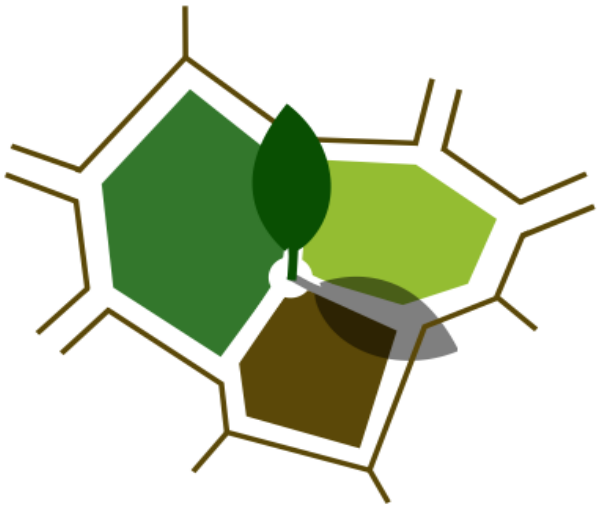
A Preliminary Outline for:

A Pattern Language for Ecovillages



When I first encountered *A Pattern Language* I was at once intrigued, fascinated, mesmerized… What a concept! – arranging the built environment according to a set of carefully formulated "patterns" – archetypes of systemic organization – each designed ostensibly to emulate organic structuring, to serve as an integral constituent in a nested 'holarchy,' and to maximize the inter-relationships of components within the built environment thus facilitating the well-being of people living therein. I wanted to grasp the essence of this way of perceiving so I eagerly consumed within a week the first half of the 1171-page tome.

Recently, after many years of Village Design study, I re-read the first ninety-four patterns dealing with the language at the scale of "towns." My ecovillage perspective provided me with a more discriminating appreciation of the particular patterns offered in the book. The same sort of elegance, utility, and innovative soundness prevailed; yet I found the overall *vocabulary* of this particular language to be inadequate for describing the essential context for our present Project: which is, of course, designing sustainable human settlements for the 21st century. *A Pattern Language* arose during the ecological revolution of the 1970s. It is precedent-setting in its systemic approach to a human ecology for settlements; yet much thoughtful transdisciplinary thinking has gone into this theme since then, so there is a need for some revision.

In this book – and especially in *The Timeless Way of Building* (Alexander, 1979), which should be read first – the authors encourage us to create our own patterns. Their language is presented as one possible system. It is an example suited for their purposes and goals, yet not necessarily applicable to all situations. The first ninety-four patterns presented as a language for "towns" are more precisely a language designed for the rehabilitation of existing "cities." 'City' is explicit throughout. For example, pattern (10) MAGIC OF THE CITY calls for population centers of 300,000. As the patterns move through subsequent, more detailed levels of system development, the 'city' essentially is being ecologically restructured.

Village Designers will benefit immensely from an additional work: *A Pattern Language for Ecovillages.* This new language will be composed of patterns designed specifically to facilitate the emergence of sustainable human settlements for the 21st century. Many of the original patterns are relevant in this regard, especially those applicable to the more detailed level of individual buildings, yet the overall context has been re-envisioned. As a contribution to this new language, I would like to offer a few preliminary patterns designed to describe the kind of context into which the concept "ecovillage" may gracefully manifest itself. These new patterns replace the first seven patterns in the original volume, and both sets are listed for comparison:

A Pattern Language	Ecovillage Patterns
1) Independent Regions	1) Gaia
2) The Distribution of Towns	2) Wilderness
3) City-Country Fingers	3) Bioregions
4) Agricultural Valleys	4) Ecoregions
5) Lace of Country Streets	5) Distribution of Humans
6) Country Towns*	6) Ecological Symbiosis
7) The Countryside	7) Pure Water
	8) Fertile Topsoil
* This pattern describes the essence of the ecovillage, in simplified form	9) Solar Re-orientation
	10) Communication Networks
	11) Organic Growth
	12) Distribution in Time

These first twelve patterns provide a context, a setting wherein the pattern ECOVILLAGE (13) can appear and flourish in all its splendor. The first seven patterns in *A Pattern Language* (hereafter referred to as the 'reference work') are meant to provide the regional context for a 'city;' this new language is meant to prepare for an organic, village-based restructuring of society.

The first twelve patterns, as presented, are meant to reflect a natural order. They are purposely 'holarchical' – meaning they can be conceptualized horizontally, as interdependent nested networks – and 'systemic' – meaning that there is a logic to the order of their presentation, such that the most inclusive comes first. These patterns provide a regional setting wherein the pattern 'ecovillage' might be conceived as a biological entity, a living system organically embedded within the larger living systems of which it is a part. They could be considered the *meta*-patterns from which all subsequent differentiation can follow. They are, in another sense, the four-dimensional, space-time, living matrix of the planet organized in such a way that the human drama might be functionally situated within. They are, perhaps, fundamental patterns forming the framework upon which a sustainable human culture can be constructed. As such, I believe they are an appropriate context in which to envision the emergence of the 'ecovillage.'

