Value and Regenerative Economy in Architecture

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INTRODUCTION

To consider the question of *value* from within a market economy assumes a monetary definition of the term. That is, of course, the bias of the neo-classical economic theory that dominates Western economic discourse. In this tradition, the value of architecture is calculated to be either the dollar cost that the market will pay to acquire it, or, the dollar cost required to replace it. If, however, we understand *economy* as the careful, or thrifty, management of various kinds of resources, rather than limit the concept to monetary resources, there must be alternative criteria by which the question of value in architecture might be assessed. Moral economy and aesthetic economy are two possible examples. This paper will first establish the viability of competing models of economy and second, argue for the concept of *regenerative* economy as a basis for value in architecture.

The argument for *regenerative* economy will be made concrete through examination of a controversial case study, that of Blueprint Demonstration Farm at Laredo, Texas. The designers of the selected case have claimed to develop a series of "sustainable" technologies that are specific to semi-arid ecosystems. The term "sustainable" has been defined to mean "development that meets the needs of the present without compromising the ability of the future to meet its own needs."[1] In the rapidly growing discourse concerning sustainable development this vague definition has been pulled in a number of directions. Given the uncertainty of what "sustainable" architecture might mean, I prefer the term "regenerative" as defined by the landscape architect, John Tillman Lyle.[2] By it he intends a human activity that "provides for continuous replacement, through its own functional processes, of the energy and materials used in its operation."[3] Lyle's term seems to carry more direct meaning for architecture than does the simple admonition to sustain the status quo of natural resource stocks. The term *regenerative* hints that the value of architecture lies in the ability of the constructed world to create life-enhancing conditions rather than merely avoid the depletion of material resources or stimulate market forces. In this sense a regenerative economy is concerned as much with the reproduction of human practices as with the biological balance of material systems. Before applying this construct to the selected case, however, it is first necessary to distinguish the characteristics of *market*, *moral*, *aesthetic*, and *regenerative economies*. Following the examination of these alternative concepts of economy, I'll argue for a revised, hybrid understanding of regenerative economy in architecture that might replace the concept of sustainability. The notion of regenerative economy will then be tested against the reconstructed conditions of Blueprint Demonstration Farm. I will conclude by offering a hypothesis regarding value and regenerative economy in architecture.

ALTERNATIVE MODELS OF ECONOMY:

In a market economy, value is understood in terms of equivalency. Neoclassical economists calculate value as an amount of "A" considered to be a suitable equivalent, or substitute, for a different amount of "B." In this sense, value is a function of *having*. Having "x" amount of "A" or "y" amount of "B" is understood to be an equivalent condition. Good value is when you think you have given up a bit less of "A" than you have received of "B." When one's primary interest is *having* something, resources are rationally allocated so as to maximize total output—the more things there are, the more things one can have. When one's secondary interest is the maximization of output, society is conceived as an economic institution—human relations are valued in terms of productive output and how they contribute to the exchange of goods and services.

In a moral economy, value is understood in terms of the suitability of a thing for a specific activity that one has in mind.[4] Moral economists calculate the *use* value of a thing rather than its *exchange* value. In this sense, value is a function of *doing*, not of *having*. This tradition holds that the doing of A or the doing of B is not commensurable. In other words, one might prefer to ride a bicycle rather than dig a post hole, but the activities of riding and digging are not exchangeable in a way that alters the value of the bicycle or the

shovel. The shovel is of little value in getting from place to place and the bicycle is of little value in digging post holes. To generalize this notion in Aristotle's terms suggests that, "... human flourishing, meaning both subjective happiness and objective well-being, is the product of *doing* rather than *having*, of the exercise of skills rather than passive consumption."[5] Political scientists have argued that when one's primary interest is *doing*, resources are rationally allocated so as to secure the key values of those who are engaged in doing the same things, or in securing common practices.[6] *Doing*, in this sense, is always understood as a collective practice. When one's secondary interest is the securing of collective values, society is conceived as a social, rather than economic, institution that guarantees the minimum subsistence of all its members. This is so because value resides in the continuity of social practices—in *doing*—not in the accumulation of things. To lose practicing members of the society would be to lose potential value. Moral economy is then engaged in the careful management of *human* resources.

