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While this Report & Evaluation is the final step, the wrapping up of an accredited study in my HOD doctoral program, in a larger sense I view this merely as an ~ Interlude~ for my attention to the subject matter of this study surely will continue; in fact, I now consider this subject matter to be the essence of my forthcoming Dissertation. In my KA*702 Assessment Contract, I proposed to investigate the relationships between consciousness, human development, and “the nature of the environments wherein people do their living.” I wanted to gain some understanding about the effects the environment – and especially the built environment – has on consciousness and human potential, with the underlying motive being that if such a connection could be established, then it would be possible to suggest actually *designing* environments that could *enhance* consciousness, and thus expand or increase human potential.

This KA*702 Consciousness and Human Development study took me more than 10 months to transverse: I read over a score of books and became familiar with several journals in order to prepare for the writing. I explored Environmental Psychology, especially the branch called Environment-Behavior research, consciousness and cognition studies themselves, neuroscience and brain research, and several titles analyzing the nature of the built environment, especially the urban environment. Even with all this background reading, I merely scratched the surface of this important and fascinating subject matter; that’s why I think I’m ready for my Dissertation, for I still want to go much deeper. During the past fifteen years as a full-time student, through the course of 3 self-designed degrees, I’ve had the opportunity to create many studies looking at the theme ‘sustainable community design and development’ from many different angles. Now, with the application of ‘consciousness and human development’ to this theme, I feel like I’ve reached a culmination: after this there are no more studies to create. In one sense, learning how to design for ‘consciousness and human development’ has been the underlying purpose all along.

For my final paper, the “In-depth” portion of the Assessment Contract, I began articulating what I call “Design for Consciousness: An Exploration into the Relationship between the Built Environment and Human Potential.” This title has been growing within my mind for a couple of years now. It grew in large response to a need I perceived within my work with Gaia Education, an international consortium of educators producing curricula and courses on my

favorite theme: sustainable community design and development. This group has to date produced two comprehensive curricula: an “Ecovillage **Design** Education” and a “Gaia Education **Design** for Sustainability.” You’ll notice I emphasize the word ‘design’ here; that’s because even though this word is used in both titles, once you get into the curriculum you’ll not find ‘design’ defined or described anywhere; nor will you see ‘design’ given any treatment as to its ultimate possibilities or potentials. It’s almost as if on some level there’s the realization that ‘design’ is an essential part of bringing forth what we call ‘sustainability,’ yet nobody has taken the time to think it through any further. My paper for this KA*702 study, then, was an attempt at bringing awareness to the full implications of design, so that it could be appreciated more perfectly in all its exquisite latency. In summary: *an informed and knowledgeable application of design to the built environment has the prospect of enhancing or expanding consciousness and thus increasing the potential of the inhabitants dwelling therein.*

This is powerful stuff with far-reaching implications, for now we’re thinking *beyond* sustainability, into the realm of thriving, into the possibilities of personal and planetary plenitude.

As a way of illustrating what I mean by “Design for Consciousness,” I find it useful to describe the character and effect of built environments that were *not* designed with consciousness in mind, that are, perhaps, anti-consciousness, if that is possible – and for this purpose we could include practically the entire North American continent. In a paper I wrote called “What Exactly is Design?” – a prelude to the present study – I observed:

I wish the ‘manifest destiny’ surveyors and developers who raced across my native North America, hastily throwing down abstract, two-dimensional gridiron patterns wherever they went, would have had the chance to listen to and heed Max’s advice [about taking the time to patiently observe a landscape before building on it]. Unfortunately, very little of the North American settlement pattern was actually *designed*. What we have instead is a mechanical assembly of individual plots and buildings that were deployed perfunctorily across the landscape according to the prescriptive and delimiting dictates of zoning and code laws – it was more like filling in the blocks according to a dull standardized script rather than any sort of creative burst of site-specific place-making. At settlement scale, there is no coherent relationship among the various individual entities, no sense of a unifying theme, no vestige of a cultural inheritance, no rapport with underlying ecologies, no escape from the lifeless utilitarianism – and with sadly neglected attention to providing public space, no feelings of civic identity or community purpose. This is a brutal landscape shaped by speculators, not knowledgeable designers. The over-arching mandate has been maximizing profit for private investment, not creating places that could be beautiful, memorable, enlivening – or even worth caring about.

