V.B. Price

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Landscape and Survival: Thoughts on New Urbanism and Anasazi/Pueblo Strategies for Designing Pragmatic Desert Built Environments

Like all conservationists, I'm troubled by waste. I'm especially annoyed by wasted information and knowhow that's no longer privileged because of its association with antiquated technologies. In a world moving too fast for any new technique to become, as the old saying has it, both "tried and true," I'm distressed that traditional building technologies with staying power aren't employed the modern design and construction techniques. This seems a particular shame in desert climates like the American Southwest's where ancient and traditional builders have mastered the requirements of survival.

My dismay is tempered somewhat, however, by recalling an incident in the history of architecture in Italy. When Brunelleschi was overseeing the construction of his design for additions to the Cathedral of Florence in the mid-1400s, he had to reinvent ancient Roman construction machinery and practices to build the massive dome, considered now perhaps the most graceful in the world. In the American Southwest, however, most developers and designers act as if they didn't know an ancient architectural and landscape tradition even exists for them to adapt to modern needs, despite virtually endless archaeological and contemporary cultural examples.

So when I first read the preamble to the "Charter of the New Urbanism" published in 2000, I was happily struck by its deep similarities to what I know about the pragmatic principles of the creation of form and space in Anasazi/Pueblo built environments, using technologies and principles deeply grounded in tradition. But I also felt a kind of despair, understanding as I do that American culture values "the new" above all else, even in poetry, as Ezra Pound's modernist dictum of the l920s,"make it new," attests.

The New Urbanist preamble states, in part, "We recognize that physical solutions by themselves will not solve social and economic problems, but neither can economic vitality, community stability, and environmental health be sustained without a coherent and supportive physical framework." One can see that sentiment still at work in the physical arrangement of virtually every pueblo still extant and in the ruins of most ancient town sites. I have grave doubts about the modern world's ability to find a synergy, a hybrid vigor, between these two world views in the service of creating cost-effective, conservationist strategies for living successfully in the resource-poor hostile environments of the arid Southwest. But it's certainly worth a try.

Recently when I was reading Natural Capitalism, by Paul Hawken and Amory and L. Hunter Lovins, I was struck again by the similarity of their attitudes to what I've sensed about Anasazi and Pueblo views of the built environment. When they speak of "radical resource productivity," "eco-efficien-

cy," and "capital as if living systems mattered," I think they're talking the language of the Anasazi and Pueblo philosophy, if not the local dialect. This seems to me to be a philosophy of survival rather than "sustainability" or any other such phrase which connotes forcing the environment to conform to human needs rather than humans adapting successfully in a natural context to which they intimately belong. If this means, as environmental educator Steve Van Matre observes, "going back," then "the only question is how far, how fast, and what do we take with us." [See internet transmission] Of course, I'm not advocating that we go back and imitate Anasazi builders. I am saying, however, that our survival here in the desert mountain West may depend on how seriously we study their successes and failures to survive in an environment as harsh as the one we both inhabit over time. I have to admit that though I feel sensibly hopeful from time to time because of the sound logic of learning from the past, I am not optimistic that we will.

As the familiar phrase "time out of mind" tells us, time isolates as much as culture and geography. And what can be surmised of the Anasazi view of landscape and economics 1000 years ago is not in our minds at all today. That's the sense I've gotten over the years of advocating the study of indigenous built environments in the Southwest and meeting resistance as I attempted to explore how their technological solutions and philosophy of place might contribute to modern planning and building practices. It's become clear to me, however, that if one could strip away the idiosyncracies of history and culture, one would find general principles common to both ancient and modern needs.