These patterns lead directly into the next set of patterns, which will begin to describe the internal organization of the 'ecovillage.' And so, in the spirit of the reference work, a description of the patterns:

(1)GAIA

In order to produce *A Pattern Language for Ecovillages*, a handbook for the design of sustainable human settlements for the 21st century, it will be important to begin with the largest supra-system affected by the placement of any human settlement, the largest living system in which the ecovillage can be conceptually sub-organized. The largest living system affected by any construction of the built environment is the super-organism *Gaia*, the name given to the living essence of planet Earth. When designing ecovillages, therefore, the first contextual consideration is that this structural configuration is taking place within the constraints, evolution, and providence of the total biosphere.

In *Gaia: A New Look at Life on Earth* (1979), Lovelock rekindles the 'Earth-as-sentient-being' intuition and provides scientific facts to substantiate. His assertion is that, from all that has been learned, there "has arisen the hypothesis, the model, in which the Earth's living matter, air, oceans, and land surface form a complex system which can be seen as a single organism and which has the capacity to keep our planet a fit place for life." Later, in his 1988 work *The Ages of Gaia: A Biography of Our Living Earth*, he goes on to add, "In Gaia we are just another species, neither the owners nor the stewards of this planet. Our future depends much more on a right relationship with Gaia than with the never-ending drama of human interest."

This kind of perspective could lead to a particular kind of reverence for our Earth Mother Home, as was so evident in pre-civilization, village-based cultures. And, we could assert, this is just the kind of holistic spiritual attitude that could influence effective decision-making in the modern Village Designer. The ecovillage stands, not as a discrete and isolated entity, but rather as a living, self-organizing, *whole* system integrally nestled within a hierarchy of larger living systems, the largest of which is GAIA (1).

When all our actions can be understood to be affecting the health and vitality of a larger living organism of which we are a part and upon which we ultimately depend, we will choose habitually those actions which benefit our larger host. This is the essence of "ecological consciousness" and these are the criteria influencing all design decisions; for, the ecovillage, by definition, is holistically integrated into its environment (Gilman, 1991). Any development that does not meet these criteria, that does not benefit the larger host Gaia, cannot be properly designated an 'ecovillage.'

(2) WILDERNESS

The reference work leaves no room for wilderness and wildlife; every bit of the landscape is modified for human use. This is the biggest oversight of the original conceptualization: an

anthropocentric bias. Conservation Biology clearly demonstrates the need for large tracts of land to be left absolutely free of human intervention so that planetary evolution may proceed in all its exquisitely detailed biodiversification. Space for the freedom of higher mammals, as indicator species, is especially important. *Homo sapiens* supposedly ventured forth from the wilderness, passing through village-based culture on the way to full blown civilization. Now, pinned-down in the sterile artifice of megalopolis, civilized human beings seem to forget their provenance in wilderness, thus inadvertently severing themselves from their roots.

In a society organized according to the precepts of ecological consciousness, large wilderness areas will be left absolutely free of human presence – excepting occasional spiritual or scientific sojourns. This idea corresponds to Zone 5 of a permaculture language, yet on a global scale. The use of this pattern will result in a fundamental division of the world into those areas that are appropriate for human settlement and extended presence, and those areas that are better left preserved for the proliferation of undisturbed Nature.

With the raising of consciousness to an holistic, ecological level, enormous tracts of land will be voluntarily left alone so that Gaia can regenerate and self-actualize. This could mean, for example, preserving all of Madagascar as a wildlife sanctuary. Eventually, all of Australia could be preserved – and possibly the Americas as well. The primary consideration will be to roll back the destructive, exploitive, and incessant expansion of 'civilization' (city-based culture) so that Gaia can regenerate.

After the roll-back of civilization, can indigenous human cultures reestablish themselves in a pre-disturbed, co-evolutionary fashion, on a continental scale? Or has the evolution of the collective consciousness of humanity precluded such a return? Is it just *Homo sapiens sapiens* that needs to be restrained and transcended, or is it possible that other forms or species of the human condition could co-exist with wild Nature? Tough questions; yet perhaps it is civilization itself – and its concomitant centralization and maximization of arbitrary power – that is at the root of the dilemma (see Schmookler, 1984).

Even within each humanly organized and populated BIOREGION (3), WILDERNESS (2) is given important consideration, such that sensitive landscapes are set aside for Earth's other living creatures. These wilderness islands are connected by wide corridors so that a contiguous, continental-scale, living natural world forms the backdrop upon which the reasoned human presence is respectfully and unobtrusively placed.