It’s been over a year since I wrote those words and I believe them to be truer than ever, for I continue to witness the evidence. The average citizen of the USA (and here I cannot speak

knowledgeably about the Canadian segment of North America) is perceived when they travel as being arrogant, gruff, dismissive, distant, lacking sophistication, and generally insensitive or oblivious to subtle cultural clues. All this may be true, yet I would petition our foreign friends to give these poor unknowing people a break, for much of their ignorance comes from the nature of the built environment wherein they have been raised. Think this is an exaggeration? Let me explain further:

The National Land Survey of 1785 chose an arbitrary starting point back east somewhere and then began laying out an arbitrary grid pattern called Township and Section. This arbitrary grid pattern eventually came to overlay the entire country, as a sort of two-dimensional, overtly simplified abstraction of three-dimensional space and four-dimensional time. The National Land Survey grid has absolutely no relationship with the underlying geographic, geologic, hydrologic, or ecological patterns – the living mosaic of the landscape. You can easily see the unnatural checkerboard effect of this grid pattern when flying over the country – a distinctively *American* pattern. The purpose of the National Land Survey was to begin demarcating a vast continent into identifiable, manageable square tracts that could be swiftly deeded and homesteaded. Eventually the super-size tracts at the outset – a standard dimension being one square mile – were subdivided into smaller squares, sold, and then the subdivided squares were subdivided and sold again, *ad infinitum* – or until you get down to about quarter-acre lots. This business of subdividing, selling, subdividing and selling again, while all along building on each of the subdivided squares, became the main economic engine of the entire country, for a very long time, until just recently. It's much easier to assess the value of a 'square' of such and such dimensions than it is to try and determine the value of an irregular natural mosaic. And so the Land Survey was purely functional, preparing the way for the great real estate bargain binge of the past two-hundred years – though it was all a bit like a Ponzi scheme in that those with the good fortune to arrive first could make the biggest gains with little effort – by that I mean families that were deeded large tracts in auspicious locations could make fortunes just by sitting on their porch and subdividing.

All of this contributed to the national character.

And then somewhere out of all that surveying arose big square states, like Colorado, which has the dysfunctional placement of cutting across three major biomes: prairie, mountains, and high desert. Colorado is not really a place; it's a simplified legal jurisdiction.

Of course the squaring of the continent, on a smaller scale, preceded the National Land Survey. I'm speaking here of all the arbitrary gridded patterns that were laid out to demarcate the early colonial cities: Savannah, New Haven, Manhattan, Philadelphia. The land was cleared and the regular orthogonal grid was imposed perfunctorily, as if the edict to "go out and subdue Nature" was being fulfilled. As the cities spread westward, you begin seeing a double arbitrary gridded pattern, with rigidly geometric orthogonal cities overlaid on top of the Township and Section grid, itself overlaid on top of and obscuring the once natural mosaic

pattern underneath. For example, when they got to San Francisco, they mindlessly laid the grid on top of the seven rolling hills; and when at one spot the coastline of the Bay would not conform to the grid, they filled in the Bay at that spot until it did conform – thus the unyielding tyranny of the grid took precedence.

In one particularly bizarre practice of abstracting the continent, the railroad companies branching westward would position one new city every twenty miles or so along the track, spaced so as to most readily service the rural agricultural population. At the location of the new designated city, a surveyor would appear and begin laying out the ubiquitous grid. These surveyor-city fathers, laying the foundation of the built environment of a nation for generations to come, did not need any education beyond the technical skills of their equipment – no city planning or urban history, no architecture, no cultural anthropology, no geology or hydrology or forestry, nor anything – yet their arbitrary placements are still being enforced to this day. We can imagine these simple-minded surveyors, not having the time to patiently observe the landscape through the seasons, must have made many mistakes in alignment, positioning, and especially attunement with the natural mosaic. The railroad companies made a ton of money selling off these newly gridded blocks to westward-moving investors, which was the purpose after all. Sometimes, instead of aligning the grid north-south, as was the case with the National Land Survey, the railroad city-surveyors would align the grid perpendicular to the tracks – and this must have caused enormous headaches for the real estate appraisers who then had to assign value to the inevitable polygons created as the new city grid abutted the Township and Section grid!