But even at the beginning of the new millennium, as dramatic climate changes and drought conditions threaten the desert and inter-mountain West once again, as El Paso faces the alarming predicament of running out of ground water in 15 years, and as water wars from Denver to Los Angeles loom expensively in the courts, mainstream developers, planners, bankers, and even radical thinkers still cannot conceive of a more effective and site specific way to design the built environment to suit arid conditions. And, I imagine, most don't even think they should bother. Yet, as southwestern archaeologists David Stuart has pointed out in his groundbreaking book Anasazi America, the high desert civilization here a millennium ago in Chaco Canyon succumbed to climate change, water shortages, and social pressures for what appears to be very modern reasons: they over- developed and overpopulated the landscape, extending themselves well beyond their capacities to remain organized and flexible enough to survive prolonged hard times.

But post-Chaco Anasazi builders, and their Pueblo descendants in Arizona and New Mexico, did struggle successfully to learn the lessons of wasteful overdevelopment. They apparently never overextended themselves again in the grand mode of politically grandiose and sprawling Chaco. Yes, over the next 250 years, they built huge pueblos but, from what we can tell, never, as Stuart says,"complex systems" like Chaco. Ironically, he observes, as their built environment and social structure became less complex and more egalitarian, their farming strategies became ever more complicated, site specific, risk averse and waste resistant, and came to mirror their new found, or rediscovered, survival knowhow. [Stuart, private conversation 4/19/01]. It could be said in general terms, that Pueblo descendants of the Anasazi tended to return to and refine traditional building and landscape strategies that have allowed them to survive and flourish culturally intact in this harsh environment, with its cycles of drought and unstable weather patterns, right to the present moment.

Fundamental to their success was the recognition that landscape architecture, the creation of outdoor spaces, and the site location and construction of buildings, are not discrete entities. We can see this sense of unity not only implied in archaeological sites, but also conveyed by modern pueblo thinkers. There apparently is not the kind of strict divorce of the built environment from the "natural" environment in indigenous thinking as there is in our own. Humans are part of the natural flow of the world. And so it is the norm for Pueblo people, not the exception, to consider their surroundings as part of themselves. Their survival has depended on it. There's no doubt that Anasazi/Pueblo people made costly miscalculations and fell prey to excess and various forms of greed. They were not proto-ecologists as some might label them. And "sustainability," whatever that might mean in the jargon of utopianists, cannot be pinned on them either.

Still, the irrefutable fact is that their "knowhow," and sensitivity to what the land could afford them, allowed them to endure.

The long history of their cultural flourishing bears out the pragmatic validity of their view of the world. And yet, in many architectural, planning and engineering circles, as well as business networks, just to mention the lessons to be learned from the ancients arouses a dismissive response. I don't believe it's a response of prejudice or even of modernist superiority, though I could well be wrong. I chalk it up to a sense of technological closed-mindedness and understandable, though regrettable, cultural blind spots. If homogenization, standardization, and interchangablity are the hallmarks of the millennial world economy, why would any company or its hired political operatives pay attention to local and venerable solutions to specific environmental challenges? The development business in America traditionally does not establish long range commitments to a community. They are committed to change not to continuity. While modern development in Denver and Albuquerque, Tucson and Las Vegas still dribbles tract houses helter-skelter over the landscape, while new urbanist designers still import progressive design programs from mid-western and east coast climates and cultures to colonize western environments, while desert aquifers dangerously diminish and rivers are bled dry by exploding populations, and while scholars draw parallels between the collapse of ancient civilizations and the ecological threats to our own, obvious solutions to misplaced development in the arid west – indigenous and ancient solutions – simply go unanalyzed.

Yet thinkers like the new urbanists would agree, I believe, with the following minimum list of implicit admonitions drawn from observations of Anasazi/Pueblo landscape and site planning, observations I'll try to expand on later in this chapter: Never miss an opportunity for the benefits of any solar energy and heating. Minimize exposure to cold and wind. Make sure the most vulnerable connections and weakest links are over built or redundantly reinforced. Encircle. Allow the landscape to tell you where and what to build. Adopt a survival view of water and adapt yourself to it.

