

**Ecovillages as Living Systems:  
Reviewing and Renewing Organic Settlement Patterning**



E. Christopher Mare  
WSD Independent Study  
Winter 2000  
Lummi Island

## Table of Contents

Page 3 – The Situation at the Dawn of the Third Millennium

Page 6 – Prelude to Settlement

Page 9 – Sedentary Inhabitation

Page 14 – Civilization

Page 20 – The Ecovillage Millennium

Page 24 – References

## THE SITUATION at the DAWN of the THIRD MILLENIUM

---

There is a lot of talk these days about ‘sustainability.’ Nature is providing feedback from every quarter indicating that human beings have overstepped their limits and are beginning to interfere with fundamental Gaian evolutionary processes. All these indicators are well-documented and, by now, familiar: overpopulation, global warming, weather extremes, ozone depletion, rapid extinctions, loss of topsoil and forests, depleted fisheries, exhausted aquifers, rising cancer rates and other malignancies due to a poisoned environment, perpetual war over control of dwindling resources, etc., etc. The list reads like a virtual science fiction horror story, like a compendium for disaster. The current ‘system’ is out of control and is unable to restrain or recollect itself; yet, there is no consensus as to the desired course of remedial action. The scope, complexity, and magnitude of these collective problems seem insurmountable, better left discounted or ignored – in reality, left for future generations to deal with.

People from all walks of life have been touched deeply, usually personally, by the warnings Nature is trumpeting. There is a gnawing, primal feeling that *we must do something*; and indeed, there is a proliferation of promising, worthwhile solutions being experimented with, all over the globe. The combined totality of all these efforts has been lumped together into the ‘sustainability movement.’ Sustainability is seen as the corrective measure, as the applied negative feedback to theoretically bring the current system – and humanity as a whole – back into alignment and resonance with the processes and balances of Nature. The implied message is that, if only all these solutions were to be somehow politically, ubiquitously accepted and implemented, the current system could be salvaged (albeit with some major adjustments), and humanity could carry on with business as usual.

This sustainability hypothesis seems to make such perfect sense, in light of the profound perplexity of the composite situation at hand, that it would seem non-contestable, not requiring further justification. Surprisingly, the voices for sustainability are a minority, and represent only the most informed, educated, sensitive and forward-looking of the general population, at this stage in the ongoing Gaian evolution. Somehow, inconceivably, there is still stiff resistance, especially from those holding arbitrary entrenched power, to any idea of adjusting the current system at all. Instead, these power brokers are pushing forward with all their might, with all their influence, to *expand* the current system so as to make it *global*, so that it absorbs everybody and

consumes everything on the planet. Among the hired 'experts' in this class, there is still debate as to whether the indicators being brandished by Nature are even worthy of receiving attention at all. These technocrats assume there will always be a technical solution to any systemic problem that arises, so why alter course? This positioning is arrogantly contrary to the implicit goals of Nature, where maintenance of the health and vitality of the whole is the prime directive. The vast majority of the human population is far too involved with eking out a day-to-day existence to be concerned with issues of sustainability at all.

How did we arrive at this state of affairs? Our very survival, or at least life as we know it, seems to be in question, yet the presentation of the dilemma is reacted to with widespread denial, suppression, disdain, or (often unintentional) ignorance.

In truth, despite its best intentions, the banner 'sustainability' will never be more than a well-meaning wake-up call. The system that it is attempting to reconfigure is fundamentally incoherent, an abstract model that has outworn its very presuppositions, an experiment in separation and control that has gotten *out of* control. No matter how many fixes or solutions are applied, this system will continue to press forward to its impending cyclic completion; by its very character, it is incapable of self-correction. Those human beings best positioned to make substantial changes to the system are incapable of understanding the pathology of the crisis because they are both creator and product of the system.

The system, it is contended here, is boastfully, optimistically called 'civilization;' one could say that it is the planetary function of the species *Homo sapiens sapiens*. The complex, chaotic situation we are facing now at the dawn of the Third Millennium is the inevitable consequence and final chapter of the long history of the effects of 'civilization.' Civilization was never intended to be sustainable: its sole purpose is to subdue the natural environment and replace it with an ultra-rational, abstract, human-made substitute. Likewise, *Homo sapiens* is not sustainable; their stage of evolution marks the time in a planet's biological maturation life-cycle when it is, paradoxically, ready to move beyond anthropocentric species consciousness and manifest holistic, biospheric self-awareness. *Homo sapiens* created civilization for this very reason. Once planetary self-awareness is achieved, *Homo sapiens* can graduate, to make way for the next stage of evolutionary growth and complexification via a new species of humanity (this proposition is discussed in Arguelles, 1987). But nothing is guaranteed, and continual diligence must be maintained by those who are involved in the transition.

'Sustainability,' as a concept, is the anticipation of the post-civilization, post-*Homo sapiens* stage. It is the announcement that one long cycle is coming to a close and a new cycle is about to begin. It is the transition zone between these cycles *but it is not an end in itself*. The American Heritage dictionary defines *to sustain* as "to keep in

existence, to maintain, prolong.” This sounds like the condition of a comatose patient hooked up to life-support equipment! How could this be the endpoint of the magnificent chronicle of Gaian evolution?

As participating human beings, successfully meeting the challenges posed by this era of opportunity requires us to set our sights *beyond* sustainability, beyond merely “prolonging,” to an attitude of renaissance and fluorescence. In the next several million years the Sun will grow so large and so hot that Gaia will not be able to manage her comfortable, homeostatic conditions that have spawned and nurtured biological life for so long. No culture or life-form or planet can actually be continued indefinitely, so sustainability is a matter of temporal degree – but we can learn to thrive and flourish and shine while we are still here, thus becoming conscious players in the direction of Gaian evolution, supporting, nurturing, and enriching fundamental life patterns, processes, and structures. This new emerging conviction-perspective will coincide, out of necessity, with the progression of *Homo sapiens* to a new species of human being, as Gaia, concurrently, proceeds with her evolutionary progression. This new species, already beginning to manifest, will regard as self-evident their unity with Nature. Comfortably immersed in this acknowledgment, acutely aware of their function within the total Gaian network, they will set about their task: enhancing Life with every act, retarding entropy because of genetic predisposition, enriching the economy of Nature *by design*, without resistance or contention.