This hasty, haphazard subduction and settling of an entire continent, with the twin purpose of generating quick real estate sales, was all so arbitrary, so random, so frivolous, so absolutely disconnected from the living world that preceded it and still lies buried beneath it. From a ‘consciousness in the built environment’ perspective, we can witness the population of a whole nation – from Centerville, Iowa to Yuma, Arizona – living within these pre-ordained abstractions, with all their alignment mistakes, the people trying to make sense of their complicated lives while existing in and moving through two-dimensional, flatland space. No wonder Americans are so rootless, so shiftless: not only were most of them immigrants or descended from immigrants in some recent past, but the prevailing settlement pattern into which they have been transplanted is not defined by the characteristic features of any place in particular – “the geography of nowhere.” There’s a certain psychological disassociation accompanying an ontology of not being connected to any place in particular, resulting in a sort of anxious floating nihilism. This disassociation continues right on down to domicile level, for we can assert that Americans don’t have ‘homes’ – they live in real estate investments. As soon as the time is ripe, they’ll be selling that sucker and moving on to another pasture. This attitude, this destiny is the source of the anomie and isolation associated with the American, settlement-induced lifestyle – a lifestyle which in turn creates a gaping vacuum for community.

When it comes down to it, the orthogonal grid is a *colonial* pattern, a severe and commanding colonizing pattern – it does not arise vernacularly from the people living in and wedded to a place. The Greeks used the grid when they colonized Asia Minor (Miletus is a good example of the strenuous effort it took trying to conform a regular geometric grid to an undulating terrain) and later when they sent colonies to Sicily and the south of France. The Romans used the grid liberally to mark their territory in the wake of new conquest. You can see the remnants of a Roman grid in the very center of Florence, for example, then scattered through Gaul and on through Britain. The Roman grid began as a military encampment: it was meant to signify an imposing new authoritarian order: it was meant to be fort-like, with a garrison at the center and the positioning of sentries at key locations to keep watch down the straight streets. The British followed suit during their empire days. Finally, it was time to colonize America and wrest the land from its native inhabitants, and so the colonizers brought in and deployed the grid. It was effective; the continent was subdued; yet I wonder what it means for an entire people living out their daily lives in a settlement pattern preferred by the builders of military encampments? Would these people be more easily militarized?

I have a theory that America is still being colonized, this time from within. You have an anxious people disconnected from particular places, living within the coordinates of arbitrary abstractions, banded together into dysfunctional nuclear families in the absence of community, ingesting pharmaceuticals and anti-depressants like Prozac, eating industrialized chemical quasi-food...doesn't this sound like Los Angeles? Of course I'm stereotyping, exaggerating, and generalizing here, but that's to make a point, with all compassion: These people are sort of floating in the air, not really grounded to an earthly existence, and the nature of their built environment is an imminent cause. You then bring in TV as an information brainwashing tool and bombard the suspended-in-the-air people with the message that their principal purpose in life is to go shop and acquire new things, and that in order to do this most effectively, so that each person eventually will have their own driving lawn mower, they will need to go deeply into debt: the bank will own your house, your cars, your education, and your driving lawn mower. Once in debt, the people are like on a treadmill: they will need to go out and work at a job day after day, year after year – often in utterly de-humanizing conditions, like in corporate executive positions – in order to get the paycheck to keep the whole thing spinning. Are these people not being colonized from within?

Consider further: the fruit of all their labor, especially in the iniquitous (and, according to the Constitution, unlawful) form of federal taxes and interest payments on the national 'debt,' inevitably goes toward funding the ongoing imperial conquest for control of the resources of the planet, an elitist exercise for which the citizens have absolutely no control, despite the rhetoric of "change." The monetary notes that the people work so hard to acquire are owned by the private corporation called the Federal Reserve, and the Federal Reserve is owned by a small cabal of mega-wealthy bankers, most of whom do not even reside in the

United States! Are not the American people being colonized from within? Unfortunately, I think it's going to get worse before it gets better, because the American populace has become like docile sheeple corralled into gridded pens.

