
AUA ile	ACA	AAA	lys	AGA	
AUG met	ACG	AAG		AGG	arg
GUU	GCU	GAU	asp	GGU	gly
GUC	GCC	GAC		GGC	
GUA val	GCA	GAA	glu	GGA	
GUG	GCG	GAG		GGG	

5

AMINO ACID	CODE (1 ch)	CODE (3 ch)	POLAR REQ	HP
Alanine	A	Ala	7.0	H
Arginine	R	Arg	9.1	P
Asparagine	N	Asn	10.0	P
Aspartic acid	D	Asp	13.0	P
Asparagine or aspartic acid	B	Asx		P
Cysteine	C	Cys	4.8	P
Glutamine	Q	Gln	8.6	P
Glutamic acid	E	Glu	12.5	P
Glutamine or glutamic acid	Z	Glx		P
Glycine	G	Gly	7.9	P
Histidine	H	His	8.4	P
Isoleucine	I	Ile	4.9	H
Leucine	L	Leu	4.9	H
Lysine	K	Lys	10.1	P
Methionine	M	Met	5.3	H
Phenylalanine	F	Phe	5.0	H
Proline	P	Pro	6.6	H
Serine	S	Ser	7.5	P
Threonine	T	Thr	6.6	P
Tryptophan	W	Trp	5.2	H
Tyrosine	Y	Tyr	5.4	P
Valine	V	Val	5.6	H

		U	C	A	G	
U	U	UUU Phe	UCU	UAU Tyr	UGU Cys	U
	U	UUC	UCC	UAC	UGC	C
	U	UUA Leu	UCA	UAA Stop	UGA Stop	A
	U	UUG	UCG	UAG Stop	UGG Trp	G
C	C	CUU	CCU	CAU His	CGU	U
	C	CUC	CCC	CAC	CGC	C
	C	CUA Leu	CCA	CAA Gln	CGA	A
	C	CUG	CCG	CAG	CGG	G
A	A	AUU	ACU	AAU Asn	AGU Ser	U
	A	AUC	ACC	AAC	AGC	C
	A	AUA Ile	ACA	AAA Lys	AGA Arg	A
	A	AUG Met	ACG	AAG	AGG	G
G	G	GUU	GCU	GAU Asp	GGU Gly	U
	G	GUC	GCC	GAC	GGC	C
	G	GUA Val	GCA	GAA Glu	GGA	A
	G	GUG	GCG	GAG	GGG	G

6

Although the ordering is known, it is rarely depicted in texts. When the order is depicted visually (Fig. 4, 5, 6), the explicit pattern of the codes is not expressed. It was this impression that led me to develop *aasd*, which illustrates the identical information, but in a more compact and revealing manner.

CHROMOSOME STUDIES

Humans have 23 pairs of chromosomes. The first twenty-two are simply numbered, and the twenty-third is the "sex chromosome," which is lettered XY, for male, or XX, for female. The numbering is based on the length of the chromosomes, with number one being the longest, and the higher numbers the shortest. "Short" in the case of the chromosomes means 45 million letters, while long contains around 280 million letters.

These studies start with simplistic representations of the shortest chromosomes, and work towards visualizations that are increasingly more sophisticated as the size of the chromosome represented increases.

In the first chromosome of my series, 22 (Fig. 7), the letters of the entire chromosome are printed in succession, using a three pixel font and a one pixel border. At 150 pixels per inch, this results in an image that is five meters wide by five meters long. At this resolution, the text is readable at close range with a bit of squinting.

The visualization of chromosome 22 was generated by writing a Java program that parses a FASTA format file, commonly used by bioinformaticians as a data format for exchange. The program generates TIFF format images based on the data using a font designed in software. The large images are then loaded into Photoshop (representing about 2-3 gigabytes of data). The intent was to invoke a feeling for the magnitude of the data on a single chromosome. When most hear of the "three billion letters" of genetic data in a human, they have little grasp of the actual scale. My initial approach had been quite naive, I had hoped to develop a one meter square composition at around 600 dpi, in an attempt to make the millions of letters seem more tractable. However, it turned out that they

were not, and I had severely underestimated the scope of the data.

One of the problems posed by the first rendition of chromosome 22 is that it is difficult to look at any individual part, and that the visual itself is very flat. This image is taken from an interactive program that allows the user to perform an interactive, nonlinear magnification of the original image. This allows the user to push and pull the space in order to look at specific features without losing the context. Discontinuous perspective is a powerful theme that is also being researched in conjunction with this work.

[illegible]

The images of chromosome twenty-one (Fig. 8, 9) are a measured improvement over that of the twenty-second, with the coding areas colored slightly, and the non-coding areas shown in a lighter shade. The overall texture of the piece remains quite abstract.

Only around 3% of the human genome is believed to be “coding.” Thus, 97% of the letters are essentially unused and left over from the evolutionary process. A gene is made up of a series of letters that are read by the machinery of a cell and turned into amino acids and proteins, which in turn will perform functions within the body, whether to build more cells or regulate the body’s chem-

8

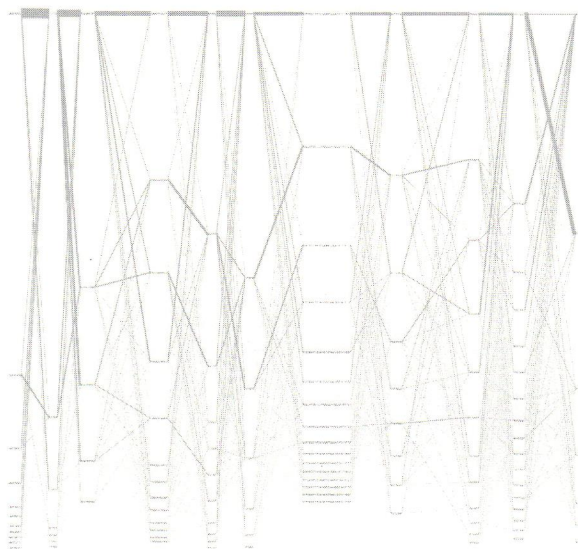
[illegible]

istry. Chromosome 14 (Fig. 15, pg. 33) is about 107 million letters long. There are 347 identified and named genes according to the most recent data from <http://genome.ucsc.edu> that was available when the piece was designed (there could easily be three times as many genes that have not been identified yet). Yellow wireframe boxes signify a gap between genes, an area of unused data. The blue areas represent parts where genes exist. The blue wireframe boxes are proportional in size to the start and end point of the gene within the sequence of letters, usually a few thousand letters apiece. The solid blue boxes within these frames represent the coding portions of a gene, shown in proportion to the start and end of the gene itself. Names of the genes, sometimes with short descriptions, are shown extending from the individual elements.

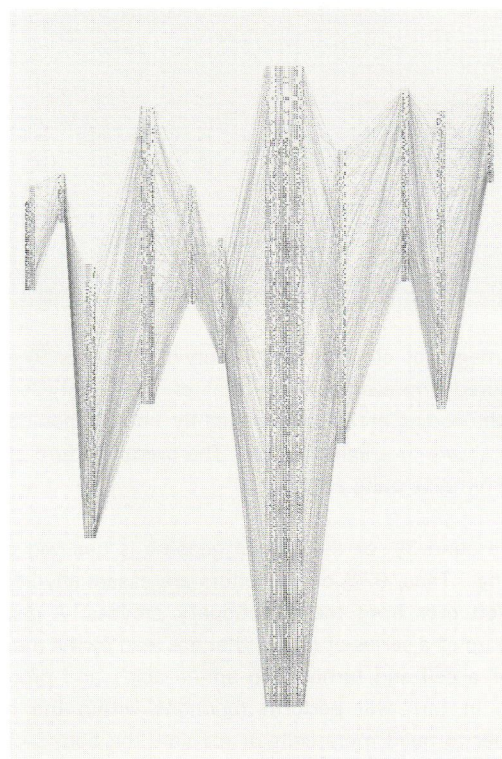
HAPLOTYPES

About every 1000 letters, a single nucleotide polymorphism, SNP, occurs. These SNPs account for a fair percentage of variation found when comparing the chromosomes of two people. The interesting thing about SNPs is that their ordering has distinct patterns. They group together based on physical characteristics of the chromosome itself and some other features that are still being determined. Groupings of variations will eventually lead to a haplotype map, which can help elucidate the variations found between different people, families, populations, etc.

The images here show SNP data taken from 500 distinct people, then broken into 11 clusters based on sets of SNPs that seemed to change as a group. For each of the clusters, there are patterns in the connections between them and within their adjacent clusters. The important work lies in discerning these patterns. The simplest representation (Fig. 10) connects each line of variation to the other lines. The result is the heavily intertwined form of hairlines, with the variations listed in order of relevance, with more relevant data found towards the bottom, for they are the denser sets of letters. The program takes a set of data as input, and can either run as a java applet to show the representation in a web browser, or it can output it to postscript format for high-resolution rendering.



10



11

The final image for this data set (Fig. 16, pg. 34) depicts the information most accurately and efficiently. Blocks of related SNPs are grouped together, with the percentage of each particular grouping depicted by the heights within the individual blocks. For each block, the gray lines connect a sequence of letters with the adjacent sequence. The thickness of the gray lines is based on the percentage of how often the two blocks are found adjacent to one another. Using an isometric projection, each block is slightly projected in the z-axis to provide extra room between the blocks that have very little data between them.

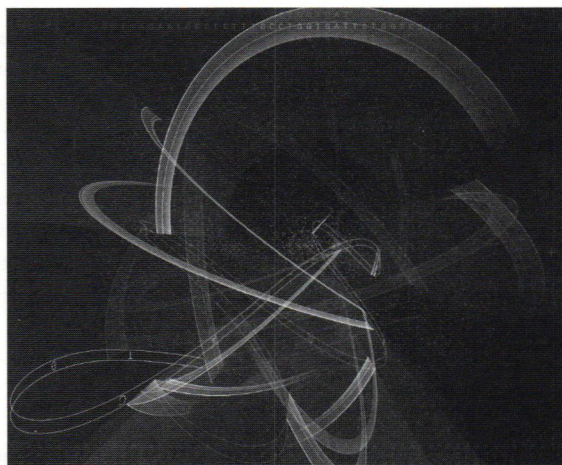
GENOME VALENCE

These images (Fig. 11, 12, 13, 18, pg. 35) are based on a previous project of mine, called *Valence*. The original version depicts changing structures and relationships within a dynamic data set, to build a three-dimensional representation of the text of the book, *The Innocents Abroad* by Mark Twain (Fig. 17, pg. 33). The genomic version of this diagram was developed as part of the 2002 Whitney Biennial in New York City.

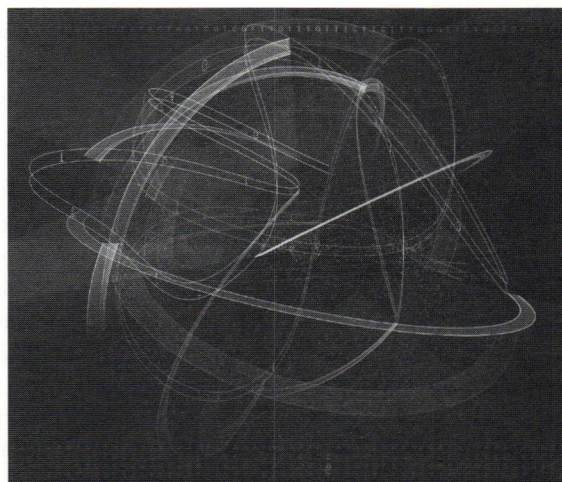
With several genome projects nearing states of completion, a primary use of the data for biologists is to search for a sequence of letters and to see if it is found in the genome of another organism. If the sequence is found, it is then possible, based on what is known about the sequence as it is found in the other organism, to guess the function of that sequence of letters. The Genome Valence images are visual representations of the algorithm (called BLAST) most commonly used for genome searches. The genome of an organism is made up of thousands of genes (34,000 for the human, 20,000 for the mouse, and 14,000 for the fruitfly). A gene is made up of a sequence of As, Cs, Gs, Ts that averages 1000 to 2000 letters apiece. In order to handle this amount of information, the BLAST algorithm breaks each sequence of letters into nine letter parts. Every unique nine letter set is represented as a point on the screen. The points are arranged from the center, with the most common sets on the outside, the less common towards the middle.

Example searches were run continuously, with the sequence being searched for scrolling across the top of

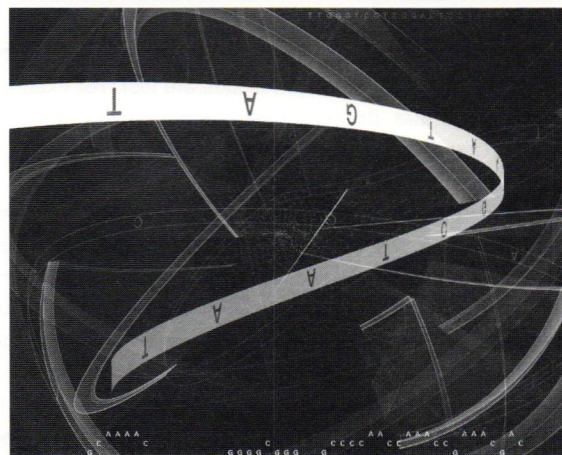
12



13



14



the screen. For each set of nine letters found in the sequence, an arc is drawn between its point in the space and the point representing the next set of nine letters. Meanwhile, the same sequence moves through the space as a ribbon of text, wrapping itself between the points that it connects. For most nine letter sets, there are three points, corresponding to the three organisms and how frequently that set is found in each. The three points are connected by the three lines on each arc—one for each of the organisms being represented—the outer ring is usually the human, the inner is the fruitfly.

LOOKING FORWARD

My research begins with an attempt to find adequate and sophisticated representations for genomic data, but will eventually broaden into issues related to the data represented that have more to do with ethical and cultural impact of where biology could take society over the next century.

Sadly, the issue of human cloning currently dominates media discourse, and by extension, public thought, on the subject of genetics. This is fueled by a reckless minority in the scientific community, and the difficulty in confronting the deeper questions in a brief news story. On several occasions, I have discussed my work with someone who became uneasy, only to ask whether I was interested in being able to alter the human genome. It is a sad assumption that a desire to understand an information space has more to do with a desire to master or manipulate it.

But with the discourse on genetics at its current state, the subtleties of more important issues are lost. For example, how, as a culture, do we handle inundation with the information that will be found within one's genome?

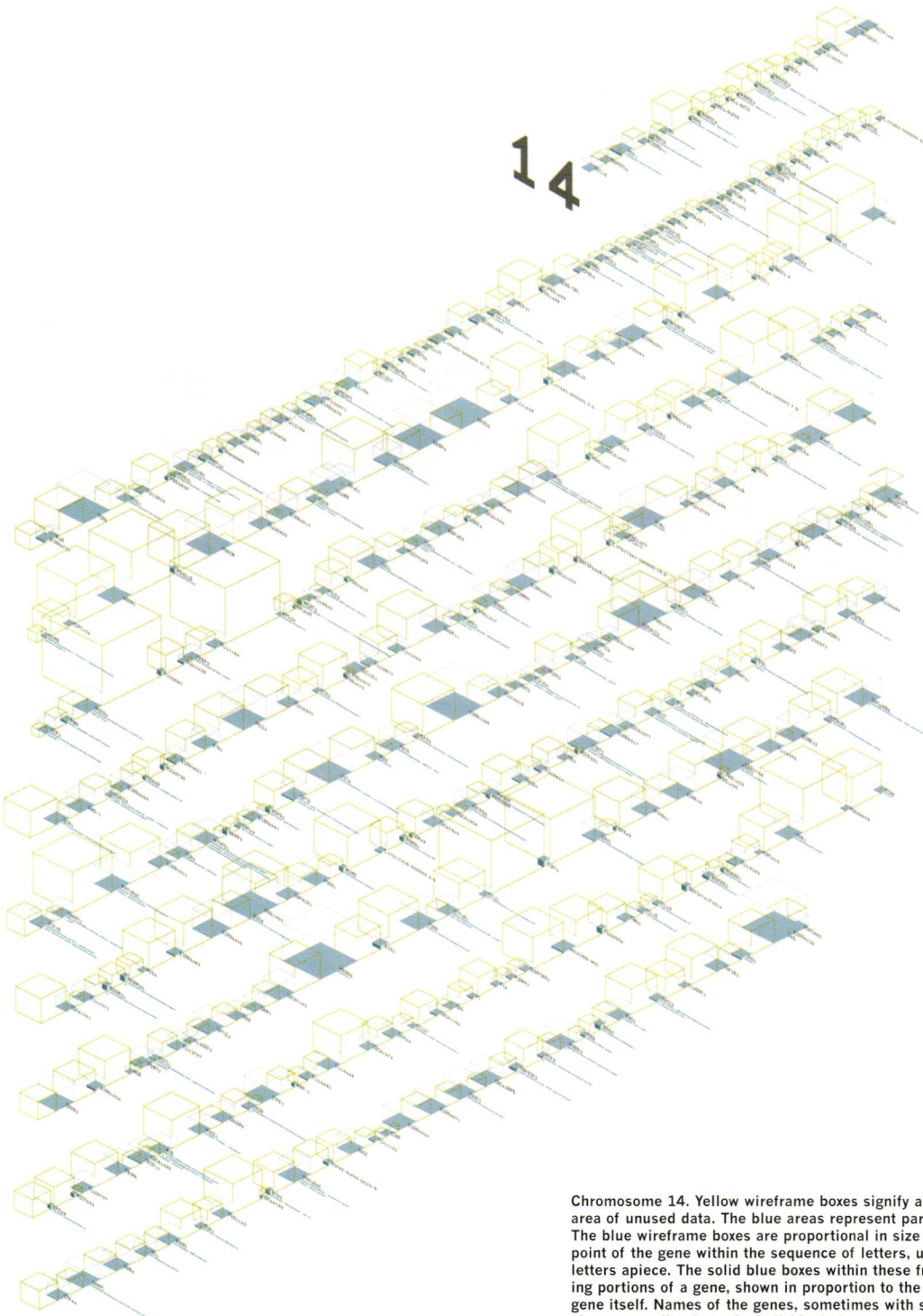
In the same way that there is no one simple "periodic table" to cover the human genome, there are not simple answers to the myriad of cultural challenges buried within the data that it represents. But if the complexities of the data can be coerced into proper representations, then perhaps such a visual might, through its teasing apart of the intricacies and complexities, help provide the basis for better understanding of gene properties. Greater public

legibility could incite the discourse of the more important, and decidedly more human, issues.

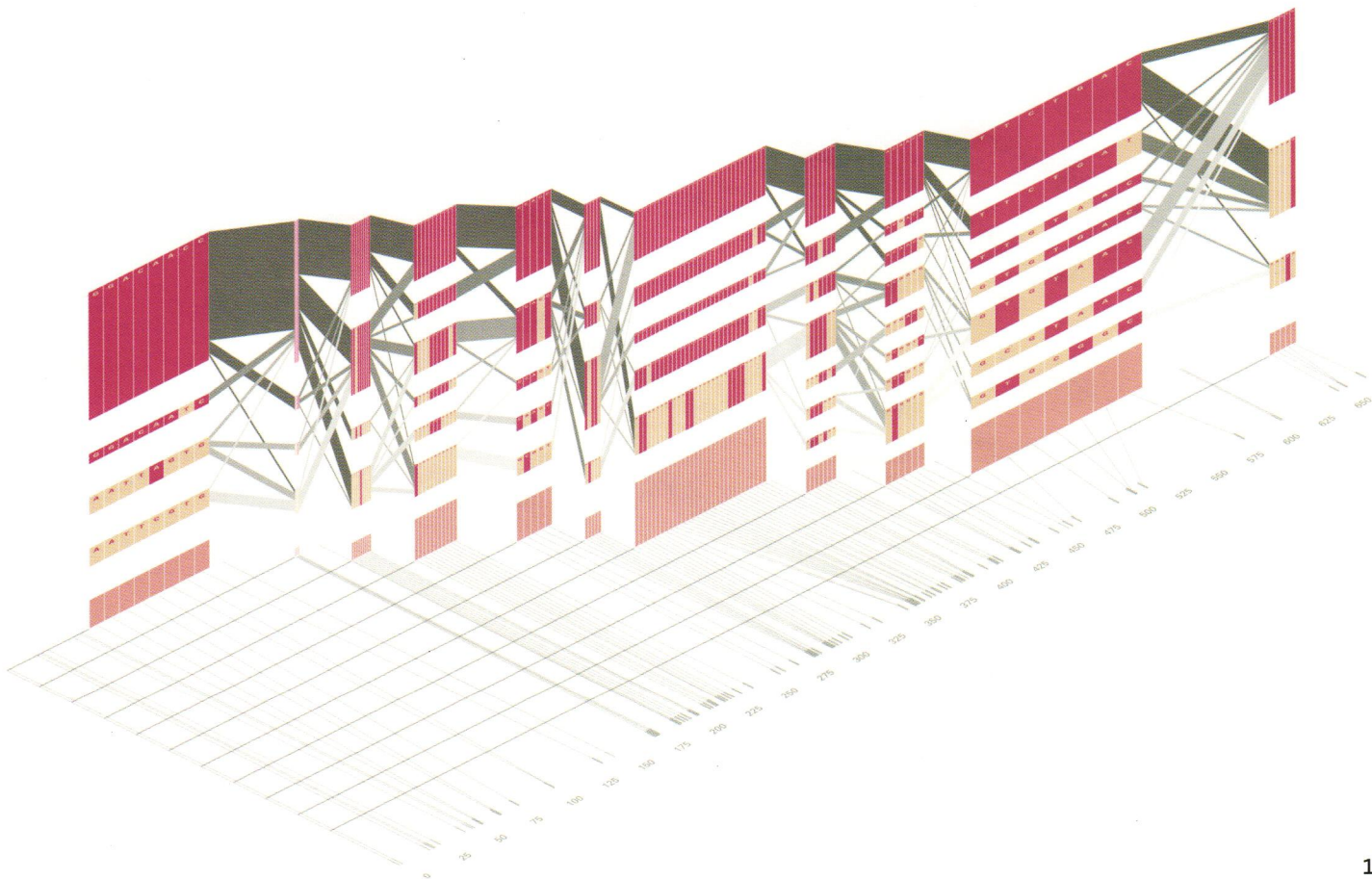
Illustrations

- Fig. 1: Dmitri I. Mendeleev, Periodic Table, 1869.
- Fig. 2: Periodic Table of the Elements, contemporary.
- Fig. 3: *aasd*: amino acid secret decoder, 2001, ©Benjamin Fry.
- Fig. 4: diagram, 2001, Gibas and Jambeck.
- Fig. 5: diagram, 1999, Brown and Brown.
- Fig. 6: diagram, 2000, Clote and Backhofen.
- Fig. 7: chromosome 22, 2001, ©Benjamin Fry.
- Fig. 8: chromosome 21, 2001, ©Benjamin Fry.
- Fig. 9: chromosome 21, zoom, 2001, ©Benjamin Fry.
- Fig. 10: haplotypes, collapsed, 2001, ©Benjamin Fry.
- Fig. 11: haplotypes, lines, 2001, ©Benjamin Fry.
- Fig. 12: valence, 0000, 2001, ©Benjamin Fry.
- Fig. 13: valence, 0003, 2001, ©Benjamin Fry.
- Fig. 14: valence, 0002, 2001, ©Benjamin Fry.

