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Divining Sustainability

The world will not evolve past its current state of crises by using the same thinking that created the situation.

--Albert Einstein

What you people call your resources our people call our relatives.

-- Oren Lyons, *faith keeper of the Onandaga*

By many accounts, our species is in trouble. Months from now, an avian bird flu virus could transpose itself into a global pandemic. In spite of the relative quiet of post-9/11 America, our government continues to wage war on an invisible enemy, ever reminding us that we should not feel safe from a future attack at the hands of a terror organization. Weather forecasters inform us that last year's record-breaking hurricane season is not an anomaly. We can expect more storms with greater ferocity in the foreseeable future, verifying that global warming is a fact, not fiction. Each one of these potential scenarios is a symptom of a far bigger, and more deeply imbedded, problem than we can bring our consciousness to bear on.

We seem to be getting it from all sides with little relief in sight. Yet, we have learned a great deal about the world and ourselves over the course of our journey from the prehistoric to the present. This evolution has yielded strategies for survival that give hope that humans will adapt to the new reality and come through these challenges.

However, where can one look for guidance? The religious rely on their faith, while the

religiously challenged put their faith in the cathedrals of science. Regardless of the source of our redemption, we know our species has survived many evolutionary challenges through the epochs of our time. We are still here, nervous, frightened, and perhaps unable to vocalize the extent of this underlying condition. Yet from the depths of an innate will to survive, we sense a solution will emerge. We will make the necessary changes and the journey will continue, hopefully in a more balanced, kind, and understanding way.

Long ago, there was a time when our ancestors, reverent and in awe of a fierce and mysterious nature, lived in balance with the world. Their relationship to the Earth relied on a positive symbiosis that assumed nature, and by extension humans, had been created by the gods. They observed the world, felt the presence of these divine, unseen beings, and respectfully aligned themselves within the gods' intentions. They hunted bison and "thanked the animal gods," learned the rudiments of agriculture and "praised the gods of fecundity," and as populations grew, "honored the fertility goddesses"(James 46). Observation revealed the cyclic aspects of nature--hunting and growing seasons occurred in a predictable fashion; the menstrual cycles of women were in harmony with the waxing and waning of the moon; celestial procession anticipated recurring weather phenomena. Rituals, practices, and ceremonies were developed to honor the gods and to seek their counsel and wisdom regarding human relationships to the world. These ancient people relied on shamans, those with sensitivity and deep observation of the ways of nature, to become the stewards of rituals and interpreters of their gods' will (Harrison 29-48).

One of the many practices and rituals shamans employed to address the spiritual health of the community is divination. Divination is a method that various shamans, also called diviners, utilized in order to glean information and possible solutions for situations that arose in the lives of the people of the community that they served. According to Leonard Schnitz, divination was, “The belief that the decrees of the divine will were occasionally revealed by the deity himself, or could be discovered by certain individuals ...such a belief was natural, and perhaps founded on the feeling of a very close connection between man, God, and nature” (Schnitz). Furthermore, to Roman statesman Cicero, divination was “A presension and a knowledge of future things,” while Chrysippus added that it is “A power in man which foresees and explains those signs which the gods throw in his way...The diviner must therefore know the disposition of the gods towards men, the import of their signs, and by what means these signs are to be obtained”(Smith 416). Divination seems to be a method of accessing the sacred or the divine in nature through some ritualized yet highly mutable form. In other words, there is no one form or practice that could be said to be the original or the only way. We find a historic record replete with descriptions of trance mediums, the casting of shells, the observance of certain animals such as birds, the rising smoke from a sacred fire, and the position of the stars; the list is endless. What is apparent is that the experience of visiting the spirit world was the important and necessary action, while the mechanism whereby this occurred was not the essential ingredient. These ritualized efforts to divinate created a sacred space, “a rupture of levels which make possible the communication with the trans-world, the transcendent realities...the world of divine beings...”(Eliade 107). Rituals of divination allowed a practitioner the experience of ekstasis, or “transport to a

different region...a different realm...We are displaced or go out of time, our root-being feels lifted up, expanded”(Baader).

Speculation has existed about the genesis of divination, but we cannot say with certainty when this skill originated. According to Dianne Skafte, “The history of divination has no starting point and no destination. It is woven so tightly into the spiritual life of humankind that we cannot imagine a time when some form of divining was not used”(31). Furthermore, on the cave walls of Lascaux in France exists an image of a man holding a staff crowned with the fetish of a bird. Birds have long been regarded as heavenly messengers--they could navigate a sky where the gods lived while we could not. Thus scholars assume this 30,000-year-old image is that of a shaman. Apparently our ancestors have been in contact, via a form of direct spiritual communication, with nature for a very long time.