According to the thesis I've been developing during my KA*702 Consciousness and Human Development study, I would suggest that the only way for the Americans to save themselves from their dilemma is to *design* their way out – they must develop, implement, and institute a renewed art and science of settlement design, for the prevailing settlement patterns in which they live are literally dumbing them down. I didn't get to the suburbs – that very special and distinctively ~Americana~ form of living – here in my abbreviated critique, yet it would be just as easy to describe the suburbs as 'abstractions,' with the additional pernicious consequences of requiring automotive transportation for survival. The American built environment is a pitiful, ugly, degrading mess, affecting the people who must live in these spaces with, in a general sense, a diminished level of consciousness.

And what do I mean by that? That's what I was developing in my paper: "Design for Consciousness: An Exploration into the Relationship between the Built Environment and Human Potential." I have not yet finished the paper; it's turning into a small book, and I've already way exceeded the reasonable amount of time that could be allotted for a study with this number of credits. I will return to finish this small book in the near future; at the moment, however, I need to attend to the utilitarian maintenance of my degree. To complete this Report & Evaluation, I can summarize my findings to date:

Perhaps the most important concept to consider is that organisms and environments *co-evolve*, together, in what is called a "history of structural coupling" – the organism influences the environment as much as the environment influences the organism. It's a mistake to assume that there is some kind of pre-given, a priori, or absolute human character that remains unaffected or uninfluenced by the quality and characteristics of the environments in which it becomes embedded. You could go so far as to say that organism and environment *co-specify* and *co-determine* one another. The built environment is not an innocuous box into which *pre-specified* and *pre-determined* human behavior is somehow inserted; no, the nature of the built environment *shapes* behavior at every step, provides limitations and opportunities, and ultimately influences the consciousness potential of the people dwelling therein.

It was quite fascinating to overlay neuroscience and brain research reading on top of the living systems theory just cited. Apparently, the brain self-organizes into "distributed networks" of "dispositional representations." What this means is that groups of neurons will band together and resonate as clusters, and there will be clusters within clusters, and many of these clusters will communicate non-locally across different sub-organs of the brain. The imagery conveyed is that of a natural mosaic – an "ecology of mind." What's more, the ecological

mosaic arrangement of clusters, and clusters within clusters, is not fixed for all time but rather undergoes continual re-adjustment and fine-tuning as new learning is integrated.

I didn't get to this part of the story yet in my Design for Consciousness paper; this content was to be the next chapter.

Reading further, I started to discover language describing the natural mosaic patterning of the brain – the topography of neuronal conglomerates, if you will – as being influenced not only by new learning *but by the very morphology of the environments through which the nervous system must negotiate* – and how could it be otherwise? More technically speaking, the three-dimensional spatial patterns received by the visual cortex translate *isomorphically* into the neuronal structure of the brain.

Please sit with that for a moment, for the implications are the very heart of what I mean by “designing for consciousness.”

Then comes the phenomenology part: Picture yourself walking through the streets of the downtown of a typical American city – the intensified gridded core of the ubiquitous continental grid. I practiced my phenomenology in downtown Seattle. What strikes the visual cortex first is the monotonous, lifeless linearity of it all: the square-blocked buildings arranged uniformly along the square-blocked streets, each passing block another dull repetition of the commanding theme. I felt moved along as if on a conveyor belt, for there were no options except to keep moving straight forward (unless I wanted to duck into one of the regularly-spaced straight alleys!). Moving along thusly, I could do so fairly mindlessly, only needing to pay attention to the pedestrians in my path. By ‘mindlessly’ I mean that my incessant internal dialogue was free to ramble autonomously, only occasionally being interrupted by taking notice of some new shocking headline in a passing newspaper box or some loud advertisement in a storefront window announcing a ‘sale.’ Also occasionally, I would stop and look up and take notice of the steel-girded and window-plated linearity of one of the imposing towers. At regularly-spaced intervals, upon approaching the end of a block, would come the only decision-making events of the otherwise blandly repetitious journey: the decision-making was always binary in nature: do I proceed straight forward or do I make an oblique turn to the left or right? Standing on the corner, I would survey my options, my visual cortex quickly scanning the field of the options before me: straight, left, or right? By whatever subconscious calculation or assessment my brain processed of the signals in the visual field, a decision would be made and, no matter which direction was chosen, I would continue on another straight line segment of the journey, my internal dialogue freed once again to resume its rambling – until I reached another corner decision-making event, that is. At times I felt like an electron moving dutifully along a printed circuit board, occasionally passing a ‘nand’ gate or ‘nor’ gate on my way to a pre-assigned location. It was all so dull, so oppressively authoritarian, so hopelessly utilitarian, so mindlessly mechanical – no spark of the Spirit here!