14



Chromosome 14. Yellow wireframe boxes signify a gap between genes, an area of unused data. The blue areas represent parts where genes exist. The blue wireframe boxes are proportional in size to the start and end point of the gene within the sequence of letters, usually a few thousand letters apiece. The solid blue boxes within these frames represent the coding portions of a gene, shown in proportion to the start and end of the gene itself. Names of the genes, sometimes with short descriptions, are shown extending from the individual elements.



An accurate scale of the space between the letters can be seen across the bottom of the image. The 650 at the right side of the image represents a distance of 650,000 letters. This constant scale connects to each of the individual letters within the blocks to provide an appropriate frame of reference.



1



2

SARAH ROGERS

HOURIA NIATI'S *NO TO TORTURE*:
A MODERNIST RECONFIGURATION OF DELACROIX'S
*WOMEN OF ALGIERS IN THEIR APARTMENT*¹

In 1834, Eugene Delacroix exhibited the first version of his work, *Women of Algiers in their Apartment* at the Salon in Paris. Photographed, painted, and described representations of North Africa and the Middle East traveled through French society at the time. Both the subject of the harem and Delacroix's employment of conventional nineteenth-century artistic tropes located his work within this popular nineteenth-century discourse on North Africa and the Middle East. One exceptional, authenticating detail, however, distinguished Delacroix's work from other nineteenth-century representations of the harem: he was the first European male to gain access to the private space of the Algerian woman. This small, yet crucial narrative accompanied Delacroix's painting, lending it an unprecedented artistic and documentary status.

Over a century later, in 1982, the Algerian artist Houria Niati problematized Delacroix's representation of the harem in her work, *No to Torture* (Fig. 1), by interrogating the historical accuracy and visual pleasure often ascribed to his painting. Quoting Delacroix's poses of the Algerian women, Niati reconfigures Delacroix's imagery through a modernist vocabulary. By defacing and amputating the figures, Niati inserts another body into the historical and artistic narrative: the tortured Algerian female body during the Algerian War of Independence from 1954-1962. In this essay, I will argue that it is the intersection of French colonial rule and Niati's use of modernist visual strategies that gives *No to Torture* its creative ambivalence, while radically subverting both the authoritative Western vision assumed

in Delacroix's imagery and the universal claims of modernist aesthetics.

No to Torture is a multi-media piece that was first exhibited in 1990 at the Cartwright Hall Museum in Bradford, England. Niati accompanies her paintings with taped recordings of herself singing traditional Algerian songs and reading poetry which she writes in French and translates into English. *No to Torture* includes five paintings. The viewer immediately recognizes the reference to Delacroix's *Women of Algiers in their Apartment* in the central painting (Fig. 2).² Niati strips away the familiar setting of the harem and the conventional Orientalist props, and situates the bodies in an abstract space, defined through clouded swatches of bold purples, reds, and blues. Removing the figures' clothing and jewelry, Niati builds up the figural bodies with thickly applied paint, and indicates a sense of corporeality through roughly defined color transitions. What does Niati achieve through her choice of representational strategies and how does her reworking of Delacroix's composition complicate the discourse which lends his work meaning? In order to address these questions, I will begin briefly with Delacroix's *Women of Algiers in their Apartment*.

After capturing the city of Algiers in 1830, the French government sought an alliance with the neighboring country of Morocco and in 1832 sent the Comte de Mornay to establish diplomatic relations with the Moroccan sultan. The Comte de Mornay invited Delacroix on the trip, as

lines of the figures at once flatten the figural body and also hint at a possible figure-ground relationship. Moreover, Niati's coupling of abstract and representational strategies within the figural body indicates an attentiveness to a second Modernist approach. Niati's application of red on the heel of the yellow figure's left foot and continuing up under the thigh alludes to a sense of figural three-dimensionality. Although Niati employs color gradations and brushstrokes to form the bodies, the same technique causes the disintegration of the body. The foot of the red figure, for example, loses form as it reaches the toes. Abstracted from the rest of the composition, the foot would resemble an oblong blob of red paint on a blue background. A parallel dissolution occurs with the red figure's left hand, which rests on the upper thigh. *No to Torture's* ambiguous blend of abstraction and figural representation recalls Willem de Kooning's *Woman Series* from the 1950s.¹³ In both works, the process of artistic agency in forming and deforming the female body is made visible through often violent traces of brushwork. Yet in Niati's work, the passive seductiveness of the figural poses works in tension with the disfigured faces, in contrast to the all-over dynamic movement of de Kooning's brushstrokes.

While scholars such as Linda Nochlin, Edward Said, and Malek Alloula have argued for a reading of nineteenth-century representational strategies integrated within the fabric of colonial ideologies, other art historians dispute what they consider a mapping of political discourse onto artistic representation.¹⁴ Rather, scholars such as John MacKenzie claim that nineteenth-century artists turned to the Orient as an alternative means of visual exploration.¹⁵ This debate continues into the twentieth-century with paintings of the Middle East and North Africa executed in the Modernist language. Roger Benjamin, discussing Matisse's work in Morocco, writes, "By dispensing of anecdotal realism of most nineteenth-century painting, the Modernist work reorganizes troubling subject matter in a way that endows it with the supposedly neutral character of abstraction."¹⁶ Focusing the meaning of Modernist representations of the Orient on formal concerns, art historians and artists are able to frame works within a primarily detached aesthetic discourse. Any possible political implications of the content are disguised beneath Modernism's claim to universalism through form.

Niati's enlistment of Delacroix's figures within a Modernist visual language allows for an undoing of the mythological apparatus of both Delacroix's harem and the universal language of form in Modernist art. As citations from Delacroix's work, one might view these figures and their attachment to a specific cultural code as signs imprinted on an otherwise abstract canvas. The bodies tread upon the spatial territory of Modernist abstraction and thus Niati unhinges abstraction from its claims to universality by playing it off a visual and historical specificity. The amputation and defacing of the body through a Modernist vocabulary brings to the surface that which is often displaced in Modernist aesthetic discourse—the violent and political history of colonialism embodied in the tortured and imprisoned female Algerian body.

I will conclude with a brief consideration of Niati's choice of title, *No to Torture*, which in its imperative tone implicates the viewer in the representation. The voice of the painting summons forth the voice of the viewer. Yet in an ironic gesture, Niati's title calls for the negation of the representation. By speaking "no to torture" the viewer is compelled to say no to the form and content of the painting. The title of the work translates the cultural symbol of Delacroix's work into a site of political activism. In recent decades, post-colonial studies have unmasked and confronted the political underpinnings of Delacroix's work. By directly involving the viewer, Niati forces us to do the same. The viewer's active voice thus works with Niati to disrupt two historical narratives, that of Delacroix's harem and the French silencing of the use of torture during the French-Algerian War.

Notes

¹ This paper was originally given at Boston University's 18th Annual Graduate Symposium in the History of Art in March 2002.

² It is interesting to note that in the few articles which discuss Niati's *No to Torture*, the only image reproduced is the central canvas, which refers directly to Delacroix's painting. The surrounding four canvases depict the same figural pose (Fig. 2), except that the body is painted in different colors.

³ For a literary description of Delacroix's adventures in Algeria and its political implications, see Assia Djebar, *Women of Algiers in Their Apartment*, trans. Marjolijn de Jager, Charlottesville: University Press of Virginia, 1992.

⁴ Todd Porterfield, "Western Views of Oriental Women in Modern Painting and Photography," *Forces of Change: Artists of the Arab World*, ed. Salwa Mikdadi Nashashibi, Washington, D.C.: The National Museum of Women in the Arts, 1994, 60. In his essay, Porterfield quotes the art critic Philippe Burty, who, in the 1880s, went so far as to claim that *Women of Algiers in Their Apartment* belonged to the modern ethnographic school.

⁵ Joanna de Groot, "Sex and Race: The Construction of Language and Image in the Nineteenth-Century," *Sexuality and Subordination*, eds. Susan Mendus and Jane Randall, London: Routledge, 1989, 95.

⁶ Meyda Yegenoglu, *Colonial Fantasies: Towards a Feminist Reading of Orientalism*, Cambridge: Cambridge University Press, 1998, 98.

⁷ I realize that it is problematic to speak of a monolithic nineteenth-century European audience, but I am referring here to a discourse of Orientalism, as defined by Edward Said, as a set of tropes which constantly referred to and confirmed each other, thereby establishing a stake in representation as material reality. See Edward Said, *Orientalism*, New York: Vintage Books, 1978.

⁸ For an analysis of the use of torture in Algeria by the French colonial government see, Rita Maran, *Torture: The Role of Ideology in the French-Algerian War*, New York: Praeger, 1989.

⁹ *Ibid.*, 2.

¹⁰ As quoted in Porterfield, 30.

¹¹ It is intriguing to note that Niati's artistic violence to the body is centralized on the face as the site of visibility.

¹² For such a reading, see Salah Hassan, "Nothing Romantic About It: A Critique of Orientalist Representation in the Installations of Houria Niati," in *Women, Patronage, and Self-Representation*, ed. D. Fairchild Ruggles, New York: State University of New York Press, 2000.

¹³ I would like to thank Erika Naginski for pointing out this comparison to me.

¹⁴ See, for example, Said, *Orientalism*; Linda Nochlin, "The Imaginary Orient," in *Politics of Vision*, New York: Harper and Row Publishers, 1988; and Malek Alloula, *The Colonial Harem*, Minnesota: University of Minnesota Press, 1986.

¹⁵ John MacKenzie, *Orientalism: History, Theory, and the Arts*, Manchester: Manchester University Press, 1995, 43.

¹⁶ Roger Benjamin, "Matisse in Morocco: A Colonizing Esthetic?" *Art in America* (Nov. 1990): 164.

Illustrations

Fig. 1: Houria Niati, *No To Torture*, 1983.

Fig. 2: Eugene Delacroix, *The Women of Algiers in their Apartment*, 1834.

Fig. 3: Houria Niati, *The Red Woman*, 1983.



1

SETH WEINER
CABIN 3

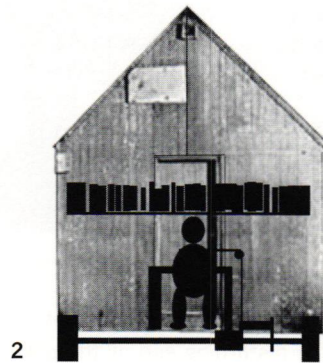
THE UNABOMBER MEETS THOREAU AT MIT¹

I designed *Cabin 3* as part of "Utility Slug," an exhibition which explores the future technological society and the certain turbulence that will accompany it. At first glance, *Cabin 3* bears a striking resemblance to the shack moved from Montana to a warehouse in California as evidence for the trial of Theodore Kaczynski, its infamous occupant, otherwise known as the Unabomber. However, *Cabin 3* differs from the mundane shack of the Unabomber with the addition of four automobile wheels that support the structure, integrated into the walls of the cabin.

Inside, the cabin contains a typewriter. If one uses the typewriter, the entire structure rolls backwards. The typewriter is the same make and model as the one used by Kaczynski to write *The Unabomber Manifesto: Technological Society and Its Future*. It rests on a desk that holds a typed manuscript of Henry Thoreau's *Civil Disobedience*. Members of the MIT community and the general public are invited to use the typewriter to write their thoughts—and thus, move the entire cabin—and then to place their writings inside binders on shelves lining the walls. *Cabin 3* is both an incubator and receptacle.

On May 18th, 2002, the cabin will be pushed down Massachusetts Avenue in Cambridge to Building 9 at 77 Massachusetts Avenue, MIT where it will remain until June 6. It will then relocate to other sites at MIT.

Through its location and function, *Cabin 3* brings the discourse surrounding the implications of technological progress to the public sphere.



It is a deceptively simple structure. Lumber, car parts, and a typewriter coalesce to form this hybrid of Henry David Thoreau, Theodore Kaczynski, and me. Its placement at MIT is both therapeutic and provocative, like a vaccine.

A convergence of both personal and professional pressures provided the inspiration for *Cabin 3*. During what must have been a nervous breakdown this past winter, I was unable to eat or sleep for a week, and I truly believed the only remedy would be to drop out of school and move into the woods. I was having an allergic reaction to urban society. The only thing worse than staying in my apartment was leaving it. Buildings, traffic, stores, movies, television, radio, books, and exposure to any social stimulus caused me emotional turmoil.

In my fantasy of moving to the woods, I pictured the plot of land I would choose and the cabin I would build. The

prospect of complete autonomy held such allure. But who would come with me? To escape the pressures and responsibilities around me, I needed autonomy and self-reliance, not a hermitic seclusion.



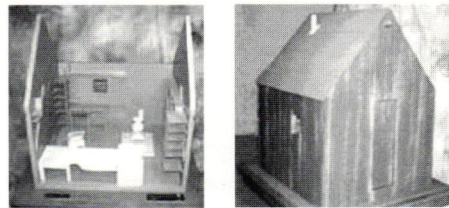
The identical model to the typewriter that Kaczynski used to write his manifesto in the cabin.

I turned my thoughts to *The Unabomber Manifesto*, which revealed to me the disturbing end of the path I was considering. Previously, I had been avoiding the Manifesto because that would serve to justify the violence used to get it published.

If we had never done anything violent and had submitted the present writings to a publisher, they probably would not have been accepted. If they had been accepted and published, they probably would not have attracted many readers, because it's more fun to watch the entertainment put out by the media than to read a sober essay. Even if these writings had had many readers, most of these readers would soon have forgotten what they had read as their minds were flooded by the mass of material to which the media expose them. In order to get our message before the public with some chance of making a lasting impression, we've had to kill people.²

The essence of *Cabin 3* resides within the tension between Thoreau and Kaczynski. Judging from *Civil Disobedience*, Thoreau would have abhorred Kaczynski's tactics. Yet,

both share a zealous belief in the right to individual autonomy. After all, Kaczynski is not a true Luddite as many see him. He is a paranoid schizophrenic with an intense desire for complete autonomy. He is an anarchist, and he has diagnosed technology as an unstoppable force in creating a completely interdependent system, which would preclude autonomy. Kaczynski's sickness may have contributed to his leap from thought to direct action against "the system."



4, 5

Scale models of Kaczynski's cabin built by the FBI

3



6

Kaczynski used terror and murder to manipulate the media. As such, the media was a silent partner. In *Cabin 3*, similar judgement is placed on the media. The project will be unsuccessful if ignored by the media. However, with cooperation from the media and from MIT, I hope that members of the MIT community will use the cabin and that it will provoke a public discourse. This simple structure has the potential to tap into post-September 11th

paranoia and to address the role of technology at MIT.

Kaczynski's cabin is an extremely simple structure. It has been widely referred to as "banal." I find that word highly simplistic and, well, snobby. The Unabomber's cabin shares the spirit and proportions of Thoreau's cabin, which has enjoyed such adoration in America that many people take it upon themselves to rebuild it. I prefer my own design. I would rather rewrite Thoreau than rebuild his cabin. That is what I will do inside the cabin every day, in addition to writing press releases, essays, and responses to inquiries.

Notes

¹ This project was made possible by the MIT Council for the Arts, the Department of Architecture, and the Office of the Arts.

² "The Unabomber's Manifesto," as published in *The Washington Post*, paragraph 96.



1

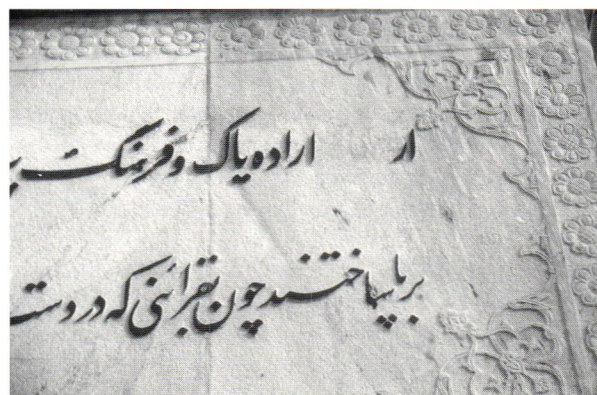
TALINN GRIGOR

USE/ MIS-USE OF PAHLAVI PUBLIC MONUMENTS AND THEIR IRANIAN RECLAIM

In this essay, I present five public monuments, the histories of which begin and are entangled with the politics of the Pahlavi Dynasty that ruled Iran from 1925 until the Islamic Revolution of 1979. One might assume that these structures, saturated with the representational ideologies of the last two kings of Iran, would have either been destroyed or ignored, but they survived, albeit altered, amended, and “unmade.” These monuments are what Stanford Anderson calls “semi-autonomous:” they have social meanings that are external to their form, as well as architectural meanings that are internal to the discipline of architecture.¹ The logic of this divide enables one to understand the development of these Iranian monuments over time. The physical persistence and sheer durability of these structures has not only determined their reception and interpretation, but also, and more importantly, helped them adapt to the different meanings imposed on them since their creation. In a sense, authorship of the monument changed and proliferated from the architect and the patron to the users. The multiplication of the object’s authorship questions the very notion of an author, namely, the “heroic” architect as the original, authentic, and final source of architectural meaning.

The monuments presented here as case studies were chosen because they constitute the most prominent works of some of Iran’s most influential architects. The architects personified the “Pahlavi man:” educated, modernist, upper-middle class, publicly secular, and wholeheartedly

westernized. They all belonged to religiously or politically privileged social strata, indicative of the aesthetic and ethical values promoted by the regime.² As designers, they participated in the so-called “Aryan Revival” set out by Reza Shah (ruled 1925-1941) in an attempt to revive the Achaemenian culture and Aryan ancestry of Iranians. Under Reza’s son, Mohammad-Reza Shah (1941-1979), the architects contributed to the “Great Civilization,” which attempted to build a utopian society in Iran. Hence, their public work was pivotal to the making and perpetuating of an Iranian modernist ideal by endorsing the principles of each king. The monuments are products of a political network that they reciprocally helped sustain; the Pahlavis commissioned them as public monuments and the public has activated them after the fall of the royal regime.



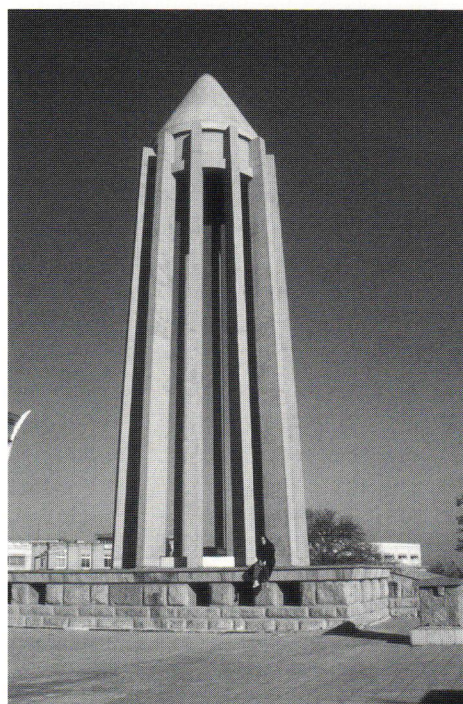
THE ZOROASTRIAN SQUARE (Fig. 1, 2)

Hakim Abol-Ghasem Ferdowsi Tusi, the author of the epic poem “Shahnameh,” or the “Book of the King,” was buried in the small town of Tus in the northeastern province of Khorasan in 1020.³ After the destruction of his tomb in 1926, the reconstruction of a new mausoleum for Ferdowsi was the first national project in a series built under the supervision of Reza Shah and his Ministry of Public Instruction. The German Orientalist Ernest Herzfeld, the French archeologist Andre Godard, and the German trained Iranian architect, Karim Taherzadeh served as the principal designers of the tomb.⁴ The new tomb was inaugurated on 12 October 1934 as an integral part of the millennial celebration for Ferdowsi and the defining moment of the “nation’s renaissance.”⁵ One of the architects of the Institute of National Heritage, Mohsen Forughi, was involved in the construction and expansion of the complex thirty years later, in 1964. Mohammad-Reza Shah and Queen Farah Pahlavi reinaugurated the tomb on 30 April 1968.⁶

Historically, tombs of Shi’a saints were pivotal to Iranian religious life and social organization. For centuries, these properties had been the center of clerical power for they offered both physical protection and an economic power base. As an embodiment of the revivalist and modernist ideologies in Reza Shah’s era, the landmark was meant to function as a pilgrimage site, to satisfy the Shi’a ritual of visiting saints’ tombs. Morphologically, the tomb is a reconstruction of the Parthian Mausoleum of Hatra as depicted by American Orientalist Arthur U. Pope in the 1930s, and later published in his book, *A Survey of Persian Art*.⁷ The tomb has panels narrating the story of the Shah and has sets of minimalist staircases leading to the tomb proper. Although the monument contains explicit Zoroastrian and Achaemenian iconography, such as the icon of Ahura Mazda, an allusion to Iran’s pre-Islamic past, Ferdowsi’s tomb remains fundamentally modern in its function, composition, and narrative quality.