This Anasazi-based pattern would also make sense to contemporary thinkers like Wes Jackson, author of Becoming Native to This Place; to Santa Clara Pueblo art historian Rina Swentzell; and to ecologist and educator Gregory Cajete, also from Santa Clara, author of A People's Ecology and Native Science. This language of design embraces concepts such as viewing the "landscape as mentor," described by Donlyn Lyndon of Places magazine; cultural and landscape ecology outlined in a book edited by Joan Iverson Nassauer entitled Placing Nature; and ethnoecology described in a book by the same

name edited by Virginia D. Nazarea, which deals with “situated knowledge” and “located lives.”

So far, these intelligent and avant-garde spokesmen for a new way of looking at land use and development in America remain almost relegated to the role of cult figures on the progressive fringe, and public awareness of the Native American thinkers is painfully but not surprisingly all but non-existent, as prophets often are in their own homeland.

I believe many design professionals in the West dismiss ancient building traditions on aesthetic grounds, considering the mimicking of their appearance to be “regional” and passe’. So, there is an important distinction to be made between matters of style and symbol and pragmatic landscape sensitivity. My thoughts here generally deal with the latter.

There’s little question, in my mind, that development in the West is digging its own grave. Societies, even technologically sophisticated ones, cannot grow and build against basic conditions of climate and landscape forever. Sooner or later the character of the land will catch up with them. Anasazi migrations from Chacoan sites, forced usually by climate change as well as factional disputes and design miscalculations, make that clear.

Both before and after the decline of Chaco and other monumental sites, the Pueblo/Anasazi embraced insights that remain the hallmark of indigenous builders in the arid West: They can be summed like this: Submit to the local conditions of specific landscapes. Know your place. Don’t force the land to be what it’s not. For example, don’t put generic tract developments in the desert far away from natural resources. The weakest link controls everything. And the unpredictability of water is our greatest weakness. When water is short, distance determines cost which determines availability. When you submit to local conditions you won’t try constructing landscapes in the desert that require the kind of moisture naturally occurring in, say, Georgia. And when you modify the landscape to make it fit your needs, do so in ways that don’t obstruct its major patterns and movements of energy.Modify where you can, but do so mimicking natural conditions. And be ready to change your modifications when natural forces overwhelm or circumvent them. For instance, don’t build in arroyos, or drive in paved-over water paths during flash floods.

Any culture that survives in arid circumstances, especially city-builders like the Anasazi/Pueblo peoples, understands that the desert cannot be tamed to accommodate an unlimited number of people; that urban built environments do not create their own conditions independent of local weather and resources; and that technological fixes cannot override natural conditions in both the short run and the long run.

Such fallacies arise from an economic view of nature as a free resource to be exploited that is in diametric opposition to what we know of the Pueblo/Anasazi world view.

Santa Clara architectural historian and theorist Rina Swentzell gives an eloquently clear picture of Pueblo peoples see the world. “At the center of the Pueblo belief system is the conviction that people are not separate from nature and natural forces. This insoluble connection with nature has existed from the beginning of time. The goal of human existence is to maintain wholeness or oneness with the natural universe.” [Ana. Arch p. 186] The parallels between this Native American view and the EuroAmerican conservation ethic are useful and intriguing.

Aldo Leopold summed it up when he wrote, “We abuse land because we regard it has a commod-

ity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect. There is no other way for land to survive the impact of mechanized man, nor for us to reap from it the esthetic harvest it is capable, under science, of contributing to culture." [Sand County, p. viii].