Then practice another phenomenological exercise: This time picture yourself moving through one of the organically-patterned, old city cores of a typical European city. These city cores are organically patterned because they grew up vernacularly, sequentially, over the course of many generations – they sure weren't laid out all at once by a railroad surveyor! The experience is quite different moving through one of these spaces. The first quality to notice is the virtual absence of straight lines – sure the buildings must be built straight up from the ground, but they are adorned with the elegant trappings that make them appear as works of art. The streets assume a graceful meandering as they conform to the underlying topology – the irregular natural mosaic – of a geography from centuries past. The individual buildings are positioned along the street smartly, embodying what appears to be an over-arching, place-based motif expressing itself in countless realizations. The whole scene is palpably, enjoyably *human-scale*, built to proportions that make a person feel contained, enclosed, enwombed. The sinuous streets occasionally open up to a well-situated plaza, often lined with an arcade. In the plaza people will be lingering, talking, not hurriedly but at a *human* pace. In these plazas I have seen diverse cultural activities: a soapbox political pronouncement, mimes, some of those made-up statue persons, musicians, children running around, colors. Along the perimeter of any of these plazas inevitably will be found comfortable outdoor seating for a café or bar, and the seats are usually filled, no matter what time of day. I remember a magnificent springtime in Budapest, with scented flowering trees, some streets closed off so that the café tables could spill out and beneficially fill the space usually wasted on cars. The men and women were dressed-up and flirting, on a weekday afternoon: you could sense the romance in the air! All of these European cities will have their monumental art, in the form of awe-inspiring public buildings and cathedrals, and their more prosaic though none-the-less beautiful street art, like fountains and statues and even lampposts. Usually the art is placed with the intention that you will come upon it gradually, in a sequencing of views that adds to its numinosity. In fact, walking through the whole city is like that: the gradual unfolding of a series of meaningful events, with view corridors and moments of pause, a progression of captivating visual stimuli that enters the visual cortex like an unfolding play. These are places celebrating the human spirit; they do honor and justice to human potential.

Now, with these phenomenological exercises in mind, recall that as you are (or anybody is) moving through these spaces, the visual cortex is registering the spatial patterns in all their finely-detailed minutiae and translating this information into the neuronal clustering of the brain: the structure of the brain literally is being formed by the nervous system's negotiation of and through the built environment: the structuring of the brain is not a pre-given throughout all of humanity but rather is a case-by-case product of phenomenological experience. The (perhaps disturbing) conclusion: the average American – and especially those that must live in or frequent downtown urban cores – will have a strikingly different brain structure than those

people who live in organically-patterned arrangements – and this will be true not just for Europeans but for most of the citizens of the Old World.

I think the implications are enormous and cause for taking seriously the proposition for ‘designing for consciousness.’ The only step left is making the correlation between brain structure and consciousness – and I believe I did this adequately in my paper in the chapter labeled “Consciousness,” which required first sifting through all the possible definitions for “consciousness.”

Some current thoughts: living within rigidly linearized built environments will accentuate an already pre-dominant left-brain functioning – the left hemisphere being associated with linear, cause-and-effect thinking like languaging and rationalizing. Humans living in such environments will experience an obvious deficiency in pattern recognition and understanding, the province of the right brain. Will such unilaterally amplified left-brain dominance affect what we call ‘consciousness?’ You bet it will! – especially when we consider neurological research identifying the right brain with numinous perceptions, like the voice of God, or with comprehending holistic perceptions like ‘unity,’ ‘oneness,’ or a universal presence or intelligence underlying Creation. Assuredly, right-left brain co-participation is optimal.