In an aesthetic economy value is understood in terms of subjective perception. Aesthetic economists calculate value as a function of the quality of experience. In this construct, all experiences are commensurable, unlike the practices of the moral economist, because one experience or another can be qualitatively preferred by the individual. Riding a bicycle or digging a posthole can be preferred in Aristotelian terms as that which engages the faculties and skills of the participant more satisfactorily. When one's primary interest is in *experiencing*, resources are rationally allocated so as to maximize one's engagement with sensuous experience. When one's secondary interest is in the engagement of critical faculties, society is conceived as an institution of taste—it includes only those who are capable of, and who choose to, engage their faculties in common sensuous experiences. Such an exclusive definition of society would, of course, be objectionable to moral economists. Aesthetic economy is then engaged in the careful management of those resources that stimulate subjective perception.

The question of value in a regenerative economy is best understood in terms set out by Gordon Douglass. These overlap some of the characteristics of market, moral, and aesthetic economies, but also add an important new dimension. Writing in 1984, Douglass identified three philosophical traditions, or dimensions, among those writers who have promoted the concept of sustainability: those who understand value in *economic* terms, those who understand value in *ecological* terms, and those who understand value in *social* terms. It is useful to understand these dimensions as a nested hierarchy which becomes increasingly exclusive as one moves away from the core dimension. Very few have proposed that a sustainable economy must include all three traditions that are identified by Douglass. Rather, they have generally been seen as competing definitions.

The core of sustainable economy is the economic dimension, which many would liken to the supply-side theories favored by neoclassical, or market economists. These economists argue that advances in technoscience, stimulated by market demand, will inevitably increase the efficiency of resource consumption and thus provide a nearly perpetual yield of ever dwindling resource stocks. This position argues that Malthusian gloom has been around for a very long time indeed, but that we have not yet run out of the resources required to sustain economic growth. An example of a supply-side strategy in architectural technology would be the development of whole-tree forestry harvesting techniques and the engineered wood products, such as oriented-strand board, that have followed. Such technology has dramatically reduced the consumption rate of the forest biomass while supporting expanded rates of wood frame construction.[7] Although many disagree with the market-driven assumption of these economists, all but the most eccentric romantics agree that we need to increase the efficiency with which we manage available resources by developing such technologies so as to prolong resource sufficiency.

The second, or ecological, dimension of sustainable economy is similar to the demand-side theories favored by environmentalists. Environmentalists argue that technoscience has already produced catastrophic, if unintended consequences in nature and that such de-generative practices must be checked by radically reducing human demand upon available natural resources. Simply put, our houses should be smaller and we might legislate limits to various mediums of consumption such as lawn watering and petrochemical consumption. In some cases environmentalists favor the substitution of plentiful material resources for those that are more threatened, but in other cases environmentalists argue that there are no equivalencies. Increasing the availability of oriented strand-board, they argue, will not make up for the loss of walnut paneled rooms. In both of these arguments, environmentalists leave behind those who desire a sustained economy, but who imagine that technoscience will serve it up.

The third, or social dimension of sustainable economy requires that we consider the distributive justice of resource consumption. Social ecologists, like the moral economists discussed previously, argue that a sustainable economy cannot be achieved without simultaneously meeting the basic life needs of all humans.[8] It is a political question of who decides and who gains access to the ever-dwindling resource stock. Social ecologists leave behind those environmentalist, or deep ecologists, who would promote the interests of nature (ecocentrism) over the interests of fellow humans (anthropocentrism). Their position assumes that first, technoscience will not alone relieve the pressure of growing human populations upon scarce natural resources and that second, repressing the resource demands of *some* humans, but not others, is not only morally objectionable, but is tactically flawed. In this view, a seemingly stable world of *haves* and *have nots* cannot be sustained. Although one can easily imagine an authoritarian society—the Maya, for example—where stability and production are sustained for millennia without concern for contemporary notions of

social justice, no such ancient society is extant today. Sooner or later social conflict will arise that will devastate human and nonhuman populations alike. On the basis of this insight, many social ecologists argue for the radical redistribution of capital and universally *limited* access to natural resources.