These views have an unexpected convergence in a central concept in Hawken's and the Lovins' Natural Capitalism. One of the four basic strategies of "radical resource productivity," or "capital as if living systems mattered," [p 9 nat cap] which is at the heart of their economic concept, is what the authors call "biomimicry" [Nat Cap. P14]. Looking to nature as a force to emulate rather than as an obstacle to overcome has to do with replicating the efficiency of natural systems when it comes to waste reuse. "Smart designers," the authors assert, are "apprenticing themselves to nature...." both when it comes to learning the "benign chemistry of its processes" and the unimpeded flow of its energies and modulating conditions. [P 16 Nat Cap] This would seem to be directly in keeping with both a Pueblo/Anasazi and conservationist respect for the necessary processes of animate and inanimate nature upon which human life depends. It's the difference between understanding that natural processes are absolute givens, capable only of temporary modification, and the view that human ingenuity can subvert and overcome such limitations permanently and at will. There is no question, of course, that massive, short term modifications of the environment such as hydroelectric dams, can subvert natural processes in ways that seem comparable to nature's own power itself. But Anasazi/Pueblo builders, contemporary conservationists, and natural capitalists would contend that our tendency to descend to grandiosity smacks of the kind of hubris that nature loves to overturn and undermine. And this seems to happen regularly commensurate with the outrageousness of our pretensions and heedlessness.

The lesson modern builders and planners in the arid west can learn from Pueblo/Anasazi tradition is that it is ultimately pragmatic to pay attention to where you are. Anything short of complete attention is potentially calamitous. As historian William deBuys wrote of the hard life in northern New Mexico in his book "Enchantment and Exploitation," "In an unforgiving environment, small errors yield large consequences....This minor yet muscular truth characterizes every pioneer experience, and it is one of history's themes in New Mexico. Centuries of human experience afford abundant examples of small miscalculations leading to large-scale misfortunes." [p.xix. Enchant.]

One of those miscalculations in New Mexico was the wishful thinking fantasy that there was a body of water the size of Lake Superior under Albuquerque. The city draws 55,000 to 70,000 acre feet a year from the aquifer which city officials started analyzing only in the late l980s. The USGS has sobered city officials by demonstrating that a Lake Superior-sized body of water never existed. A couple of relatively deep ponds, perhaps, but no lake. The city's future growth is now in jeopardy, having already outgrown its water budget, mining more than can be annually replaced by natural processes.
That surely would not have happened, given contemporary technology after WW II, if Albuquerque business and political leaders had paid attention to where they are, employed the scientific acumen of Albuquerque's national laboratories, instead of importing pipe dreams. Like so many places in the West, Albuquerque was alienated from the life of its surroundings. Its leaders considered it their possession, not our habitat. "Indeed, to know any kind of physical landscape," Gregory Cajete wrote, "you have to experience it directly; that is, to truly know any place you have to live in it and be part of its life process."

[pg. 181 Native Science.] Instead of imposing a template of commercial and fantasy design fads on a landscape, trying to smooth out its flaws and inconveniences so advertising can create a demand for products that are the cheapest and fastest to produce, an Anasazi/Pueblo view of the built environment was that it took place in a landscape that was "in a perfect state," Cajete wrote. "The real test of living was to be able to establish a harmonious relationship with that perfect nature – to understand it, to see it as the source of one's life and livelihood, and the source of one's essential spiritual being." [179 Cajeta ibid]

The work of harmonizing personal and social activity with the "perfect nature" of a place that changes seasonally and randomly at its own pace is so utterly different from the contemporary notion of "sustainable development" that it gives rise to an alternative goal—which I'll call survivability, something I believe all people who are not destroyed by difficult environments understand almost intuitively. Terms like sustainability imply a negative stasis or finding ways to make the natural world conform to a static pattern of human action which is, itself, not adaptable. Survivability stresses agility, mutability, and a flexible response to the demands of necessity dictated by natural conditions.