This reviving, revitalizing vanguard of a collaborative, Nature-synergized humanity unfortunately will not be able to arise in the mechanical, hyper-stressed, artificial context of ‘cities,’ the hallmark of civilization. In there, the very sanctity of life is transgressed in the name of abstruse, disconnected, theoretical goals invented to justify competitive ego exultation and arbitrary power consolidation. The emerging new species of humanity, the next stage in a ripened, self-aware Gaian evolution, will be gestated in those contexts most closely integrated with Nature, in settlements that are, by definition, “living systems.” Living systems – as self-organizing, self-maintaining, self-perpetuating, bio- and eco-logical unities – have existed since the origin of Life on Earth, and in due time grew into the complex form of the traditional village. They are currently making a novel resurgence, in a uniquely post-civilization, 21<sup>st</sup> century fashion, in the form of the “ecovillage,” a human settlement that is, by definition, “sustainable.”

## PRELUDE to SETTLEMENT

---

The genus *Homo* had its origins at the forest edge, the ecotone where savannah meets jungle. Gathering together in small bands, these early ancestors would alternate their movements between hunting out on the open grasslands, and then returning to the forest edge to gather fruits, nuts, seeds, berries, and tubers. This is a very viable lifestyle; anthropologists estimate that it took less than 20 hours per week per each adult to meet the essential needs of the group, compared to 40+ hours for a modern post-industrialist (van Andruss, et al., 1990). Its viability is confirmed by noting that many North American tribes, at the time of European contact, were *preferring* to live a hunting-gathering lifestyle, millions of years after these primal ancestors, and it is still the preference of a few groups surviving today. Many more would if they could because there is such innate freedom in this way of life. The settlement pattern associated with this lifestyle is the temporary seasonal camp, perhaps revisited yearly, but easily abandoned and returned back into bush, without a trace.

What distinguished the genus *Homo* physiologically was an upright posture, leaving free hands with opposable thumbs, and the brain capacity for presciently making tools and for beginning languaging in an abstract, linguistic domain. Of course, there are some other animals that share each of these characteristics to varying degrees. What particularly set *Homo* apart, however, and began the long trajectory that would ultimately lead to the abstraction of civilization, was the creation of *culture*, or the passing down of lifestyle skills through successive generations via symbols, either verbal or visual. This capacity allowed *Homo* to compound knowledge from one generation to the next, cumulatively using the stored mental function for subsistence and perpetuation, relying less on the immediate sensation of experience. All these qualities proved to be very life-enhancing and sustaining, and the genus *Homo* prolifically increased in numbers until it was forced to leave its African homeland and venture out into the Middle East, and then onward to Asia and Europe and beyond.

For a long while there was plenty of room to expand into, and the various *Homo* bands could keep exploring and proliferating, adapting their hunting-gathering ways to ever newer and more diverse ecological habitats. But the whole of the appearance and extension of the genus *Homo* – human beings – occurred within the two-million year time span that coincided with the twenty or so intermittent ice ages (Sahtouris, 1989). So, as population pressure or curiosity pushed these bands to probe ever further north

(or south as the hemispheric case may be), and as these bands came across ever newer, untouched bountiful forest edges to make their temporary settlement camps, the conditions would eventually turn, and another inhospitable ice would start advancing. Imagine what a catastrophe that would have been: to have lived for generations hunting and gathering in a region rich and abundant in biological resources, creating and passing down culture specific to that certain area, comfortably adapting and reproducing and evolving; and then, what must have seemed suddenly, the environment would turn harsh, cold, and forbidding. To migrate toward the equator would encounter fierce resistance from other bands; to stay put would require complete modification of the culture, including the need for expanded technologies, a 'built' environment for shelter (not everyone had access to caves), and undoubtedly a different feeling about the numinous intentions of the environment. Either way, these temperate-region bands were deep in crisis; thus, the changing conditions in the environment influenced the somatic, and eventually genetic, selection of adaptive organs and behavior to compensate (as elucidated in Bateson, 1972).

The situation was especially acute in Europe, where the ice moved furthest south, assisted by the positioning of the Alps. There, for a long while, two species of advanced *Homo* existed in close proximity: *Homo neanderthalensis* and *Homo sapiens*. Both species embodied the essential human qualities: tool-making, symbolic languaging, and the passing down of culture. Neanderthal actually achieved a larger brain volume, called the cephalic index (Brace, 1967), and must have enjoyed vivid symbolic imagery and enlivening, intuitive symbiotic attunement with biogeographical realities; but it was the conspicuous growth of the neo-cortex that set *Homo sapiens* apart. This organ, a bulging of the frontal lobe of the brain, provided the capacity for rational, objective thinking and forethought. It allowed *Homo sapiens* to abstractly project situations into the future, to plan and to predict, and to discriminate and *choose* between contingencies. This capacity proved to be an enormous advantage at the onset of an Ice Age, when rapidly changing conditions required flexible adaptation, visualization of new techniques or possibilities, and an intimation of the need for preparation and hoarding for an unknown future. It certainly provided these; but it also included an unfortunate disconnection from the immediacy of the Now. During inevitable competition encounters, Neanderthal was stigmatized, prejudiced, hunted down and beaten into extinction.