There is a bit of irony in this argument by social ecologists because it would seem that we have now come full circle in our examination of alternative models of economy. My point is that those social ecologists who insist upon the radical redistribution of wealth are ironically like those neo-classical free-marketeers who understand value as a function of *having*. Following Aristotle, James Murphy has argued that to focus exclusively on the distributive justice of what people *have* impoverishes our ontological condition because it ignores what people *do*. Beyond a certain minimal standard of *having*, which is required to do anything, the quality of one's engagement in practices is a more determinant condition for human flourishing than is the quantitatively equal distribution of resources. The key to such an ontological argument hinges, of course, on the requirement for a *minimal* standard of having. This point will prove crucial in my interpretation of Blueprint Farm.

The definition of regenerative economy that I am trying to construct here, as distinct from sustainable economy, is radically inclusive. On my view, a regenerative economy will rely upon the basic assumptions of Aristotelian moral economy and include all three traditions of sustainability that are identified by Douglass. Although the aesthetic economy that also derives from Aristotle offers helpful insights into the distinction between aesthetic experience and consumption, I don't find it helpful in understanding a society that regenerates itself through radical inclusion. Although aesthetic economy remains a viable conceptual alternative to market economy, I reject its requirement for exclusivity as a desirable or necessary condition for society. The doctrines of critical theory, for example—particularly the texts of Theodor Adorno—might be understood as a proposal for an aesthetic economy in the sense I intend here. Adorno's view of historical progress relies upon an aesthetic elite to endlessly critique the dominant society that surrounds it and thus reveal the hidden interests and hegemony of capital. Although such critique will always be historically instructive, and thus helpful, I have come to doubt the degree to which such elite insights can contribute to the construction of new models of social praxis that might be reproduced, or sustained by the general populace. My principal argument is that the doctrines of moral economy, coupled to all three dimensions of the discourse on sustainability, present a more positive, and thus more plausible, model for regenerative economy in architecture.

Proposals to include the economic, ecological *and* social dimensions of sustainable economy are, however, regularly criticized as utopian or simply naive. To the contrary, and in spite of my objection to the alienated position of critical theory, I want to argue that all three of the dimensions identified by Douglass are necessary, but not individually sufficient conditions to establish a regenerative economy. This point can best be made through examination of the selected case.

