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EDITORIAL POLICY

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Mark Jarzombek

Sustainability, Architecture, and "Nature"

Between Fuzzy Systems and Wicked Problems

Today there are a range of architectural firms, both small and large, that specialize in environmentally-sensitive architecture, whether that be in the form of design-build projects, self-sufficiency houses, solar houses, eco villages, or now, so-called Health Houses. We have also seen in recent years the development of new high-tech materials and sophisticated software programs as well as the emergence of various types of "green" consulting companies, some advising individuals on how to place their bed in relationship to Fengshui, others advising multinational corporations on everything from waste management to product design. In the last five years or so the word sustainability has come into vogue as a way to put these disparate realities into a single rubric. The most immediate reason for the success of the term is that it has allowed advocates to avoid the stigma of left-wing environmental politics. To fill in the gap, various interpretations of the notion of sustainability have come forward, each with its own implication for the discipline of architecture.

According to John Dernbach, a professor of law at Widener University and a leading scholar in the area, sustainability means "freedom, opportunity, and quality of life; more efficiency; more effective and responsive governance; a desire to make a better world for those who follow us; a willingness to find and exploit opportunities; a quest for a safer world; and a sense of calling to play a constructive role in international affairs."[1] These, he argues, are not only "basic American values," but conform to the principles of the Earth Charter (2000), which, according to him, "has broad resonance among the world's major religions."[2] This type of definition presumes that the field of environmental management will become the Esperanto of government agencies and religious systems. It is a heroic model, almost Ayn Randian in scale. The implications for architecture, however, are somewhat more prosaic. Architecture schools would be expected to produce a necessarily enlightened class of experts and consultants. Architecture schools would have to shift towards the scientific edge of the discipline, given that corporate and government funding will go primarily in that direction. Schools will also have to add some courses on how to be polite American-style managers.

In contrast, Lisa H. Newton in her book *Ethics and Sustainability* (2002) starts from the opposite direction, namely from the question of morality.

> The first task is to outline an understanding of the individual moral life, life in accordance with a Personal Worldview Imperative, and to show its logical relationship to environmental sustainability."[3]

To define this Personal Worldview Imperative, Newton turns to Aristotle's definition of the polis to emphasize the principles of virtue, goodness, happiness and the simple life. Her point is that sustainability is not something new to be worked over by teams of bureaucrats and lawyers, but was already foreshadowed in the writings of Aristotle, in the life of Christian monks, and in the philosophy of Buddhism. Her purpose in constructing this nexus between sustainability and ancient philosophy is to detach the concept of a polis from the history of the modern city, which for her, presumably, is the site of excess, greed, and immorality. As examples of "unsustainable" practices, she points not only to pesticide-dominated agriculture but also to "our problems with the casinos...gambling, pornography and the like."[4] Given the stark difference between the moral and immoral and her insistence on a conservative notion of self-responsibility, her book resurrects a late 19th century tone, but is updated to show that the devil is in the details. When, for example, she talks about the homes in which we live, she points out that on average, "the American single-family home emits 16,522.3 pounds of carbon dioxide from its use of electricity generated in plants that burn fossil fuels...or about 30,000 lbs....per family."[5]

This latter part of her argument relies directly on the fantastic success that natural sciences have had in teaching us about our environment. Take, for example, the story of chlorofluorocarbon gases. In 1974 two chemists, Mario Molina and Frank Sherwood Rowland published their

research on the threat to the ozone layer from chlorofluorocarbon gases that were then used in spray cans and refrigerators. With only pure molecular mathematics, they predicted that chlorofluorocarbons were in the process of significantly depleting the ozone layer. Though their work, at the time, was largely dismissed by industry, in 1985 scientists discovered that indeed an ozone hole had opened over the South Pole. This not only proved the accuracy of their work, but set in place a series of legislative battles that successfully curbed the use of these gases. In 1995, Molina and Rowland received the Nobel Prize in chemistry.

These twenty years, 1974 to 1995 mark the ascent of Natural Science to Social Philosophy. It is a philosophy of the non-infinite. And this is the leverage for the ethicists. According to them, we are bound together in a molecular environment from which we have no escape. But in discussing a house on the same terms as an aerosol can, Newton unites the question of efficiency with that of ethics in a way that stretches the limit of comprehensibility. Her vision of sustainability ends in a technocratic utopia that either over-radicalizes the situation by *reducing* everything to an ethical-functional criterion or under radicalizes it by *ignoring* everything pertaining to the more complex aspects of social and urban life.

Whereas Dernbach posits sustainability as a trans-politicized American universalism, Newton wants a neo-Hellenistic, Art-and-Crafts-type return to the simple life. Dernbach locates his friends among a noble breed of Environmental Managers, Newton among the New Urbanists. Dernbach's history belongs in the history of "progress"; Newton's is dialectical. Despite their differences, however, both fail to take into account the relativism and complexity of culture, life, and technology. As a result, the first exemplifies what sociologists describe as "a fuzzy system." It is composed of heterogeneous units that can never be—and were never meant to be—synthesized and that over-reaches its pragmatics. The second is what sociologists describe as "a wicked problem," one in which conventional reality bites back, in this case in the face of a utopian challenge.