As civilization progressed from the tribal nature of the Neolithic period into more highly developed societies, shamans became the equivalent of priests, administering through temples and rigorous belief systems. Divination developed into an official practice whose necessity was ordained by the ruling hierarchy. Most ancient cultures relied on divination, in one form or another, to communicate with the nature gods to guide their societies towards a balancing of their desires.

The Etruscans, one culture whose acknowledged reliance on divination is significantly recorded, observed and interpreted the behaviors of birds as indications of the gods’ intentions for the right paths to be followed (Janson 173). In this culture, divination was taught in rigorously administered schools that also taught such subjects as engineering, urban planning, and hydrology. Their profound knowledge laid a

foundation for the building of one of the greatest empires we have known, that of the Romans.

Furthermore, we know that the direct ancestors of our civilization, the Celts, the Romans, and the Greeks, all practiced divination. Greek art is rife with references to the oracular. The Oracle at Delphi, one of history's most famous and influential diviners, was a trance medium whose home was in the Temple of Apollo. After eating a sprig of laurel tree she was said to sit on a tripod above a vaporous cleft in the rocks and would become *entheos, plena deo* from which the original and literal meaning of the word 'enthusiasm' was derived. "God entered into her and used her vocal cords" (Dodds 70). Her visage adorns many important pieces of pottery and sculpture.

Apollo, perhaps one of the most influential gods of the Greek myths, is also represented in many pieces of art. The sculpture of Apollo Belvedere features several important clues attesting to divinational authority in Greek culture. Specifically, his head is adorned with the same laurel leaves consumed by the Delphic pythoness, and he has a speculative presence of a bow and arrow. The Persian culture, which culturally cross-pollinated with many civilizations in the area, had an arrow-divining method whereby certain divinatory attributes were scribed on sheathed arrows; the selected arrow would be the answer to a petitioner's question (Keizer). It is not improbable that the Belvedere Apollo references this practice. Eventually the primacy of the sun god Apollo was transposed onto the new symbol of the one-god, Jesus Christ, by use of "the halo...taken from representations of the emperor as sun-king," and became obsolete with the ascendancy of Christianity (Janson 239).

With Jesus Christ and the emergence of Christianity we eventually find the development of a culturally dominant singular God, which is administered through a hierarchical chain of command. The singular God exists, not in an observable nature, but in a far away, removed Heaven. The Pope is the de facto earthly representative of God at the top of a pyramid with the various Bishops, Cardinals, and Priests filling in the continuously widening levels towards the bottom. Those whom this priestly hierarchy would serve are thus effectively disconnected from direct access to their god by this manufactured construct, which emerged out of a need to administrate a large community adhering to a centralized dogma.

Briefly, the Christian message posited that man once lived harmoniously with God who gave man the Garden of Eden to live in. However, due to man's corrupted nature, he was thrown out of the garden and thus became disconnected from God. Furthermore, God sent his son Jesus Christ, who was martyred, to expiate man's original sin. A doctrine was created out of the words and life of Jesus Christ, which later became the backbone upon which the Christian church was created.

Furthermore, it was inferred that it was necessary for the believer to desire a return to the company of God who lived in Heaven surrounded by angels and other divine agents of God. Individual contact with God occurs through the divine agency of prayer but a person could only return to the presence of God after death; thus the earthly life was seen as a stepping-stone to heaven.

Essential to disseminating the Christian message of salvation was the emergence of the monastery system that created a cottage industry for the creation of the necessary tools for the proselytizing priest class. Monasteries were isolated communities of devout

believers who practiced their faith in a quietly pious fashion. They were largely self-sufficient and self-reliant for all their earthly needs and, as such, developed many techniques that allowed them to blend their lifestyle with their spiritual devotion. Later, monasteries became colleges of the sacred and towards these ends, the necessity for making books emerged. It is important to briefly elucidate this because each monastery had to develop a means of producing all the elements that went into the creation of early books. All the materials, such as paper, ink, and writing tools, had to be produced on site. Paper made from trees had not been developed at this early stage; thus we find the preparation of goatskin as parchment being used in early manuscripts. Goats were husbanded which required grain to be grown and stored, and the skin needed to be prepared in a special manner, which required skills with specialized tools. Inks were developed from special plants that also needed to be grown. Each aspect of the process required specialized knowledge and applied skills. Thus an elaborate system of production was created in order to produce these books, necessitating the formation of modes of production to facilitate the manufacture of these books. We can observe from this early production method a prototypical factory system, which served as the seeds of an emergent Industrial Revolution, coming to full germination several centuries later.