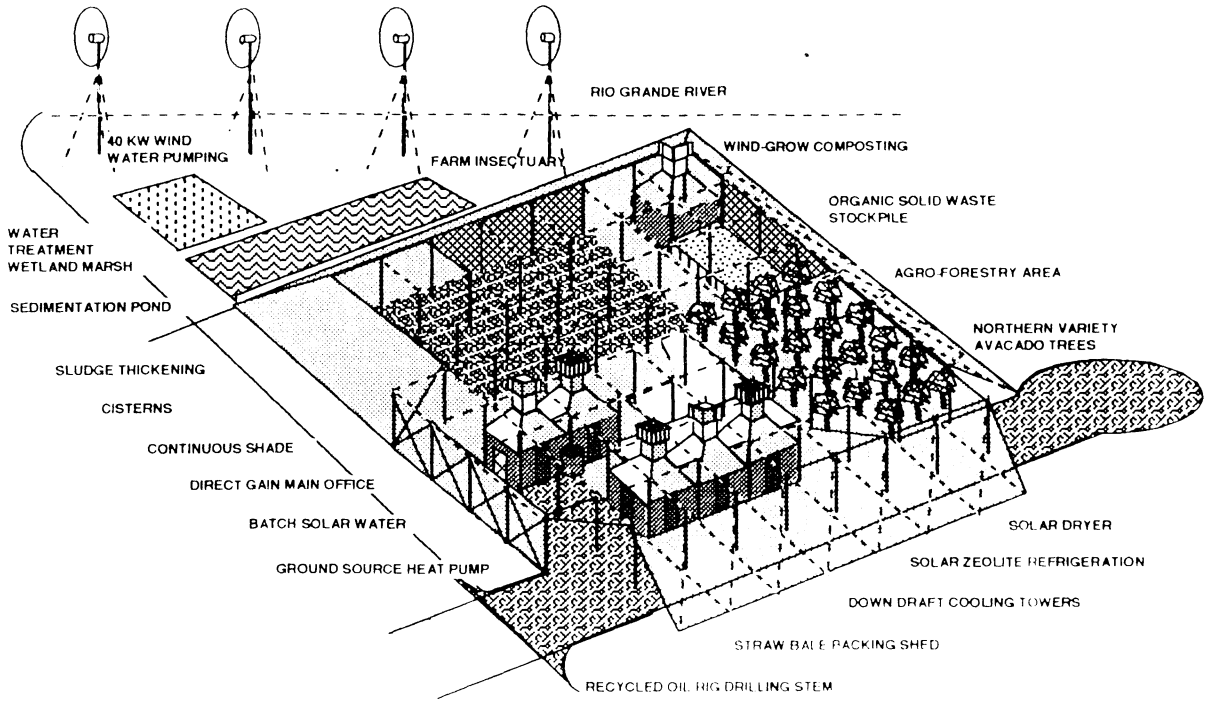

Figure 1: Blueprint Demonstration Farm at Laredo, Texas as Proposed by the Center for Maximum Potential Building Systems.

THE CASE OF BLUEPRINT DEMONSTRATION FARM

Nearly completed in 1990, Blueprint Demonstration Farm was jointly developed by the Texas Department of Agriculture, the Center for Maximum Potential Building Systems, the Texas-Israel Exchange, and Laredo Junior College as a demonstration of sustainable architectural and agricultural technologies for semi-arid ecosystems.[9] This group of collaborators cited the displacement of local agricultural workers by corporate farms, induced patterns of migrant laboring, and the pollution of the Rio Grande watershed as motives for action. They reasoned that architectural and agricultural technologies might be developed that would permit local small farmers to compete with the capital intensive industrial farms that have come to dominate agriculture in the Rio Grande Valley. In order to render the remaining small family plots of arable land economically competitive and ecologically healthy, the designers of Blueprint Farm sought passive and low-energy technologies that would maximize the use value of local knowledge and labor practices and minimize the exchange value of imported industrial commodities.

Today, despite early promise and significant public support, the site of Blueprint Farm is an archeological ruin. The Department of Agriculture has withdrawn funding support, the Israelis have gone home, Laredo Junior College has locked the gate, and the environmentalists who constructed the project are both embittered and isolated. The project is ironic, or tragic, in that it has proven to be the antithesis of its producers intentions—Blueprint Farm has not been (socially) sustained. In another text I have documented the complex political demise of Blueprint Farm.[10] In this short paper it will suffice to note that after the 1990 electoral defeat of Jim Hightower (the radical populist Texas Commissioner of Agriculture who initiated the project) the in-coming Republican administration terminated the project before many of the experimental technologies were operational. Although internal frictions also contributed to the closure of the farm, economic strangulation by the new administration prevented full development of the site as envisioned by its producers. In plain language, the continued development of Blueprint Farm was halted by a network of interests opposed to its success.[11]

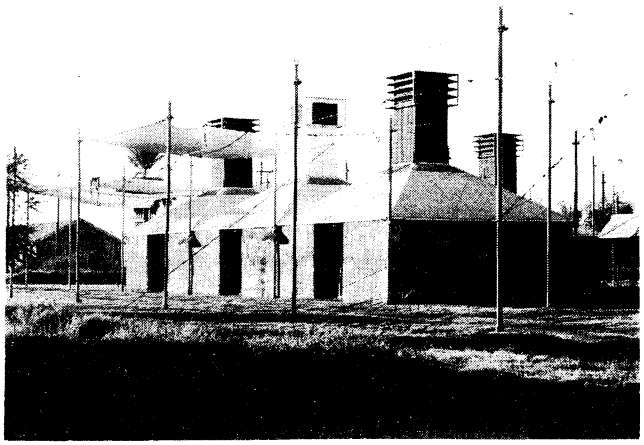

Figure 2: Blueprint Farm as it appeared in 1995.

Before I offer an interpretation of the farm's closure, however, it is necessary to briefly describe the fifteen nonconventional technologies put in place at the farm. My review will, of course, be organized according to the competing traditions identified by Douglass.

Table 1 describes the five supply-side design strategies that were implemented by the Center for Maximum Potential Building Systems, the principal designers of the project. These strategies operate by harvesting and distributing resources more carefully, thus reducing waste and extending the availability of the resource in question. In this project, supply-side design strategies were principally focused on the conservation of water resources. Supply-side design strategies, of course, have the indirect effect of reducing demand upon the remaining resource stock. Supply-side and demand-side strategies are thus complementary. They are distinguished by emphasis.

Although there were internal disagreements regarding the operation of these supply-side technologies, all parties agreed that they presented significant value to marginal farmers if initial cost could be kept down.