We can also expect people living out their lives in gridded built environments to be noticeably more incapable of identifying with ‘Nature’ – that ultimate exemplar in clustered mosaic patterning. Sadly, it must be the people in the grid who speak longingly about ‘going out into Nature,’ as by a drive through the countryside, not realizing that any person’s most intimate experience of Nature can be found through identifying with their own bodies – it’s not ‘out there,’ outside the grid, but it appears to be. Also sadly, we can expect the corporate executives meeting in high-rise towers disconnected from the ground in the middle of urban core grids to be the ones most blithely making decisions to plunder Nature for profit – according to the theory being developed here, they simply are unable to comprehend the significance of such actions, their consciousness being locked in the prison of their linear, left-brain, hyper-rationality. An abstracted environment will induce abstracted thinking.

I could go on; yet this is starting to sound more like the research agenda for a whole Dissertation rather than the Report & Evaluation for just one study in the doctoral program. Perhaps I’ve made my point? At the moment it’s just a theory, yet I found ample evidence in the course of this KA*702 Consciousness and Human Development study to support it. I believe we really *can* design for consciousness, and as we more fully enter what Yogananda calls the Dwapara Yuga, I believe that designing for consciousness ought to be the main thrust of the entire human enterprise. What could compare to that? This makes consciousness more than just the fruit of sitting on a meditation cushion.

The poor Americans: they live in such dysfunctional surroundings, and these will prove to be increasingly dysfunctional as we more fully enter the era of energy descent corresponding with the depletion of cheap oil. The Americans have a whole continent to retrofit. We have the

knowledge to do it better; yet will there be the will to implement? What to do with all those grids? I fear that as long as the Americans are resigned to live out their lives in square grids, abstracted from the living mosaic of the natural world, deficient in pattern recognition and understanding, they will continue to be mercilessly colonized, both from without and from within. That could be the design challenge of the century: how to convert square grids into more conscious, living and loving arrangements. Without a solution to that problem, we'll need to liberatingly tear up the grids and start over.

And now to close this Report & Evaluation, I would like to insert the final paragraphs from the 'prelude' essay mentioned earlier – What Exactly **is** Design? – in which I began to list various design considerations that could be integrated by knowledgeable designers wishing to incorporate 'enhancing consciousness' as one of their design criteria. Unfortunately, I didn't get this far in my KA*702 paper, yet I'm sure the project is not finished: there could be a Dissertation and a book in the making, well beyond the scope of a single doctoral study:

Never underestimate the power of design. The sustainability imperative may usher in a whole new renaissance of design science. In preparation, we ought to be concentrating on formulating and transmitting an effective 'epistemology of design' and introducing practical design skills in all our education programs – thus offering the possibility for a multitude of informed graduates to begin walking down the path of capable designship.

But that's just the beginning: As the world re-stabilizes at some new level of reduced-carbon future, we can begin thinking and designing in terms of *beyond* sustainability. If the potential of a culture is intimately – some might say deterministically – related to the quality and characteristics of the environments wherein the people do their living, then is it not possible, through the power of design, to create holistically-conceived environments wherein the people can thrive, and thus reach their full potentials? Can we not, in fact, influence the very evolution of consciousness through the places we design? With that as the goal, we will want to utilize the full palette: proportions according to sacred geometries; arousing, coaxing, yet gentle stimulation of the nervous system through vivid interplays of colors, hues, textures, shapes, shadows, sounds, and smells; the subtle sequencing of events, transitions, and approaches; holarchies of social space distributed among polycentric nodes; the judicious use of point and counterpoint, perspective, and depth perception; elegant adornment to ever finer detail; reaffirmation of cultural and bioregional inheritance through vernacular motif; archetypal symbolism from the collective unconscious; recognition of and participation with unseen energies and forces; the overt modeling and enhancement of patterns, structures, and processes in Nature; the ever-present celebration of Life through ubiquitous beauty; selected opportunities to display ostentatious magnificence and grandeur; the continuous hinting of cosmic participation; mirroring the dispositional representation of thought in the brain by creating nucleated clusters within clusters; etc., etc. Truly, when bringing forth new worlds, the

possibilities are limitless, endless. Design is the manner in which human beings participate in the co-creation of the Universe.



Figure 4. Original plat of Chariton, Iowa, which evolved as planned into a Shelbyville square town. From Lucas County Recorder's Office, Chariton, Iowa.