Another version of such thinking that bears striking resemblance to Cajete and Swentzell's views, is called "landscape as mentor." The editor of Places magazine Donlyn Lyndon wrote recently about seeing the natural world as a wise guide and tutor, "the fundamental premise is that we can and do learn from the landscapes we experience. We can be tutored by consideration of places that are dominantly formed by, or evidently conditioned and changed by, the forces of nature—by sun, wind, rain and the cycles of weather, by the vegetation that roots in the soil and seeks to reach its own place in the sun, by the shape of the land and the flow of water across it, and by the shapes that result from the colossal geological forces of uplift, compression and erosion over unthinkably long periods of time. We need to learn from the landscape its lessons of interconnectedness, growth, decay, and steady, subtle endurance."[Places 13:3, pg 9] Places is a publication of the Design History Foundation.

If there's any key ingredient to achieving the "subtle endurance" of survival when it comes to creating human landscapes and built environments it's summed up in the title of a book by Wes Jackson "Becoming Native To This Place." An advocate of organic agriculture and the founder of the Land Institute in Salina, Kansas, Jackson believes that "at some level, most of us want to live within our means, to become native to this place at the very time the target appears to be receding faster than the shot we aim at it." [p104] He continues that "in this world now dominated by economic thought, we have discovered that comfort and security are not solutions to the human condition and that affluence has not solved the economic problem....Furthermore, economic development has led to enormous ecological destruction." [p105]. Jackson, like Lyndon, Swentzell and Cajete, sees nature "as the standard, as 'measure,'" and quotes not only Milton's warning about not offending nature's "sober laws/And holy dictate of spare Temperance," but also Alexander Pope's admonition "let Nature never be forgot," and to "Consult the Genius of the place in all." [p74]

Though Anasazi and Pueblo thinkers made no distinction between human and nature, Jackson's, Pope's, and Milton's commonsense knowledge about adjusting one's ambitions and intentions to the "genius of the place," would make complete sense to any builder or gardener in the desert who hadn't deluded themselves into believing that engineering and technology could over-ride the inherent risks

in living in marginal and largely inhospitable natural environments. Knowing where you are, and what it requires of you, and dealing with it on its own terms is the essential quality of long term survival. What we know and can surmise of the Anasazi/Pueblo world view as it relates to the built environment supports this survival vision of understanding and working with the deep and changing realities of a specific place. Baker Morrow, in his chapter entitled "The Berry Gardens if Quarai and the Pocket Terraces of Abo'" in this volume, uses the metaphor of a garden to describe both the agricultural and landscape practices of the early Puebloan peoples, practices that ultimately allowed them to survive and culturally flourish.

It is intellectually improvident to think we know anything more than snippets about the big picture of the Anasazi and Pueblo past. But when it came to growing food it's safe to say, at the moment, that the Anasazi and their Pueblo descendants did not practice what one might call big field farming.[Personal conversation with Baker Morrow] They engaged in a massive farming enterprise, with as many as 10,000 [?] acres under cultivation at ancestral Zuni, [Beath p.X] but all on a small scale, with multitudes of crop types, vast numbers of small plots, waffle gardens, flood fields and arroyo bench farming, sand orchards, wild plant cultivation, multiple kinds of mulching, with growing areas situated everywhere water was. [Carol Brandt] The Hopi, for instance, made use of 134 of the 150 plant types in their surrounding landscape [p46, American Indians and the Natural World], intensively cultivating and harvesting not only domesticated food stuffs, but wild plants for both food and other material uses. They couldn't have survived doing it any other way. Their method was to plant redundantly in as many microclimates and microenvironments as possible to minimize risk of complete crop failure. Hopi farmers even planted four to five seeds in a single hole so they'd get what amounted to many oases of multiple corn stalks that were growing so densely together that they provided shade and wind protection for one another. Anasazi and Pueblo farmers could have, I suppose, actually moved water around to irrigate large leveled tracts of land, had there been enough water available. They had the human ingenuity and labor to do it. But they apparently chose not to, deeming it too risky.