Table 2 describes the ten demand-side design strategies that were put in place at the farm. These strategies operate by integrating natural processes into the built environment in lieu of depending exclusively upon energy consumptive industrial processes. Of course, substituting natural processes for industrial ones, and thus reducing the demand upon industrial

Table 1: Supply-side design strategies implemented at Blueprint Farm

Supply-side design strategies:	Description:
Fertigation	A computer controlled system of pumps, subterranean irrigation piping and valves that distribute river water and fertilizers to crops. Water is conserved by supplying it directly to crop roots thus minimizing evaporation and run-off losses.
Inorganic mulch	Plastic mulch prevents moisture evaporation from the soil, raises soil temperature, and prevents crop spoilage that results from direct contact of crops with the soil.
Greenhouses	Enclosure of young plants protects them from low temperature, rain, hail, and dry winds thus minimizing losses to natural conditions.
Shade structure	The engineered fabric canopy, supported by a grid of recycled oil drilling stems, prevents direct damage to plants by hail, mitigates losses caused by wind, prevents soil moisture losses and reduces ambient air temperature.
Water catchment	Direct harvesting of rain water that falls on structures prevents losses through evaporation and run-off.

Table 2: Demand-side design strategies implemented at Blueprint Farm.

Demand-side design strategies	Description
Wind towers	Wind towers are a passive technology that cool the interior of the packing sheds and protect harvested produce from spoilage. Evaporative down-draft towers and solar up-draft towers induce a thermosyphon ventilation pattern designed to reduce air temperature, increase humidity, and replace conventional compression air conditioning.
Straw-bale wall construction	Nonload-bearing exterior walls are constructed of buffle-grass bales, reinforced with steel, and finished with a fly-ash stucco. The completed walls provide high thermal insulation value with low embodied energy, harvest and thus "repair" the invasion of non-native grass species, recycle fly-ash (a waste product of coal burning), and replaces conventional wood frame technology thus reducing demand upon distant forests.
Solar refrigeration	Ambient air is passed through zeolite packed tubes (a by-product of coal mining) and cooled by a phase change of the mineral. Saturated tubes are regenerated by solar baking. Harvested crops are refrigerated in site-built boxes, thus reducing spoilage, and reducing dependence upon compression air conditioning.
Solar drying	An assembly of site-built solar collectors, movable trays, fans, and thermal mass create an environment suitable for the drying of various fruits and vegetables which can be marketed at significantly higher prices than bulk fresh produce. Drying is a value-added market strategy. Solar drying also reduces demand upon conventional fuel sources.
Solar hot water heating	A simple batch type heater fabricated from stainless steel salad bowls and pizza pans heats hot water for miscellaneous use and reduces demand upon conventional fuel sources.
Solid waste composting	An in-situ windrow system creates organic fertilizer at the point of use thus eliminating the use of chemical fertilizers, avoiding the cost of fertilizer and solid waste transport, and providing a source of CO_2 rich air to the greenhouses.
Composting water closets	Commercially available water closets reduce water consumption on site.
Constructed wetland	A pond where water pumped from the Rio Grande settles out multiple pollutants through the use of biological filters. Mechanical modes of purification are thus avoided.
Wind turbine electrical generators	Commercially available wind turbine electrical generators reduce the demand upon the electrical grid and coal-fired generators.
Organic fertilizers	Locally produced mixtures of organic enzymes reduce dependancy upon chemical fertilizers produced at a distance by mechanical means.

energy sources such as fossil fuels, has the indirect effect of increasing the supply of industrial energy sources.

These demand-side technologies were favored by the environmentalists, however, bureaucrats trained in the market economy tradition tended to be skeptical of their value. Funding to fully develop demand-side design strategies was thus much harder to come by.

The institutional developers of the farm anticipated that once marginalized farmers were equipped with both supply-side and demand-side technologies they would be at liberty to allocate their limited resources toward the reproduction of traditional agrarian values. This freedom, the developers reasoned, would halt the tide of migrant laboring and thus avoid the final collapse of the traditional agrarian community that straddles the Rio Grande. The closure of the farm, however, demands that we recognize that these design strategies were alone not enough to ensure the reproduction of something that resembles traditional family farming practices. It will be necessary to consider issues of distributive injustice to understand why.

