Biophilia and Technophilia:
Examining the Nature/Culture Split in Design Theory

by David Stairs

"In most cases the designer wants to set and solve problems for human use, but in most cases he feels obliged to set and solve problems for human abuse. This is, without doubt, the problem of all problems."

—Tomás Maldonado
Speaking at IDCA, 1961[1]

1.

In 1984 Harvard biologist Edward O. Wilson published a modest volume in which he proposed the existence of a genetic basis for the human predilection toward the natural world. This concept, which Wilson called "biophilia", is loosely suggested by certain affinities and aversions which occur in societies widely separated by geography and ritual. For example, when asked to choose between photos of urban or rural settings, most people indicate a preference for the latter, implying an ancestral connection to our roots as hunter/gatherers. Biophilia was an unproved theory, but whether because of its elegance, or its timliness, it struck a chord in the intellectual community.

Nearly a decade later, in 1993, an anthology of essays inspired by Wilson's idea appeared. Entitled *The Biophilia Hypothesis*, it presented authors from a variety of disciplines who grappled with the relation of civilization to the natural world. Some of the essays in *The Biophilia Hypothesis* sought to describe our influence on nature through plant and animal husbandry, others detailed nature's reciprocal influence on our language and mythology. Not all of these commentators were optimistic about the effects of human technology upon species diversity. David W. Orr chastised the failure of our economics, our politics, and our science to comprehend the enormity of the threat to the environment.

Other contributors took an opposing viewpoint. Dorion Sagan and Lynn Margulis went

so far as to challenge the assumption that the planet is sick. They proposed that loss of biodiversity might be balanced by a gain in technodiversity, "...a trade-off that may ultimately enhance the longevity of the biosphere."[2] Madhav Gadgil's essay argued the co-evolutionary basis of artifacts in the human evolutionary process, at one point comparing the worldwide building mass to the worldwide woody plant mass. This notion echoes Wilson's own sociobiological argument for "gene-culture coevolution" as "...a plausible explanation for the origin of biophilia."[3]

Not surprisingly, many of these points have been touched upon by design writers. In *Design for Human Scale*, Victor Papanek cites H.J. Eysenck in an effort to locate the evolutionary basis for aesthetic experience in associational memories which "...derive from the immemorial terrestrial environment of humans."[4] Yi-Fu Tuan writes: "The physical environment itself has an effect on perception. People who live in a "carpentered" world are susceptible to different kinds of illusion from those who live in an environment lacking orthogonality."[5]

In *Prometheus of the Everyday*, Ezio Manzini takes the comparison of nature and the built environment further. He invokes Bateson's idea of an ecology of the artificial to underline the difference between nature's nonpurposive evolution and culture's purposive change. Manzini recognizes the illusion which equates well-being with increased production and suggests that "...the question of rethinking the relation between the human race and the environment must be asked in a radical manner."[6] Manzini's admonition to reexamine our place in nature is not original; the canon of the environmental movement is now decades long. What makes Manzini's exhortations noteworthy is their relative rarity among design writers.

In a later essay Manzini's tenor assumes the more radical tone he'd called for: "Faced with the evidence of the interconnectedness of the environmental, economic and socio-cultural crises, it becomes increasingly clear that the scenario of the "re-design of what exists" is not sufficient for the discovery of true solutions."[7] Whether this is a recantation of his earlier enthusiasm for balanced satisfactions attainable through "ecotechnological equilibrium" remains unclear. That such an equilibrium would be compatible with the tenets of a conservationist ethic is uncertain. Harmony, unity, and interdependence are classic ecological concepts, and it is question-

able that Bateson's "artificial ecology" means anything outside a natural construct. But Manzini's hypothesizing still raises the tantalizing question of how an empathic, enlightened, self-regulating design culture would affect the natural picture.

2.

Design discourse is very preoccupied with the process of self-delineation. In this it has followed the well worn lead of art, literary, and social criticism in its focus on visual and material culture. The basis for this discussion has ranged from the venerable theorizings of the Frankfurt School through the surreal semiotic exigeses of deconstructionism. Although this may seem like a broad spectrum, it is often constrained by the current fashions of academia. And until recently, the environment has not been one of them.

Herbert Simon is a theorist who has thought seriously about design's relation to both nature and science. He considers design a science rather than an applied art. He also differentiates design's purpose, synthesis, from the analytical purposes of science. In characterizing the human brain as a symbol-producing artifact, Simon has ventured further than any writer in his attempts to define design as the "science of the artificial." He writes: "The artificial world is centered on (an) interface between the inner and outer environments; it is concerned with attaining goals by adapting the former to the latter."[8] As a working definition of why design arises, this is an intriguing suggestion. It proposes culture as the mediator between the natural world and the world of ideas. But in his efforts to resolve the pesky paradox of our apparent nature/culture schizophrenia, Simon conjures a slew of other insidious dichotomies, including the mind/body duality. Such either/or hypotheses, so prevalent in an era of information theory, are disturbing.