By this time, the hierarchical church was intimately connected to the similarly formulated hierarchical nature of civil organization. At the top of the secular pyramid was the king followed by the various levels of counselors, viceroys, and counts. It came to be seen that for a society to operate smoothly it was necessary for all members of that society to adhere to a highly administrated, centralized, and homogenized government system. As society grew, the church grew, or vice versa because during the Middle Ages

the two became synergistically intertwined (Janson 225). The adherents of other forms of spiritual practice were seen as direct threats to both the emerging gospels of the singular God and the supremacy of the secular hierarchy. And thus the Christian church formulated a systematic exorcism, the Inquisition, of all other spiritual practices that challenged the supremacy and administration of the Christian ideal of both the dominant spiritual and secular societies.

Unfortunately, as the Christian Inquisition gained momentum throughout the Middle Ages, paganism and divination were demonized and driven underground. Paganism, with its multifaceted gods and its arcane knowledge of the sacred and divine, was relegated to the edges of the collective consciousness. Admittedly, divination was being practiced by a variety of people, some with questionable skills and with less than sacred ideals. With an incredible systematic ruthlessness, the Inquisition drove divination and its direct methods of making contact with the nature gods out of the primary practices of the people.

The establishment of religions with a centralized top-down administration delivered a homogenized and easy to disseminate message of salvation. This allowed a doctrine of an afterlife to replace personal responsibility and harmony with the planet. Reverence for nature was all but an afterthought as Christian monasteries, the religion's educational backbone, laid the foundation for the Industrial Revolution that was yet to come.

The Christian religion flourished as the primary spiritual force for much of the last two thousand years but came under increased threat of assumed supremacy when science emerged on the scene. With Descarte's words, "I think therefore I am," the

reasoning power of mankind's brain laid the foundation for the scientific method to explain much of what had been considered the agency of God and the mysteries of nature. Science was able to establish that man did not exist at the center of the universe, that the sun did not, as was claimed for centuries, rotate around the earth, and the earth was a vast and exploitable enterprise worthy of exploration and domination through being reduced to elucidated facts. The Black Plague proved the legitimacy of science when it revealed the source of the pandemic disease as being promulgated by an insect transported on the skin of a rat, and not as was supposed, divine agency. Thus science revealed to mankind much of what was considered mysterious; furthermore, what nature was made of. In so doing, the Earth and all its resources were laid open for scientific inquiry, and with this knowledge the foundation of man's domination of nature was complete. Once we understood the workings of nature, it was only a matter of time before we began wholesale manipulation and harvesting the world's vast resources. This imperative towards natural resource harvesting coupled with a population explosion of the last one hundred years has created a cataclysmic cauldron on the verge of catastrophe.

From the estimated time of the last ice age, approximately 6,000 years ago, to the early 1800's, mankind lived in relative harmony on the earth. Of course, there was war, plague, and famine, but it wasn't until the emergence of the Industrial Revolution that mankind had the means and the motive to exact wholesale destruction on planet Earth with little concern for consequences. Industrialization, technology, and urban growth progressed unabated to our present time. Today we live in a civilization never satiated in the hunger for convenience; the drive for resources propagates the steady march into a future blessed by the religions that long ago established the necessity for it.

Rational thought, an antecedent of our religious thinking, and the seed impetus toward a scientific understanding of nature replaced what many perceived as the superstitiousness of pagan beliefs. However, while many of the ancient beliefs could be dismissed for their ‘magical’ interpretations of nature, many of the practices of divination have a deep sympathetic relevance to modern scientific principles. It is evident that civilization has conquered many of the problems associated with our species’ genetic predisposition towards survival with its rational progress, yet the question lingers. Did we throw the baby out with the bathwater? An inventory of the present era’s environmental problems suggests that, indeed we have.

Our ancestors had profound knowledge of the processes of nature and seemingly developed the means of being in deep communication with it. Divination was a portal that allowed people access to the underlying patterns of nature.