At the core of Pahlavi “pride,” around which the imagined Iranian nation was exulted before the Revolution, the tomb complex came under the risk of state vandalism between 1978 and 1980. During the last months of 1978, Ayatollah

Khalkhali, known to the West as “the blood judge,” sought to destroy the monument as part of his wide-ranging revolutionary plan to eliminate Pahlavi signs. The structure was saved at the last minute by locals and underwent several modifications to make the site more religious. For example, royal inscriptions which referred to the Shah were substituted with Quranic terms such as “Allah,” the museum and the restaurant closed, a state ban on “Shahnameh” readings and performances was instituted, and the State dissuaded public visitations to the tomb though the use of mass media. Instead, people were encouraged to make pilgrimages to Shi’a centers such as Mashhad, Qom, and Karbala.⁸ The Ferdowsi tomb complex was ignored for a decade and reintroduced into Iranian public life only in the 1990s.



3

THE ARYAN TOWER (Fig. 3, 4)

For his 1949 Beaux Arts thesis, Houshang Seyhoun designed a monument to celebrate the millennium anniversary of the medieval Islamic philosopher-scientist

Abu 'Al-Husayn Ibn 'Abd Allah Ibn Sina, or Avicenna, celebrated that year by the Culture and Information Ministry in Hamadan.⁹ Seyhoun proposed and constructed a tomb and museum complex for Avicenna between 1945 and 1952. It was the first of Seyhoun's state commissions. As a prototype for the design, Seyhoun turned to the 63-meter tomb tower of Qabus, built in 1006 and located in the northeastern town of Gorgan. Through its museum displays—such as the pseudoscientific illustrations of Avicenna's skull—the monument reinforced the official rhetoric of the Aryan roots of Avicenna. As an active contributor to the Pahlavi discourse on nationalism, Seyhoun was an ardent believer in Persian national superiority, candidly reflected in his architectural theories. He believed that, “there is no such thing as an ‘Islamic architecture;’ all the architectural forms and elements that we see employed by Muslims over the centuries are mere variations on Sassanian prototypes.”¹⁰ His architecture, as his politics, reflected and buttressed the authoritative narrative of the time. After a process of demolition, autopsy and documentation on the remains of Avicenna to confirm his race, and re-entombment by the Institute of National Heritage, the new mausoleum became a site of “national contemplation” on the map of “New Iran.”¹¹



4

In order to fit the new political agenda, the complex underwent several minor revisions after the Revolution. The main statue acquired a superb veneer inscription—with changes made to the dates and patronage information—remarkably similar to the old one in rhetorical tone, but with different factual information about the patronage. The dedication clumsily gave way to images of Imam Khomeini and Ayatollah Khamenei, yet the panel narrating the history of the monument was amended to exclude the Shah's name. The display of Avicenna's alleged Aryan skull remained intact, as if the new policy-makers were unaware of its profound racist implications.



5

THE BRIGHT GATE (Fig. 5, 6)

As he was about to depart Iran in 1966 for school in the United States, Hossein Amanat won the national competition for the design of the Shahyad Aryamehr Monument in Tehran. It was erected in 1971 for the 2500-year celebrations of the Persian Empire hosted by Mohammad-Reza Shah.¹² Ove Arup Company engineered the highly complex structure and the experienced Forughi supervised the construction. Young Amanat held Mohammad-Reza Shah's complete trust. He writes, “I was not restricted and the royal couple supported me in various disputes.”¹³

Shahyad Aryamehr was derived from the Shah's official title, His Imperial Majesty, Mohammad-Reza Shah, King of Kings, and the Light of the Aryans. As a revivalist gateway to the “bright” Pahlavi future, the landmark incarnated all the principles, visions, and aspirations of the last king of Iran. However, the Pahlavi's intentions in creating the mon-

all Muslims, not so much for its religious affiliation, but rather for its alleged corrupt facilities.²⁸

CONCLUSION

In redefining the meanings carried by monuments, their intended and actual uses must be seen to determine each other. In the case of social upheavals, imprints left by so-called "misuse," are as essential to meaning as patterns of conventional use. The cases discussed reveal the processes by which layers of historic events are imposed on landmarks in Iran and poses monuments as projects in continuous formation rather than as static objects. What we witness is the refashioning of meaning, precisely because there is no way we can go back to an original, totally autonomous meaning. These monuments not only reveal the process through which meaning is multiplied, but also describe how "authorship" is disseminated. Ultimately, the countless appropriations of these signs remain essentially collective. There is neither a primary meaning-giver, nor a singular, sovereign author. Rather, the form endures with its various, changing, and fluid appropriations, persistently used and misused, produced and reproduced.

The Ferdowsi and Avicenna mausoleums and the Shahyad (also called Azadi) monument were imprinted with minor post-Revolutionary marks, becoming cultural symbols of the basic ideological dilemma of the Islamic Republic in reconciling Iranian nationalism with Shi'a theology. Only in 1991 did President Hashemi Rafsanjani draw near these two seemingly distinct phenomena by his official and symbolic visit to the ruins of Persepolis, enabling the Islamic Republic to reclaim its pre-Islamic "heritage."²⁹ Moreover, a decade after the Revolution, public visits to Ferdowsi's tomb have become a "national" concern. These Pahlavi monuments are back on the map of Iran, albeit with religious associations.

The Prayer House and the Chapel have brought to the fore the workings of the constructed binaries of "the traditional" and "the modern" in negotiating the Islamic republic on the basis of style. For the last twenty years, the definition of what is sufficiently Islamic has been assessed repeatedly through the compulsive construction and reproduction of icons, landmarks, and rituals.

The elimination of the sovereign author brings the concept of "reproduction" into the discourse of architecture, perhaps where it belongs. This reproduction, often labeled "destruction," is not the opposite of construction, i.e. that which the architect does. Instead, it should be perceived as the very process of (mis)use, belonging to the public domain and of collective contestation. The notion of authenticity disappears, or simply becomes irrelevant, with the active participation of the public in the misuse of monuments. Denounced, re-edited, and displaced, these instruments of cohesion mutate from sites of royal power into sites of popular resistance. Krzysztof Wodiczko believes that when our heritage is simply removed, it prevents critical "projections" on and off of it.³⁰ Conversely, when that same so-called heritage is not reclaimed, re-edited, and reproduced, it goes unchecked only to become yet another sphere within which the cohesive power can operate. In the Iranian context, these five public monuments were not removed. Rather, they were first made by the patrons, used by the people, and then re-edited by the Islamic Republic. Thus, the persistence of the structure in its process of making and its multiplication of meanings gives possibility for it to be reclaimed and reproduced. It begs to be re-authored, to be reinvested with yet another layer of meaning. As such, it becomes a cultural text endlessly open to interpretations, of simple use or misuse evaluations inherent to the medium of architecture and the multiplication of its authorship.

Notes

1 My argument on the meaning of monuments and the memories that they carry at various historic junctures is based on Stanford Anderson's argument in "Memory in Architecture," *Daidalos* 58 (December 1995): 22-37.

2 Houshang Seyhoun and Hossein Amanat are Baha'is, Mohsen Foroghi and Kamran Diba are Muslims related to either the Qajar or the Pahlavi royal families, and Rostom Voskanian is a Christian Armenian. Foroghi, Seyhoun, and Voskanian received the Beaux Arts scholarship and at different times, returned to Iran to become Dean of Tehran University's School of Architecture. All five worked with or knew each other quite well, had dealings with contemporary Western architects, art historians, and archeologists such as Maxim Siroux and André Godard, and were associated with various ministries, state institutions, and the royal family. With the exception of Voskanian, none of the architects managed to secure a place in the Islamic Republic of Iran after 1979.

3 Mostafa Vaziri, *Iran as Imagined Nation: The Construction of National Identity*, New York: Paragon House, 1993, 125-26. According to the official historiography, "Shahnameh" has been a symbol of Iranian nationalism. Some argue that Ferdowsi composed this work as a result of a Persian national revival in the tenth and eleventh centuries against the "Arabization" of Iran.

4 Issa Sadig, *Mémoire, Tehran: Ministry of Art and Culture*, 1976, 200-205. Houshang Seyhoun was the architect of the general master plan of the new complex. He designed the museum, restaurant, and library buildings. During this expansion, 28,000 square meters were added to the property of the Ferdowsi mausoleum complex.

5 "Hommage des poètes français à Firdousi," *Le Journal de Teheran* 2 (15 March 1935): 2. Donald Newton Wilber, *Reza Shah Pahlavi: The Resurrection and Reconstruction of Iran*, Hicksville, NY: Exposition Press, 1975, 161. Wilber writes, "October 1934, was celebrated as the millennial anniversary of the poet Ferdowsi, author of the renowned epic poem, the 'Shahnameh,' or 'Book of the Kings.' The celebrations were designed to remind the Iranians that this great poet had extolled the glorious achievements of the earlier Persians and to inspire the modern descendants to participate in a renaissance of the nation."

6 Mina Marefat, *Teheran Capitale Bicentenaire*, edited by C. Adle and B. Hourcade, Paris: Institut Français de Recherche en Iran, 1992, 130. Foroghi was the son of a prominent Pahlavi politician, Mohammad-Ali Foroghi, and was the first student sent to Paris by the Iranian government. He graduated

from L'Ecole Supérieure des Beaux-Arts in 1934 and returned to Iran to join the Literature and Technology Schools of Tehran University while he waited for the establishment of the School of Architecture. He eventually succeeded Godard to become the first Iranian dean of the architecture school until 1962.

7 Arthur U. Pope, *A Survey of Persian Art, From Prehistoric Time to the Present*, Tehran: Manafzadeh Group, Volume I-XII, 1970, 439. Pope takes this drawing from contemporary Orientalist, J. Andrae.

8 Haz Shayk Sadegh Khalkhali, *Khaterat-e Ayatollah Khalkhali*, Tehran: Nashresai Publications, 1379/2000, 219-257.

9 Houshang Seyhoun, *Houshang Seyhoun: half a century of artistic activities in the world of art and architecture*, Houston: Sabco Interests, 1998, 1-19. Houshang Seyhoun was sent to Beaux Arts on the recommendation of Godard in 1946. On returning from France, Seyhoun was a professor at the Fine Arts School of Tehran University, and became its dean between 1962 and 1969. As a member of the Municipal Council of Tehran, affiliated with the Institute of National Heritage, and the founder of the Society of Iranian Architects, he was vital to the ties between various state establishments and the architectural education and profession. Ibn Sina was born in 980 AD in Bukhara, present-day Uzbekistan, and died in 1037 in Hamadan, Iran. He is particularly noted for his contributions in the fields of Aristotelian philosophy and medicine. He composed the *Kitab Ash-Shifa (The Book of Healing)*, a vast philosophical and scientific encyclopedia.

10 Taken from my interview with Mr. Seyhoun, which was conducted on 29 June 2000 in Vancouver, Canada.

11 In Farsi *Iran-e novin* means "New Iran," a term widely used under the Pahlavis. See *Le Journal de Teheran* (March 1935-March 1980).

12 Hossein Amanat was a student of Seyhoun's.

13 Taken from my interview with Mr. Amanat. The written interview took place in April 2000 and the in-person interview was conducted on 30 June 2000 in Vancouver, Canada.

14 In Farsi, *faza-e baz-e siyasi* means "the free political environment."

15 In Farsi, *marg bar shah* means "death to the king." It was the most heard slogan during the Iranian Revolution in 1978-79.

16 Noruz is the Persian New Year. It begins on the first day of spring.

17 Amanat, interview, April 2000.

18 Kamran Diba came from a westernized Muslim family. He graduated from Howard University in Washington, D.C., and returned to Iran in 1965 where he opened an architectural office.

19 Kamran Diba, *Kamran Diba: Buildings and Projects*, Germany: Hatje, 1981, 7.

20 Ibid., 7.

21 Ibid., 8.

22 Voskanian was born into a Christian Armenian family from Tabriz. He was picked as the fifth recipient of the Paris scholarship. After he graduated from Beaux-Arts in 1964, he returned to Tehran University as an assistant professor, initially working with Seyhoun and later chairing the department until 1980.

23 In Farsi, *aghaliat-e mazhabi* means "religious minorities," a term widely used to classify the non-Shi'a and non-Muslim religious groups in post-revolutionary Iran. It is legalized by the Constitution.

24 Taken from my interview with architect Rostom Voskanian, committee chair, Greg Grigorian, and committee member, Rafael Gasparian. The interview was conducted on 31 July 2001 in Los Angeles, CA.

25 Eliz Sanasarian, *Religious Minorities in Iran*, Cambridge: University Press, 2000.

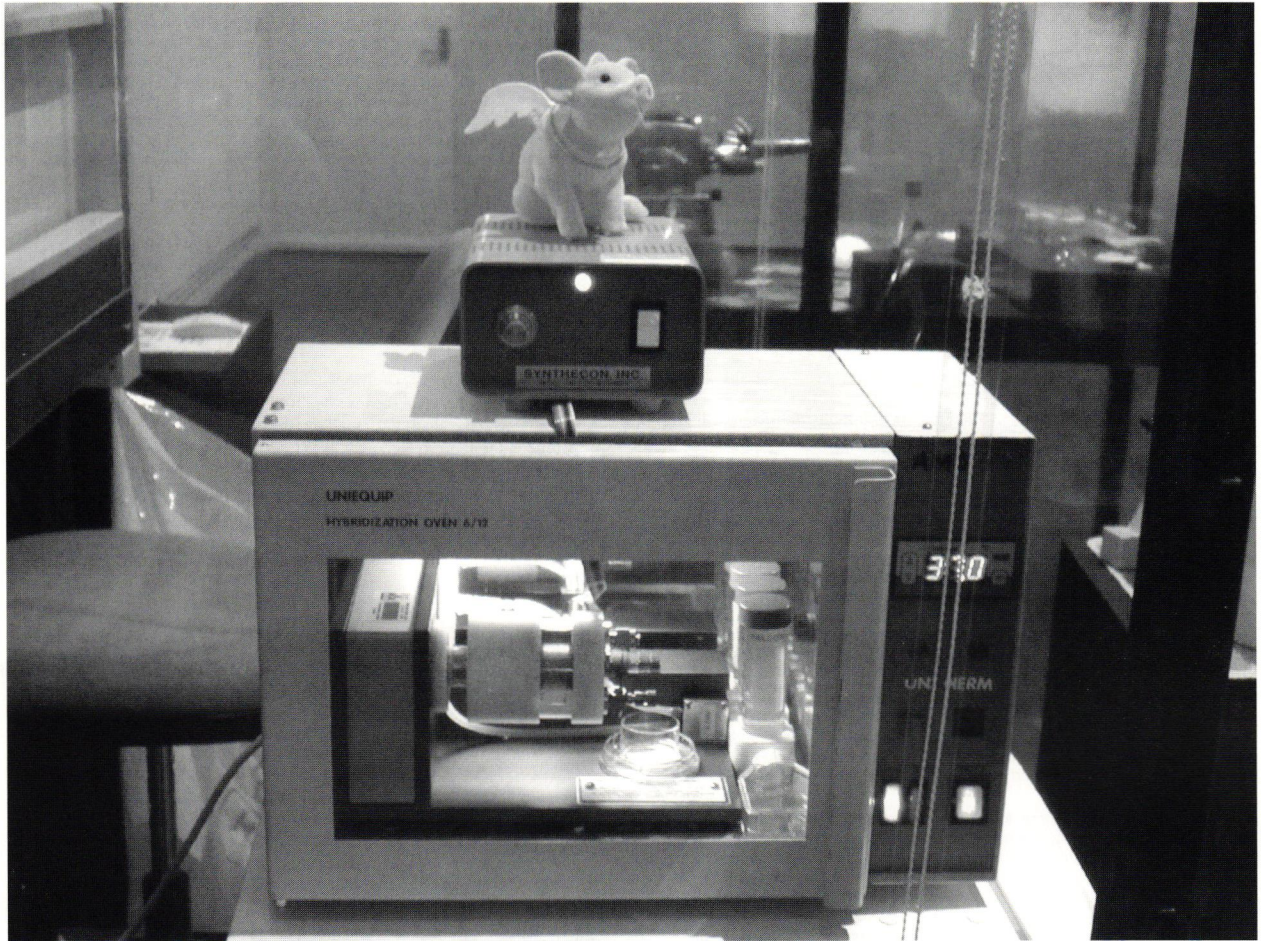
26 Voskanian, Grigorian, Gasparian interview, 31 July 2000.

27 Ibid.

28 The stadium is a sports and cultural center within which the Armenian community members can exercise their rights as officially recognized religious minorities in Iran, based on the Christian Armenian Apostolic Church's doctrine. Accordingly, Armenian woman can take off their Islamic veils while in the stadium. For this and other legal reasons, Muslims cannot set foot on the property.

29 Fariba Adelhah, "Les Iraniens de Californie: si la République islamique n'existait pas..." *CERI* 75 (May 2001): 23.

30 This idea was expressed by Professor Krzysztof Wodiczko during the College Art Association ninetieth Annual Conference on 21 February 2002 in Philadelphia, PA.



1

Pig Wings growing inside a bioreactor in the South Australia Art Gallery. Part of the Installation, Converge. From the Biennale of Australian Arts, 2002.

IONAT ZURR AND ORON CATTS EMERGENCE OF THE SEMI-LIVING

Think of objects not as instruments for our use, but as entities that are effectively linked and that need care.... Think of objects that are beautiful and useful as trees in your own garden, objects that endure and have lives of their own, objects that perform services and, require care... I am thinking of a quality that leads to a system of objects that have the variety, complexity, life, and blend of beauty and utility of a garden but, at the same time, are a product of the real world, a world extensively and intensively artificial.¹

A new concept is emerging in the continuum of life—the Semi-Living, a new and autonomous entity located on the fuzzy border between the living and the non-living, the organically grown and the constructed, and the object and the subject. While the Semi-Living entity relies on the vet and the mechanic, the farmer and the artist, and the nurturer and the constructor for care, it is not a human imitation nor does it attempt to replace humans. Rather, the Semi-Living is at once similar and different from both human-made objects and selectively bred domestic plants and animals (both pets and husbandry). Yet, the Semi-Living is another construct of a self-centred species, the *Homo sapiens*, and it is a product of human-centric activity. However, it cannot be classified strictly as a human-made object or as a modified animal; the Semi-Living consists of both. This paper raises—but does not resolve—some of the conceptual issues that emerge with developments in new biologically related technologies, drawing on examples of existing precursors for Semi-Living entities. As the emphasis of this paper is on life in its tangible and physical forms, we will only superficially address issues regarding artificial or virtual life and intelligence.

Modern biology enables us to objectify living systems and

to create Semi-Living beings. As wet biology art practitioners who use tissue technologies to create Semi-Living Sculptures, we are acutely aware that the Semi-Living beings that we create are dependant on our care for survival and well-being. We try to formulate the broader questions within a framework that gives us moral justification to manipulate and exploit living biological systems for human-centric activities. For example, will the emergence of the Semi-Livings make our society a more caring one or will life become objectified even further?

The use of a plant's living tissue as a malleable material for human-centric purposes is widely accepted. The growth of ivy over a wall could be understood as a precursor for a Semi-Living entity. The constructed wall and the ivy—the living tissue—are combined together by the gardener who provides the human intervention. Beyond its aesthetic presence, the ivy-wall hybrid is also functional; it can be used as an insulator and as an air filter. In most cases, pruning, watering, and fertilizing sustain the ivy. (The ivy may "grow out" of our conceptual definition of the Semi-Living when unchecked. It outgrows its purpose, as perceived by humans, and becomes a weed). Many people don't even realize the degree to which we exploit the living tissues of plants. The most common example is the arrangement of a plant's amputated sexual organs—flowers—inside a vase. Here, the epitome of the human-centric presumption is exposed. The gratification of human needs for aesthetic purposes allows for the mutilation of a fellow living being. In "Kitsch Ornamental Plants," George Gessert, an artist who breeds plants for non-commercial purposes, speculates that plants are not sentient and therefore,

Plant breeders have expressive freedoms inappropriate to animal breeders...plants are our kin. We cannot converse with them, but we can interact in infinitely various ways, and we affect their evolution. They become our mirrors...reflect our thoughts and dreams, and shape us in turn.²

Gessert looks at plants as living materials through which we can express our curiosity, wonder, and love. Perceptions, ideologies, and values radically change as we move closer in the scale of the life continuum to our own species, but we are left confused when we project emotions onto Semi-Living entities, for they are made of reassembled parts of complex organisms.

TECHNOLOGY IMITATES LIFE

AIBO dog, a "Smart Toy" produced by SONY, does not consist of any living materials, but it produces an illusion of life. It is an electronic machine filled with artificial intelligence.

Autonomous mode enables AIBO to act on its own. Curiosity and experience help AIBO grow. Interaction within its environment builds character. Sixteen degrees of motion give AIBO its freedom to move.³

AIBO can be your companion pet as well as your guard dog. Besides, AIBO cannot die and if it breaks, it can be reassembled. AIBO dog is designed to look and behave as if it is alive and even semi-sentient.

Sherry Turkle suggests that computers or Smart Toys are evocative objects which ignite human perceptions.⁴ The psychological relationship that children form with Smart Toys, says Turkle, forces them to engage fundamental questions regarding what is alive and what is life. Semi-Living objects that contain living elements evoke epistemological and psychological questions about life from a different perspective, in its physical sense. Evocative Semi-Living objects raise questions such as how much of, and what kind of, living material is needed in order to make an object alive and/or sentient? Is plant tissue less sentient than a tissue from a more complex organism? Is there a

difference between epidermal tissue or a muscle tissue, which has the ability to twitch in real time *in vitro*, or nerve cells that are commonly believed to aid in forming the notion of self? Is an AIBO dog covered with living fur more alive? What about an AIBO dog embedded with rat neurons over its circuit board?