(3) BIOREGIONS

Once WILDERNESS (2) is preserved and GAIA (1) has the opportunity to maximize health through evolutionary diversity, the Earth can be organized into distinct geographic regions for human adaptation. Pattern (1) in the reference work – INDEPENDENT REGIONS – makes a big move in this direction but never actually recognizes that the regions need to be ecologically

defined. Instead, we are to believe that the regions will be defined by political and social concerns. Now, thirty years later, there is an abundance of illuminating writing articulating the bioregional vision. This bioregional vision provides the definitive statement for the sustainable organization of the world at continental scale.

BIOREGIONS (3) further ensures that all human development will take place within the context of larger living systems. These larger bioregional systems are defined by the living characteristics of the landscape: watersheds, flora and fauna distribution, cultural integrity, microclimate, landforms, spiritual presence, etc. Once the bioregions have been delineated (as in many cases they already have), human society can be holistically integrated into a well-defined *natural* order. This natural order will replace arbitrary political boundaries like 'states' and 'nation-states' – the all too often forcefully imposed conditions wrought by the power-consolidation mandate of civilization.

As BIOREGIONS (3) segregates continents into distinct geographical regions, and as human society begins to overlap and synchronize with these regions, a new world political order will emerge. There will be bioregional congresses that cooperatively organize to form an inclusive, global decision-making body. Each bioregion will be economically self-reliant in necessities, producing regionally abundant surpluses that can be traded with other bioregions. The so-called "global economy" – with its hyper-extended trade routes, over-specialization of nations in commodity production leading to dependencies, and free-floating illusory financial capital – will have evaporated because of its disconnection with reality and the real concerns of real people. Economic control will be re-mated with political control at the bioregional level of organization, ensuring the return of power and regional destiny to the hands of a people rooted in a place.

(4) ECOREGIONS

BIOREGIONS (3) subdivides continents and ECOREGIONS (4) subdivides bioregions. Both replace the arbitrary political boundaries currently imposed with natural ecological and geographical boundaries. Many bioregions are massive in scale, and organization at this level is suitable only for the macro-management of society and resources. Ecoregions organize the living landscape into a sub-regional scale suitable for a more detailed, place-based management of society and resources. Ecoregions are generally larger than counties but smaller than states.

Much work already has been done at this level of organization as well. Cascadia Institute, for example, recognizes over seventy-five ecoregions within the large bioregion of Cascadia in the Pacific Northwest of North America (McClsokey, 1998). The Institute defines ecoregions as "the rooms in the house of a bioregion." They could also be viewed as the organs in a bioregional body.

Organization at this scale allows for a deep identification with the land and the culture that grows from the land. As this process matures, each ecoregion will develop a distinct subculture of its own (maximize diversity! says Naess, 1989), with its own dialect, style of dress, ritual and art forms, etc. Autonomous, interdependent political organization at this level ensures the sustainable use of resources and the efficient productivity of local, decentralized economies. Human beings will generally accept responsibility for that which they can identify with.

Within each ECOREGION (4), there will be a political, economic, and cultural center, with density rings radiating out from there. These population centers will have a relationship with one another defined by COMMUNICATION NETWORKS (10) and constructed according to the pattern ECOVILLAGE (13). Some centers, especially those that organize the exchange of information between bioregions, will be large enough so that they will need to be further arranged according to the pattern VILLAGE CLUSTERS (14). Overall population density will be much lower than it is today.

(5) DISTRIBUTION OF HUMANS

This pattern completely replaces pattern (2) in the reference work: DISTRIBUTION OF TOWNS. In DISTRIBUTION OF TOWNS, human settlements are evenly dispersed throughout the entire countryside, resembling the even distribution of molecules in a gas at equilibrium. As discussed previously, this leaves no room for undisturbed Nature, so it is unworkable. From a Human Ecology perspective, certain areas within each BIOREGION (3) are suitable, even advantageous, for human settlement and others are not; so the real concern becomes the distribution of *humans*, not the distribution of 'towns.' This particular pattern language is preparing for a *village*-based re-organization of society, anyway – much more intimate than town-scale.

Human beings have a unique function to fill in the life of the larger super-being, GAIA (1), just like every other life form. The whole biosphere benefits when human beings finally achieve self-realization – that's the whole purpose of the ecovillage in the first place: to provide a setting where human beings can rediscover their essential nature. Like every other organism, humans are genetically adapted to certain niches within certain ecosystems, where all their essential needs are provided and where they can maintain and enjoy symbiotic, tutorial relationships with the life-force of a place. It is there where they will achieve self-realization, so it there where they can fruitfully establish their settlements and flourish.