Our devastated environment reveals that we have, in fact, lost the spiritual understanding of nature, a knowledge we desperately need to regain. Revisiting these primal arts embedded in our genes could retrieve a sense of balance in the precarious times we live. According to Hank Wesselman, a modern shaman with a Ph.D.:

We’re living in a time of great change. Increasing numbers of young people, mid-lifers, and elders are discovering that there are higher functions coded into the personal mind-body matrix. These can remain dormant throughout life, but once they are awakened they can transform us utterly (Webb 95).

We know that ancient culture existed in some sort of balance with nature and that the wisdom of this harmony is still relevant today. Furthermore, some of these cultures

are accessible to us today and it behooves us to investigate whether their accumulated knowledge and wisdom holds some relevance. It is illogical that we would do this in order to revert back to the previous level of small villages living in subsistent harmony with the nature around us, however, it would be wise of us to investigate the thousands of years of accumulated knowledge to glean the applicable strategies that would enlarge our language of sustainability.

The previous mindset emerged out of a collectively and organically driven process, which we now recognize as the old paradigm, to create the current global imbalance. According to Fritjof Capra, " a paradigm is a constellation of concepts, values, perceptions, and practices shared by a community, which forms a particular vision of reality that is the basis of the way the community organizes itself." Quite clearly then, a new paradigm is needed, because the old one does not reflect the current reality. This transformation is underway and new thought is emerging, also in an organic way, bringing into the lexicon new terminology that accurately encodes the descriptors of the new paradigm. We find, for instance, the words sustainability, eco-effectiveness, biodiversity, deterministic chaos and fractals catalyzing a more congruent way of thinking about the necessities of the present realities.

In today's terminology a definition of environmental sustainability would include but not be limited to:

.... The ability to maintain the things or qualities that are valued in the physical environment. For example...human life and the capability that the natural environment has to maintain the living conditions for people and other species (e.g. clean water and air, and a suitable climate); the aspects of the environment

that produce renewable resources such as water, timber, fish, solar technology; the quality of life for all people, the livability and beauty of the environment. ”

(Sutton)

Furthermore a new paradigm of sustainability should also include the term eco-effectiveness as opposed to eco-efficient, meaning that efficiency does not necessarily infer sustainability. According to William McDonough, eco-effective practices are “Better in a way that replenishes, restores, and nourishes the rest of the world” (78). An eco-effective perspective would have human beings glean knowledge of sustainability from an indigenous culture’s perspective. This important cultural conversion of relevance could yield important insight as to how our modern culture can gain eco-effectiveness and avert an ecological meltdown of catastrophic proportions across the entire planet. Intertwining their knowledge and sensing the truths of their wisdom could have profound consequences for our survival as a civilization, as a species, which depends on reestablishing these lost links.

Two aboriginal cultures, that we collectively call Native American and African, of which there are many more, were in contact with an innate, perhaps intuitive understanding of balance and harmony that are intrinsic in developing a sustainable civilization. Furthermore each of these cultures have imbedded in their cultural history important sustainable and eco-effective insight that is not made less relevant by their practice of divination. On the contrary, these aboriginal culture’s sustainable practices are not only enhanced by, but also intertwined with, an innately understood and dynamic relationship to divination.

Native American culture reveals a symbiotic understanding of diversity as a necessary condition in order to maintain balance with nature. Biodiversity could be loosely interpreted to describe all the many forms of life that are interdependent and covalent in such a way that, as Capra illuminates, “The web of life consists of networks within networks...at each scale, under closer scrutiny, the nodes of the network reveal themselves as smaller networks” (35). In the oral traditions of many Native American cultures, the ‘trickster/creator’ Coyote reveals through his many antics the implicit strategy of randomness that is implicitly inferred in any description of diversity as reiterated in nature. Coyote kicks over a basket of salmon or casts bits of mica into the heavens to become the stars. In both these examples, nature is explained as “Going from an ordered state to one of randomness” (Eglash). These oral traditions are deep in symbolism to this evolutionary necessity. That is, they communicate knowledge of the biological imperative towards biodiversity. Essentially, out of randomness comes complexity, an intention of nature.