A few years ago, we bought a Furbi toy hoping it would fill the gap left in our hearts after we were forced to leave our beloved dog in Australia. Needless to say, a Furbi is not a living or an intelligent dog. The Furbi even became annoying after a while. It was demanding, noisy, and did not always go to sleep after we pressed what we believed to be the right button—the Furbi is packaged with an instruction booklet and a dictionary of its language. Due to the lack of care we provided, it eventually "became ill." It coughed and expressed dissatisfaction and discomfort, so we took it apart. First, we skinned its artificial fur and then we took out its circuit board to shut it up. How many living components are needed to make the act of dismantling a toy an act of killing? How much time and energy are we prepared to invest in taking care of something which is Semi-Living?

LIVING COMPONENTS FOR COMPUTATIONAL TASKS

Biological computing, the integration of neurons and electronics, is still in its embryonic stages, but its future implications are infinite. Scientists have put forth the speculation that a Semi-Living "thinking" computer can solve problems intuitively and creatively. A computer, or more appropriately, a very basic calculator made of neurons taken from leeches, has been described by its creators at the Georgia Institute of Technology as a device that "can 'think for itself' because the leech neurons are able to form their own connections from one to another. Normal silicon computers only make the connections they are directed to make by the programmer..."⁵ An intuitive and creative computer is an intelligent and unpredictable being. It may be created by us and for us, but as it will be creative and unpredictable, it might not necessarily stay the course for which it was originally intended.

"Fish & Chips," an artistic project with which we have been involved, explores notions of sentience and creativity.⁶ For the project, we recorded signals from fish neural activity

(wetware) and translated them by a computer algorithm (software) to movements of a robotic drawing arm (hardware). The same set of data, the fish neural activity, was also applied to a musical score. The outputs—the drawings produced by the robotic arm and the music—determined the rate of the stimulation fed back to the neurons. We refer to the wetware/software/hardware hybrid we created as a “Semi-Living artist.” The perceived creative outcomes, the drawings and the music, remain in the eye of the beholder, but questions regarding the possibilities of the Semi-Living artist emerge. What will happen when “something else” expresses a uniquely human aptitude, such as artistic talent?

THE USE OF LIVING TISSUE CULTURED OUTSIDE THE BODY

The surgeon Alexis Carrel and his assistant Montrose Burrows coined the term “tissue culture.” In 1910, they began experimenting with *in vitro* tissue growth by using different kinds of tissues, including embryonic, adult, and cancerous. Carrel was looking at tissue culture techniques, namely a cell’s division and growth—not merely a cell’s survival—outside of the body, as a way to explore techniques to extend the life of the body. Of the experiments, Hannah Landecker writes that, “Central to this was the establishment of the possibility of ‘permanent life’ for tissues *in vitro*, giving rise to the possibility of an immortal or continuous experimental subject abstracted from the perishable bodies of individual animals and humans.”⁷ Landecker quotes one of Carrel’s assistants Eduard Uhlenhuth, who wrote in 1916 that, “Through the discovery of tissue culture we have, so to speak, created a new type of body in which to grow a cell.”⁸ For more than four decades, tissue culture was a field of study; the art of sustaining cells was the end and not the means, and specialization was needed to practice tissue culture. During the 1950s, tissue culture became standardized as a discipline. Pre-mixed solutions and other items specific to tissue culture have become available. To borrow a term from the world of computer software, many tissue culture practitioners are users rather than developers, and tissue culture has become a research tool; it is no longer regarded as a research field.

The early 1990s saw another major conceptual and disciplinary shift—tissue engineering—the realization that cells can be grown three-dimensionally and can form a functional tissue that may be implanted into the body to replace or support organs. The engineering of the functional and living tissue outside of the body led to the emergence of the “Semi-Living sculpture.”

SEMI-LIVING SCULPTURES

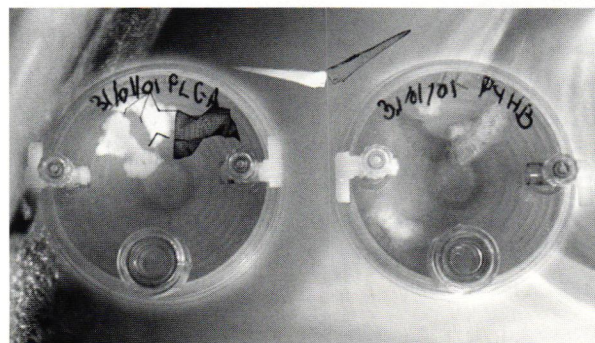
Over the last six years, we have grown tissue sculptures, “Semi-Living objects,” by culturing cells on artificial scaffolds (Fig. 2). The goal of this work has been to culture and sustain tissue constructs of varying geometrical complex-



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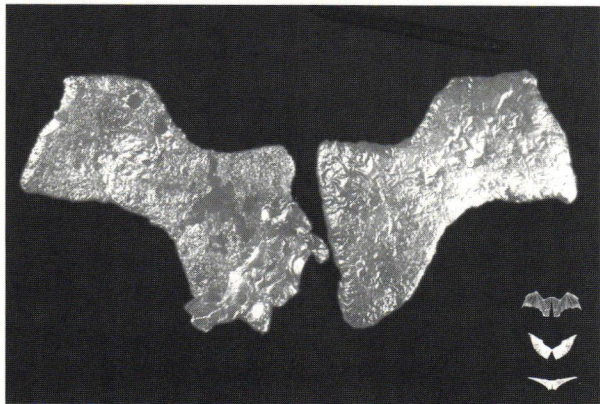
ity and size for long periods. This process will enable the creation of a new artistic palette on which to focus attention and challenge perceptions regarding the utilization of new biological knowledge.

The “Tissue Culture & Art Project” is an on-going research and development project examining the use of tissue technologies to create Semi-Living sculptures.⁹ We use technologies and procedures developed by tissue engineers.



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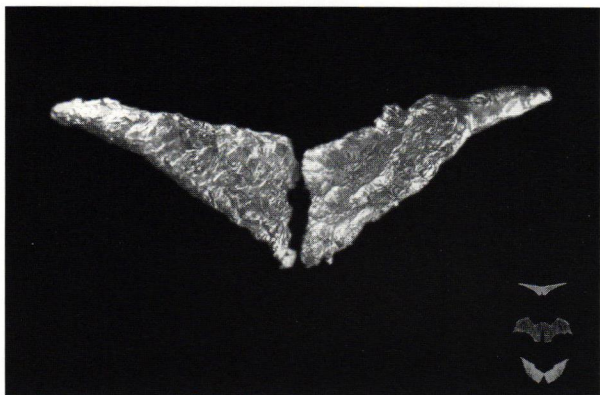
We construct biodegradable and bio-absorbable polymers in a desired shape, and seed them with living cells from complex organisms. Tissue engineering deals with the construction of artificial support systems (with the use of bio-



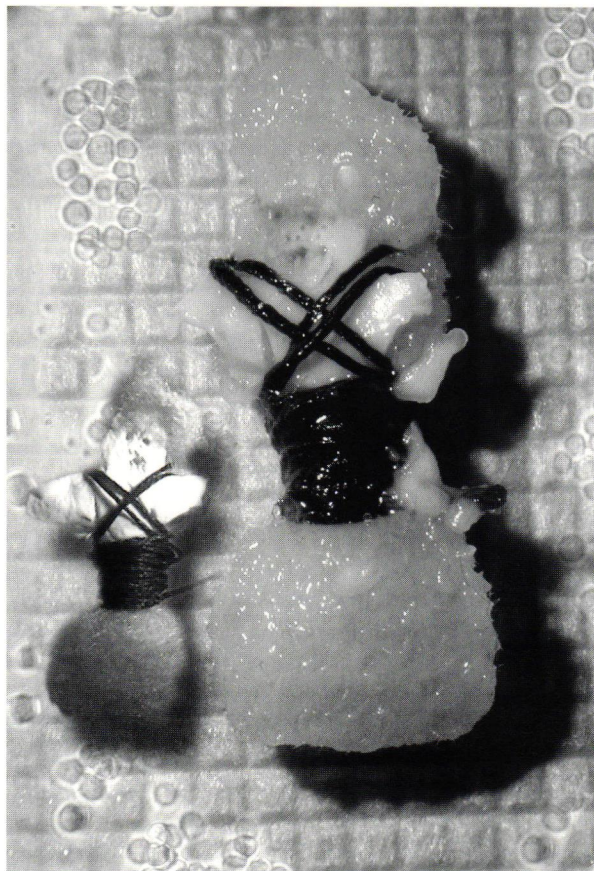
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materials) to direct and control the growth of tissue into a desired shape in order to replace or support the function of defective or injured body parts.¹⁰ It is a multi-disciplinary field that involves biologists, chemists, engineers, medical practitioners, and now, artists.

Our Semi-Livings consist of constructed elements and living parts of one or more organisms assembled and sustained by humans. The entities we create might become our "naturalish" companions, invading and replacing our constructed and manufactured environments. Our Semi-Living sculptures must be kept in sterile incubators and must be immersed in nutrient media (Fig. 1). We see them as emotive objects which require care for survival.

When we present our sculptures in galleries, we have to construct a tissue culture laboratory to feed the Semi-

Livings on a daily basis in order to keep them alive. In our recent installation, "Pig Wings," at the 2002 Adelaide Biennale of Australian Arts, we exhibited living pig-bone-tissue sculptures grown into the shape of three sets of wings (Fig. 3). The wings were about five months old when they were brought to the gallery. We kept them alive in the gallery for another ten days. As we had to go back to Perth, and there was no one in Adelaide to take care of them, we killed them. We performed a "ritual" killing of the Pig Wings. In this ritual, we asked the audience to touch the Pig Wings. On exposure to human touch, the Pig Wings became contaminated and their death was imminent. Bacteria and fungi, which live in the environment and on humans, fatally infected them. The touching/killing rituals are our way of coercing people to face the problematic existence of Semi-Living entities. These emotive entities expose the gaps between our new knowledge, our ability to manipulate living systems, and our belief and value systems. These systems are not equipped to deal with the epistemological, ethical, and psychological implications raised by the emergence of the Semi-Living.

However, scale and tactility limit our ability to bring the audience into our work. The main barrier to achieving a large-scale tissue-engineered sculpture is the lack of an internal "plumbing" system in the tissue—blood vessels and capillaries—to deliver nutrients and other agents and to remove harmful waste. Diffusion alone cannot sustain thick formations of tissue. The development of a capillary system would also facilitate the creation of a living barrier—a skin—to protect the sculptures from harmful agents in the environment. This would enable us to take our sculptures out of containment and provide an element of tactile interaction which would not kill the Semi-Livings.

The Semi-Living has been increasingly discussed for its potential in the field of architecture. In 1996 we suggested the creation of "living walls" as a way of making urban environments more hospitable. These walls would relate to Ted Krueger's suggestion that, "Through the use of scaffolds, biologically-based components may be configured to architectural requirements."¹¹ Geoffrey Miles describes a future in which genetically modified bacterial towers would dominate city skylines.¹² The emergence of a new class of objects/beings may become more visible as our abilities to

manipulate life increase. As these creations will contain different degrees of life and sentience, new relationships with our environment and with the concept of life itself will form. Parts of our own bodies can be sustained apart from us as independent and autonomous entities, while currently, only small fragments such as skin cultures can. What kind of relationships are we going to form with these entities? Will we care for them or abuse them? Where will Semi-Living objects be positioned in the continuum of life and how will this affect our value systems with regard to living systems including our own bodies, human or otherwise?

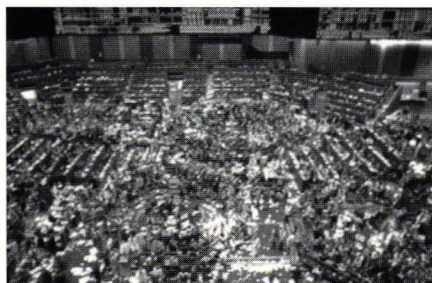
Notes

- ¹ Ezio Manzini, "Prometheus of the Everyday: The Ecology of the Artificial and the Designer's Responsibility," *Design Issues* 9/1 (Fall 1992): 20.
- ² George Gessert, "Kitsch Ornamental Plants," *Design Issues* 13/3 (Autumn 1997): 45, 51.
- ³ Spring 2002, http://www.aibo.com/ers_220/ers_220_f3.html.
- ⁴ Sherry Turkle, *The Second Self: Computers and the Human Spirit*, New York: Simon & Schuster, 1984, 3.
- ⁵ BBC News, 2 June 1999. http://news.bbc.co.uk/hi/english/sci/tech/newsid_358000/358822.stm.
- ⁶ <http://www.fishandchips.uwa.edu.au>.
- ⁷ Hannah Landecker, "Building a new type body in which to grow a cell: Tissue Culture at the Rockefeller Institute, 1910-1914," Rockefeller University Centennial, NY, November 2000.
- ⁸ Ibid.
- ⁹ The original idea for the "Tissue Culture & Art Project" came from Oron Catts' 1996 thesis, "Living Surfaces, Biotechnology and the Design Way," in which he explored a theoretical product development proposal for the use of Custom Grown Organic Surface Coating. See <http://www.tca.uwa.edu.au>.
- ¹⁰ Robert P. Lanza, Robert Langar, and Joseph Vacanti, *Principles of Tissue Engineering*, 2nd Ed. San Diego: Academic Press, 1997.
- ¹¹ Ted Krueger, "Heterotic Architecture," *Consciousness Reframe*, edited by Roy Ascott, Portland: Intellect Books, 1999, 234.
- ¹² From a lecture Miles gave at the Art Institute of Chicago in October 2001.

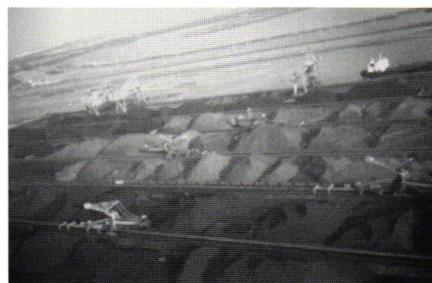
Illustrations

- Fig. 1: Pig Wings growing inside a bioreactor in the South Australia Art Gallery. Part of the Pig Wings Installation, Converge, Biennale of Australian Arts 2002.
- Fig. 2: Cells harvest
- Fig. 3: A montage depicting Pig Wings inside bioreactor vessels.
- Fig. 4: *Pig Wings - the Aves Version*, 2001-2002.
- Fig. 5: *Pig Wings - the Chiropteran Version*, 2001-2002.
- Fig. 6: *Pig Wings - the Pterosaurs Version*, 2001-2002.
- Fig. 7: *Doll H - symbolizes our fear of Hope* 2000 biodegradable/bioabsorbable polymers, surgical sutures and McCoy Cell Line.

CHRISTINE TARKOWSKI NOTES ON REPETITION



1, 2



3, 4



5

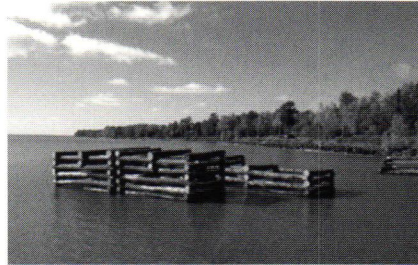
PATTERNS OF USE

The organization of agriculture, people, or cities, designed to contain and define roles and functions. These include the systematic manipulation of nature; i.e., systems of dikes and canals in the Netherlands, hydroponics, greenhouses, or gridded patterns of reforestation. Also, retail displays of commercial goods, creating random units of sameness.

6



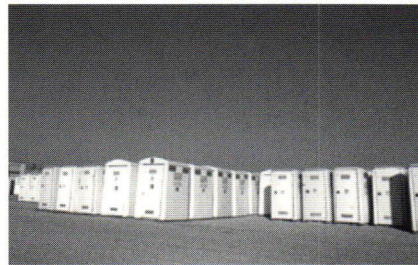
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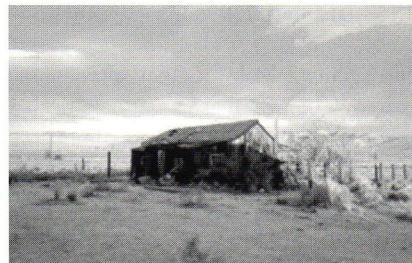
9



INDIGENOUS STRUCTURES

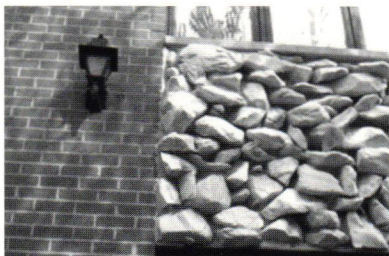
Independent acts of building, usually borne of necessity. There is often an intuitive logic of stacking in these acts that seem inherent in the materials, including straw and hay bales, mud bricks, and both woven and thatched reeds.

10





11



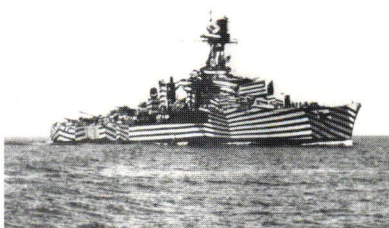
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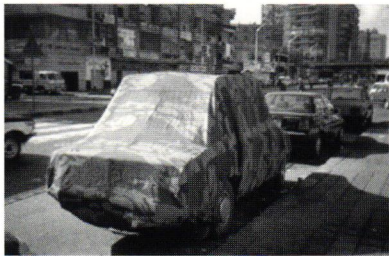
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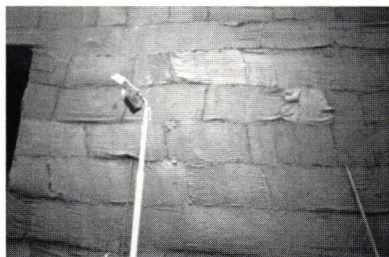
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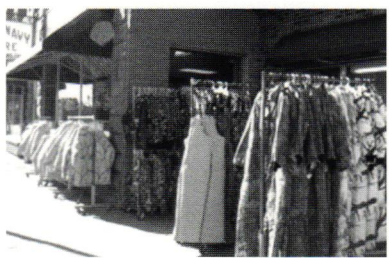
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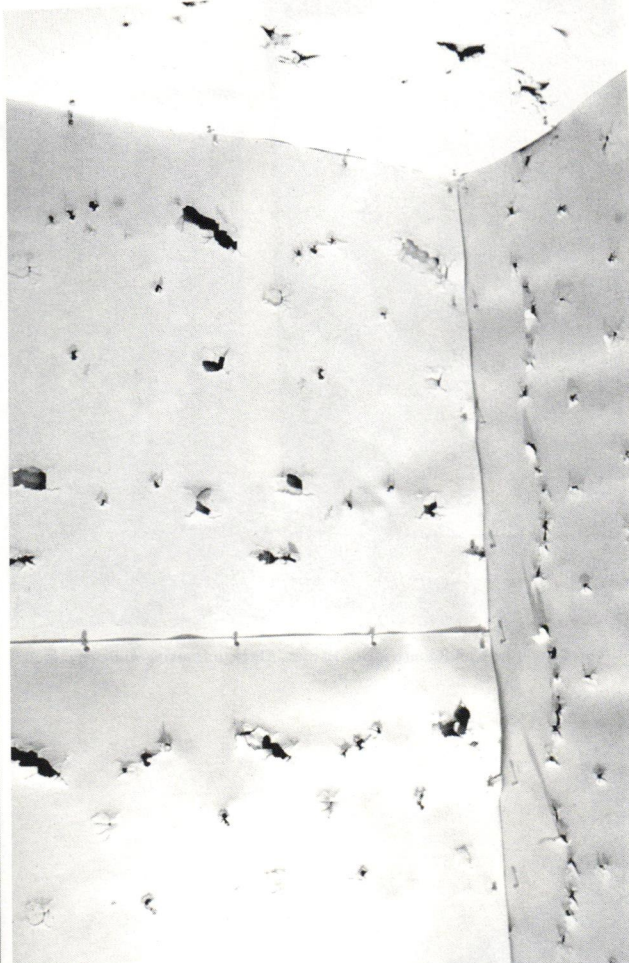
18

APPROPRIATIONS OF TRUTH

Alterations or slight deviations from original sources and inspirations. The manipulation of these materials occurs over time and are exploited as mass-produced simulacra. The production of pre-fabricated vinyl siding, embossed with the wood grain to simulate vernacular building practices serves as an example.

CAMOUFLAGE

Camouflage exists as the ultimate design challenge. It requires an object, person, or idea to conceal or distort itself or risk exposure. The urge to blend into the surrounding is enacted by the suburbanite, by the soldier subject to boot camp, and is evident in nationalistic, anti-immigration policy. Cycles of "camo" ownership, appropriation, and meaning include Dazzle patterns on British tanks (Picasso said of the camouflaged tanks in WWI Paris, "We have created that"), social revolutionaries, white militia, wanna-be-survivalists, and haute couture.



19, 20

9mm Repeat, 9mm bullets shot through wallpaper, bathroom installation, variable dimensions, Vedanta Gallery, Chicago, IL, 2000
9mm repeat, detail

WALLPAPER

Seemingly, the most benign of the decorative—and propaganda—arts, it capitalizes on infinitely repeatable, multi-directional motifs. It is reliable in its ability to “fill,” and therefore it is often employed to remedy phobias of “emptiness” or to promote the illusion of stability.