But what was left? Here was *Homo sapiens*, an animal whose environmental circumstances had influenced the selection for the growth of an abstracting, rationalizing portion of the brain, an animal that could relate to others of its kind through symbolic languaging the dreadful experience of environmental conditions suddenly turning harsh and inhospitable, an animal that could use its brain and its free

hands to control and reshape its environment to suit its needs, and an animal increasingly relying on a culture of technology for its very survival. These initial conditions provided the substratum that 'programmed' *Homo sapiens* to institute the compensatory technological mindset they have been refining, perfecting, and relying on for the past 40-50,000 years, setting them on the irreversible path that would culminate in 'civilization.' The continual growth of the neo-cortex, as it was responding to the exercising of these skills, eventually led to the capacity in the brain for *self-consciousness* – the ability for the mind to reflect upon itself, to analyze its environment by separating objects and events into parts, *to think about itself thinking*, and, inevitably, to consider itself as separated from others, from its environment, and even from Nature herself. This feeling of existential separation would become the preternatural condition of *Homo sapiens*, and would grow into their biggest alienating dilemma.



## SEDENTARY INHABITATION

---

Driven by necessity, *Homo sapiens* grew ever more clever at shaping and controlling the environment to suit its needs. The tremendous adaptability afforded by a self-reflective, abstracting brain, and the hands to physically implement proposed concepts, meant this species could invent a culture to inhabit and exploit any ecological niche. Soon, *Homo sapiens* was spreading over the entire globe. Their prolific enduring propagation success meant ever-increasing numbers, and the excessive concentration of humans in any particular area precluded the possibility of continuing a hunting-gathering lifestyle. A certain point was reached where excessive populations needed to settle down, self-organize and become sedentary, fixed to one spot, producing all their essential needs in one delimited locale. This was the onset of agriculture and the beginning of permanent human settlement, identified as occurring some 10,000 years ago.

It was formerly commonly believed that this stage was a learned process, that humans gradually developed the 'understanding' that food-plants grow from seeds, and that by collecting and propagating the seeds a group could ensure a guaranteed continual food supply, and so settle down as an obvious matter of choice. But evidence from pre-contact cultures in North America shows that hunter-gatherers from time immemorial were well aware that plants grow from seeds; in fact, these traveling bands would plant food-stuffs all along their migrational routes, to be harvested on circumambulating return trips (Kotke, 1993). The same kind of evidence is available in the South American jungles of today, where paths are lined with useful plants that have been intentionally placed and propagated by semi-nomadic travelers.

Based on this understanding, it's important to emphasize that the human animal is genetically predisposed to a hunting-gathering lifestyle; that lifestyle provides an abundance of leisure and health, a cohesive 'band' level of community social organization, and a far more nutritious and diverse diet than a sedentary, agricultural existence. It was completely out of the necessity imposed by population pressure that the genus *Homo* became sedentary, and so eventually 'civilized.'

The first permanent settlements sprang up along waterways, particularly in fertile alluvial deltas, where the majority of population was concentrated. There, it was fairly easy to begin the processes of extensive plant cultivation and animal husbandry that is coincident with a sedentary lifestyle because the life-force is so vibrant in such areas. More marginal areas required a great deal of work in establishing and

maintaining soil fertility, and then irrigation, so they were chosen only as a last resort. Although this transition to the toil of permanent settlement (inescapably a coincidence of the emergence of a self-conscious, abstracting, discriminating neo-cortex) was the proverbial banishment from Edenic paradise (as expounded in Quinn's *Ishmael*), the new living situation provided the opportunity, and necessity, for progressive advances of culture. Ever newer technologies were required, as well as new structures, new processes, and new patterns of relationship, accompanied and assisted by the advances in social organization needed to keep the emerging life-support systems operable and productive.

At the beginning of this stage, human beings were still an integral part of Nature; that is, their actions unconsciously contributed to the ongoing complexification and diversification of the Gaian evolutionary process. They were agents of Gaia – Mother Earth – acting reverently and religiously in her behalf. Continually harvesting a living from one specific location required a numinous identification with that particular place – these were definitely people of the land! As the land provided their subsistence, it was honored, and Nature/Goddess religions arose to complement and sanctify this attitude, introducing the necessary social taboos to prevent destabilization of the mutually-reinforcing, mutually-beneficial people-people and people-land associations.

Because the people were so embedded within the natural flux, so much a part of Nature, acting as one kind of organism “structurally coupled” to a living ecosystem (as articulated in Maturana and Varela, 1980), cognitively interfacing with other organisms, the settlements that grew up around them were very organic. These settlements were *living systems*, integrally nestled within larger, living bioregional systems and composed of smaller, living organismic sub-systems.

Structurally, these settlements could be considered ‘autopoietic,’ or ‘self-organizing;’ that is, they germinated from a seed inception event and grew up organically, constructed entirely by the people living there. Originally, an established camp would birth or absorb new members, increasingly self-organizing till it reached a more complex level of higher order. New structures, patterns, and processes were added as they were needed, most crucially to, 1) maintain this self-organization, and 2) continually allow for the successful reproduction of the organisms contained within (Maturana and Varela, 1980). Eventually the camp would grow so large as to fundamentally alter its relationship with its surrounding environment. A new level of organization and configuration was then needed to maintain balance and mutual reciprocity with all the living systems concerned. Eventually, the ‘camp’ would grow through ‘hamlet’ size and on to ‘village’ scale (Hudson, 1970). At each stage, the spontaneously self-organizing, organic living system would acquire novel “emergent properties” and a new quality of relationship with the encompassing ecosystem.

All along this progression of growth, internal social relationships also were evolving to ensure continued harmony and balance between component members, once again with the self-organizing imperative for the collectivity to sustain its existence as an autonomous, coherent, self-reliant living whole. These internal social arrangements were also self-organizing; no one was in charge, but patterns of relationship would evolve based on the criteria of producing the maximum benefit for all. Each component member had a role to fill that was a positive contribution to the maintenance of the health and vitality of the whole. The collective social whole had as its intention the maintenance and enhancement of the greater ecosystem whole, because when the surrounding ecosystem was thriving, their own lives were much enriched and filled with abundance.