The forest edge was the primeval zone for the DISTRIBUTION OF HUMANS (5). Later, with the introduction of sedentary, horticultural life-styles, settlements appeared along waterways: rivers, lakes, estuaries, seas. The largest settlements would appear and grow at the juncture of two bodies of water: river-river, river-lake, river-sea. (This relationship with water is so fundamental that many subsequent patterns will be needed.) Originally, humans confined

themselves to the lower, warmer latitudes but population pressure forced them to disperse over the entire globe, finally encroaching on every last bit of wilderness. In the 21st century, human beings will begin to give temperance to the injunction: "Be fruitful and become many and fill the earth and subdue it."

An ecological reorganization of the world assumes a leap to 'holistic' consciousness. Holistic consciousness is spiritual in that it gives preference to the mutual benefit of the whole over the gain of any particular individual at the expense of the whole. In this state of mind, human beings will consciously, voluntarily limit their distribution and numbers so as not to compromise the possibility for other life forms to achieve self-realization. This may require the evolution of *Homo sapiens sapiens* into a new, as yet unspecified, species of human being. Perhaps this evolution is already underway?

The new humanity will once again find themselves distributed primarily along waterways and especially at the juncture of waterways, integrated into the landscape according to the meta-patterns ECOLOGICAL SYMBIOSIS (6) and PURE WATER (7). Human settlements will also be distributed according to COMMUNICATION NETWORKS (10), which may be independent of major waterways. The density rings that radiate out from these centers will always stop short of WILDERNESS (2) and wilderness corridors. There will always be outlying ECOHAMLETS (15) and outposts for religious or scientific work; but these latter will not be permanent settlements. Many humans will distribute themselves in traveling caravans as cultural ambassadors, and this phenomenon will require its own pattern development, as will the temporary outposts established for sustainable resource extraction.

(6) ECOLOGICAL SYMBIOSIS

Once the DISTRIBUTION OF HUMANS (5) has been beneficially arranged, each individual settlement can then begin its life as an autonomous, interdependent, self-regulating living system. Any living system can prosper only when it achieves a state of dynamic equilibrium internally and with the greater environment of which it is a part. This is the essence of ECOLOGICAL SYMBIOSIS (6).

Society would surely benefit if the science of Ecology was taught from grade-school on. This science teaches about communities of organisms and especially the relationships between and within natural communities. A major tenet here would be to propose that for human society to become 'sustainable,' it must model itself upon ecological realities. This means that human settlements must become *communities* – real communities. These community settlements – ecovillages by definition – must also harmoniously integrate themselves into the ecosystems they inhabit as members of a larger community. Competition and tension are inherent in growth but only cooperation can ensure long-term survival (Daly, 1989).

With this pattern in mind, actions which would disturb the ecological balance are wisely discounted. Each settlement never grows beyond the capacity of the ECOREGION (4) to sustain it. All settlements within the ecoregion cooperate with one another economically to maintain long-term viability. Pollution (unused resources) is consciously used as fuel or nutrients for subsequent levels of activity. Predatory capitalism is dismissed as 'primitive.' All activities have, as a goal, promoting the health and vitality of the life-force at their respective scales. Human beings, of whatever species, will eventually assume a positive influence in the direction of evolutionary growth.

ECOLOGICAL SYMBIOSIS (6), as a meta-pattern, is so inherently fundamental to the concept of ecovillage design and development that its use is ubiquitous in decision-making and construction at any scale: from the initial establishment of a settlement to the placement of a compost bin. ECOLOGICAL SYMBIOSIS (6) also strongly influences the evolution of local and diverse cultures. When the ecovillage achieves its potential as a living system nestled within larger natural communities, its primary sustenance will be derived from within that community. This means local and seasonal food sources; local and affectionately known plants for crafts, clothing, and medicines; local and renewable energy sources; local and sustainable construction materials; local and indigenous identification with the landscape, etc. In short, an ecologically symbiotic attitude engenders an intimate relationship with the local life-force of a place, whose essence flows in the very veins of its inhabitants, and whose living presence permeates the multitude of daily activities, infusing them with a distinct regional flavor that grows into that place's unique culture. This is no small matter.

(7) PURE WATER

This is the first of the four elemental patterns: Water, Earth, Fire, Air. Consideration of the four elements is so basic to any energetic interpretation of ecological design that each warrants a separate meta-pattern to guide their relationship with human use and to ensure their ongoing respect (in *this* Pattern Language for Ecovillages, anyway; others may have different priorities).

Water is the Source of Life in that terrestrial life originated in the water. Sustainable societies, past and future, give utmost attention to all issues concerning water, this attention approaching veneration. This means primarily ensuring that there is always a clean and pure water source, without compromise. Pure water equals pure bodies and clear minds. It is immoral the way industrial society has fouled, depleted, and squandered the water resources of the planet, poisoning its inhabitants and limiting the opportunities for future generations. When the water is pure and flows freely, all Life is enhanced. Water can be very spiritual – ask any Taoist.