21

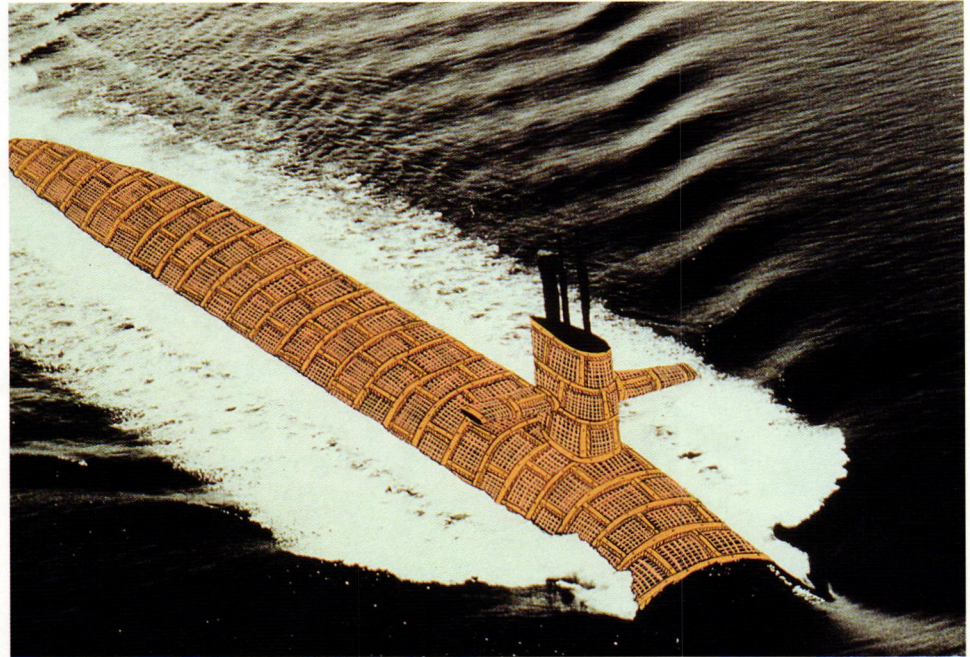
Urban Camouflage on Robert Taylor Homes, Chicago Housing Authority, Architectural Targets Series, gouache on photograph, 17" x 22", 1998



22

Branded on Metropolitan Correctional Facility, Chicago, Architectural Targets Series, gouache on photograph, 17" x 22", 1998

23



Exposed Stud on Nuclear Sub, Architectural Targets Series, gouache on photograph, 17" x 22", 1998

24



Shingled Cantilever in Bridgeport, Bunker Series, Durst Lambda Print, 22" high x 33" wide, 1999



25

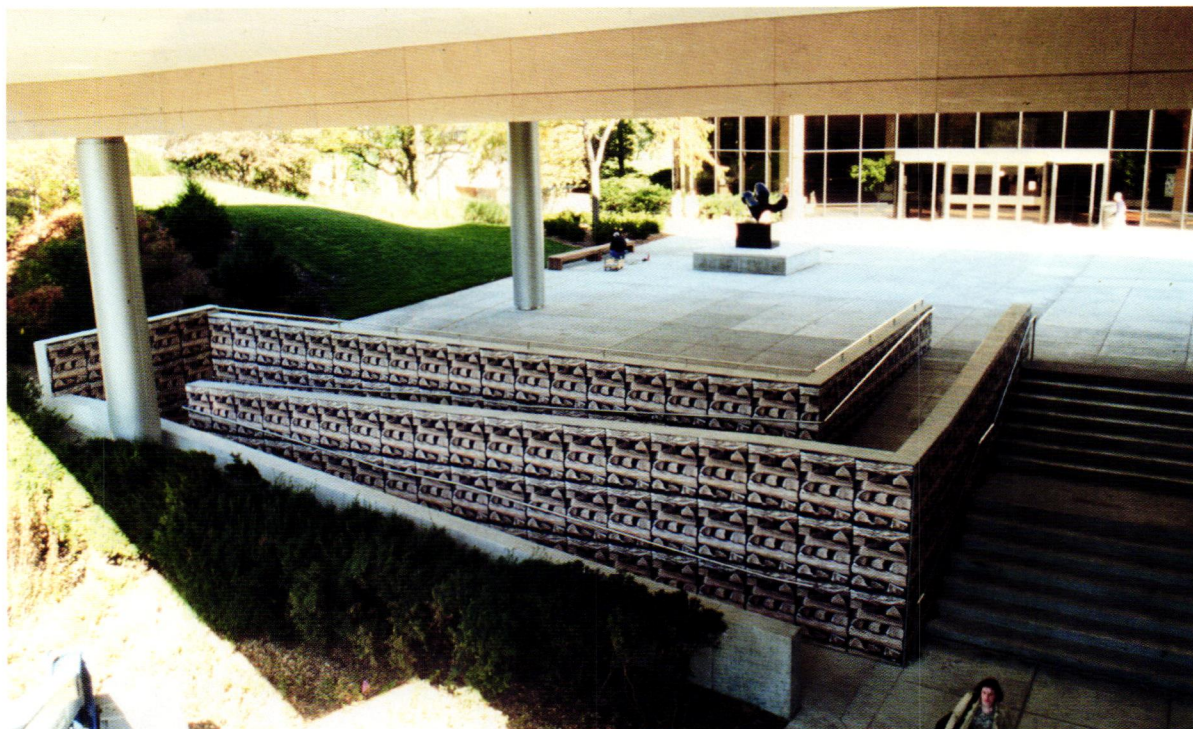
Chicago Children's Advocacy Center, Percent for Art, The City of Chicago, Stanley Tigerman Architect, 240' long x 12' high, photo screen print on Reynobond, 2001



26

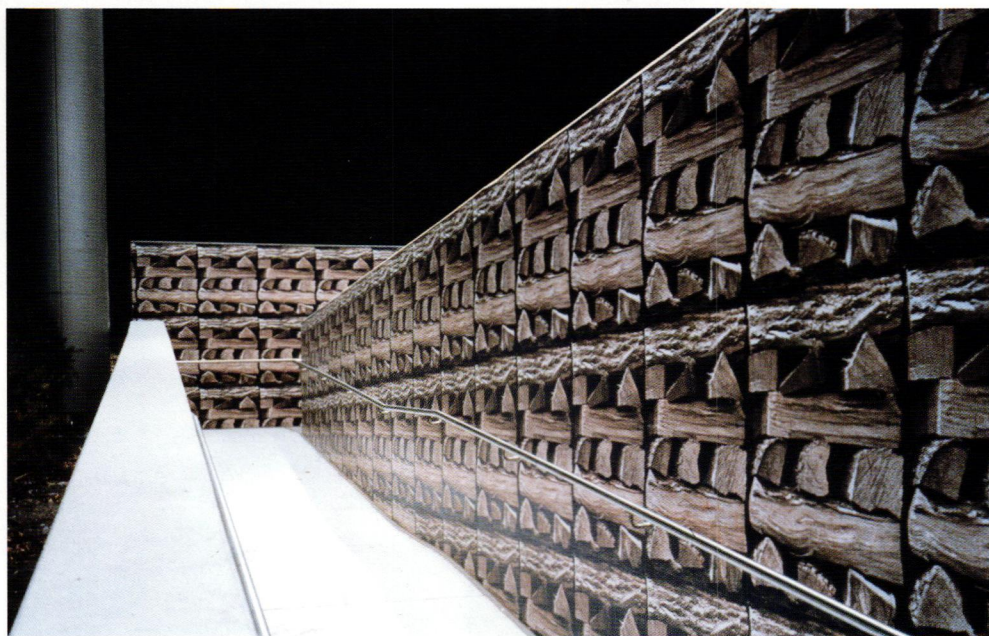
Chicago Children's Advocacy Center, detail

27

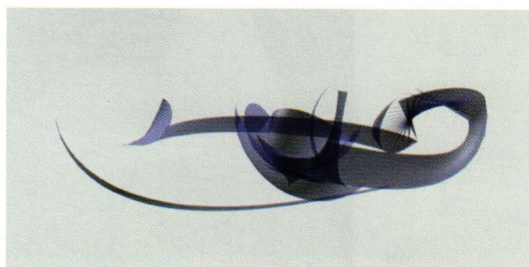
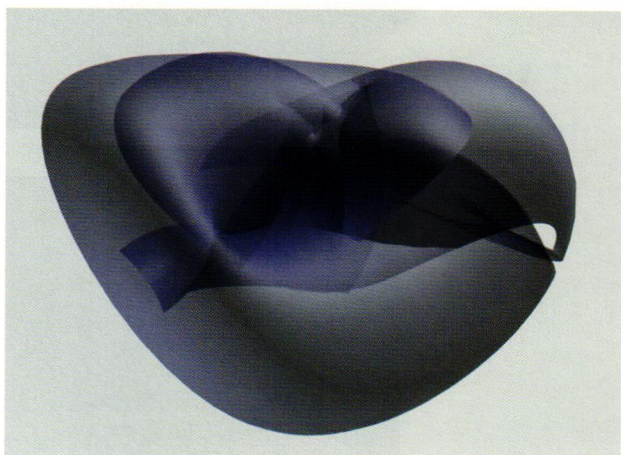
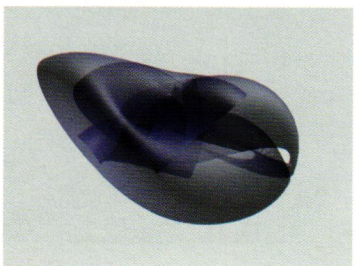
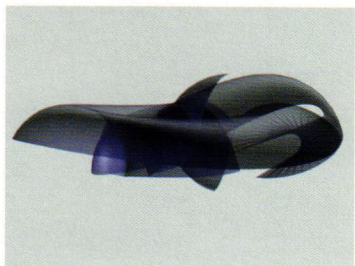
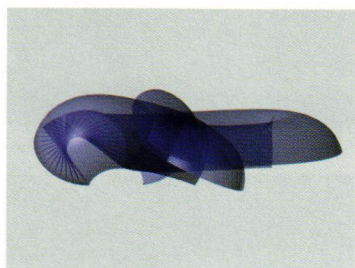
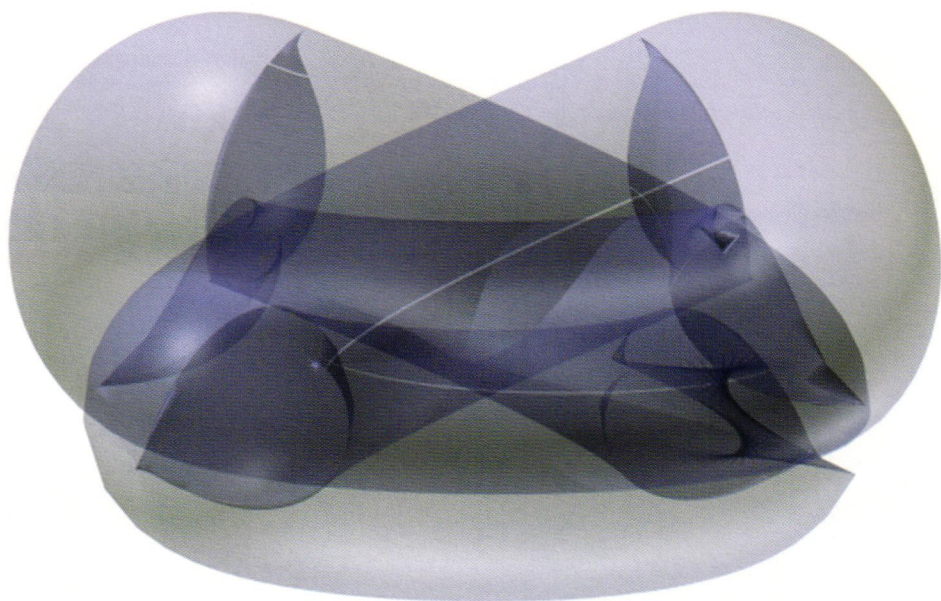


Cross-Stacked Firewood, photographic screen print on Tyvek, 200, 30" x 36" posters glued to concrete ramp, Block Museum, Evanston IL, 2000

28



Cross-Stacked Firewood, detail, 2000



AFSHEEN RAIS ROHANI DYNAMICS OF STILLNESS

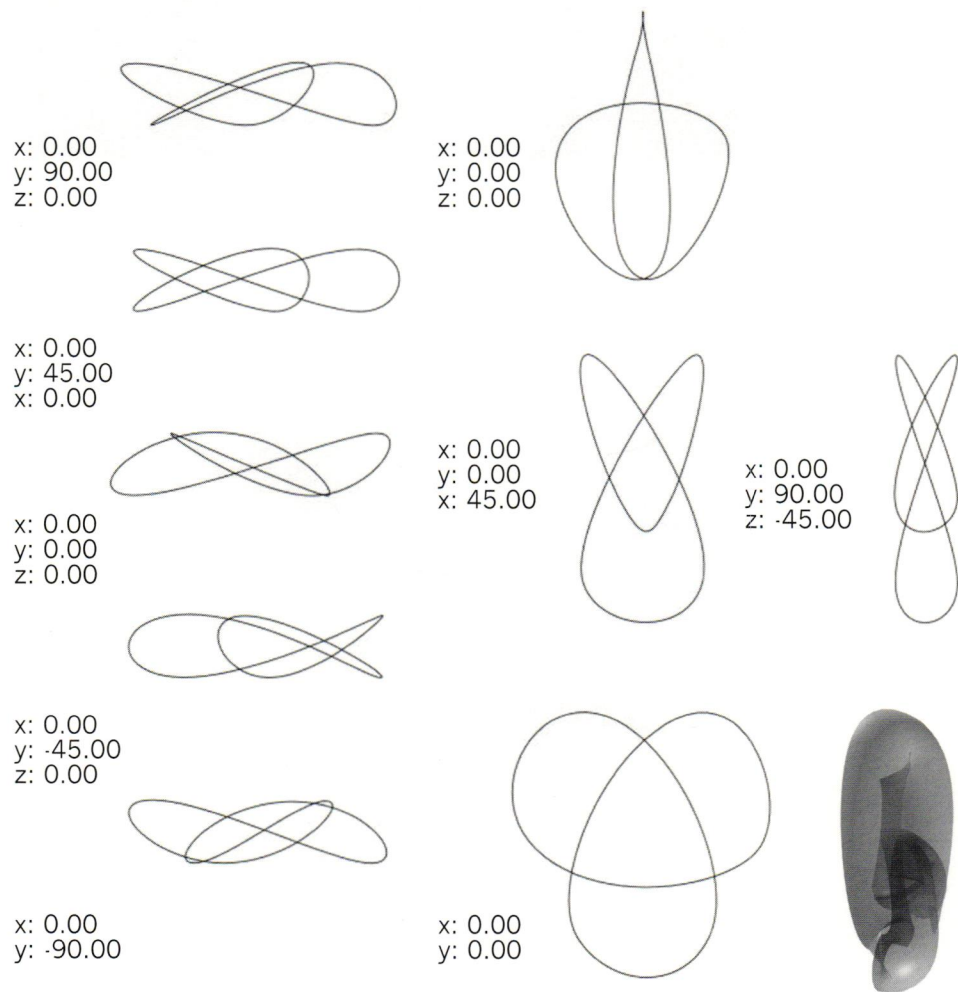
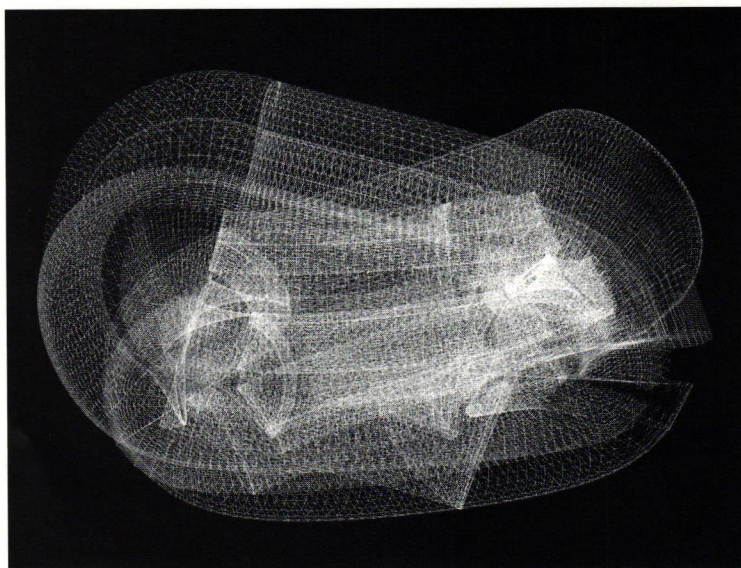
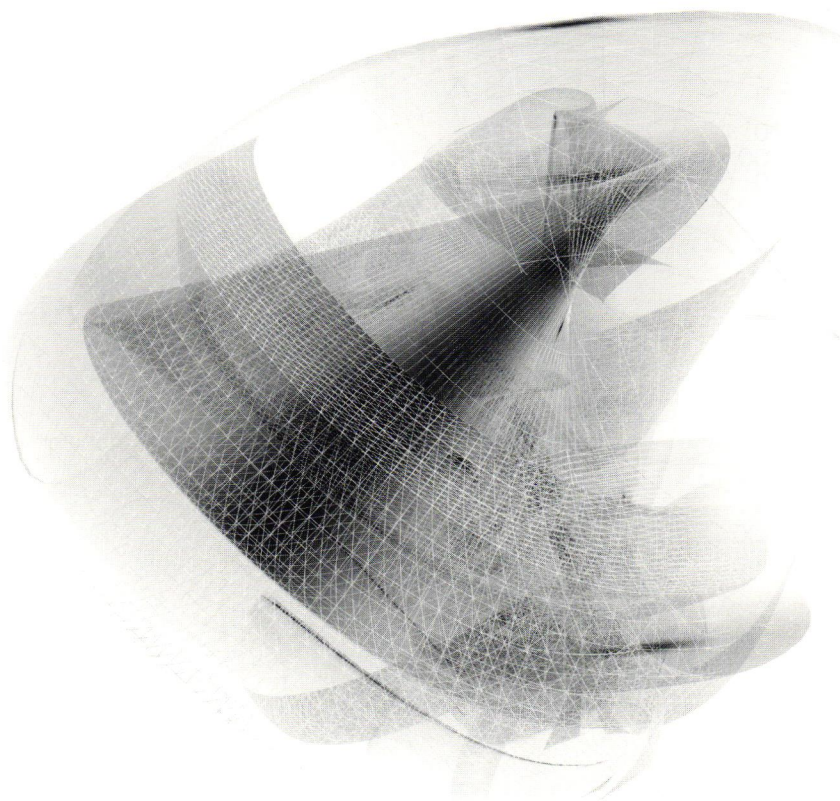


Fig. 1.2: Diagrammatic representations of surface movement based on primitive knot formations.



3

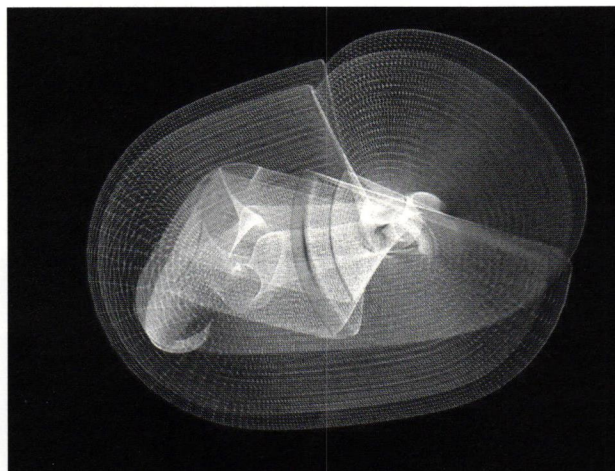
Trefoil, plan view expressing all layers.



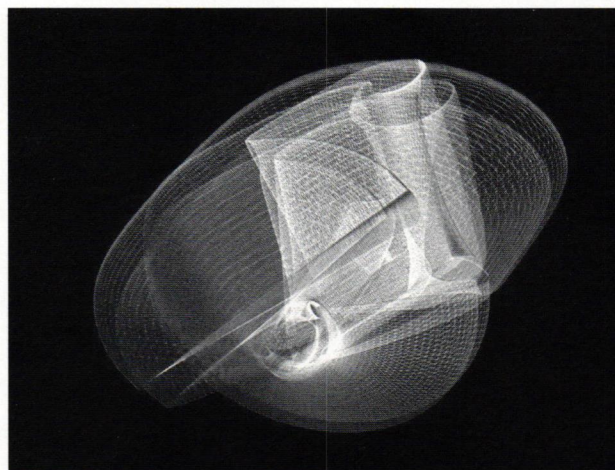
4

Trefoil, knot with 3 crossings. short elevation.