Reinforcing the necessity towards biodiversity, the Hopi employ a similar environmental genius in how they maintain a firm understanding of randomness in their agricultural practice. Agricultural researcher Gary Nabhan found that “native corn growers with the strongest focus on ceremonial religious practices were also those with the greatest diversity in genetic resources.” Nabham relates an anecdote:

On one occasion, I asked a Hopi woman at Munqapi if she only selected the biggest corn kernels of all one color for planting her blue maize. She snapped back at me, “It is not a good habit to be too picky...we have been given this corn—small seeds, fat

seeds, misshapen seeds—all of them. It would show that we are not thankful for what we have received if we plant just certain ones, and not others (7).

This story relates the randomness found in genetic diversity as a necessary strategy for sustainability. By utilizing this ancient understanding of diversity, this community increases their opportunity for a dependable food source, and thus, for survival. This story highlights the innate difference between eco-effective strategies as opposed to efficient ones. For instance, our culture’s preoccupation with monoculture, which advocates the planting of only one type of genetic strain generation to generation and from one location to another, is not only shortsighted, it is anti-biodiversity.

It is exemplified perfectly during the recent dissolution of communism in Germany. Western Germany kept pace with modern agricultural technologies, as per the stereotypical efficient factory farms in operation typical to our times. However, Eastern Germany did not. In fact, the ratio of wheat produced in the ‘inefficient’ eastern acreage as compared to the western was about half as much. However, eastern farmlands had more wetlands, which is a more environmentally healthy ecosystem, as these “areas provide vital centers for breeding, nutrient cycling, and water absorption and purification.” (McDonough 64). These provided diverse habitats replete with rare species, “three thousand nesting pairs of storks to two hundred and forty pairs in the more developed west.” Unfortunately, what was once Eastern Germany quickly adopted more efficient agricultural strategies, which resulted “in increased extinction rates” (McDonough 64).

Native American divination was widely practiced and relied on a variety of techniques that utilized random action--crackling fire, rising smoke, and flowing water as the driver whereby information emerged from randomness. A form of opening oneself to the complexity of nature for answers to questions was a technique that could be called vision questing. The shaman would fast for a period of time and travel to a sacred area in order to meditate in isolation from the comfort of the community. The medicine man could "dance in a sacred manner, shake rattles which reiterates once again the 'random' action in nature, or study the smoke rising from a sacred fire."(Eglish) This practice would, in effect, lead to an experience of ekstasis; the shaman would be immersed in nature and 'dream' a vision through a soul penetration into the heart of nature.

Sitting Bull was one such "sacred dreamer" and expressed his great love for his native soil by saying it was "a love, wholly mystical." This great chief and visionary medicine man once stated, "Healthy feet can hear the very heart of Holy Earth" (Turner). These simple words go to core of modern society's disconnect from nature. While we were busy applying a technological rationality towards the goals of industrial urbanization, we forgot to engage our hearts.

African culture is yet another indigenous culture whose ancient ways seemingly integrated a deep-nature perception intertwined in an understanding of sustainability. Whereas, Native American culture was organized around a perception of order emerging out of randomness, the African culture, on the other hand, is organized around the concept of deterministic chaos, which manifested itself in, among other things—urban planning, their many art forms, and divination. Deterministic chaos is a cultural theme

in African society, and one of the terms used to describe scalar, and thus fractal knowledge (Eglash).

Deterministic chaos is a term that describes an experience appearing to an observer as a random event that is actually an event that is being acted on by a plethora of causes unperceivable to the observer that affect the outcome. What appears as chaos is actually an elaborate interplay of a myriad of influences of an interconnected nature. “If you could know the position and all the forces acting on every particle in the universe, and possessed the required computing power, you could predict everything that will ever happen” (Eglash). Thus what appears as a randomly occurring chaos is actually a chaos that is ‘determined’ by forces beyond our immediate observation. Materializing out of deterministic chaos, and into our state of noticing, are the scalar patterns of recognition that we call fractals.

An extremely simplified explanation of fractals is that they are “patterns that repeat themselves at many different scales... First applied in studies of natural systems: trees are branches of branches, mountains are peaks of peaks, and clouds are puffs of puffs” (Eglash). Our own present day mathematicians ‘discovered’ fractals in 1976. A mathematician named Benoit Mandelbrot, created the word ‘fractals’ and employed the largest and fastest computers of the time to run millions of numbers through algorithms. Clifford Pickover, well-known polymath tells us that fractals:

Describe an intricate-looking set of curves, many of which had never been seen before the advent of computers.... [They] often exhibit self-similarity, which

means that various copies of an object can be found in the original object at smaller size scales. The detail continues for many magnifications—(xxix).