Even more troubling are the remarks of Paul Rabinow as quoted by Allucquere Stone. Stone cites Rabinow's description of "biosociality" as it relates to genetic research:

> '...in biosociality, nature will be modeled on culture understood as practice; it will be known and

remade through technique; nature will finally become artificial, just as culture becomes natural. The objectivism of social factors is now giving way to....the beginnings of a redefinition and eventual operationalization of nature.'"[9]

This chilling anthropocentric inversion, a veritable Frankenstein Unbound, overlooks the relative brevity of culture when compared to the magnificence of biological evolution. As one friend visualized it for me, if the deep history of natural evolution is a tabletop, culture is a dust mote on that table.[10] Wilson reminds us that "...the brain evolved in a biocentric world, not a machine regulated world." The biophilia hypothesis "...suggests that when human beings remove themselves from the natural environment, the biophilic learning rules are not replaced by modern versions equally well-adapted to artifacts."[11] In otherwords, the fear of snakes and high places has yet to be superceded by the fear of motor vehicles and firearms.

Human culture is rapidly evolving, and, as some suggest, may well be an advanced manifestation of nature. But culture has attained nowhere near the level of complexity of the natural world it is in danger of unbalancing.

3.

The technophilic stance taken by Rabinow, Simon, Sagan and others is understandable. In a civilization still dominated by a mechanistic paradigm, such attitudes are bred in the intellectual bone. Cultural historian Leo Marx writes, "The idea of history as a record of progress driven by the application of science-based knowledge was not simply another idea among many. Rather it was a figurative concept lodged at the center of what became, sometime after 1750, the dominant secular world-picture of Western culture."[12] The breathlessness surrounding technological advancements was bound to influence design analysts. The idea that technology cannot be anodyne for all of society's ills is a relatively recent development. In the heyday of what Leo Marx calls "technocratic utopianism", it was only the countercultural crank who provided a reality check for the prevailing ideology. Thoreau was one such person, and in our era Lewis Mumford was another. But in a century where "progress is our most important product", such voices have

often been drowned out by the percussive din of metaphoric drop forges.

That technology, like life, is developmental, gives small solace in the face of accelerating technological change. The spectre of technological determinism casts a two-century- long shadow across our society, but the spectre is characterized not so much by Prometheus as by Faust. In the appendices to his *Critique of Commodity Aesthetics* Wolfgang Haug likens the function of design under capitalism to that of the Red Cross in wartime, boosting morale yet complicit in slaughter. When queried about how best to design for the human environment, he responds, "... environment is the world over which we have no say and through which we should move like animals in the jungle..."[13]

Haug's pessimism is almost palpable, but the reasons for despair are comprehensible. This is the same anxiety voiced by Manzini &Wilson. Yet, as densely ironic as Haug's answer to the International Design Center is, it points to a recognition of the contrived split between nature and culture.

4.

Design literature abounds with definitions of environment, from Victor Margolin's "product milieu" to Carl Mitchum's "techno lifeworld". As we've seen with Manzini and Simon, most of these definitions, of necessity, assume a technophilic bias. Arnold Berleant, a phenomenologist who claims to dislike the word environment, defines it as "...a dynamic perceptual/cultural system that assimilates person and place."[14]

Critics of modern industrial society, such as Charles Reich, have pointed to its damaging affects on the spirit of human community. In *The Greening of America* Reich refers to the institutional and occupational communities which serve the corporation's ends at the individual's expense as "false communities". He indicts the Corporate State as the instrument which imposes centripetal routine on the family unit in the name of group consumption.

Berleant's analysis is more sophisticated. He recognizes individuality and self-sufficiency as false ideals. He cites an ethic of care as the feminist alternative to the theory of rights. He de-

scribes four modes of community: the rational, the moral, the organic, and the aesthetic, dismissing the first three because they fail to develop "...a unity of individual and social in which neither dimension dominates but each enhances the possibilities of the other."[15] This condition Berleant feels is limited to the aesthetic community, a realm of inherent relationship and mutual reciprocity ruled by an ethos of interdependence.

Berleant likens the aesthetic community to the sense of closeness one experiences in erotic intimacy. He considers aesthetic continuity to be a continuum of self, environment, and conscious awareness and, consequently, situates the continuity of our relation to nature in the aesthetic field. He argues that "...an aesthetic community recognizes the social dimension of environment and the aesthetic conditions of human fulfillment."[16] This unity of experience, replacing false dichotomies, is at the source of the aesthetic community. In so saying Berleant frees culture, and by association design, from its antipodal relation to nature. Hypothetically, the mutual reciprocity of culture and nature, Manzini's "ecotechnological equilibrium", becomes supportable.

5.

In his introductory essay for *The Biophilia Hypothesis* Edward Wilson locates the ultimate answer to the clash between nature and human civilization in the word "spirit." He sees a deeper understanding of life on earth, not the colonization of inhospitable space, as the frontier of future exploration.[17] In his call for a "...more powerful and intellectually convincing environmental ethic..." he is joined, in word & spirit, by Berleant, Manzini, and many others.