5



6

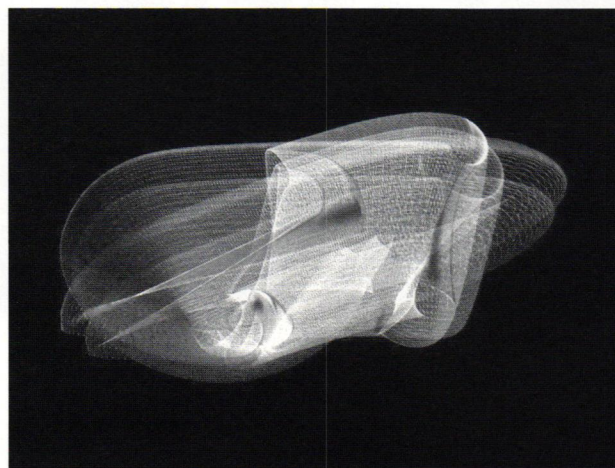


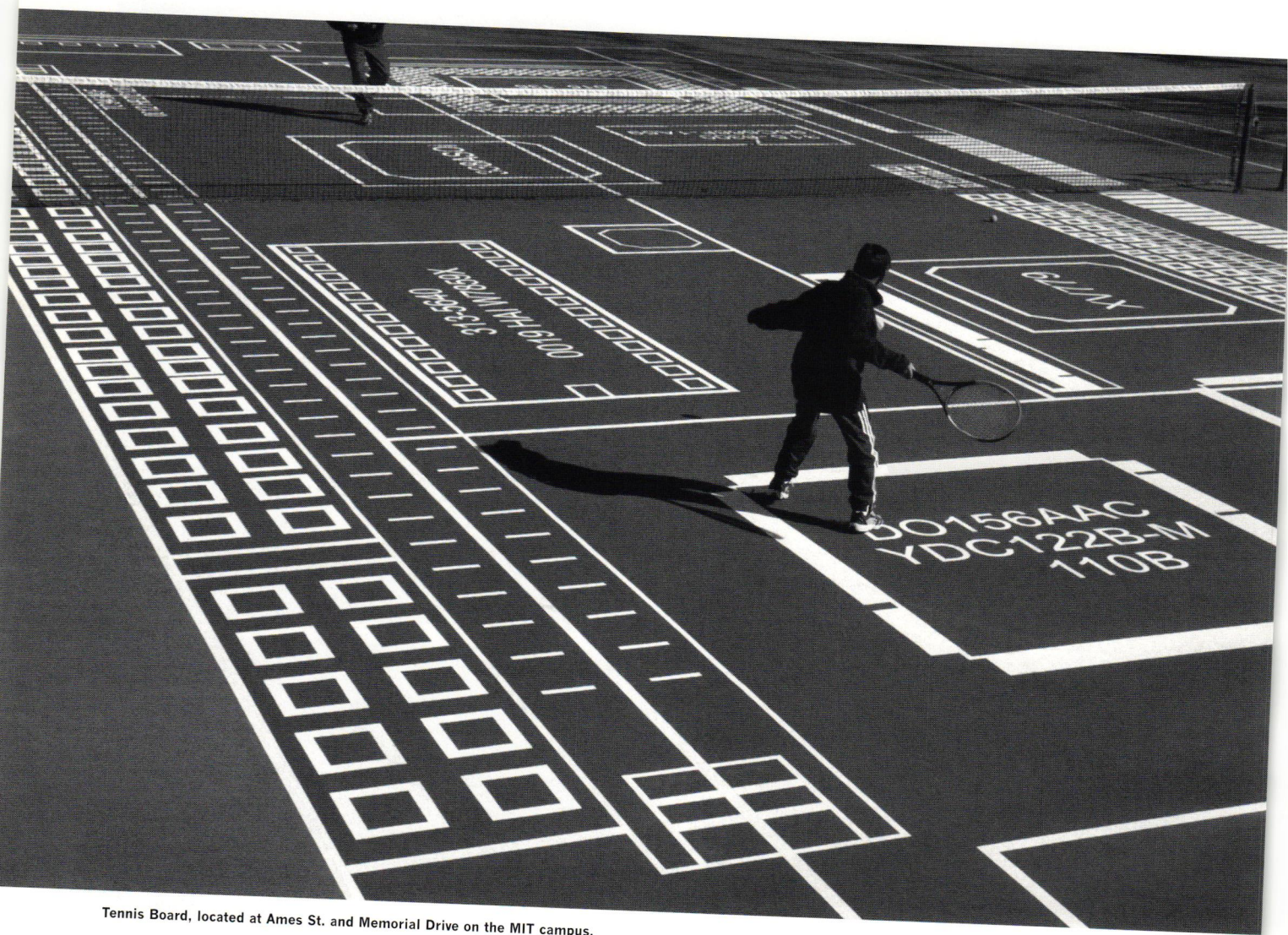
This seizure of the instant—in which the will is relinquished at the same time—certainly has a decisive value. It is true that operation is not without difficulties, which surrealism has revealed but not resolved. The possibilities brought into play go further than they seem. If we were genuinely to break the servitude by which the existence of the instant is submitted to useful activity, the essence would suddenly be revealed within us with an unbearable clarity. At least, everything leads one to believe so. The seizure of the instant cannot differ from ecstasy.¹

¹Georges Bataille, "Surrealism and How it Differs from Existentialism", *Writings on Surrealism*, ed. Michael Richardson (London, 1994), 66.

Fig. 5-7, Topological studies.

7





Tennis Board, located at Ames St. and Memorial Drive on the MIT campus.

JENNIFER ALLORA AND GUILLERMO CALZADILLA
TENNIS BOARD



This project, on view from Fall 2001 through Summer 2002, involved the “modification” of an existing tennis court on the MIT campus. A graphic representation of the motherboard from one of the earliest tennis video games, known as “Pong,” has been superimposed onto the surface of the tennis court.

The project was partly inspired by the fact that the video game “Pong” was developed at MIT. The “Tennis Board” is legible to the public yet specific to the MIT community, and it is intended to reflect on the relationship between the physical and virtual games. The result is a planar interface made up of the original boundary lines of the tennis court and the abstracted physical evidence of its virtual counterpart. On this new playing field, the rules of the game are subject to adaptation and transformation.



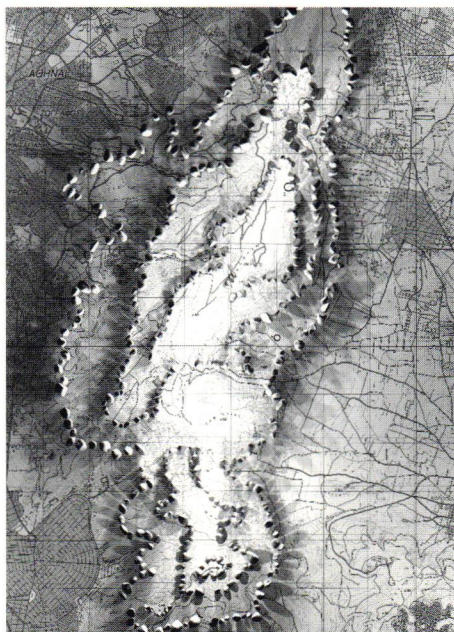
2

THE PROJECT

I present the Mt. Hymettus project in three interrelated formats, each providing a different description of the mountain. A map, a video installation, and two sculptural "Text Towers," would provide the people of Athens with the opportunity to think of the mountain and its potential use.

THE MAP

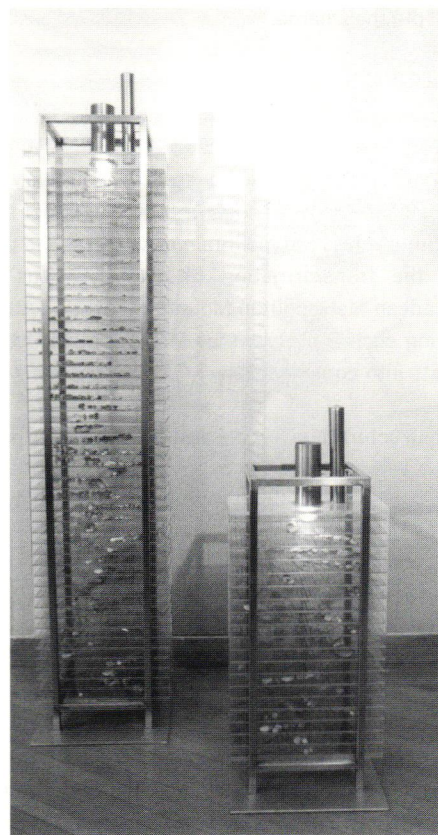
A map outlines the stepped elevations created by the retaining walls erected around Mt. Hymettus. The steppes will help to form a Mediterranean park, represented by the arrangement of stones on paper following the contours of the mountain. The map can be divided into seventy individual pages. (Fig. 3).



3

THE TEXT TOWERS

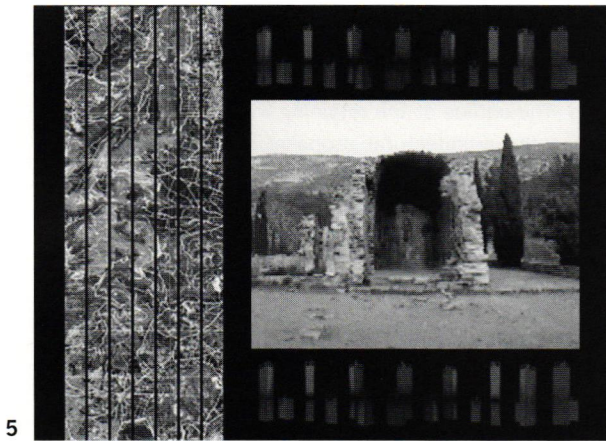
The seventy pages of the map are arranged vertically, like storeys, in two constructions of Plexiglas and steel to form "Text Towers." They present a metrical narrative of the mountain, as if the poem were a vertical building in the form of a metropolitan high-rise of Hymettus (Fig. 4). The words, just as the stones of a retaining wall, are arranged on the map as if it were a seventy-page poem.



4

VIDEO INSTALLATION

There will be an interactive video comprised of seventy video clips, each lasting one minute. The video was filmed on the mountain and will present the landscape of the mountain and its role as the backdrop of Athens. Each of the video clips includes a sound track, which consists of a different and abbreviated recitation of the seventy-page narrative of the mountain. The viewer/user has an on-screen map of the mountain in front of him and can click on any of the seventy pages of the map to watch the corresponding clip (Fig. 5, 6).



REPRODUCTION

I deliberately avoid the provision of a design solution for the mountain in order to focus on two extremes—the large scale of the mountain and the small scale of the building unit, the stone. The wall becomes the product of a reproductive process with the stone as the unit of reproduction. The builders' hands craft the stone into retaining walls by a repetitive and additive process. Let us momentarily focus on the hands that build the stone wall: the essence of this repetitive motion, the endless laying of one rock on top of another to create a retaining wall for planting exemplifies the relationship between building and cultivation.

In his *Building, Dwelling, Thinking*, Martin Heidegger explores the relation between building and dwelling, based on a linguistic analysis. In the German word *bauen*, the modern word for building, he seeks an older, hidden meaning. "The old word *bauen* which says that man *is* insofar as he *dwells*," has a common root with *ich bin*, "I am." Heidegger continues, "This word *bauen*, however, also means to cherish and protect, to preserve and care for, specifically to till the soil, to cultivate the vine. Such building only takes care—it tends the growth that ripens into the fruit of its own accord."³ In addition, he writes, "building as dwelling unfolds into the building that cultivates growing things and the building that erects buildings."⁴ Under the broad umbrella of dwelling, the concept of building refers to either the construction of buildings or to the cultivation of plants. For Heidegger, the manual process in the creation of the project for Mt. Hymettus would be as important as its ultimate use.

The building of a stone retaining wall involves a repetitive process by which the mason continuously adds stones to the wall under construction. Cultivation is similarly a manual process in which the farmer uses seeds to sow the land. The cultivated field—fashioned by the dense growth of grains or the rectangular geometry of vineyards—is also the product of a reproductive process. It is what Heidegger refers to as, "Tending the growth that ripens into its fruit of its own accord."⁵ That is to say, the reproductive process, which is embedded within the repetitive nature of the work involved, is ingrained in another reproduction, the sustenance of the builders and dwellers.

This relation between construction and cultivation for human sustenance is richly evident, as the strength of its metaphors is concerned, in the myth of Deucalion and Pyrrha, who descended from Mt. Parnassus following a flood. They built their dwelling in the water soaked plain and sowed the fields with stones from which humans grew. In the myth, the human race was reproduced following the great flood and is tied to the imagery of agricultural cultivation. Heidegger's assumption of a linguistic equivalence between dwelling and building is played out in the myth, for seeds replace stones. Today, this inherent aspect of all methods of reproduction, regarding either mass-produced or digital products, seems to be forgotten. The disregard for the biotic methods of reproduction leads to criticism of the reproduction of objects, symbols, etc, as processes that provoke the loss of authenticity, confuse the original with its copies. The emphasis is now on the reproduced object and on disregarding authenticity in the method of production itself.

RECONSTRUCTION

Although the project defines characteristics of reproduction based on the phenomenon of repetition, the myth of Deucalion and Pyrrha provides a model for a modified definition of reproduction. In the myth, the reproduction of the human species is basic. The stones sown by the couple in the fields become people. This idea of transformation, despite its mythical aspect, is common in all kinds of material changes made by a reproductive process. There is the awe of the unexplainable, the wonder of a seed's transformation into a plant. The myth reconstructs this logical yet inexplicable transformation of seemingly immobile stone into living beings.

The Mt. Hymettus project moves between the large-scale schemes for an urban mountain park to the very specific erection of retaining walls. Within this specificity lies the potential for authenticity. The design, as the projection of a structured plan on a given context and the organized concept for the use of the mountain, does not exist. Rather, the basic idea underlying the project articulates narratives describing the mountain by utilizing its own linguistic forms. The three parts of the project—the map, the Text Towers, the video installation—form a conceptual trip-

tych, with *architecture* transforming the mountain into a park through the articulation and application of its program, paralleled by both a *textual* and a *figurative* reconstruction of the mountain. The textual reconstruction is not bound in a book but is transformed into a building-model of the mountain through the Text Towers. The figurative reconstruction, in conjunction with the textual one, formulates a multiple reproduction of the mountain by means of a video installation.

DESCRIPTION

The end result is a number of formally independent descriptions of the mountain in both words and images, which replace architectural design. These descriptions do not replace the architect's manipulation of the material world. The outline of the retaining walls on the map representing the architectural proposal shows the formation, out of scale, of a stone necklace that delineates the mountain. The necklace as a representation has an emblematic function, thus, it is not presented according to the map's scale (Fig. 2). It represents the stones built into a wall, encircling the mountain, which help Hymettis to retain its soil and plants before they are washed away by rain. The lines of stones describe the mountain. The Greek verb *perigrapho* (to describe) means both "to write around"—thus containing an object by means of writing—and "to describe." If the purpose of the retaining walls is to "describe" the mountain, then this very purpose is served by the descriptions of the mountain in formats differing from the design language of architecture. Thus, the concept of reproduction overlaps with the concept of description. We proceed with differing reproductions of the mountain that, in essence, are descriptions. Does this concept of reproduction as a description of an object, together with that of reproduction as a reconstruction of an object, seem to indicate that reproduction essentially precedes technique and method, and that by perceiving reproduction in terms of the technical methods are we resorting to a contemporary interpretation, much narrower than its original meaning?

Notes

¹ Pindar, *Odes*, "9th Olympionikos," translated by Diane Svarlien, 1990, unpublished, The Perseus Project, 43-45.

² The project for Mt. Hymettus was first presented in December 2001 during the Third Biennale of Young Greek Architects in Athens, and will be presented in 2002 during the same exhibition in Thessaloniki, Cyprus, and Barcelona.

³ Martin Heidegger, "Building, Dwelling, Thinking" in *Poetry, Language, Thought*, New York: Harper and Row, 1971, 147.

⁴ *Ibid.*, 148

⁵ *Ibid.*, 147

Illustrations

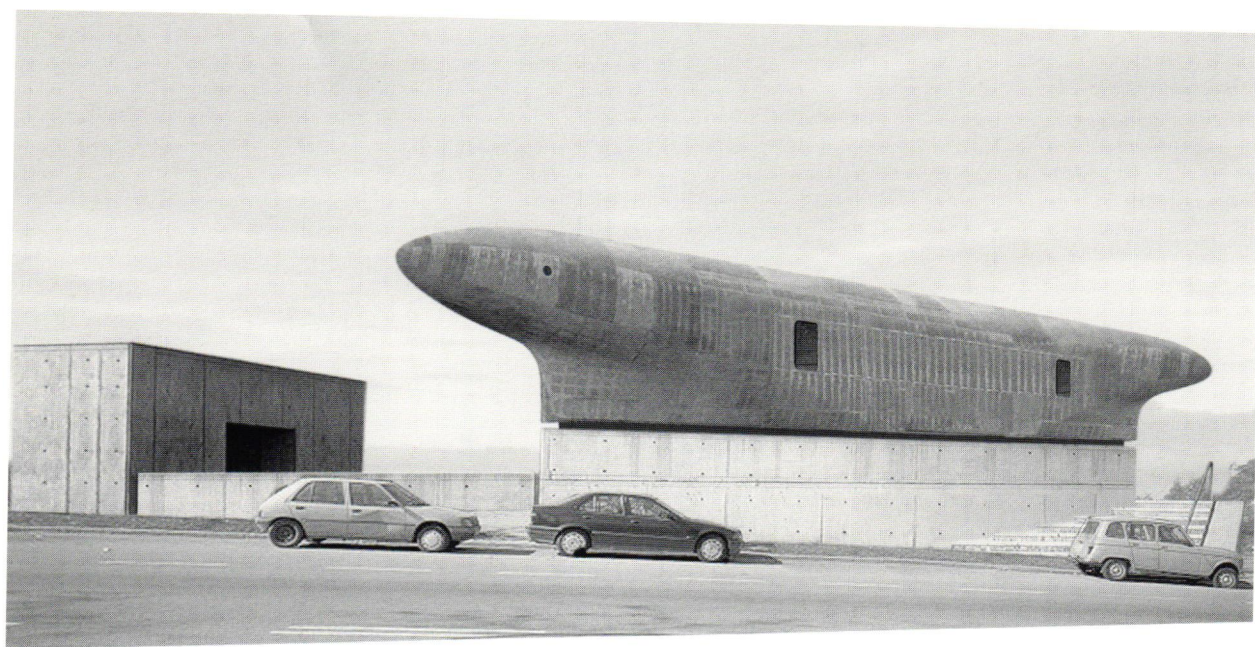
Fig 1: detail, text towers, plan and section. One of the pages of the map of Mt. Hymettus with part of the narrative describing the mountain printed on it. Each of these pages becomes one of seventy storeys comprising the two towers of the mountain.

Fig. 2: Mt. Hymettus as seen from Athens. The red lines represent the dry-stone walls.

Fig. 3: Map of the area.

Fig. 4: Text towers.

Fig. 5, 6: The Mt. Hymettus project installation at the Athens exhibition, December 2001.



1

MICHAEL SILVER GUNS AND ARCHITECTURE

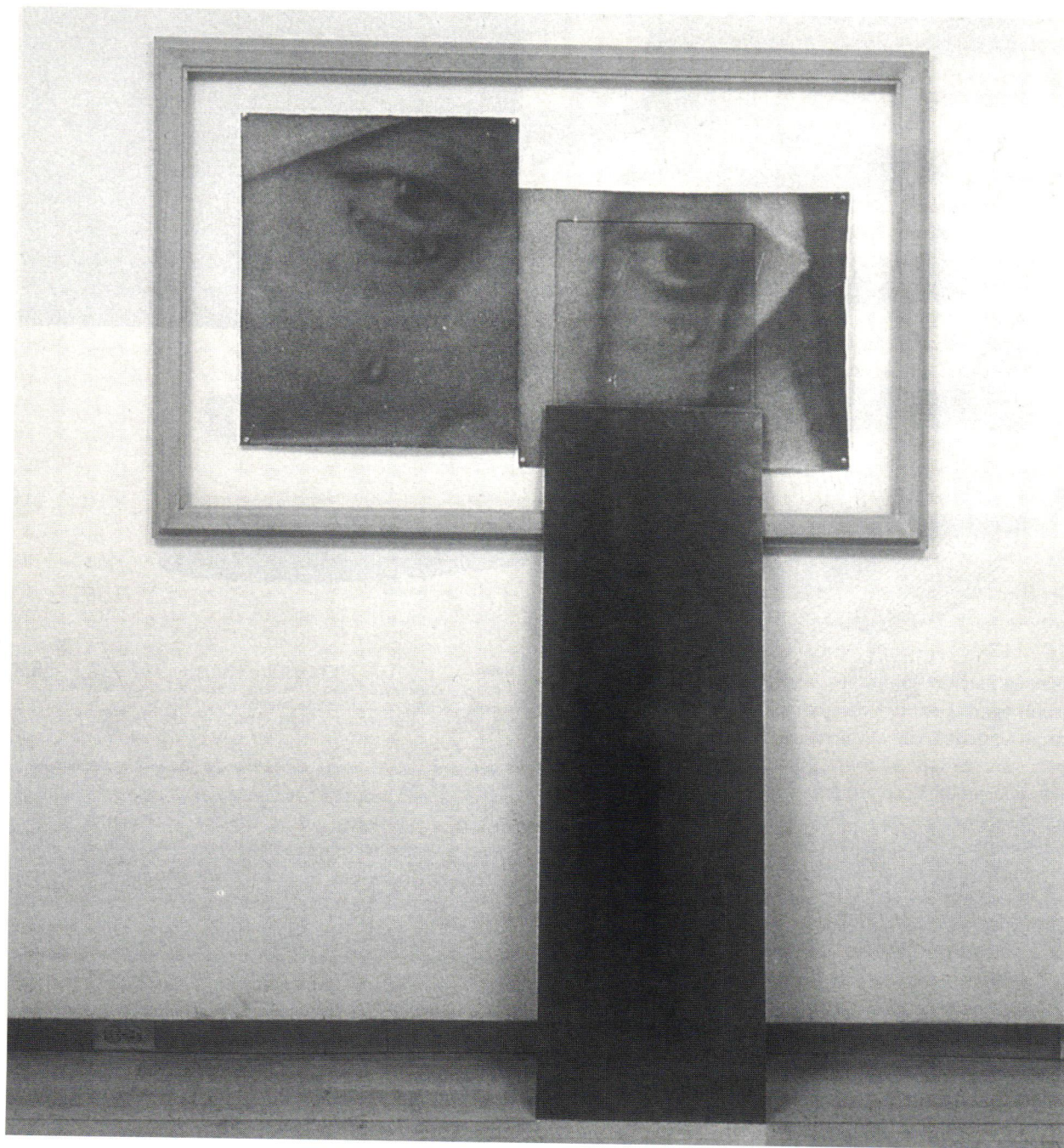
At the end of World War II, squadrons of U.S. military aircraft returned in great numbers from around the world. Selected landing fields in the Southwest were turned into temporary storage depots for the arriving planes. With the exception of Davis-Monthan Air force base in Arizona, the landing fields were not used as warehouse sites for long. Davis-Monthan's desert location, however, made it ideal as a permanent storage facility.¹ The aircraft arriving at the base, with no planned reuse, was considerable enough to require a facility with acres of free land.

With the sudden capitulation of Japan in 1945, Philip Chinnery writes, "Eighty-seven Dominator Bombers—nearly the entire production run—were flown directly to the storage field from a factory in Fort Worth Texas."² After the Korean War, more heavy artillery was sent to Davis-Monthan. At this time, "Spare parts worth over \$300,000, half the cost of a single aircraft," were salvaged from obsolete B-29's. The parts included "bomb sights, engines, fuel tanks, propellers, and flight instruments.... When the aircraft were stripped-down to their skin and bones, the empty shells were sold for scrap at \$2,300 each."³ Other storage depots like Searcy Field, Walnut Ridge, and Litchfield Park became cheap sources of aircraft.