In a human settlement, the functional utility of water permeates all aspects of daily life. When designing ecovillages, maximization of the availability of water is given overarching

concern: in siting and placement; in the collection of rainwater; in increasing storage in the landscape through the construction of ponds and swales, gambions and dams; in energy production; in irrigation; in providing quiet meditative spaces; in the enhancement of streams; in providing bio-remediation of waste materials, including sewage; in providing wildlife habitat; in transportation; for recreation, etc., etc. Each of these considerations will need its own pattern and sub-patterns in the language.

Several excellent books have been written (including *Living Energies* (1996) describing the work of Victor Schauberger) describing the fluid nature of water: how it flows and spirals, how it absorbs cosmic energies, how it is alive in its movements, how it has memory. Dams, canals, pipes, and dykes all remove the living essence from water because it cannot circulate the way it wants to. It is important to retain the living essence of water wherever it is used in the ecovillage, and many ingenious methods have been devised for doing so.

At this stage in the language, preliminary consideration needs to be given to the siting of ecovillages along waterways. Ideally, the built environment of human settlements will be constructed far enough away from flowing water so that the waterway can retain it natural characteristics. These characteristics include: seasonal flooding that replenishes adjacent flatlands with rich, silty sediments; riparian zones and wetlands for filtration; meandering and ever-changing channels; wildlife corridors and fish habitat. Human settlements can assist these natural properties if they are offset a bit from the waterway, connected only by perpendicular access corridors.

Settlements along lakes, seas, and estuaries need to follow this same "offset" pattern. The ecotone where water meets land is a highly productive and continuously changing edge. Permanent human construction is better left at some distance from this edge so that natural functions can proceed unhindered.

PURE WATER (7) becomes an overarching, archetypal expression of attitude and intent for a vast subject. In *A Pattern Language for Ecovillages*, many subsequent patterns will be needed to specify the numerous practical applications of the human relationship with water. Patterns such as WATER TRAVEL, SWALES, PONDS, HYDRO POWER, WATER MILLS, LIVING MACHINES, RAINWATER HARVESTING, FOUNTAINS, CHINAMPAS, etc., could weave together a network of understanding so that ecovillages are intelligently, sensitively designed to encourage a nourishing relationship between humans and the primary element Water.

(8) FERTILE TOPSOIL

The element Earth. How *vital* is the fecundity of the soil to the maintenance of an abundant life and how much is this connection currently taken for granted? In *Topsoil and Civilization* (1974), Carter and Dale trace the demise of civilizations after they have depleted their topsoil. It is a recurring pattern: cities and civilization, by their blind power-centralizing mandate, neglect and

systematically destroy the fertility of the land upon which they depend. Any sustainable settlement, decentralized by definition, will ensure that their local topsoil remains rich and healthy. It is said that the best things humans can do for the Earth is to build topsoil.

This pattern is especially relevant for village-scale agriculture. The goal of agriculture will be re-converted from making a monetary profit on the futures market to providing copious quantities of healthy food for local markets. Organic methods will be restored universally. Large machines that hasten erosion and debt will be eliminated. Huge factory farms will be converted back to family- and community-owned farms. Monocultures will give way to diverse permaculture systems. Elaborate food systems can be designed right into the village, the emphasis being on local production with native food-stuffs. Each ECOREGION (4) will be able to achieve food self-sufficiency, trading surplus to neighboring ecoregions. Enormous healthful abundance will be realized by the simple move away from the methods of industrial agriculture to decentralized, ecological methods. Details of village agriculture will come in later patterns.

FERTILE TOPSOIL (8) also will be used during siting at any scale. It's just smart management to always leave the most fertile land free of development. Marginal lands and keyline slopes are better suited for construction. Ultimately, the ability of an ecovillage to build its local topsoil will be a gauge to measure just how sustainable it is. Soil, too, can be very practically spiritual.

The meta-pattern FERTILE TOPSOIL (8) also provides an ethic for reconnecting with the land, the Earth in a particular place. As land has become a commodity to be bought and sold, it has been abused and neglected. People now move all over the place as if once piece of land were as good as any other, never establishing a meaningful, special connection with one particular place. The implications for this kind of society are not good: it is shiftless, rootless, selfish, and lacks stability. In an ecologically organized society, land will be removed from the marketplace and turned over to the stewardship of tribes, villages, or other small groups that intend to be there for awhile and intend to nurture the land with care and respect. There will be a return of the 'commons' on many different levels. Former land-speculators-at-a-distance and large developers-for-maximum-profit will lose their credibility and support.