Somewhere between the extremes of a fuzzy system and a wicked problem, lies the work of William McDonough and Michael Braugart. Their book *Cradle to Cradle* (2002) is eminently readable and practical, and seems to speak directly to the question of architecture and design. Yet here, too, are tacit underlying assumptions on the role of architecture that should be highlighted. Basically, the book makes not one but two "ecological" arguments. One is about the endangered environment and is, of course, irrefutable. It is more than obvious that environmental degradation is accelerating at an alarming rate. The other ecological argument, however, is not about nature, but about social structure and it comes into view when the authors discuss "the cherry tree" as a model for design. This part of the argument is adapted from the theory of social ecology which holds that social life, much like plant life, is ordered by 'natural' laws of growth and metabolism. The necessary correlate of this view is that human society in its non-natural formations is both non-social and impersonal. The cherry tree that has evolved "over millions of years"[6] is thus seen as an object in harmony with its environment, in contrast to human history that has only evolved over a period of a few thousand of years. Consequently, when we think of designing a building, so the authors explain, we should think "Here's how we imagine the cherry tree would do it."[7]

Though the metaphor of the cherry tree, while somewhat arbitrary, is not unproductive, it simplifies and romanticizes Darwinian notions of evolution by taking out of the equation the principle of the competition of species. This strategy harkens back to the evolutionary theories of Ernst Haeckel (1834-1919), known to many as the father of the term ecology. McDonough and Braungart seem to have translated his particularly bizarre (and certainly controversial) idea that politics is a form of applied biology to the idea that design is applied biology. The advantage of social ecology, however, was that it took metaphysics out of the game of biology; in other words, nature, not nurture. But the resultant liberation of nature did not free science from ideological compulsions. Nonetheless, social ecology remained popular and was taken up by such eminent thinkers as Frederick Jackson Turner who saw the American frontier as a place where over-civilized Europeans found a renewed sense of health and vibrancy (at the expense of the Indians, of course). A more overt defender of social ecology was Robert E. Park (1886-1966), founder of the so-called Chicago School of sociology. Park adopted the now famous view that the city is a 'habitat' and that in essence the big city is where humanity, being out of touch with nature, sets to work to contaminate that habitat.[8] Though the lineages of this to McDonough and Braungart's book are obscure, they are undeniable, especially when one is asked to compare the negative description of industry-as-we-know-it to industry-as-understood-by-ants. That the authors picked the friendly leaf-cutters is no accident. After all, they live in an organized way, are obedient and ecologically resourceful. The description ends with the thought: "Like the cherry tree, they make the world a better place."[9] Does this mean one goes from being a good ant to being a good citizen?

All this would be a bit humorous if it were not for the telltale signs of an underlying theoretical position. They mention, for example, none other than the evolutionary theorist

and Harvard University professor, Edward Osborn Wilson, famous for the book *Sociobiology: The New Synthesis* (1975) in which he describes the social behavior of ants. The book landed Wilson in the center of a famous controversy that even spilled onto the cover of *Time Magazine*. The controversy was not about how ants behave, but about the implications Wilson seemed to make about how humans should behave.[10]

Sadly, McDonough and Braungart fail to cite any reference to this controversy or for that matter to the century-long debate about bio-determinism.[11] Instead, they try to convince the readers that the Nature *they* see is no more fearsome than an eco-exhibit in a science museum. This, of course, disguises the radical polarity in their work between ecologies that are 'organized' and 'disorganized', and between worlds that are 'natural' and those that are 'unnatural.' It helps them ignore the principle of evolutionary conflict. It even helps them ignore the *human* nature of social existence, which is exactly the problem that one finds in the work of Park, whose theories have been critiqued for decades for neglecting the social and cultural dimensions of urban life.

Sustainability is often thought among lay members of the community as a cultural good or as part of the process of Enlightenment. Be that as it may, the three positions I have discussed are grounded in ideological assumptions that need to be better understood before one can accept their architectural conclusions. Saving the world is important and architecture has a role to play but the map according to which that can be achieved is far from clear. If the choice were between a world of noble managers, conservative ethicists and eco-determinists, between scientocracy, technocracy, and biocracy, then I would think that the concept of "sustainability" still has some important lessons to learn. It may have shifted the politics from the left, but it has not replaced it with anything more concrete and feasible.

Notes

1 John Dernbach, "Synthesis," in John C. Dernbach, Ed. *Stumbling Toward Sustainability*, (Washington, DC: Environmental Law Institute, 2002). p. 3. Dernbach has written several books on the topic of sustainable development He has also worked for the Pennsylvania Department of Environmental Resources.

2 *Ibid.* p. 34.

3 Lisa H. Newton, *Ethics and Sustainability* (Upper Saddle River, NJ: Prentice Hall, 2002) p. 1.

4 Ibid. p. 6.

5 Newton, p. 60. Newton is Director of the Program in Applied Ethics at Fairfield University.

6 William McDonough , Michael Braugart, *Cradle to Cradle* (New York: North Point Press, 2002), p. 84

7 *Ibid.* p. 73.

8 Among Parks' numerous books are *Human Communities: The City and Human Ecology* (New York: Collier-Macmillan, 1952)

9 *Cradle to Cradle*, p.80.

10 Wilson has won the National Medal of Science in the US and the prestigious Craaford Prize from the Royal Swedish Academy of Sciences, as well as two Pulitzers, the first for *On Human Nature* (1978) and the second in 1990 for a scientific study of ants, written with his collaborator Bert Hslldobler.

11 For Wilson, every facet of human behavior is influenced by our genetic inheritance. Opposition to to such ideas came from various sources including from Stephen Jay Gould, who argued that human reality answers to another higher epistemology.