The point to be made here is that Anasazi/Pueblo farmers were so native to their place, they knew it so well, they could make its harshness work for them, rather than against them. The garden image I think is apt here, in the sense that cultivating a garden landscape causes us to pay particular attention to the tiniest details of the micro climates and variable conditions in our own backyards. It doesn't seem all that farfetched, and there is some evidence for it, that much of Chaco Canyon was under cultivation with corn and other crops at various times of the year. In addition to the Chaco bread basket in the Red Mesa Valley some 30 miles south, Chaco Canyon itself had several hundred farmsteads that shared the same space with the great houses and great kivas.[Stuart, personal conversation 010501] Those farmer/gardeners could have created a discrete garden environment that was even still, perhaps, too large and requiring too complex a social organization to maintain.

If a culture makes no distinction between buildings and landscapes and if its world view sees no fundamental distinction between humans and the rest of nature, then the total built environment tends to be adapted to what the land and weather and celestial forces will give it. There's really no other choice. The total place has to be considered. When distinctions are made between buildings and landscape, and when humans are seen as something inherently different from or superior to the land around them, the

basic conditions of the landscape and its weather patterns tend to be ignored, at least in the industrial West.

While it may seem impossible for modern American designers, planners, and financiers to assimilate the practical building solutions of a world view so utterly different from our own, it must be stressed that practical solutions are not stylistic ones, or "aesthetic" ones, but, indeed, pragmatic in the American sense of doing something that works. By that I mean something much more than short-term economic success. Of course, a culture that conceives environment practicality in terms of building lots with obsolescent houses on them that can be "turned over" multiple times for multiple profits before they are turned under and the same lot sold again at higher prices with bigger houses on them has nothing at all to do with Anasazi/Pueblo building practices or world view. Nor does selling houses and landscape configurations based on a universally marketed design type that exists in a number of standard models as much for the convenience of the home repair and building supply industry as it does for the heavily marketed satisfactions of the "American dream."

But in ecologically troubled times, such as our own, the market for housing in desert environments will probably start demanding something different from what mainstream advertising sells so vociferously. Chances are that as gasoline becomes more expensive, as energy prices skyrocket, and as water scarcity becomes a determining factor in urban planning, so called "market forces" in the built environment will move toward more community structured, resource efficient development, much like new urbanist proposals. And that means, ultimately, design strategies based on local knowledge rather than generic patterns placed anywhere on the landscape.

Successful models for such strategies exist in New Mexico, for instance at La Luz on Coors Boulevard on the West Mesa in Albuquerque. Design by Antoine Predock from l968 to l974, La Luz is a cluster development 96 townhouses on some 42 acres of developed land on the edge of a 500 acre parcel of open space. Each dwelling has complete privacy, protected outdoor space, and connections to small patios and placitas. Although Predock chose not to design La Luz as a regional style New Mexico adobe, he blended modernist forms with the kind of Anasazi/Pueblo desert design principles described in this chapter. La Luz has been financially successful for over 30 years. But it has never been used as a prototype for clustered infill development in Albuquerque. Perhaps in times of scarcity ahead, La Luz will make more sense to bankers and new urbanist designers.

What follows is a briefly described, and certainly incomplete, program for a new urbanist design agenda in the desert mountain West, based on a preliminary assessment of Anasazi and Pueblo principles expressed earlier in this chapter. These principles do not address new urbanist macro planning issues, but they are suitable for some retrofitting of neighborhoods, and for all new neighborhood developments. They are not "sustainable" in the sense of perpetuating nonadaptive building forms and strategies. They all arise from a pragmatic survival interpretation of human activity, which emphasizes paying close attention to the opportunities and limitations imposed by a harsh climate, highly varied topography, and an arid general habitat.

1. Sunlight. In keeping with the Charter of the New Urbanism's dictum that "Architecture and landscape design should grow from local climate, topography, history, and building practice," making the most of sunlight and its warmth, and the shade it can occasion, is an art form that onsite observa-

tions by by non-specialists can affirm that Anasazi builders mastered almost from the start. This respect for sunlight has little to do with design motifs or building materials and technologies, though stone and mud construction does both retain heat and insulate against cold. Over and above various passive solar technologies, along with solar cells, which certainly are an advantage in the arid west, Anasazi/Pueblo builders can teach us never to miss an opportunity to orient structures, and even landscapes, to the southeast, to make the most of morning sun and minimize afternoon heat. Something as simple as site location, so often ignored by contemporary builders, can make an enormous difference in comfort and energy efficiency.