In some cases, the equipment was used for training facilities and war monuments.⁴ At Wright-Patterson, an entire fleet of B-36 Peacemakers was turned into inexpensive aluminum sheets.⁵ Many planes were just melted down,

while some, like the P-38 Lightning, are worth millions as collectors' items if they are found intact. The recovery and restoration of a P-38 in 1992, embedded under ice in Greenland, cost three million dollars.⁶ Yet, in an art market increasingly dominated by museum curators and wealthy collectors the cost of most obsolete planes remains surprisingly low. For the price of a typical suburban home, the President of MaxPower Aerospace in Smyrna, Tennessee, Tom Bennington, will sell you an airplane, "set up on a pole twenty feet above the ground so that it rotates into the wind. The plane...a superbly crafted airframe made of the strongest, lightest, most corrosive resistant materials available (machined to a tolerance of 1/10,000 of an inch)...will be stripped of its engines..." and remodeled according to one's needs.⁷

Putting obsolete military hardware to unorthodox use is, of course, nothing new. Florida is full of man-made reefs that were put together by recycled material from the state's waterway bridges. As the demand has increased for the reefs and the sturdy material provided by the bridges, the search for an alternative material has intensified.⁸ As part of its process of decommissioning obsolete hardware, the U.S. military donated a fleet of A-6 Intruders to the contractors responsible for the job. Eric Hilderbrandt writes, "Since fisherman land so many fish while working the waters around sunken airplanes, regional anglers assert that indigenous red snappers actually prefer airplane aluminum habitats over typical concrete reefs."⁹



1

SAMANTHA HOOVER

THE AURA IN POSTMODERN PHOTOGRAPHY: ANNETTE MESSENGER, DOUG AND MIKE STARN, AND BILL BARRETTE

The technological development of photography from its invention in the mid-nineteenth century until the 1960s has been straightforward, perhaps because of the dominance of the single representational image. By the 1960s and 70s, however, photographers carried out aesthetic and technical experimentation with greater frequency. The past twenty years—photography's postmodern period—has been the most diversified. Many postmodern photographers have been concerned with manipulating the imagery of mass-culture, or they perform for the camera, creating constructed worlds rather than ones "captured." Contemporary photography has also been characterized by attempts to blur the distinctions that separate it from other media.¹ One of the results has been the integration of photography and sculpture, evidence of the "postmodern urge" to break down the modernist concepts of formalism, flatness, and the purity of each medium.

The collapse of boundaries between photography and sculpture result from an attempt to incorporate the hand of the artist into photography—to produce photographs that are "made" not "taken." To illustrate this trend, I will focus on the work of four artists who create so-called photo-sculptures: Annette Messenger, Doug and Mike Starn, and Bill Barrette. On the one hand, these four artists embrace postmodernism because they appropriate, accumulate, and integrate different media, and they redefine the idea of the artistic genius. On the other hand, they reject postmodernism's skepticism of the possibilities for uniqueness in art, and indeed, they strive for it. Each artist has rejected photography's status as the ultimate repre-

sentational medium, but rather, each "makes" artwork that, like sculpture, is an additional concrete reality, a part of life, not merely a representation of or a comment on it. These four photographers, I would argue, are in search of the "aura" of an artwork. Hence, they represent an ironic shift away from modernist ideas of creation as well as a paradoxical return to traditional concepts of making art.

Walter Benjamin's influential 1936 essay "The Work of Art in the Age of Mechanical Reproduction," was the first to articulate the profound impact on artistic process that technical reproduction was destined to have. According to Benjamin, the uniqueness of a work of art depends on the history to which it has been subject throughout its existence. The advent of reproducibility would inevitably change the concept of authenticity. Likewise, the technique of reproduction would detach the reproduced object from the domain of tradition. Thus, as the *Mona Lisa* has been reproduced *ad nauseam*, it has lost its aura—its uniqueness and value.² For Benjamin, the aura of a work of art is one that only the original, authentic work could have, a quality that could not be reproduced or faked. Consequently, the withering away of the aura and the dissociation of the work from the fabric of tradition is an inevitable outcome of mechanical reproduction. Benjamin granted aura only to photographs that had a long exposure time, during which the subject "grew" into the images, and a relationship developed between the photographer and the sitter. Aura would emanate from the presence or "magical quality," not of the artist, but the subject.³

Douglas Crimp's 1980 essay, "The Photographic Activity of Postmodernism," offers both an update and a continuation of Benjamin's ideas. Crimp postulates that art making of the 1960s and 1970s accelerated and intensified the rejection of the uniqueness of the work of art. From the multiplication of silk-screened photographic images in the works of Robert Rauschenberg and Andy Warhol, to the industrially manufactured works of minimalist sculptors such as Donald Judd, most everything in recent artistic practice seemed contrary to the emphasis typically placed on originality.⁴ However, Crimp believes that a reversal, or corrective, has manifested itself in two distinct and contradictory ways. First, originality was privileged with the resurgence of Expressionist painting, in which the hand of the artist predominated through brushstroke. In addition, the triumph of photography-as-art, which values the hand of the individual photographer has given new importance to an aura. For Crimp, these were both attempts, whether intuitive or conscious, to recover aura.⁵

In Crimp's opinion, photography, the very culprit of mechanical reproduction, is able to recuperate aura, not by making the artist's hand visible per se, but rather through his or her eye, or unique style. In fact, for Crimp, postmodern photography does not recuperate aura, but displaces it, to show that it too is only an aspect of the copy, not part of the original. Photographers such as Cindy Sherman and Sherry Levine have directly addressed photography's claims to originality, by exposing those claims as fiction, they expose photography as a representation that has been seen before. In Levine's series *After Walker Evans*, 1981, a collection of photographs of Walker Evans's photographs from *Let Us Now Praise Famous Men*, it is near impossible to determine whether the photographs are Evans's or Levine's.⁶

Crimp's discussion of postmodernism and photography is insightful, however, the work of Messager, the Starns, and Barrette do not fit within his theoretical construct. Their



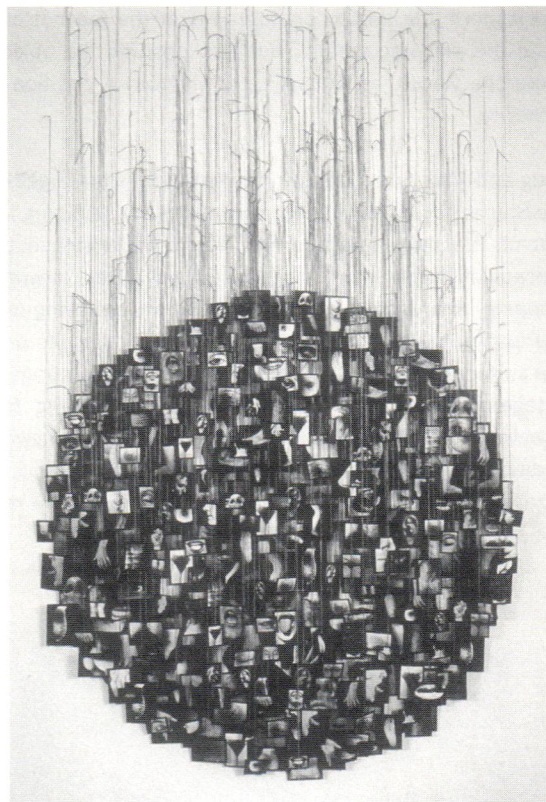
artwork does not meet the terms of the standard modes of photography, nor is it concerned with exposing photography for the fiction that it is. By integrating photography with other media, they are not trying to displace aura, but strive to regain Benjamin's idea of aura, updating it to serve contemporary needs and desires.

The work of Annette Messenger refuses categorization on every level. She is neither a photographer nor a sculptor per se, yet she utilizes elements of both for her installations. Messenger has a nonhierarchical approach to materials, methods, and sources. She employs a variety of materials including photographs—by herself and by others—paint, metal, found objects, crayons, books, embroidery, drawings, toys, and taxidermized animals.⁷ Messenger combines aspects of both photography and sculpture to express her sensibility with a democratic approach to materials. Her work provides an update of Benjamin's definition of aura in that it is noticeably handmade, and the collection and arrangement of objects make it decidedly personal.

The main element of Messenger's work is not always photography, but photos are consistently integrated into her pieces. In her early work, she often incorporated found photographs. For example, in *Voluntary Tortures*, 1972 (Fig. 2) she assembled eighty-six clipped illustrations of women submitting to beauty treatments. Although this piece is essentially two-dimensional, it is sculptural in that it breaks away from the rectangular format of photography, and works within the space between each image. The sculptural tendency of photography is further explored by Messenger in *My Vows*, 1988 (Fig. 3), in which small photographs of body parts are clustered together in dense arrangements, and hang by different lengths of string. By fracturing and layering the images, the piece becomes less about the subject matter and more about the form of the images and their reconstructed meanings.

The use of text is also common for Messenger, and adds to the personal nature of her pieces. For example, *Lines of the Hands*, 1987 (Fig. 4) consists of photographs of body parts enlarged and covered with arcane figures. The stream of words along the bottom refers to states of emotional revelation such as trust, protection, hesitation, fear,

3



4



and rumor.⁸ The angled photographs at the top not only make the piece sculptural, but also position the objects above the viewer, as if looking down from a position of authority.

Doug and Mike Starn are twin brothers who work together. The Starns have tried to break away from the confining format of the single-image print. They have stretched the concept of the medium by recycling negatives, layering, cropping, and contorting photographs, while playing with and testing the purity of the photo-aesthetic and its pristine surface. Their photographs often emulate paintings or vintage prints, as *Large Copper Rembrandt*, 1989 (Fig. 5).⁹ However, unlike *Messenger*, the Starns remain somewhat traditional photographers in their reliance on the master negative and resulting positive, and photographs are routinely the main element of their works.

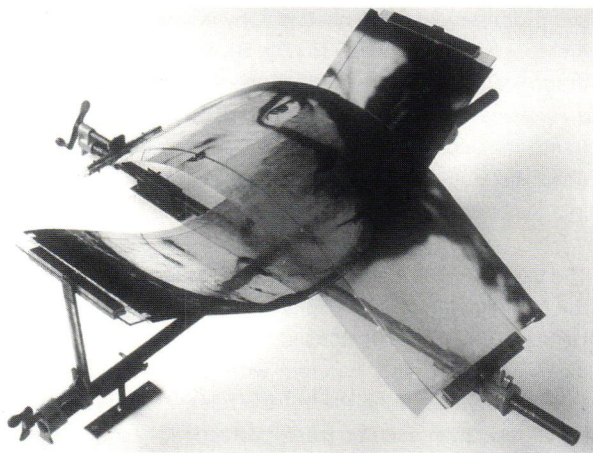


5

Their resolve to show what the medium can do has led the Starns to spend more time in the darkroom, experimenting with different ways of printing, toning, staining, and otherwise altering the traditional print.¹⁰ The Starns' oeuvre is also characterized by a sense of fragility and tem-

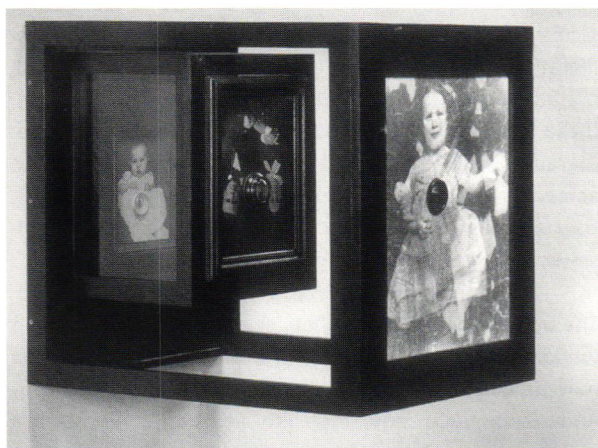
porality. Their use of tape to hold the sheets of paper together, and the untailored form of the frames, reminds us that artwork may be vulnerable and ephemeral.¹¹ A piece such as *Large Copper Rembrandt*, although not particularly sculptural, becomes three-dimensional through the visible surface of collage and the textured effect.

In the late 1980s, the Starns increasingly made works that seemed more sculptural than photographic, due principally to their use of varied materials such as plexiglas, clamps, and wood to supplement and distort the images. An image such as *X*, 1989 (Fig. 6) has become completely three-dimensional, jutting out towards the viewer and invading his/her space. The presence of the clamps adds an industrial and even forceful impression, as if the clamps are literally pulling the skin of the male and female subjects. The Starns use plexiglas as a part of the work itself, not as the conventional covering of the photograph in order to further emphasize its physical presence, as in *Tears with Metal and Plexi*, 1987 (Fig. 1). The Starns appear to be increasingly displeased with photography's emulation of painting—a flat form—and have turned instead to sculpture, a medium more tactile and experiential than two-dimensional photography. The “aura” of their work is seemingly tied to the vintage prints they “borrow.” However, I argue that the aura can be found in their manipulations of the physical object. Thus, by visibly altering their photographs without the help of mechanical technology, but simply by hand, the Starns create one-of-a-kind objects of art.



6

The work of Bill Barrette is comprised of three-dimensional structures, embedded with anonymous daguerreo-type portraits.¹² Much of Barrette's artwork of the 1980s refers to the mechanics of cameras and lenses, reminding the viewer of the invention of photography, or perhaps the *camera obscura*, and its rudimentary box-like structure. An example of Barrette's use of the box structure is found in *Anonymous Child*, 1989 (Fig. 7), in which lenses are attached to each photograph, forcing the viewer to walk around each photograph, peer through the lens, and experience it as a three-dimensional object. *Anonymous Child* is reminiscent of Sol LeWitt's open and mathematical use of space in his box-like structures. Hence, Barrette has taken the manufactured look of the minimalist box and personalized it, or given it aura in the Benjaminian sense, with the embedding of old and original photographs.



7

In a manner similar to the use of vintage-looking images by the Starns, Barrette presents aged pictures of nineteenth-century men, women, and children staring catatonically at the camera. The Starns manipulate the images in their frames or have objects such as lenses attached to their surface. However, unlike the Starns' work, the images are, for the most part, kept intact. The energy of Barrette's work comes from the juxtaposition of hard metal structures against the nostalgic aura of the prints, as seen in *Anonymous Woman with Hubcap*, 1987 (Fig. 8). Such a contrast of materials may be a literal commentary on the loss of self in the Industrial Age, and the distance created by

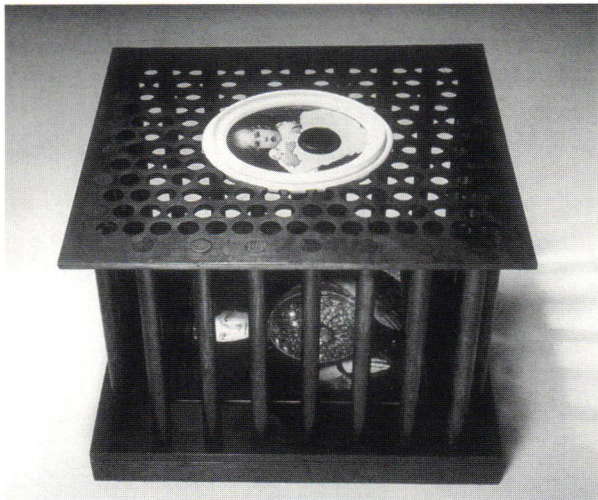
mechanical reproduction, metaphorizing Benjamin's concerns about authenticity.¹³ However, Barrette manages to sustain the aura by incorporating the vintage photographs into the otherwise prefabricated structures.



8

In some respects, the manufactured appearance gives Barrette's work a visual toughness that sustains its anonymity. It also adds to the frustration inherent in the work: most of the machinery is gratuitous, only the lenses actually function, but often they do not work as expected—they may or may not enlarge, reduce, or flip an image.¹⁴ *Anonymous Woman with Child*, 1988 (Fig. 9), illustrates how Barrette leaves our desire to see the image clearly unfulfilled. The image of the baby is outside the box and available for viewing, while the portrait of the woman is, in a sense, behind bars, obstructed by the resin on the surface of the photograph and her placement inside the structure.

The work of Bill Barrette departs from both Annette



9

Messenger and the Starns, in that he presents his work on a smaller scale; it is more self-contained, and for the most part, inescapably three-dimensional. However, Barrette's work, once again, embodies a return to the desire for an aura. With Barrette, the hand of the artist is less visible than in the work of the Starns, and his work has more in common with the assembled look of Messenger's installations. While her fabrications tend to involve domestic materials, and softer objects juxtaposed with photographs, as in *My Little Effigies*, 1987 (Fig. 10), Barrette uses hard, industrial materials which he then subdues with the found photographs. In both cases, the contrast between the two opposing media brings issues of production and the appeal of the unique object to the fore. Barrette questions whether we are still drawn to straightforward representation, and by placing structures in front of the images, he interrupts our access to them, just as technology and reproduction have created a distance between us and the aura of art.

Considering the work of Messenger, Doug and Mike Starn, and Barrette together, it is evident that first-and-foremost, they share a common interest in photo-based work, and in creating sculptural objects that move into concrete space and relate to our corporeal existence.¹⁵ Each artist has produced a body of work that is both tactile and sensual in appearance. Messenger's democratic use of materials, the Starn's taping and ripping of photographs, and Barrette's contrast of metal exteriors and delicate interi-



10

ors each challenge the notion of the preciousness of art. They represent a common longing, and are in fact nostalgic for aura in a particularly postmodern way. With the proliferation of photographic images in our culture (a bombardment beyond what Benjamin would have known), these artists may have realized that the merging of photography with other media is the most effective way to achieve a sense of aura in contemporary times. Hence, they are compelled to both confront and remove themselves from the tyranny of categorization.

The trend of postmodern photo-sculpture illustrates that a fundamental philosophy of art, as unique and authentic may be inescapable. A similar ideology was conveyed by Andy Grundberg, more than fifty years after Benjamin's notorious essay. Grundberg believes that,

art's aura—its uniqueness, its prestige, its capacity to express individual points of view and to embody the highest human aspirations—which is the issue precisely at the center of contemporary art.¹⁶

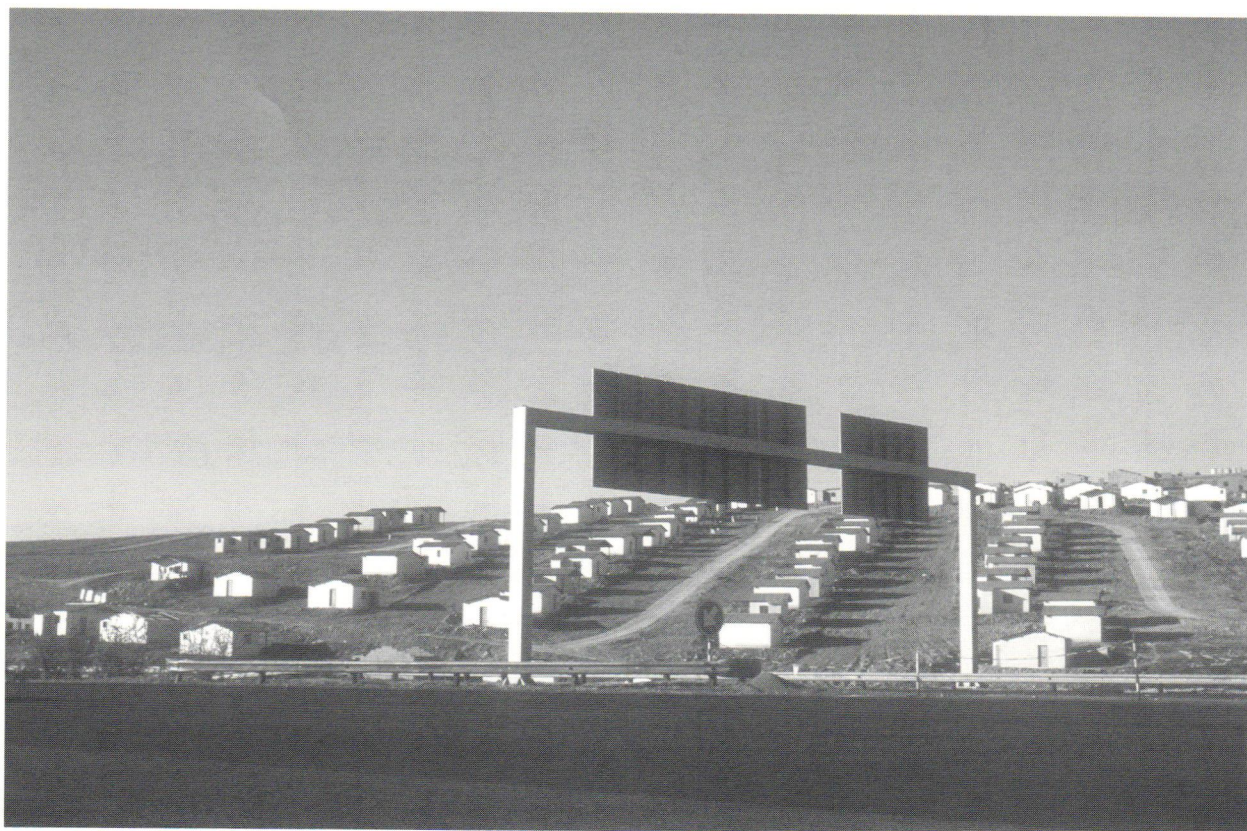
And alas, Douglas Crimp's alignment of postmodern photography with Neo-expressionist painting was quite accurate, for both signify a deeply felt need to reconnect with feeling, to make contact with materials, and to strive for one-of-a-kind objects of art.