The village scale was that level of order where the optimum balance of internal social cohesion and economic diversity could be achieved before beginning to impinge deleteriously on the functions of the encompassing ecosystems. In fact, the traditional village would *contribute to* the diversity and long-term viability of the surrounding systems by introducing novel patterns, concentrations, and relationships that otherwise never would have occurred. The village could intensively, knowledgably, *hereditarily* cultivate its immediate circumambient environment to maximize diversity, productivity, and long-term sustainability for all its embodied members – and this would naturally benefit all other associated interwoven life-forms: This is what it means to be “an agent of Gaian evolution!” The village scale was large enough so that a diverse specialized economy as a collective unity could be fulfilled, with enough time left over for leisure, play, contemplation, conversation, and the pursuit of artistic-spiritual endeavors, etc., but not so large as to begin exhausting the inherent biological nutrients that fueled the metabolism to keep it alive, to keep it *sustainable*. When the village grew to a population-size that could be observed to be contributing to the depletion of the surrounding resource-base upon which it sustained itself, it would spontaneously divide, as in the biological act of mitosis, reproducing a sub-group that would splinter off to seed a new settlement.

This magic size that is village-scale varies from region to region. In rich, fertile areas like alluvial deltas, the population can be larger and the villages can be clustered closer together. In more marginal regions, the villages will be smaller in size and more dispersed. What they all have in common, however, is that they are all self-organizing, self-maintaining, self-regenerating organic *living systems*, maintaining energized conditions of balanced reciprocity and co-evolution with the surrounding living ecosystems of which they are a part. They are all completely ‘self-created’ and ‘self-organizing’ by their internal constituents in an organic way that introduces new structures, patterns, and processes as needed, built upon pre-existing forms. The

combined effect of these dynamics always contributes to the intention of maintaining the harmonious systemic equilibrium that ensures continued self-organization and reproductive capability for all concerned. And since self-organizing living systems are primordial – that is, not requiring filtering justification through the analyzing, objectifying, rationalizing neo-cortex for their existence – they are a natural process of organic growth, so they are always integrated complementarily within larger Gaian ecological evolution.

The neo-cortex was still used for developing technological advances in culture and abstractly philosophizing about the meaning of Life, but the abstract models it conceived were voluntarily limited in application, and were wisely selected according to the overarching criteria of maintaining conditions of homeostasis internally, within the village, and externally, within the surrounding environment. The large frontal lobe of the brain that distinguished *Homo sapiens* became in many ways a decorative function, primarily used for envisioning and creating stimulating language and stories, ritual ceremonies and costuming, art, architecture, and an elaborately conceived spiritual culture. It was a very useful organ for increasing the complexity and diversity of life, but it was purposely tempered in its calculations to those innovations that were practically useful for sustaining the group and the culture as a whole.

This is pretty much the situation in those traditional villages that have survived up to this day. The majority of the world's population still lives (or would prefer to live) in village-scale settlements that have learned to adapt to their particular location and circumstances over the course of *millennia*. To be sustainable for so long, these villages have created cultures that are capable of maintaining long-term, mutually-beneficial, co-evolving relationships with their encompassing ecosystems. All village culture is recognizably similar; that is, there are many universal, identifiable elements found in all cultures that operate at a village scale (Critchfield, 1983).

Any discussion about 'sustainability' at the dawn of the third millennium must necessarily incorporate the timeless precedent set by traditional village culture. The village settlement size is the optimal scale for embodying an enduring, sustainable, *perma*-culture, as has been demonstrated by countless examples all over the world. There is something very special about this village size – it is inherently *human* scale. It is large enough to accommodate sophisticated culture, such as science, philosophy, art, astronomy, architecture, writing, religion, etc., but not so large that people are unable to identify and intimately co-habitate with one another as an integrated social unity. A village will never grow so large that this sense of social unity among its inhabitants is compromised; or, if it does, it ceases to be an authentic village and commences down that degenerative, unsustainable path leading to 'civilization,' the culture of cities.

A traditional village could be considered an *organism*, a highly refined, specialized, and adaptable *living system*, embodying the essential pattern of all organisms. This observation can be confirmed by studying aerial pictures of villages – they look like biological structures: neurons, amoebas, protozoans, etc.

It is characteristic of organisms that they all have a well-defined center and a well-defined boundary. Villages also share these characteristics. Organisms grow to a predetermined form according to nature-encoded information. Their size is determined by their function within and their relationship to their environment. Villages have these characteristics as well. Besides being nature-encoded (hereditary), their growth depends upon the availability of nutrients and their ability to form cooperative, symbiotic, interdependent relationships with their environment. If they fail to meet these criteria, they stop growing, period. Organisms also tend to grow radially out from their center, increasing their 'edge' and thus their productive interaction with their environment. Organisms also grow through time by processing information, increasing their adaptability, and qualitatively expanding their evolutionary potential – thus they are *cognitive* (Maturana and Varela, 1987). Villages are cognitive living systems as well, and that is what makes them sustainable. Organisms all share a cyclic process of birth, growth, maturity, decay, and rebirth. All organisms are fundamentally *cellular*, and reproduce themselves, the most 'successful' bringing forth the most evolutionarily advanced and adaptive offspring. Finally, organisms incarnate vitalistic or soul-like properties (von Bertalanffy, 1968). These organismic characteristics become design criteria when envisioning a sustainable ecovillage settlement.

It is precisely because traditional villages are organisms: cohesive, cognitive, autonomous biological unities energetically immersed within a progressive holarchy of other cohesive, cognitive, self-organizing unities, that they are able to endure and sustain themselves for so long – conceivably indefinitely! If we want to create a sustainable culture in the 21<sup>st</sup> century, we must begin by designing our settlements to be organism-like *living systems*, modeled after the perennial examples of the traditional village.