When the results of Mandelbrot's algorithms were plotted, fractals emerged as the mathematically derived pattern behind the seeming chaos of nature. Imagine being above the earth and looking down on a landmass that touches a body of water, such as where the waves of the Pacific Ocean crash down on the rocky coastline of California. Now visualize the apparent ragged edge of land and realize that the chaos represented there also has a mathematical algorithm that will reproduce this landscape. While this is a simplification, it is fractal science.

At first, the algorithms Mandelbrot used were seeded with consecutive integers, which certainly produced magnificently interesting patterns. While significant, they only roughly inferred a nature we could recognize. When he replaced the seed numbers with randomly generated numbers, which the computer could easily do, the results were startling. We find in these 3-D generations a highly descriptive and infinitely detailed representation of nature. The random numbers were the key. And random numbers are certainly the key to much of what we know of the African culture's understanding of deterministic chaos and how it shows up in so many places in their culture. While Mandelbrot used a computer to generate random numbers, African shamans employ what is called a pseudo-random number generator; coincidentally this is the intersection where African divination systems and fractals meet as well.

Apparently, African knowledge of fractals predates our own. Scalar representation shows up in many diverse arts such as textile design, sculpture, and urban

planning. Many of these systems rely on generating symbols based on the use of these pseudo-random generating machines. The word, machine, is a misnomer from our western infected way of thinking. This ‘machine’ can be a box where a spider leaves its ‘tracks’ (deterministic chaos) on a dusty surface, or the happenstance where a diviner encounters animal tracks in nature itself. These are then used as the seed information to be put through what Eglash describes as a ‘mod 2’ process, apparently the same well-known mathematical application utilized to check for errors in computer applications, to create multiple iterations, which are then interpreted by the African equivalent of a shaman to derive the meaning of the pattern in relation to the motivating question (Eglash).

What this means is -- their divination practice derives meaning from a deterministically chaotic event, which is then converted through a systematic derivation to yield what can be seen as a rudimentary representation of scalarity inferring fractal reality *at that moment*. We know fractals represent how nature uses an economy of effort to build in greater complexity at smaller, or larger, scales of perception without having to reinvent the wheel at each level, “as above, so below.” The diviner is essentially taking a ‘snapshot’ of the immediately accessible fractal, which is represented in the seemingly random information that is in play at the moment, spider scratches in a box of sand for instance. We infer that this snapshot indicates the whole of the fractal (the potential ‘future’ revealing itself) in play or *soon to be in play*. Thus, through many experiences, a diviner can see the greater patterns of which his divination has revealed *the tip of the iceberg*. While divination is the vehicle on this wild ride, the ‘trans-world of Eliade and the ‘out of time[ness]’ of Baader certainly suggest the destination.

Divination draws on the seeming randomness of nature, which is actually deterministic chaos, to generate the seed information to begin the process. It is deductible that this system also reinforces the tenets of sustainability. We know, for instance, that nature is mathematically represented in fractal geometry, which emerges out of a deterministic chaos. We know that divination relies on pseudo-random generating events, which are also based on deterministic chaos. Furthermore, we find scalar representations, fractals, in a variety of African art forms, as well as in ancient urban planning. One of the primary necessities of sustainability is to maintain, even reinforce, diversity in all its forms and ‘patterns’ perceivable as a “rich tapestry” in McDonough’s words. A sustainable reality is certainly one that is a reflection or an extension of the underlying patterns of nature. Divination is covalent with a scalar representation of nature, a scalar representation of the fabric of reality, which is perceivable through a transformation of spirit.

Shouldn’t we utilize all means at our disposal for incorporating the ancient principle “as above, so below?” McDonough suggests that to become eco-effective and thus sustainable, “Why not take nature itself as our model for making things?” He goes on to say that at the core of being eco-effective we must celebrate diversity, and “by this we mean to include not only biodiversity but also diversity of place and of culture....”(119). In Eglash’s elegant descriptions of fractals found in many African art pieces and represented in the culture at large, perhaps none is more relevant than those of the ‘urban plans’ of traditional village building. Many of these villages were multi-generational, derived from an organic organization, knowledge of which was primarily matriarchal, and maintained without central authority; they display the telltale scalar

patterns that are indicative of an organically derived fractal structure. It is poignant to realize that imperialism, with its then 'technologically advanced' knowledge of Cartesian grids to design urban cities, sought to enforce a European model on the 'backward' organically derived fractal structures inherent in African villages. As the matriarchs of these villages share with us today, it wasn't until the enforced Cartesian models replaced their own that their native society "broke down, leading to mass migration of men" to the cities to seek a new modern economy (Eglash).