Notes

- 1 Joshua P. Smith, *The Photography of Invention: American Pictures of the 1980s*, exh. cat., National Museum of American Art, Smithsonian Institution, Washington D.C., 1989, 6-7.
- 2 Walter Benjamin, "The Work of Art in the Age of Mechanical Reproduction," in *Art in Theory 1900-1990: An Anthology of Changing Ideas*, ed. Charles Harrison & Paul Wood, Cambridge: Blackwell Publishers, 1993, 514.
- 3 Benjamin, 516.
- 4 Douglas Crimp, "Pictures," in *Art After Modernism: Rethinking Representation*, ed. Brian Wallis, New York: The New Museum of Contemporary Art, 1984, 134.
- 5 Ibid., 133.
- 6 Ibid., 137.
- 7 Sheryl Conkelton and Carol S. Eliel, *Annette Messenger*, exh. cat., Los Angeles County Museum of Art, and Museum of Modern Art, New York, New York: Harry N. Abrams, Inc., 1995, 10.
- 8 Conkelton, 24.
- 9 Robert Pincus-Witten, "Being Twins: The Art of Doug and Mike Starn," *Art Magazine* 64 (1988): 1.
- 10 Andy Grundberg, *Mike and Doug Starn*, New York: Harry N. Abrams, Inc., 1990, 27.
- 11 Grundberg, 38.
- 12 Not all of Barrette's works are structures with embedded photographs. He has also done large-scale collage paintings and more conventional photographs of contemporary New York life.
- 13 Josh Wilner, *Bill Barrette: Mirror, Lens, and Memory*, exh. cat., Lafayette College, Easton, Penn., 1988, 1.
- 14 Terry R. Meyers, *Bill Barrette*, exh. cat., New York, 1989, 4.
- 15 Although the scope of this paper only permitted discussion of four artists, there are indeed others who have contributed to this trend of creating photo-sculptures. Christian Boltanski, Elaine Reichek, and Alan Belcher are just a few others.
- 16 Grundberg, 45.

Illustrations

- Fig. 1: Doug and Mike Starn, *Tears with Metal and Plexi*, 1989.
- Fig. 2: Annette Messenger, *Voluntary Tortures*, 1972.
- Fig. 3: Annette Messenger, *My Vows*, 1988.
- Fig. 4: Annette Messenger, *Lines of the Hands*, 1987.
- Fig. 5: Doug and Mike Starn, *Large Copper Rembrandt*, 1989.
- Fig. 6: Doug and Mike Starn, *X*, 1989.
- Fig. 7: Bill Barrette, Anonymous Child, 1987.
- Fig. 8: Bill Barrette, Anonymous Woman with Hubcap, 1987.
- Fig. 9: Bill Barrette, Anonymous Woman with Child, 1988.
- Fig. 10: Annette Messenger, *My Little Effigies*, 1987.



Post-Apartheid Housing (The reproduction of inherited modes)

1

PAUL SCHLAPOBERSKY
HARDNESSES IN MOTION
JOHANNESBURG AFTER APARTHEID¹

Johannesburg is simultaneously a generic city of the New World and an acutely specific artifact of the racial ideologies of South Africa's apartheid system. The combination of the universal and the unique has created a behemoth that inhabits the popular consciousness primarily as an icon of opportunity and exploitation, and as the excrescence of brutal economic and social forces. The city has never escaped or transcended the pervasive mining-mentality on which it was founded; that of digging, extracting, removing, and moving on to new "seams" when the old ones are exhausted. Johannesburg's sheer size, its durability, and its role as the crucible of all significant social change in the post-apartheid era suggest, however, that deeper digging is required in order to apprehend the true nature of the accumulated city. If cities such as Venice and Vienna can be called "beautiful," then Johannesburg must—by the same logic—be called "ugly." It is thus, left vulnerable to dismissal both popularly and critically as the deformed offspring of the immutable forces of capitalism and ideology. Its rebirth as the beacon for an entire continent, and its appropriation by the people it previously exploited suggest, instead, that it is both an urban Quasimodo and a social Trojan Horse; the repulsive/endearing disfiguration and the disguised vehicle for a successive overturning of past realities.

As the city struggles with these realities, it dares, for the first time, to hope for a future for itself that breaks from the pathologies of the past. In the wake of apartheid, however, the energies consumed in the negotiation of that damaged legacy render larger conceptualization—the con-

struction of *meta-fictions*—almost impossible. Through the exercise of ongoing damage-control, Johannesburg is unable to peer through the heavy veil of the past to see a future in which its scars—if still visible—are just that: scars rather than open wounds, problematic palimpsests coexisting with newer layers rather than constantly pushing through and mutilating them.

Johannesburg—in survival mode—currently attempts to find a workable equilibrium between two polarized states, but it finds almost no middle ground in either the physical or mental spaces that separate the divided city. At one pole it is, to an extent, like any other large city: an agglomeration of the banal artifacts of human endeavour on a concentrated terrain, including the most basic definitions of "home" and "work" and the "everyday" (although the current hardness of the city, as represented by crime, endangers and diminishes even these most fundamental units at present). At the other pole, the city exists as a monumental tragedy, the built-form of over a century of hard economics and even harder sociology. The monumentality of this legacy, as well as the state of flux of South African society following apartheid, means that current efforts at ameliorating the city's condition cannot keep pace with the challenges that are relentlessly thrown up, leaving the monumental to constantly consume the everyday.

Beginning with an optimistic belief that Johannesburg can create a future for itself that moves away from the hand-to-mouth and away from the monumental legacy that is

the generator of that condition. To do this, the city must first alter its psychological terrain, detoxifying its poisoned earth to create a landscape on which nascent ambitions representing other possibilities can begin to adhere. Sited within the context of these first steps, the city seeks to achieve two ends. The first, a necessary prelude to the second, is to de-monumentalize Johannesburg (inasmuch as that is currently possible); to reduce the city to *some* of its constituent parts, with the hope that such a reduction will offer a different understanding of the whole. The second is to act on the opportunities afforded by the de-monumentalization; that is, to provide provocations for alternative conceptualizations of the city (or, indeed, for *any* conceptualization for and of an entity whose blatancy currently creates apathy in the face of what is seen to be immutable). It would be too ambitious to suggest that

these explorations could show the way forward in a direct manner, or that, taken individually, any one of them could form a complete representative essence of the whole. They instead seek to re-phrase the problem, to change the language of engagement through a paradigmatic shift. The primary vehicle for this shift is initializing the process of retrieval through the medium of fiction. Here, fiction is seen as a means (perhaps not the only means) of looking through the monolithic into the human, to gain understanding in the virtual absence of constructible logic. It is an attempt at seeing the substratum that is subsumed endlessly by banal hardness.

Paradoxically, fiction focuses on fragmenting what is seen to be monolithic in order to begin to address the problems that might arguably be a profoundly fragmented reality



Freelance Photographer's Sample Board, Joubert Park (The human substratum)

instead. The reality is that post-apartheid Johannesburg is a type of Russian Doll of paradoxes, each containing others (almost endlessly) within it, as by-products of the conditions that were spawned by apartheid and the raw version of capitalism brought into being by gold. Johannesburg's lifeblood is the coexistence and constant co-production of the monolithic and the fragmented. However, it is the monolithic that rides to the surface—subsuming the other—as a result of the latent tendencies towards monumentalism in a city where social relations and industry have always interacted on an epic scale. For example, the type of goldmining conducted on the Highveld is heavy-industry at its most monumental, not only in process and scale, but also in its association with both ancient and enduring human impulses and industrial-era relationships with nature.

Apartheid, in turn, was a massive and even industrial undertaking that sought nothing less than to deform and then codify the most basic strands of human interaction. It was a dialectic rendered in pure black and white terms, and as such, it created a dogged reality that is highly polarized. This is a primary reason for, and not something that mitigates against, the ironies of Johannesburg's existence. It is half of the over-arching source of the city's current state. The other half is formed by the opposite: the logic of capital that filled in the middle-ground (literally and figuratively). This logic completed a picture in which the city attempted to sharply define itself through racial clarity and at the same time, to blur these differences into a nebulousness that would best serve market forces. This is the paradox of constitution. The paradox of implementation is Johannesburg's visual banality (its monolithism), and the ease with which it is apprehended (the image-skyline) belies multiple realities. In its deception (off-handedly), it stifles the human substrata, rendering it mute and thus trivializing its very real disasters.

If goldmining has declined in Johannesburg, and apartheid has ended, these two primary constituting forces have nevertheless created the terrain—in both cases literally—upon which Johannesburg continues to operate. The artificial topology created by apartheid (buffer zones and townships) is no less tangible than the one created by gold (slimes dams, mine dumps, and

expanses of open, unstable, and poisoned ground). This concrete legacy establishes, *a priori*, the field of the current endeavour. It serves to ensure that for the time being, past modalities reproduce themselves reflexively and predictably, even as the city is overtaken by uncertainty and unpredictability.

It would be unrealistic to believe that Johannesburg can shed its paradoxes, now, or perhaps, ever. They are a part of its essential composition. But they need to be brought under control, primarily to enable its inhabitants to find an intangible quality that has perhaps best been defined as a state of being at ease, what Barthes describes as “the deliberate loss of all heroism.”²

The thirteen fictions in my thesis, of which *Vision* is presented here, represent an attempt to diminish the heroism of legacy, of industry, and of violence, in order to reveal humanity. Of all the fictions, *Vision* most directly deals with the problem of intractability, as well as the difficulties of finding consensus under highly polarized conditions. Johannesburg itself is a thesis on how the specific can be ravaged by the generic. It is a place where the endless reproduction of conditions brought into being by forces now removed continues to subsume humanity, as a result of the inherent resilience and kinesis of that which becomes generically reproducible.

Notes

¹ “Hardnesses in Motion” (*Härten in Bewegung*), is the title of a Paul Klee drawing, 1927.

² Roland Barthes, *Roland Barthes*, New York: Hill and Wang, 1977, 44. Barthes writes, “This personal comfort might be called: ease. Ease can be given a theoretical dignity (‘We need not keep our distance with regard to formalism, merely our ease’) and also an ethical force: it is the deliberate loss of all heroism, even in pleasure.”

Illustrations

Fig. 1: Post-Apartheid Housing Outside Johannesburg, 2002.

Fig. 2: Freelance Photographer's Board, Joubert Park, Johannesburg, 2002.

Fig. 3: Johannesburg Skyline, 2002.

Fig. 4: Photographer, Joubert Park, 2002.

VISION

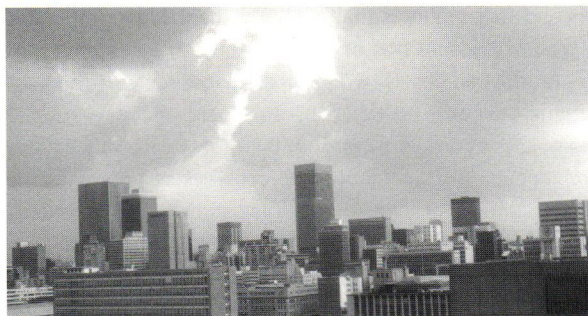
It was some years after the elections. Not many, but enough for people to have almost completely forgotten the sense of possibility that had pervaded the entire country at that time. At this point, Johannesburg fell back into its life of wealth, fear, and survival, and it was difficult for many to see the positive changes that were taking place amidst the turmoil that the lifting of apartheid's veil unleashed on the city.

He came to the city then, at that difficult time. It does not matter for this story whether he was black, white, Indian, or what the apartheid government used to call "Colored." He was a man, maybe of the African continent, but possibly not. When they finally met him, the assembled people couldn't tell, although it was clear that he knew much about Johannesburg. This they could understand after his first few sentences.

He had left a calling card with the Mayor's secretary at the Civic Center. The attached note requested a meeting with Her Worship and a group of the city's leading citizens. The city was, at the time of this request, much as it is now: ever naïve despite its "hardness". And so, it was not as difficult as one might imagine for a distinguished looking gentleman with an embossed calling card to make such a request and to have it honored. The route from the sidewalk to the Mayor's office is a short one, and the security guards in the lobby are not suspicious, as they were in past decades.

The man's note stated that he could offer nothing less than the one-and-only solution to the city's most intractable problem: the healing of the open wound that exists between Johannesburg and the apartheid-era shadow city, the black township of Soweto. He could offer the meaningful integration of the latter into the life of the former.

The Mayor was, naturally, amused and intrigued. Neither the serial-blunderers who worked in the city-planning department nor the academics at the university could utter so much as a single coherent sentence on the subject. Re-reading the note as she went into the council chamber, past the spot where Vorster's menacing bronze bust used to guard the entrance, she decided to contact the man at his hotel.



Skyline (The banal excrement)

3

Later, in a private meeting in her office, the man said he would need a large room in the Civic Center, with a table in the middle, a few hours to prepare in private before the meeting, and nothing else. The Mayor agreed to this simple request, and invitations bearing the city seal were sent out to the heads of the mining houses, banks, large industries, and to various community leaders.

On the day of the meeting, the man arrived early with a small crew, as well as several timber shipping crates that were carefully carried to the meeting room. Half the team spent several hours darkening the room completely, first by taping black paper over the windows overlooking the downtown, and then by hanging a black cloth in front of the obscured view, to completely ensure no light would enter the room. At the same time, others set up a gigantic segmented model of the entire city on the center table. The model was impressively large and detailed, but not so massive as to place any part of it completely out of reach from an edge of the table. Every building, road, hill, and mine-dump in the city had been painstakingly recreated in perfect faith to the world that had been visible from the windows a short while before.

At the hour of the meeting, the man greeted the guests, and the doors to the room closed behind him. He welcomed them warmly, thanking them for taking time from their busy schedules to indulge him in what he felt sure would be an informative afternoon for all. He explained, melodramatically, that they were just a few minutes away from taking hold of the key to the troubled city's future, as well as the healing of its past. Some skeptical glances were exchanged in the small crowd, but he seemed not to notice. He continued, saying that the procedure for unveiling this dramatic moment would in itself

be dramatic; that the guests would spend time feeling the model with their hands to orient themselves. He pointed to the back of the crowd to indicate where north was, and said that the model had been set up with the same orientation as the actual city. He encouraged each person to trace their fingers along the main roads, once they had located some major landmarks, to find their own homes, and only then, to move to the section of the model which occasioned their gathering.

These instructions caused some excitement, and the select little crowd was ushered into the pitch-black room without further delay. The doors were closed, and the man invited them all to begin their digital explorations, while taking care not to trip over one another. Initially, there was much confusion, but everyone quickly entered into the spirit of this unique unveiling. There was a moment of mild embarrassment for the man and the Mayor when he helped her to find her way by taking her hand in his and guiding it to the vertical cylinder of Ponte Apartments. Others too were laughing and excusing themselves, as hands touched hands on the model, but it was clear that everyone was enjoying this moment.

Eventually, all the fingers felt their way towards the area they were there to examine. They touched the bends of the Golden Highway and the warehouses at Crown Mines, and then started moving over unfamiliar objects and patterns, tracing lines that extended into both Soweto and Johannesburg, and over shapes that were entirely alien. There was much murmuring, and the rest of the model was quickly forgotten, as people ran their hands again and again over the tangible new landscape.

It would be difficult to pin an exact name on the emotion that overtook the group during the probing of what they had always known as a scarred no-man's-land. It was something like joy, but restrained, perhaps because of the darkness of the room, or maybe tempered by the illustriousness of the group's members. Nevertheless, there was genuine excitement.

When the man felt that the group had reached the state for which he had hoped, he told them he would raise the lights so they could finally see what they had been touching. The excitement grew noticeably, and he hesitated for some time in turning on the lights to prolong the moment. Then, without using the dimmer, he threw the switches and the room was flooded with light. There were loud groans. Heads were shielded by

arms, and for about a minute confusion reigned.

What happened next happened quickly. There were a few moments of stunned silence after the members of the group had adjusted their vision to the light. Those seconds of shock seemed to last an eternity for the man. They were shattered abruptly when the City Engineer grabbed one of the chairs against the wall and swung it over his head with an animal cry. The chair came down on the part of the model which, just a minute before, he had been exploring blissfully with his hands. The model caved in and its pieces went flying. The Director of Housing lunged at the model immediately (perhaps in a futile attempt to save it, but maybe also to complete its destruction), and was only restrained by the quick intervention of the Muslim and Anglican prelates, both of whom were visibly shaken. The Director of the Women's League was sobbing, as was the Commissioner of Roads, and it was unclear to the man whether it had been his vision or the destruction of it that was the cause. The bankers and mining bosses filed out of the room as one, alternately spitting venom and laughing derisively, past the Chief of Police who sat motionless on a chair near the door with his head in his hands. The Mayor crossed the room silently, slapped the man once, and in a low voice ordered him out of the Civic Center.

Everyone in that room had, for a few brief moments, dreamed a powerful and private dream. But then each dream ended with the same suddenness in which it began; beauty imagined turned to obscenity with exposure to the light.



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CONTRIBUTORS

JENNIFER ALLORA is a candidate for a Masters of Science degree in Visual Studies at MIT. Jennifer has studied at the Whitney Museum of American Art Independent Study Program and the P.S. 1 Contemporary Art Center National Studio Program. She holds a B.A. from the University of Richmond.

GUILLERMO CALZADILLA is Adjunct professor at the Rhode Island School of Design. He has studied at the Skowhegan School of Painting and Sculpture and the P.S. 1 Contemporary Arts National Studio Program. He received his BFA from the Escuela de Artes Plasticas in San Juan, Puerto Rico.

ORON CATTS is Director of SymbioticA: The Art & Science Collaborative Studio, Department of Anatomy & Human Biology, the University of Western Australia. He was formerly a research fellow at the Tissue Engineering and Organ Fabrication Lab, Massachusetts General Hospital, Harvard Medical School, Boston.

JOHN FERNANDEZ is currently Assistant Professor of Building Technology at MIT. Prior to teaching at MIT, Fernandez was a senior designer at Kohn, Pederson, Fox, and Polshek Partnership in NYC. He is currently a principal in the firm LF Architects.

BENJAMIN FRY is consumed by the patterns and structures found in large, dynamic sources of data. Drawing on a background in graphic design and computer science, he pursues this fascination as a doctoral candidate in the Aesthetics and Computation Group at the MIT Media Lab.

TALINN GRIGOR is a Ph.D. candidate in the History, Theory, and Criticism Section of the Department of Architecture at MIT. She received her S.M.Arch.S. from MIT in 1998, and her B.Arch. from the University of Southern California in 1996. She has taught in the Art History Department of Yerevan State University.

SAMANTHA HOOVER has worked at the International Center of Photography and the Asia Society. She received her M.A. in Art History from Case Western Reserve University in May of 2001.

ZISSIS KOTIONIS is an architect practicing in Athens, Greece. He is Professor of Architectural Design at the University of Patras and is the author of *The Questions of Origins in the Work of D. Pikionis* and *(His)Stories of Architecture*.

PANOS MANTZIARAS is a Ph.D. candidate at the École d'Architecture de Clermont-Ferrand, France. He is currently a research fellow at the Canadian Centre for Architecture.

SARAH ROGERS is a Ph.D. candidate in the History, Theory and Criticism section in the Department of Architecture at MIT. Her area of study is modern and contemporary art of the Middle East.

AFSHEEN RAIS ROHANI received his B.Arch. from the Southern California Institute of Architecture and holds an S.M.Arch.S. in Design Technology from MIT.

PAUL SCHLAPOBERSKY holds a B.Arch. from the University of Waterloo and a S.M.Arch.S. in Architecture and Urbanism from MIT. Paul has practiced in Johannesburg, South Africa. His work was included in the exhibition, *BLANK: Architecture, Apartheid, and After* at the Netherlands Architecture Institute.

MICHAEL SILVER is Director of Digital Media and Assistant Professor at the Yale University School of Architecture. He holds a M.Arch. in Building Design from Columbia University and is a LeFevre research fellow for The Knowlton School of Architecture in Columbus, Ohio.

CHRISTINE TARKOWSKI is a faculty member of the School of the Art Institute of Chicago and was Visiting Artist in the Department of Visual Arts at MIT in the Spring of 2002.

SETH WEINER is an artist and holds a Masters of Science in Visual Studies from MIT.

WINNIE WON YIN WONG holds a BA from Dartmouth College and an S.M.Arch.S. degree in History, Theory and Criticism from the Department of Architecture at MIT.

IONAT ZURR works in collaboration with Oron Catts at SymbioticA: The Art & Science Collaborative Studio, Department of Anatomy & Human Biology, the University of Western Australia. Ionat was formerly a research fellow at the Tissue Engineering and Organ Fabrication Lab, Massachusetts General Hospital, Harvard Medical School, Boston.

RELIGION

Religious sites often give physical expression to the abstract concepts of doctrine and the requirements of worship. Such spaces are meant to enlighten and even “restructure”—physically and spiritually—the individual worshipper.

Nevertheless, sites designed to represent religious beliefs do not always transcend the mundane conditions that shape them. Tensions between religion and mammon have compromised ascetic aspirations and have revealed the vulnerability of conviction when social, political, and economic interests are at work.

In this issue of *Thresholds*, we would like to explore the nature of religious building and the way religion has contributed to our ideas about architecture and the landscape. Points of inquiry include, but are not limited to, the role of the pilgrimage in the formation of sacred spaces, the place of religion in architectural debate, and the use of religious rhetoric in legitimizing territorial claims. Have symbolic gestures become insipid as religious typology is rehashed? Do we need to rethink our expectations of these spaces as the socio-political climate changes, since—as some would have us believe—our connection to divine forces are cut off by scientific inquiry, ungodly commercialism, and wireless signals?

Here (in the world) blood is a major source of impurity; there (in ritual space) blood removes impurity. Here (in the world) water is the central agent by which impurity is transmitted; there (in ritual) washing with water carries away impurity. Neither the blood nor the water has changed; what has changed is their location.

—*To Take Place: Toward Theory in Ritual*
Jonathan Z. Smith

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We invite essays, projects, analyses and other explorations. Essays are limited to 2500 words. Digital copies of texts/ images/ etc. are required. E-mail submissions will not be accepted without permission of the editor. Please include a two-sentence biography of the author(s) for publication. *Thresholds* aims to print material not previously published elsewhere.

Please send materials or correspondence to:

Thresholds
MIT Department of Architecture
Room 7-337
77 Massachusetts Ave.
Cambridge, MA 02139
thresh@mit.edu

<http://architecture.mit.edu/thresholds/>