## CIVILIZATION

---

The village scale of human settlement provides the optimal conditions for all concerned, including the supra-system “Gaia.” The people can thrive in such a village setting, and can comfortably strive to actualize their full potential as gifted, indigenous children of the Earth. The group dynamics in a village allow for multiple levels of identification and a sense of belonging, something so important for children especially. The village itself is harmoniously, organically integrated into the circumambient ecosystem as a constituent living system with a life of its own. Optimal satisfaction and satiation can be realized in those areas most vitally important: clean air, pure water, invigorating food, meaningful work, strong family and community ties, an enlivening spiritual connection to the great mystery, continuity, health, peace, love and happiness, etc. Sure this is an idealization, but, given the choice, people who grow up in villages prefer to stay with their villages – or at least return to them for their golden years; these villages are metaphoric wombs. These people may travel far and wide to experience the world, but they will always return back to their source, their roots. These people identify more strongly with their village than with their so-called nation. This attitude can be witnessed today as millions of indigenous people fight to maintain sovereignty of their land so as to perpetuate their village lifestyle against the rising tide of globalization. Tragically, more and more people are getting plucked from their home-grown, organic ways and are getting sucked into the corrupting, depraving, life-draining vortex of the city; this process has been accelerating for thousands of years, since the advent of civilization, and is now culminating and becoming a serious life-threatening issue at the dawn of the 21<sup>st</sup> century. Fortunately, there is a counter-movement, a returning impetus to come back Home!

Traditional, village-scale settlements were quite sustainable; they could be continued into the indefinite future (the definition forwarded by Gilman, 1991). Unfortunately, *Homo sapiens* was so successful at reproducing, lacking any natural deterrents, that their numbers just kept on accumulating. In the rich, fertile alluvial plains that were the preferred site for settlement, the populations grew so large that people could no longer disperse to establish new villages. Existing settlements began to grow past that organic ‘village’ stage and reached the size of ‘towns.’ A town has a far different relationship to its supporting, co-evolving ecosystem than does a village. A town begins to exceed the carrying capacity of the local living ecology that sustains it, so

resources must be gathered from outside the immediate area. Internally, social dynamics change as conflicts of interest over the appropriation of resources divide the town into competing factions, and the organic sense of unity is lost. A *town*-scale settlement starts to become unsustainable because it begins to lose touch with *human*-scale relationships.

Back on the alluvial plains, the population eventually surpassed the town stage, and city-scale settlements were needed to contain all the population, heralding the birth of civilization. Civilization, deriving from the Latin root *civitas*, or city, is essentially the culture of cities – city life. It is not necessarily the pinnacle of creation, the full realized potential of human beings; it is more like the inevitable and unavoidable consequence of people living on top of one another, as in zoos, and striving their best to make it work.

The ‘city’ marks a whole new level of development in the relationship between a human settlement and its supporting, underlying ecosystem. A city is so large that it must reach way out into the hinterland to acquire the materials and resources necessary to maintain its level of consumption. The immediate area surrounding the city is soon depleted of its life-force: timber is cut down and forests are cleared; sterile housing developments begin to displace once living systems; diverse natural ecosystems are traded for human-built abstractions; animal life is exterminated or converted into domesticated commodities; waterways and their flowing dendritic patterns are forced underground into channels and ducts; topsoil is quickly squandered, etc. And, ultimately, beneath the city, a once living landscape is completely covered up, leveled, paved, submerged, and made to conform to an abstract general standard.

Civilization has an atrocious record of relationship with natural ecosystems. Numerous civilizations have appeared, risen, and expanded, only to collapse as the supporting ecosystems they depended on for sustenance were ravaged and finally destroyed. This has happened repeatedly (see Carter and Dale, 1974, *Topsoil and Civilization*). And if the presence of the pattern ‘city’ has such a deleterious effect on the life-force of the region it occupies, how could it possibly invigorate the life-force of its inhabitants?

The social organization of a city is very different from the social organization of a village. The feeling of unity found in a village is completely displaced in the crowded, hectic mass of competing interests that make up a city. There are so many strangers with questionable motives that a general mood of distrust prevails: it could be dangerous to interact with a person on the street. It is better to close oneself off, to create an armored bubble, to not become vulnerable to being taken advantage of. A small group of regular associates will develop, but there is no sort of enclosure to define this group as a unity, so the associations are often transitory. Neighbors may never

come to know one another. City-life imposes a setting where the primary, fundamental needs of human nature, those primordial needs extending deep back into time, are superceded by superficial contingencies; eventually, the nature of city-dwellers is created and defined by their setting.

Such a thick throng of humanity massed on top of one another would immediately turn to complete chaos were it not for the necessary stack of laws and accompanying police force that come with city-life. In the village there is one law: “The choice you make now must contribute to the ongoing welfare, stability, and sustainability of the collective whole” – so *control comes from within*. In the city, external controls are needed to coerce people into compulsory obedience of an authority they would not otherwise comply with. The city is so complicated and contrived, with so many fabricated human-made problems and miseries, that someone needs to be in charge to organize and direct all the confusion, and to make the unwanted life-compromising decisions. Because the village is organismic, *self-organizing* and *self-directing*, it is an inherently natural, equanimous social arrangement where codes of relationship are culturally passed down from generation to generation, grounded in the wisdom of the ancestors; thus, egoistic, self-appointed, imperious ‘leaders’ are not normally needed.