Something should be said about matriarchal societies and the view of the Earth as Mother. How could one own a piece of the Mother? An ecologically organized society most likely will gravitate toward matriarchy. This understanding presents enormous implications for the Village Designer, especially when considering internal social arrangements within the village, and at every other stage in the design. Considerations will need to be made for seasonal fertility festivals, for temples and altars, for men's and women's lodges, for new collective child-rearing practices, for consensus decision-making and conflict resolution, for new courtship and marriage arrangements, etc., etc. As the patriarchal edifice shows increasing signs of stress and fatigue, I have just one question: "What is it that wants to be birthed now?"

(9) SOLAR RE-ORIENTATION

The 21st century will witness a fundamental re-orientation of the human relationship with the Sun. This is the burning essence of the fire element. More than just a mass of hydrogen in fusion, this Star's absolutely essential performance in the proliferation of Life will come to be appreciated and may even resume the form of deification. The Sun offers its life-giving radiance and illumination freely to all creatures and asks for nothing in return. Could this not be a spiritual model for individual humans?

In 21st century ecovillages, solar temples will spring up again, with obelisks and sundials a common sight. Solar collectors and photo-voltaic panels will surely be springing up all over too, as fossil fuels become ever scarcer and solar power assumes its rightful role as primary energy source, especially in the self-reliance of individual dwellings.

Siting at any scale – settlement, building, room – always gives important consideration to solar orientation and maximizing solar gain. This also applies equally well to the DISTRIBUTION OF HUMANS (5) latitudinally on the globe, once population pressures have eased, in that warmer climates simply have more available energy. Intelligent and thoughtful siting and design reduces energy requirements significantly.

The fire element and its life-sustaining properties also can be found burning brightly internally, within individual homes and lodges, exemplified by the 'hearth.' The hearth is a vital, potent symbol that unifies a people at the family and community level. It is said that community centers around food and fire. Many ecovillages could have an altar with an eternal flame, symbolizing the spirit center of the community. The hearth, perhaps, also offers the purpose for a more archetypal definition of evolved maleness – the 'warrior who protects the hearth' is always on the alert for danger appearing from within or without.

Terrestrial energy in any form ultimately originates from the Sun. Plants, as primary producers, collect this energy and utilize it in their metabolism, photosynthesis, creating sugars and expelling degraded energy. Humans and other heterotrophs then absorb plants for their own metabolism, and in turn expel degraded energy into the environment as waste material that can be utilized by bacteria and other decomposers. The bacteria and decomposers then convert this waste material back into a form that can be utilized by plants. The original, pure solar input is eventually lost, however, so the plants need a continual flow of incoming solar power to keep the whole process alive. This is a simplified version of the primary energy cycle of Life on Earth; it all begins with the Sun. The continual, inevitable degradation of incoming solar energy to less usable forms is termed 'entropy.' A viable economy – which ultimately means the process by which life sustains *itself* – will be modeled upon this primary energy cycle. Its goal will be to arrest the flow of entropy and enhance the utility of the solar input at each stage. This is the essence of sustainable village economics: it is all based on SOLAR RE-

ORIENTATION (9). Elaboration and specification of economics and scales of economies can be addressed in subsequent patterns.

(10) COMMUNICATION NETWORKS

This is the last of the elemental patterns, representing Air. Over 99% of the air we breathe is composed of just three elements: nitrogen, oxygen, and argon. Atoms of these elements are continuously recycled around the globe through respiration and transpiration, eventually shared by all living organisms. An oxygen atom (actually the molecule 02) you breathe in today may have once been inhaled by Cleopatra, and before that by a brontosaurus. Perhaps it was originally exhaled by an alga over two billion years ago! This makes Air the most social of the elements since we are all sharing this primary resource, as any crowded room can attest to.

Air is also the primary medium for communication, which is a very social activity. Sound waves, radio waves, microwaves, telepathy, and even light, all move through the air to transmit information from source to recipient. The way we breathe is actually a subtle, unconscious communication of our state of health and awareness. Conscious breathers, like dolphins, are supposedly much better communicators than we are. In astrology, the air signs are considered the 'mental' function.

All of this can expand the Village Designer's consideration of Air. Sure, it must be clean, and it is absolutely foolish to introduce poisons into the respiration flow; yet particulates are constantly being introduced by natural functions anyway: volcanoes, wildfires, dust storms, etc. Since air circulates so freely around the globe, there is very little a designer can do to ensure that the air in a village will be clean and pure – except to plant lots of trees – as it depends mostly on what's happening upwind. As one of the four elements, though, Air cannot be neglected either. So perhaps in the context of a pattern language the designer should concentrate on the communicative aspects of Air.

We are supposedly living in an Information Age. The growth of information is exponential so the volume of information will surely continue to expand as the 21st century progresses. More and more of this information, however, becomes discordant 'noise.' We've already seen the use of buried phone lines to transmit digital information through a mechanical medium become obsolete with the introduction of wireless technologies. It already seems downright antiquated to use above ground power lines, supported on dead tree poles, to transmit electricity. One of the symbols of the Aquarian Age is the use of Air to transmit information via waves and we can expect even more revolutionary new technologies to appear in this regard. Still waiting to be exploited is the use of telepathy – perhaps a long-dormant 'body technology.' *A Pattern Language for Ecovillages* can anticipate the coming changes by organizing settlements according to a holarchy of COMMUNICATION NETWORKS (10).