It behooves us to embrace the knowledge held sacred for so many generations, but marginalized as a consequence of our prejudiced rationalistic paradigm, which divorced the spiritual connection to the earth for the political and profit oriented motives of an expansionistic religion, and the secular society that it is intertwined with. These same motivating factors keep a for-profit corpocracy, a government sponsored by multinational corporations, utilizing a message of fear to separate us from what our hearts must surely sense.

The previous vice-president of the United States of America, Al Gore, informs us that we are now at "the moment of truth." Furthermore, he states "without dramatic changes, we are in grave danger of crossing a point of no return *within the next 10 years*" (170). If nothing is done we will cross a threshold, a tipping point, whereby there will be nothing left but to move away from the coasts and prepare for an almost assured cataclysmic nightmare. We would be wise indeed if we could embrace the knowledge inherent in the aboriginal cultures of which the Native American and African are but two of many. The divinatory skill that our aboriginal ancestors utilized as a means of staying in direct connection to God and nature is but one method we should not overlook as a

useful tool. It is imperative though that we not look backwards for the remedy for today's Sisyphean task of regaining a chance for survival. However, it is of prime necessity that we envision a fusion of knowledge, to solve the gargantuan task ahead of us. It is our moral imperative to re-establish a cohesive symbiotic spiritual relationship with nature, one that integrates the truths of aboriginal knowledge with the advances that modern technology can now realize. Otherwise, it won't take a diviner to know what the future holds.

*Glance at the sun; see the moon and the stars. Gaze at the beauty of earth's greenings.
Now, think.*

-- Hildegard von Bingen

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Of sustainable development. 1.1 sustainability transformation: challenges and insights. In the face of huge turbulence, immanent to last decades, necessity to alter business models becomes apparent. Meanwhile a 2013 sustainability report by Harvard Business School and London Business School indicates that investment of \$1 in a portfolio of "high-sustainability" companies in 1993 gives \$22.6 in 2010 vs. \$15.4 for "low 8 Towards flourishing sustainable cities 11 Case study: Melbourne, Australia 15 2 Defining the world around us 19 Sustainable and good development 20 Negative and positive sustainability 21 Cities and urban settlements 25 Globalization and localization 27 Community and sustainability 30 Case study: New Delhi, India 37 viii Contents PART II Understanding social life 41 3 Social domains 43 Judging the value of. 243 Conclusion 247 Index 253 FIGURES AND TABLES Figures 0.1 Circles of Sustainability: Urban Profile Process xiii 1.1 Circles of Social Life 14 1.2 Urban Sustainability Profile of Melbourne, 2011 16 2.1 Urban Sustainability Profile of Delhi, 2012 37 3.1 Different Ways of Representing the Triple Bottom Line Approach 46 3.2 Circles of Sustainability 48 3.3. Sustainability is a paradigm for thinking about a future in which environmental, social and economic considerations are balanced in the pursuit of development and an improved quality of life. These three spheres " society, environment and economy " are intertwined. For example, a prosperous society relies on a healthy environment to provide food and resources, safe drinking water, and clean air for its citizens. Language Practice. with key. Michael Vince. Designed by Mike Brain Graphic Design Limited Layout and composition by Newton Harris Design Partnership Cover design by Oliver Design. Illustrated by: Ed McLachlan pp 109; Julian Mosedale pp 12, 39, 110, 123, 153, 176, 195, 217, 225, 257; David Parkins pp 3, 42, 73; Martin Shovel pp 10, 16, 56, 70, 117, 147, 235, 285; Bill Stott pp 122; Kingsley Wiggan pp 24, 27, 57, 191, 220. Vocabulary 14 Vocabulary 15 Vocabulary 16 Vocabulary 17 Vocabulary 18 Vocabulary 19 Vocabulary 20. World issues Thinking and feeling Technology Quality and quantity Education Word formation Multiple meaning. CONTENTS. The design of CSR and corporate sustainability can be based on different ethical foundations and motivations. This paper draws on the framework of Roberts (Organization 10:249-265, 2003) which distinguishes four different ethical management versions of CSR. The first two ethical motivations are driven either by a reactionary concern for the short-term financial interests of the business, or reputational, driven by a narcissistic concern to protect the firm's image.