There is such a diverse specialization of tasks required to keep a city running that an inevitable hierarchy develops. The social hierarchy in a city is a completely arbitrary, incongruous, paradoxical structure, in that those who are contributing most to the welfare of the ‘whole’ will not be on top. Instead, the situation is reversed, and those who are hoarding or extracting or exploiting the most, at the expense of the collective whole, will be elevated to the top. Compared to a living landscape, such as hunter-gatherers drew subsistence from, the city landscape is barren and a place of scarcity. Crowds of people must vie with one another in a competitive game of resource procurement to ensure their survival. Those who are able to grab the most arbitrary power, in the sense of gaining compulsory influence over others, will have the most control over the production and distribution of resources. And this situation compounds upon itself over the generations, such that those who are willing or inclined to grab and wield arbitrary power are consistently selected for positions of authority and control, and hereditary lineages with this characteristic develop. With this ‘willingness to dominate’ being the selective factor in the creation of hierarchies, other qualities such as competence, compassion, humility and service to the whole are discounted or selected out.

Realistically, this willingness for domination and arbitrary power-wielding is absolutely necessary to keep civilization running. Imagine that first city, Ur, in Mesopotamia circa 5000 BP. To keep its gears turning, it needed to extend itself out



beyond its immediate environs and appropriate resources from its neighbors. Some may have resisted this pilfering. What the city could not take by negotiation it would capture by force, for its continued existence depended upon extracting resources from the surrounding areas. A standing army was eventually needed to maintain compliance and ensure tribute from down-pressed, outlying subjects. Most of the booty went toward satiating the excessive extravagance of the self-imposed, self-aggrandized elite, whose redeeming, authorizing characteristics were the penchants for playing the game of arbitrary power-grabbing, and the readiness to sound the death-bell, either for an external expedition or as internal enforcement; power, not Life, was the selecting factor.

Soon, other settlements would grow to city size and initiate the socio-cultural phase of civilization. As they expanded and projected their spheres of influence, drawing in resources from the hinterland, they would eventually come into rivalry with the spheres of influence of other expanding, projecting cities. Both would have standing armies, and a continuous battle of contesting the other for control of resources would eventually careen into a state of perpetual warfare, especially after other regional cities grew large enough to enter the fray. Any city-scale social entity that was not willing to exercise aggressive posturing and force in the competition for resources would soon be swallowed up, disintegrated, or vanquished; so, right from its inception, the crowded milieu of 'civilization' has precluded any other avenue of discourse except that of war, and this has impoverished the people greatly, for they never really had a choice.

All of the activities associated with civilization – that is, with the unnatural arrangement of excessive populations in a limited area competing with one another for a scarcity of resources – were facilitated by and a production of the conceptualizing, objectifying, analyzing neo-cortex of *Homo sapiens*. As civilization, an abstract human construction, was distancing itself ever further from natural structures, patterns, and processes, so too was the neo-cortex distancing itself from its biological neural substructure, and beginning to consider itself elevated above and superior to Nature. Successfully competing in the arbitrary power struggle of civilization was greatly assisted by a self-aggrandizing, self-separating ego, a self-image able to objectify people and situations so as to include them in 'rational' calculations of comparative worth. Immersion in this contrived, fabricated, unnatural environment, living in a self-constrained constructed limitation, produced the unwholesome side-effect of propagating shallow, suspicious relationships.

Power struggles between competing civilizations required the rapid development of new science and technologies to gain the killing advantage, and the neo-cortex, developed in concurrence with the survival crisis of the Ice Ages, was pre-adapted to conceptualizing, engineering, and ultimately mechanizing and manufacturing

these technologies. As civilization continued to displace the natural order, the models, concepts, philosophies, and ideologies produced from a self-reflective, intellectualizing, ever more disconnected neo-cortex *began to be mistaken for reality itself*. *Homo sapiens* was creating an abstract world super-imposed upon the natural world that had been its roots, and, through civilization, was setting the course for an alternative evolution diverging from Gaian evolution. This new world, existing almost entirely in a linguistic domain (Maturana & Varela, 1987), was fabricated and technologized with the over-riding goal of securing short-term, competitive advantage in the anarchic inter-societal power struggle called civilization.

With this sort of edict directing decision-making – indeed, cultural evolution itself – it was expedient that society behave like a well-oiled, highly productive machine. Command signals from above needed to be transmitted through an efficient communication network to auxiliary units. A mechanized system of transportation and supply lines were needed to efficaciously relay energy and materials to keep the engine running. Specific functions within the machine needed to be skillfully designed so that when component parts (people) wore out they could be easily replaced. Doctrines, declarations, commandments, and manifestos provided conceptual blueprints for social organization. People were treated by their functional position in the apparatus, rather than as fellow human beings. It was better that the people themselves behaved as efficient, productive automatons, and so wrathful, vengeful male gods were invoked to ensure control and compliance. The society that could best engineer its total structure to react automatically to a mobilization order secured a strategic advantage in the anarchic inter-societal competition.

And of course, this imperative was reflected in the physical pattern and layout of the city, in its structural arrangement. Villages grew up organically as outgrowths of the natural lay of the land. Their flow patterns curved and winded and spiraled and adjusted over time. This is a very ‘feminine’ pattern and corresponds with matriarchal influence and authority. The patriarchal leaders of civilized societies required strict control and mechanization of the population, so the settlement patterns they created were highly ordered, rigid, and geometrically exact. As examples, witness an aerial view of San Francisco or New York; there, rigid grid patterns are super-imposed upon the once living landscape. In the case of San Francisco, seven large hills were completely disregarded so that the two-dimensional city plan could achieve a level of squared exactness. This same square grid pattern is used everywhere a civilized settlement is planned; it was first used by the Romans to militarily influence control over their colonies. In astrology, the square is a stressful aspect. The people living in these city-squares are subjected to an unnatural stress because natural flows and patterns are circumvented; thus, these people are drawn increasingly away from their primordial roots and into an abstracted

world designed for them with the intention of mechanizing their lives. The city is completely an engineered, mechanical system, and thus prone to entropy.