2. Site protection. Because of often rapid temperature fluctuations in the deserts, Anasazi/Pueblo builders seem to have located their structures and their gardens not only to maximize solar efficiency, but to protect against cold and wind. Evidence suggests that Anasazis liked to build near the walls and rims of canyons and other landscape features, rather than in the middle of them, seeking natural shelter where they could. Their understanding of wind and rain helped them to avoid making their structures vulnerable to direct assaults from prevailing weather patterns in their area. They would have found it alarming and stupid, for instance, to build exposed living structures on the tops of vulnerable promontories just for the view, or in cold sinks for short term economic expediency. They tempted the fate of the weather as little as possible.

3. Redundancy. What I admire most about Anasazi/Pueblo builders and farmers is that they left as little as possible to chance. In Chaco Canyon, major sites reveal a tendency to overbuild and to over prepare for negative eventualities at the weakest points in both structures and agricultural practices. Supporting walls are much thicker than they need to be, making structures secure and adding levels of insulation a more skimpy building practice would have missed. Anasazi/Pueblo farmers could not afford a single season of total crop failure. Although their diet was augmented by hunting and harvesting wild fruit and seed plants, Anasazi farmers planted selected crops near virtually every conceivable water source. If one set of conditions failed, chances are some of the others would prevail. Just as engineers today tend to overbuild the connections which attach, say, bridge spans to cables, so Anasazi builders and site planners seemed to position their structures in ways that overwhelmingly reinforced their weakest links. Climate and water sources were always mixed blessings, and are still in the desert West. Building sites were not far from water sources, for instance, nor were they precariously positioned to be vulnerable to a variety of climatic conditions. As much as possible, buildings constructed tall blockages to wind and cold, openness to sunlight, and were dug into the earth to provide ultimate protection from the elements. Theirs was always a defensive but cooperative building strategy, one that sought to maximize positive conditions, and rarely if ever displayed the kind of arrogance and overconfidence to openly defy weather patterns with poorly sited structures.

4. Encircle. Site plans and aerial views of Chacoan and post Chacoan Anasazi ruins all send the same message. A positive social and survival strategy for building in the arid southwest inevitably leads to clustering and encircling. Site after site shows relatively compact built environments that enclose a central and communal plaza, sometimes numbers of them. These build environments are inward looking, protective, providing their own shade, weather protection, and placed in such a way as to minimize climate damage, make the most of the sun, and lessen demand for other energy sources. The encircling

quality of Anasazi forms could be adapted commercially today for both condominiums and apartments, and even small shopping centers too. The inner plaza, if kept at a human scale, could provide families with a space for the same kind of conviviality and community oversight of children that Jane Jacobs wrote so warmly about in older East Coast neighborhoods. It's not difficult to see a new urbanist infill development, let's say, composed of a number of encircling cluster neighborhoods, placed selectively in an open space field planted to maintain privacy, refresh the spirit and recycle water.

5. Landscape as Guide. Anasazi/Pueblo builders rarely, if ever, placed built environments on land that they needed for agriculture. They let topography and its relationship to the sun, the patterns of the seasons, water, and places of religious power determine where they placed their buildings and laid out their fields. Much like what's known as sieve, or overlay, mapping today, which sifts out land appropriate for development, ancient builders were alert to every advantage the land could give them. They must have analyzed a site by identifying all the land they didn't want to build on, and then made use of the rest in whatever way sustained their survival. Never would an Anasazi site planner place buildings in the middle of fruitful land, nor in places susceptible to flooding or in places where they would have to bear the full brunt of the wind. The land and weather informed them. And they were predisposed to pay attention because they understood that to go against what their surroundings offered, a high price would have to be paid.