DISTRIBUTIVE INJUSTICE

I wish to argue here that it was the failure of the third dimension of sustainability, distributive justice, that was principally responsible for the social unsustainability, or closure, of Blueprint Farm. All of the five supply-side design strategies incorporated at the farm were supported by the Texas Department of Agriculture and were demonstrated to be successful. Funding support for the demand-side strategies, however, was uneven. Four of the demand-side design strategies were funded to a level that yielded marginal success, meaning that they produced below expectation and required additional design modification. Additional research and development was, however, denied. Six of the demand-side strategies were never funded to a level of completion where evaluation was possible. The point that project participants have continually argued is that, had public funding for the development of these technologies been continued after the election of 1990, all of them might now be operating successfully. In other words, advocates argue that it was only the political suppression of Blueprint Farm that prevented its success and reproduction. Such a claim by those disappointed by the farm's closure demands, of course, a definition of "success."

The institutions that collaborated with Jim Hightower to develop Blueprint Farm understood success in the terms of moral economy—their interest was the careful management of human resources. They understood a responsibility to ensure a minimum subsistence to all the members of their society. Success in this view would require the experimental technologies to operate well enough to guarantee the minimum well-being of farmers in the local community. "Well-being," in the Aristotelian terms accepted here, refers to satisfactory engagement in common practices, not to the consumption of goods. The bottom line is, however, that the experimental technologies had to *work* before marginal farmers would gamble scarce resources on their operation. Without developmental fine-tuning, very few were willing to take that risk. In other words, marginal farmers were too close to

the minimum threshold of *having* to risk losing it all. In contrast, the in- coming Republican administration, under the leadership of Agriculture Commissioner Rick Perry, defined success as economic self-sufficiency. In this view, the very definition of *sustainability* was limited to the market-driven assumptions regarding the management of monetary resources. To sustain an agricultural enterprise, Perry argued, one cannot depend upon public resources derived from taxation. Acting on the axiom of self-sufficiency, in 1990 the Department of Agriculture withdrew operational and funding support from the project. This group of technocrats understood a responsibility, not to collective society, but to the abstraction of productive output and how individuals contribute to maximizing the exchange of goods and services.

There is, of course, considerable irony in Perry's position when one recognizes the massive public subsidy provided to what Jim Hightower has referred to as the "land grant complex."[12] By this term Hightower refers to the combined interests of corporate farms, the land grant research institutions, the manufacturers of agricultural implements, chemicals and biotechnology products, as well as government itself. In Hightower's view, the original nineteenth-century justification for the public support of agriculture was that farming is not a big business. Contemporary farming has become, however, the biggest business in America—bigger than the automobile industry—yet enjoys more tax supported research and development than any other industry. The land grant complex was created in the shadow of Jeffersonian doctrines to provide educational and research assistance to independent, yeoman farmers. The irony is that the rationalization of farm policy has resulted in the reverse of Jefferson's intention. The land grant complex has increasingly supported the interests of agribusiness while contributing to the economic marginalization of the family farm. The scientization of farming, and the allocation of public support to market production, has, of course, been justified on the basis of productivity. The market economists who decided the fate of Blueprint Farm saw the marginal production demonstrated in the three years of its existence as a waste of liquid resources. Even though the public support allocated to Blueprint Farm was a pittance compared to the various subsidies enjoyed by industrial farms of the Rio Grande Valley, the quantitative return of consumable goods anticipated even by the environmentalists themselves could not justify, in neoclassical economic terms, continued public support. As a result, Blueprint Farm was economically strangled so as to divert its minimal monetary resources to other more "productive" projects. In the terms of moral economy, Blueprint Farm, and the small farmers in whose name the project was developed, suffered a calculated injustice at the hands of the land grant complex with regard to the distribution of available public resources.

With this claim of distributive injustice, we return to the fundamental disagreement between the values of market economy and those of moral economy, between the conditions of *having* and *doing*. In the view of those market economists who terminated the project, the Farm presented very little value in the production and accumulation of consumable goods. In the view of the moral economists who initiated the project, however, the Farm presented significant value to those members of the community who had been denied access to traditional community practices by the industrialization of agriculture. Although it would be pointless in our current political situation to argue, as some social ecologists are wont to do, for the radical redistribution of public resources, it is *not* pointless to argue for access to that minimal standard of *having* which is required to *do* anything. My point here is that Blueprint Farm was unsustained, not because it presented little value, but because its producers were denied the minimal access to public resources that were lavishly consumed by other, more powerful, interests. The conservative ontological argument against the need to redistribute resources thus collapses.