Words like sharing, engagement, and community have trickled down into the common critical parlance of the reenchanted '90's. Victor Papanek's latest book, *The Green Imperative*, has a chapter entitled "The New Aesthetic: Making the Future Work" in which he argues for the spiritual basis of design practice. In placing sustainability at the top of his list of imperatives, Pap-

anek urges an ethical design practice which is environmentally responsible and human in scale.

It is misleading to dichotomize the material and the spiritual, the genetic imperative of biophilia and the creative imperative of technophilia. Such division is a 17th century construct whose time has passed. The future, like the past, will be determined by biology, and culture will continue to conform to the inherent imperatives of nature. Designers and design theorists cannot afford to be mere adjuncts of the theory of unlimited growth, functioning in advocacy of an obsolete economic model.

The place of an enlightened design discourse must be to hasten the inevitable rapprochement between nature and culture. The perjorative effects of our technology cannot be ameliorated by bigger and better machines, but must be examined through the development of a meta-technological discourse. A good example could be made of indigenous people, such as the Inuit. Papanek has called them "the best designers in the world"; their handicraft technology enables them to survive in the harshest environment on earth without compromising their link to actuality. The future role of design will be to create culture as a sustainable part of the natural world.

Industry's apologists will recoil from these suggestions as regressive. But they are not so much a retreat into environmental determinism as a call for us to admit and accept our limitations. If at first it seems absurd to speak of replacing industrial technology with handicraft, perhaps we should recall that we are mortal creatures in a finite natural universe. Low or no-growth steady-state economics and the tenets of ecofeminism are proven alternatives.[18] We need to rediscover Mumford's biotechnic, or life-centered technology, and apply it to design thinking. And we must never equate entropic or closed models with creatures for whom evolution is the only acceptable model. The development of monolithic, hierarchical technologies, where virtuality is the ideal goal, should be recognized as inimical to our humanity.

In the end, it will be as futile to ask us to stop designing as it is to ask us to renounce our dependence upon nature. In a moment of probity Simon writes:

> One of the charges sometimes laid against modern science and tech-

nology is that if we know how to do something, we cannot resist doing it. While one can think of counterexamples, the claim has some measure of truth. One can envisage a future, however, in which our main interest in both science and design will lie in what they teach us about the world and not what they allow us to do to the world. Design like science is a tool for understanding as well as for acting."[19]

The argument for the genetic basis of biophilia is compelling. It does not diminish the fact that designing is one of our primary functions in this world, but it should give us pause to reflect. We must accept that our future resides not in the psychotic vision of unending cultural, technological, and economic progress, but in working to preserve the community of all earthly life.

Notes

1.) Tom ás Maldonado, The Aspen Papers, Reyner Banham, ed., "The Problem of All Problems", (New York: Praeger, 1974), 125.

2.) Dorion Sagan and Lynn Margulis, The Biophilia Hypothesis, Stephen R. Kellert & E.O. Wilson, eds., "God, Gaia, and Biophilia", (Washington: Island Press, 1993) 362.

3.) E.O. Wilson, The Biophilia Hypothesis, "Biophilia and the Conservation Ethic", 32

4.) Victor Papanek, Design For Human Scale, (New York: Van Nostrand Reinhold, 1983), 137.

5.) Yi-Fu Tuan, Topophilia (New York: Prentice-Hall, 1974) 111.

6.) Ezio Manzini, Discovering Design, Richard Buchanan & Victor Margolin, eds., "Prometheus of the Everyday: The Ecology of the Artificial and the Designer's Responsibility", (Chicago: University of Chicago Press, 1995), 224-228.

7.) Manzini, Design IssuesX #1, "Design, Environment and Social Quality: From "existenzminimum" to "quality maximum", 38.

8.) Herberet Simon, The Sciences of the Artificial, (Cambridge: MIT Press, 1969; rpt. 1981), 132.

9.) Allucquere Rosanne Stone, The War of Desire and Technology at the Close of the Mechanical Age, (Cambridge: MIT Press, 1995), 38.

10.) I am indebted to George Gessert for this analogy.

11.) Wilson, 31-32.

12.) Leo Marx, Does Technology Drive History?, Merritt Roe Smith and Leo Marx, eds., "The Idea of 'Technology' and Postmodern Pessimism", (Cambridge: MIT Press, 1994), 250.

13.) Wolfgang Haug, Critique of Commodity Aesthetics, (Minneapolis: University of Minneapolis Press, 1986), 136-137.

14.) Arnold Berleant, The Journal of Value Enquiry 28, 1994, "Aesthetics and Community", 257-272.

15.) ibid., 266.

16.) ibid., 271.

17.) In referring to the Star Trek television series, Leo Marx describes space travel as "...the quintessential fantasy of a technocratic paradise."

18.) An interesting discussion of these topics occurs in Radical Ecology by Carolyn Merchant.

19.) Simon, 188.