6. Waste Not Water. That frugality and conservation were survival skills well-honed by even the relatively extravagant Chaco Anasazi is more than a powerful possibility. In the desert there simply aren't enough resources to squander. Marginal environments require minimum waste and maximum reuse. Combining Pueblo/Anasazi traditional thriftiness with what the authors of Natural Capitalism would call "biomimicry," water was recycled and dampness mulched in countless different ways. Rain was channeled, fields flooded, dammed, and preserved. New urbanist desert enclaves with cluster housing, enclosed plaza and patio spaces, and surrounding open space, could both adapt to and shape topography just enough to divert rainwater and recycle it into tree ponds, flower beds, and irrigation canals which could form linear gardens throughout a complex of buildings. By making the recyclying of water the determining design criteria, new urbanist enclaves in desert southwestern cities could become models for innovation in not only water management and integrated garden environments, but also in the conservation and self-sustaining activities of permaculture and gray water management.

7. Don't Create Blockages. Just as the body's energies, electrochemical messages, and liquids must keep flowing or eventually they cause the body to become fatally sick, so must the built environment not be allowed to impede the flow of natural forces at work on the land, or exacerbate their damaging effects, especially those of water and wind. In recent sprawl developments in the desert landscape outside Albuquerque in the booming town of Rio Rancho, developers cleared a large parcel of land of its scrub and grasses. The denuded landscape was left thus "prepared" and waiting for construction crews for more than a year. The sand and dust storms that were whipped up from that site could be seen and felt all over the city, and, though no measurements could be made, contributed considerably to Albuquerque's dust polluted air. Perhaps the most amazing fact about the builders and lenders in the desert west is how little anyone understands about aquifers and how they are recharged. In Albuquerque, again, it's thought that the Rio Grande charges only a small portion of the aquifer beneath the city, and

that large arroyos out of the mountains have been feeding and topping off the aquifer in the eastern part of the city for millennia. Many of those arroyos now are concrete chutes which not only speed up the flow of runoff down to the river, but completely block its reabsorption back into the water table. Obviously, new urbanist enclaves based on Anasazi principles would neither leave land barren ready for erosion, nor prevent the draining, pooling, and slow moving of water through its precincts. The trick with water is always to minimize its damage and keep it moving, while at the same time retaining and recycling it.

8.Culture and Landscape. Anasazi/Pueblo built environments can be described as a seamless integration between the built, the tended, and the "natural" environment. Baker Morrow's garden metaphor helps us understand how the ancient built landscape in the southwest not only reflected, but reinforced the Pueblo world view of humanity's synonymity with nature. EuroAmerican built environments in the desert reflect industrial culture with its emphasis on intervention and radical alteration of landscapes rather than cooperation with them. Survival and conservation oriented new urbanist cluster neighborhoods in the desert would serve symbolically to signify and reinforce "alternative" and highly adaptive tendencies in EuroAmerican culture: our pragmatism and willingness to do whatever works, even if it might entail looking "backwards" in time to technologically simpler and more elegant solutions to common environmental challenges; our intellectual and problem solving omnivorousness, which might allow us to respect and make use of knowledge from other cultures that help us cope with increasingly harsh situations; and, finally, our indomitable optimism which arises from a "can do" subculture of science and engineering, despite the hopelessness their often ham-handed approach can cause.

These alternative tendencies in our culture, which mitigate, to some extent, our fascination with force in all its forms, from bulldozers to atom bombs to colonialism, could help us come to understand that our current building practices in the southwest are not survivable in a period of high energy costs, drought, overused rivers, and depleting aquifers. We have a model of survivability right under our noses in the effectiveness and efficiencies of our cultural neighbors who have survived here in one form or another for more than 2,000 years.