Back in the inter-societal competition: as tamer, less engineered societies were defeated or conquered, ever fewer power centers consolidated ever larger territories, and civilization marched into its pre-destined empire phase. Once this civilizing process is begun – that is, the violent power-grabbing consolidating into ever fewer centers – it cannot be reversed; it develops an inertia that must play itself out to its inevitable cyclic conclusion. The people involved in the arbitrary power manipulations cannot just simply resign (and go back to the farm!); they have been genetically selected for generations to possess the qualities that enable them to effectively play the power game. Eventually, inevitably, the consolidation of power into ever fewer centers will result in the creation of one totalitarian power center attempting to control access to all resources. The appearance of the WTO in the current climate of globalization is a welcome sign that the 5000-year march of civilization is nearing conclusion, and *Homo sapiens*' work is almost completed.

## THE ECOVILLAGE MILLENIUM

---

The 21<sup>st</sup> century will prove to be an age full of excitement, growth, and new discovery. A convergence of prophecies from many different traditions points to these days as a time of great transformation. Some of these prophecies portend doom; and certainly, for those still intent on pressing forward at all costs with the outworn, abstract, unsustainable pattern of 'civilization,' the world will prove to be increasingly difficult and hard to understand. Those in charge will need to impose ever greater tyranny and control to maintain the status quo until their highly entropic, mechanized global system collapses in upon itself, as has been the fate of all prior civilizations. Unfortunately, many people may suffer needlessly. Most of the prophecies, however, presage a coming Golden Age of peace and enlightenment. These conditions will appear for those able to initiate new cycles, evolutionary progressions of traditional cycles, disassociated from the patterns and motivations of civilization. *Homo sapiens* has courageously brought us to the point where we can perceive ourselves as a planetary collective unity, where we can communicate as a cognitive global system; and this corresponds with, and is the result of, the larger being Gaia achieving self-awareness.

The 21<sup>st</sup> century will begin the Age when this self-reflective global intelligence begins making decisions on its own behalf, for its own regeneration, as Gaia grows into maturity. Those human beings delighting in cooperating and participating with the evolution of this inclusive planetary meta-intelligence will represent a new species of the genus *Homo*. These graduated human beings will be somatically, genetically predisposed toward contributing to the health and vitality of the greater whole, to all of Nature, and to returning Earth to a lush Paradise. They will voluntarily, knowledgeably initiate patterns intended to assist and enhance fundamental Gaian evolutionary processes so that Earth may become again a luxuriant Wonderland of Life, naturally maximizing diversity and complexity as is its proclivity, proliferating life-forms in a bloom of abundance that can become a seed bank for the galaxy. What time will there be for calculating GNP?

The new species of human will be distinguished by a conspicuous growth in the *posterior* of the brain, offsetting and balancing the recent growth in the anterior neo-cortex. This new profusion will be much closer to the terminus of the spinal column and thus will be an extension of more primal brain structures such as the reticular formation. The new species will have access to the analyzing, abstracting, objectifying,

rationalizing functions of the neo-cortex, but will identify itself wholistically with the entire brain, such that this new species may come to identify with the entire 3.5 billion-year evolution of biological Life on Earth. The new brain growth will thus permit the species to access the wisdom and intelligence of a self-aware Gaia, the supra-system, so that components of this species may become like acting cells of a Gaian brain.

The Gaian brain will wisely attempt a synthesis. The culminating consequences of the history of civilization cannot be denied, ignored, or erased; they were, after all, a necessary stage of Gaian evolution. The combined effect of these consequences has wrought much havoc, yet also has brought the planetary intelligence to the point of self-awareness. The abstracting, analyzing, ego self-consciousness of the neo-cortex certainly had its role, but in the long run, these capacities are not meant to be overriding; further evolution must restore a balance.

From a dialectical perspective, tribal, organic, village life could be considered the 'thesis:' there, people identified primarily with the group and had very little individual identity. Civilized, city life could be considered the 'antithesis:' there, maximum individual identity was asserted at the expense of the group. In the 'synthesis,' highly individuated, highly creative members will *consciously* come together to initiate group identities for the benefit of, and to further the opportunities for, the collective whole (Rudhyar, 1970).

This is already beginning to happen as people are voluntarily coming together to form communities of like-minded people. These communities are being embodied in a variety of settlement patterns, with varying degrees of dependence on the continuation of civilized, city-based culture. It is being asserted here that 'village' scale is the most fecund context for providing opportunities for successfully initiating the new cultural patterns that will be able to sustain themselves into the 21<sup>st</sup> century and beyond.

The village is large enough so that all essential life-maintenance tasks can be accomplished within that socio-economic system, enabling free time for leisure and the pursuit of culture, yet not so large that there are strangers – in a village everybody is known. The village is large enough so that a diversity of specialization tasks provides important interesting work for all, but not so large that the diversity of tasks requires a hierarchy and a self-appointed leader to provide direction. If a village was part of a cooperative assembly of other villages in close proximity – for example, clustering the population of a 'city' into self-contained, organic, village-sized sub-assemblies – then the resulting meta-village could organize its economy selectively, concentrating light industry and manufacturing within certain of the villages, thus furthering the synthesis of organic patterning with technical sophistication. The population of the idealized, self-contained, self-producing village scale is theorized to be roughly 5000 (Sale, 1980), 5000 (Mumford, 1961), 7000 (Alexander, 1977) – while Mollison (1988) reminds us that these

amalgamations need to be further subdivided into *hamlet*-scale, clan sized social groupings of 500. These, then, can become organic, reproducible units of human settlement.