CONCLUSION

To generalize the conditions reconstructed from this case is to hypothesize that the development of supply-side and demand-side design strategies are both necessary, but, in themselves, insufficient conditions to realize the value of architecture. This conclusion results from the argument that first, economy must be based upon the careful management of human *and* nonhuman resources, and second, that the flourishing of both humans and nonhumans is a function of *doing*, not of *having*. It follows that some level of distributive justice in society is also a necessary condition to assure that all members of the society can *do* satisfying work and thus contribute to the continuity and development of common social practices. Establishing the *minimum* level of having is, however, a complex political negotiation—one that is beyond the scope of this paper. Architecture, when it is understood as a tool in the careful management of resources, has enormous impact on *how* we do anything. However, *having* architecture that merely minimizes acquisition, replacement, or energy costs, thus maximizing the value of available material resources, does us little good unless the common practices of those who inhabit the place are satisfied. It is the inhabiting of places, or the *doing* of things, that renders value. Architectural value must then be realized when the skills, aspirations and collective practices of a people are augmented by the constructed world.

I will conclude by offering a definition of regenerative economy that extends that of a "regenerative system" proposed by John Lyle:

> A regenerative *economy* provides for the continuous *reproduction*, through its own functional processes, of the energy, materials, *and human practices engaged* in its operation.

NOTES

I would like to thank Paul Thompson for offering his unpublished

insights on moral economy and for his critical comments that lead to the development of this paper.

[1] World Commission on Environment and Development. *Our Common Future* (New York: Oxford University Press, 1987), p. 42.

[2] See John Tillman Lyle, *Regenerative Design for Sustainable Development* (New York: Wiley, 1994).

[3] Ibid., p. 10.

[4] The term "moral economy" was coined by E.P. Thompson in his study "The Moral Economy of the English Crowd in the Eighteenth Century,(1971)" reprinted in *Customs in Common: Studies in Traditional and Popular Culture*, (New York: The New Press, 1993), 185-258.

[5] See James Bernard Murphy, The Moral Economy of Labor: Aristotelian Themes in Economic Theory (New Haven, CT: Yale University Press, 1993), p. 6.

[6] William James Booth, "A Note on the Idea of Moral Economy," in *The American Political Science Review*, Vol. 87, No. 4 (December 1993): 950.

[7] See Steven A. Moore, "Feller-Bunchers, Grapple-Skidders, Chippers and Martin Heidegger in the Great North Woods," *Center Ten: A Journal for Architecture in America*, The Center for American Architecture and Design, The University of Texas at Austin (Spring 1997): in press. In this article, I consider the ontological problems of whole-tree forest technology at length. I conclude that, although such technologies are troubled by the intentions of capital, their is nothing inherently destructive in their social construction that should lead us to reject them.

[8] For example, see Murray Bookchin, Toward an Ecological Society (Montreal: Black Rose Books, 1980), and *The Philosophy of Social Ecology* (Montreal: Black Rose Books, 1995).

[9] For a review of the initial construction on Blueprint Farm, see: Ray Don Tilley, "Blueprint for Survival" in, *Architecture* (May 1991):69.

[10] See my dissertation, *Critical and Sustainable Regions in Architecture: The Case of Blueprint Demonstration Farm* (College Station, TX: Collection of Evans Library, 1996).

[11] The danger of simple language and short papers is that the complexity of a lived situation can be easily obscured. In addition to the dissertation noted, see also two other papers that contribute to an understanding of how Blueprint Farm reached its ironic closure: "Mixed Intentions: A Case Study of Objects and Activities in Architectural Practice," in, *Proceedings of the West Central Regional Meeting at Iowa State University; Ames, Iowa*; Oct. 25-27, 1996, and "Rezeption and Sustainable Technology: The Case of Blueprint Demonstration Farm" in *Proceedings of Regenerative Design Symposium '96, Oct. 22-23, 1996* at Cal Poly Pomona; Pomona, CA.

[12] See Jim Hightower, *Hard Tomatoes, Hard Times* (Cambridge, MA: Schenkman, 1978), p. 2.