It already has been proposed that humanity is the thinking, perceiving, mental component of GAIA (1). According to some perspectives, Gaia is on the verge of achieving an expansion of awareness, a measure of self-actualization, as indicated by the globalization of humanity. Obviously this will synchronize with a leap in consciousness for *Homo sapiens.* COMMUNICATION NETWORKS (10), then, will become the functioning nervous system of Gaia, with the arrangement of human settlements modeled upon the nervous systems of the higher mammals, superimposed upon the physical body of the continents: a *geophysiology* if you will. The primary functioning of human settlements as an interlaced 'nervous system' will be the sensing and monitoring of environmental factors to assist Gaia in self-regulation and conscious evolution. The nervous system of the planet, in its holistic entirety, will eventually achieve the capability of communicating with higher intelligences throughout the, first, solar system, and then extending out into the universe. This is only made possible by the emergent properties resulting from forming inclusive, cooperative, larger wholes.

(11) ORGANIC GROWTH

Civilization is a contradiction to organic life. It grows in a linear direction, without restraint, until it consumes the resource base upon which it depends, at which point it destroys itself and its host. This has happened repeatedly. Civilization seems almost extra-terrestrial, an invading thought-form whose only goal is the consolidation of arbitrary power at the expense of organic life. Eventually the current civilization will exhaust itself, on a global scale this time, and it is the work of Village Designers to begin preparing models for the post-civilization phase.

The post-civilization phase will be a reversion-succession to organic order. It will soon become apparent to all that human systems need to be modeled after natural systems in order to become sustainable. Permaculturists may ask, "What could be more obvious?" Civilization had its role in rapidly bringing us to global awareness, and to a transmutation of the material plane, but, by design (or rather lack of it), it is not sustainable. The new world order, already manifesting itself, will use holistic, ecological and biological, systems thinking in its organization, as outlined in this pattern language.

The serious inherent defects of civilization – i.e. growth without restraint and arbitrary power in the hands of a few – will need to be carefully addressed in the post-civilization phase. It will take compassion, forgiveness, and above all a leap in collective consciousness to ensure a positive growthful transition. The new consciousness will understand intuitively that growth needs to be cyclical, defined by increasing quality rather than increasing quantity, and that control needs to be decentralized, just as it is in Nature; and so, the inclusion of ORGANIC GROWTH (11) in this *Pattern Language for Ecovillages*.

It is a characteristic of living organisms that they all have a well-defined center and a well-defined boundary. Ecovillages also will share these characteristics. Living organisms grow

to a pre-determined form according to nature-encoded information. Their size is determined by their function within, and their relationship to, their greater environment. Ecovillages have this characteristic as well. Besides being nature-encoded (genetic), their growth depends on the availability of nutrients and their ability to form cooperative, interdependent relationships with components in their environment. If they fail to meet these criteria, they stop growing, period. Living organisms also tend to grow radially out from their center, increasing their 'edge' and thus their productive interaction with their environment. Living organisms also grow through time by processing information, increasing their adaptability, and qualitatively expanding their evolutionary potential. Living organisms all share a cyclic process of birth, growth, decay and rebirth: Once established, a living organism may wish to, but is not designed to, exist in perpetuity. Living organisms reproduce themselves, the most 'successful' ideally bringing forth the most evolutionarily advanced and adaptive offspring. Finally, living organisms incarnate vitalistic or soul-like properties.

In an ecologically organized society, human settlements will exhibit all these same teleological characteristics, with the quintessential model being the 'ecovillage.'

(12) DISTRIBUTION IN TIME

This is a rather abstract pattern, yet one that will become increasingly relevant as consciousness expands beyond its limited ego boundaries to include identification with the life process itself. The number '12' holds special significance on this terrestrial plane, originating in the fact that there are 12 complete lunar cycles in one earthly cycle. The atomic weight of carbon, the basic 'building block' of organic life, is also 12. Jesus chose 12 disciples, Hercules was given 12 tasks, and there were 12 Knights at the Round Table. Twelve thus becomes a point of 'complex stability,' and a good place in the language to make a dimensional shift.

DISTRIBUTION OF HUMANS (5) delineates the horizontal, spatial distribution of settlements across the landscape. DISTRIBUTION IN TIME (12) delineates the vertical, time-influenced distribution of settlements across the same landscape. Cities are built as if they were going to last forever; ecovillages will be built to experience the dynamic, cyclical progression of structure through time. According to Gilman (1991), ecovillages can be continued indefinitely into the future. From an ecological perspective, this could never be a static, 'concrete' state but must include the considerations outlined in ORGANIC GROWTH (11).