It may be possible to *design* settlements so that they achieve an organism-like, self-maintaining, self-organizing, *cognitive living status* – and this is perhaps the greatest potential of the concept of ‘ecovillage.’ All living systems are characterized by three essential qualities: 1) a *pattern* of *autopoiesis*, or self-organization; 2) a *process* of *cognition*, or maintaining self-organization by exchanging information with a dynamically changing environment, to keep continually abreast of any needed, corresponding internal changes; and 3) the *form* of a *dissipative structure*, or an autonomous unity operating at highly energized conditions far from equilibrium. This is the scientific definition of living systems forwarded by Capra (1996). When we apply these principles to our own design considerations, then, it becomes apparent that the real task of a village designer is *to competently, strategically introduce the patterns, processes, and structures so that the (eco)village is capable of growing itself*, and so become a genuine living system, with an ontogeny of its own, harmoniously integrated into its environment.

This means that, for example, to come in as a professional design team and make all the calculations and considerations, plans and drawings necessary to construct a proto-ecovillage model of 5000, no matter how beautifully orchestrated and ecologically integrated, will be, in effect, the creation of another mechanical system. It will be prone to entropy and will not be sustainable because *it will not be built by the people who will be living there*; residents will need to be imported and may never actually come to identify with the place. A living system is primarily, fundamentally *self-organizing*, and grows through time with a history of structural coupling to its environment. A design team, no matter how brilliant, cannot anticipate all the necessary contingencies to ensure mutually reciprocating, interdependent, long-term viable relationships between a settlement and its dynamically changing, encompassing ecosystem – and still less anticipate the relationships between the people who will be residing in the settlement. Therefore, It is far more ‘timeless’ to teach the people how to build the village themselves (Alexander, 1979).

Of course, to create a proto-ecovillage model of 5000 would be a tremendous achievement. It would serve as a demonstration that the long-term viability of tribal village culture could be synthesized with selected components of technical civilized culture to create a workable, full-featured, post-industrial model during this transition stage to sustainability. To call such a development a ‘living system,’ however – the ultimate achievement – would require sensitivity to the subtle necessities for instilling dynamics of *self-organization*.

Go to a traditional village and see that the people there created their living system all by themselves, over countless generations; that's why village culture is perennially sustainable. The best thing a 21<sup>st</sup> century Village Designer could do, then, would be to educate people who have forgotten that they are integral components of planetary evolution, and thus are perfectly capable of creating thriving living situations all by themselves, once they have relearned the patterns, processes, and structures.

## REFERENCES

---

- 1) Alexander, C. (1979) *The Timeless Way of Building*. Oxford University Press; New York
- 2) Alexander, C., S. Ishikawa & M. Silverstein (1977) *A Pattern Language*. Oxford University Press; New York
- 3) Arguelles, J. (1987) *The Mayan Factor: Path Beyond Technology*. Bear and Company; Santa Fe, NM
- 4) Bateson, G. (1972) *Steps to an Ecology of Mind*. Ballantine Books; New York
- 5) Brace, C.L. (1967) *The Stages of Human Evolution*. Prentice Hall; Englewood Cliffs, NJ
- 6) Capra, F. (1996) *The Web of Life*. Anchor Books; New York
- 7) Carter, V.G. & T. Dale (1974) *Topsoil and Civilization*. University of Oklahoma Press; Norman
- 8) Critchfield, R. (1983) *Villages*. Anchor Press; New York
- 9) Gilman, R. & D. Gilman, editors (1991) *Ecovillages and Sustainable Communities: A Report for Gaia Trust*. Context Institute; Bainbridge Island, WA
- 10) Gilman, R., editor (1991) "Guidelines for Eco-Village Development." *In Context*, No. 29, Summer
- 11) Hudson, F.S. (1970) *A Geography of Settlements*. MacDonald & Evans, Ltd.; London
- 12) Jackson, H. & K. Svensson, editors (2000) "Ecovillage Millennium: News from the Global Ecovillage Network." Volume 1, Gen International; Naerum, Denmark
- 13) Jacob, F. (1970) *The Logic of Living Systems*. Allen Lane; London
- 14) Jantsch, E. (1975) *Design for Evolution*. George Braziller; New York
- 15) Kotke, W.H. (1993) *The Final Empire: The Collapse of Civilization: The Seed of the Future*. Arrow Point Press; Portland, OR
- 16) Laszlo, E. (1972) *The Systems View of the World*. George Braziller; New York
- 17) Lovelock, J.E. (1979) *Gaia: A New Look at Life on Earth*. Oxford University Press; New York
- 18) Maturana, H. & F. Varela (1980) *Autopoiesis and Cognition: The Realization of the Living*. D. Reidel; Dordrecht, Holland
- 19) Maturana H. & F. Varela (1987) *The Tree of Knowledge: The Biological Roots of Human Understanding*. Shambhala; Boston



- 20) Mollison, B. (1988) *Permaculture: A Designer's Manual*. Tagari; Tyalgum, Australia
- 21) Mumford, L. (1961) *The City in History*. Harvest Books; New York
- 22) Quinn, D. (1992) *Ishmael: An Adventure of the Mind and Spirit*. A Bantam Turner Book; New York
- 23) Rudhyar, D. (1970) *The Planetaryization of Consciousness*. Aurora Press; New York
- 24) Sahtouris, E. (1989) *Gaia: The Human Journey from Chaos to Cosmos*. Pocket Books; New York
- 25) Sale, K. (1980) *Human Scale*. Perigee Books; New York
- 26) Schmookler, A.B. (1984) *The Parable of the Tribes: The Problem of Power in Social Evolution*. University of California Press; Berkeley and Los Angeles
- 27) Thompson, W.I., editor (1987) *Gaia: A Way of Knowing*. Lindisfarne Press; New York
- 28) Varela, F., E. Thompson & E. Rosch (1991) *The Embodied Mind*. MIT Press; Cambridge, MA
- 29) Van Andruss, et al., editors (1990) *Home! A Bioregional Reader*. New Society Publishers; Gabriola Island, B.C., Canada
- 30) Von Bertalanffy, L. (1968) *General Systems Theory*. George Braziller; New York