DISTRIBUTION IN TIME (12) introduces the fourth-dimensional perspective, an outlook or understanding that accompanies the elevation of self-identification with the life process. Every-thing grows and every-thing changes; no-thing remains the same yet certain qualities are timeless. The Buddhist would say that there are no "things" anyway, only the continuous patterns of appearance in an ever-changing, living unity. Ecovillage designers will increase their effectiveness by including this timeless perspective in all their design considerations so as to

ensure time-independent sustainability. Continents move, weather patterns change, ice sheets advance and withdraw, the distribution of flora and fauna is in continual flux, new species are being born all the time, stars grow and comets happen. A sustainable ecovillage can be considered as a *flow*, the contextual aspect of a living, evolving cultural experience that transcends the limitations of space-time. The structure and organization of the village will be continually changing in response to the environment, just as an organism adapts, responds, and makes qualitative adjustments in *its* evolution. An ecovillage is not a static, discrete, isolated entity but more like a participatory relationship!

On a practical level, this means using construction materials that can be returned to the Earth in a cyclic flow. It means maintaining and enhancing the health and vitality of the local ecosystem of which the ecovillage is an integral, participating part. It means planning for the needs of the "seventh generation," as the Iroquois Confederation used to word it. It means simplifying matters in accord with the "perennial philosophy" so that the peace, prosperity, and well-being of the Now become a perpetual state of focus. It means maximizing biodiversity *and* social diversity. It means concentrating on the quality of *relationships* – any kind of relationship. It means, in all regards, nurturing a fourth-dimensional state of mind so that all design decisions encourage a "time-independent state of equifinality" (von Bertalanffy, 1968), inexorably leading human beings to a reunification with the Source. This, we could say, is the ultimate task of a competent Village Designer.

CONCLUSION

A Pattern Language and pattern languages in general offer an abundant array of conceptual tools useful to the architect, designer, and planner. "A pattern language is a system of generating principles which can be richly transformed according to local circumstances but which never fail to convey their essentials." "The pattern language helps the designer to focus on more simultaneous interconnectedness than normally could be handled." "The designer strives constantly to preserve a holistic, systems attitude towards the building" (Alexander, et al., 1968). These words from Christopher Alexander, the original conceptualizer of the pattern language idea, challenge us to adapt the system to our own goals. While revolutionary in its time, the reference work was unable to envision all the considerations necessary for designing sustainable human settlements for the 21st century. Therefore, a new work is needed: "A Pattern Language for Ecovillages." This new work will incorporate the same timeless, process-oriented, holistic, organic, systems approach of the original work yet will be adapted to the circumstances of the emerging consciousness of the 21st century.

Village Designers are hereby invited to formulate, reify, and contribute useful creative patterns at any scale to be included in this new volume – its appearance is inevitable. The opportunity awaits for transforming human culture, one eco-village at a time.

Words are employed to convey ideas; but once the ideas are grasped, people forget the words.

– Chuang Tzu

REFERENCES

- Alexander, Christopher, et al. (1968) *A Pattern Language which Generates Multi-Service Centers.* Center for Environmental Structure; Berkeley
- Alexander, Christopher, et al. (1975) *The Oregon Experiment.* Center for Environmental Structure; Berkeley
- Alexander, Christopher, Sara Ishikawa and Murray Silverstein (1977) *A Pattern Language.* Oxford University Press; New York
- Alexander, Christopher (1979) *The Timeless Way of Building.* Oxford University Press; New York
- Coats, Callum (1996) *Living Energies.* Gateway Books; The Hollies; Bath, England
- Carter, Vernon G. and Tom Dale (1974) *Topsoil and Civilization.* University of Oklahoma Press; Norman
- Daly, Herman and John Cobb (1989) *For the Common Good.* Beacon Press; Boston
- Gilman, Robert and Diane Gilman (1991) *Ecovillages and Sustainable Communities.* Context Institute; Bainbridge Island
- Lovelock, James (1979) *Gaia: A New Look at Life on Earth.* Oxford University Press; New York
- Lovelock, James (1988) *The Ages of Gaia: A Biography of Our Living Earth.* Norton Press; New York
- McCloskey, David (1998) "Ecology and community: The bioregional vision." *Columbiana* (20) 14-27
- Naess, Arne, translated by David Rothenberg (1989) *Ecology, Community, and Lifestyle.* Cambridge University Press; UK
- Schmookler, Andrew Bard (1984) *The Parable of the Tribes.* University of California Press; Los Angeles
- Sheldrake, Rupert (1994) *The Rebirth of Nature.* Park Street Press; Vermont
- Von Bertalanffy, Ludwig (1968) *General Systems Theory.* George Braziller; New York