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Chrysalis Essay

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This paper is in two sections linked by my love for Gaia. I hope you enjoy it. As Brian, voice of the ferns, often reminds us, "We are here to serve each other and to serve Gaia."

"If you are a poet, you will see clearly that there is a cloud floating in this sheet of paper. Without a cloud, there will be no rain; without rain, the trees cannot grow; and without trees we cannot make paper. The cloud is essential for the paper to exist. If the cloud is not here, the sheet of paper cannot be here either."

-Thich Nhat Hanh in Satish Kumar's *You Are Therefore I Am*

Section 1

A Phenomenological Inquiry into Ferns and Seaweeds

In the first module Henri Bortoft and Craig Holdrege established the efficacy of using Goethe's approach of phenomenological study. But it was in the second module that Brian Goodwin and Stephan Harding placed it in context for us. Brian describes phenomenology as a form of "exploratory orientation in which we are fully embedded in the experience". Stephan took us on several phenomenological explorations, two of which were in the redwood forest. He described the Goethean approach as "seeing the whole in the parts." We brushed aside the detritus and looked at life on the forest floor. Stephan referred to the other creatures we saw as our "brothers and sisters" as we knelt there amazed at the abundance of life forms beneath our feet.

A key aspect to phenomenological research is contained in the word **re-search**; Insights are gleaned through repeated exposure to the phenomenon both externally and internally. Brian encouraged us to go back and forth between the holistic encountering of Nature and reflecting with logic and reason. Phillip, former MSc student, spoke to us during the second module saying, "Goethean science creates the vessel that sets the scene for transformation...Transformation cannot be articulated but knowledge builds the platform for that to happen in the 'Aha' of meaning." Henri expounds on this when he writes about Goethe's approach of *dwelling in the phenomenon* (Henri, pg 293).

For the past season I have felt called to bring forth my discoveries of this land around Schumacher into this second essay. One of the wonders of Gaia is that

s/he/it is both complex, immense and incomprehensible AND, at the same time, obvious, immediate and deeply intimate. How better to illustrate this than relating the experiences of the land as they dance in my psyche?

We were introduced to a number of theories, including: Complexity, Relativity, Quantum Physics, as well as, the Gaia theory, as the foundations for Holistic Science. Each of these, in their own way, frees us from the reductionist, object-oriented approach of Western Science. Brian points out that, “every story is true in limited ways...Science is just another story that appeals to some subcultures”. When we are sharing our stories Brian often encourages us to “ask yourself who is the audience?” Though there have been many breakthroughs in Physics, Brian notes that “Biology lags and is still very mechanistic”. Rupert Sheldrake came to speak to us and he noted that “western science has gotten in to a dogmatic, tight space.” Brian encouraged us to ask, “what is the intention of the scientist?”

Balancing this Stephan points out that “computer modeling can give you insights into relationships.” He listed a number of observations from Lovelock’s computer program Daisyworld. This program re-instated Lovelock’s reputation within Western Science. It linked observations from Physics such as light absorption on the earth with biological observations such as the bell-shaped curve of plant growth. Stephan claims that well-done models can be a form of “intelligent reductionism”.

Brian told us, when we are engaging real, complex life, “we cannot reason through and predict outcomes. We need to go beyond and cultivate intuition, sensitivity and health”. This second module reminded me that I am content with a certain amount of mystery in the world. I am content to have faith and trust in something greater and wiser than me of which I am a part. In this paper I will show the interplay of inner understanding as it dances with the stimuli of the outer world.

When discussing this idea with Brian, he asked me how sharing about the land would fit into the requirements of the essay. Without thinking about it, I responded that an inquiry into the land as a phenomenological study would illustrate the relevance and living way of Holistic Science. I both said/heard this. I sat with this insight for several days.

As Brian told us, “By encountering Nature, we are reading the book of Life....Unity is real....Go back to the whole. Really there are no plans, no building blocks, no concepts, no separation”. For this work I embrace the phenomenon developing my “holistic, sensing, and intuitive” skills.

Dreaming

In a dream last month, I found myself in a field near the ocean with a large crowd of people around me. I was espousing the virtues of seaweeds. People went about gathering them and placing them in large, black plastic bags. And there, in the dream, I was struck by the similarities of seaweeds and ferns. I mentioned this to the crowd and some of the people expressed doubts. I quoted Henri saying that *distinction creates relationship*. In the dream these insights fermented showing me similarities of texture, look and growth patterns connecting them upstream of their obvious differences such as where they grow.

The fact that seaweeds are in the ocean and ferns, generally, grow on the land may seem a huge distinction but from the perspective of humanity looking back in time this is not so significant—for all life originates in the oceans. Both forms of life have been stable and resilient for tens of millions of years. They have created a huge morphic resonance due to their adaptability. Their fractal nature is apparent in their self-similar branching patterns.

Connections

Last month we walked through deep time with the guidance of Stephan and Sergio. In our walk each meter was the equivalent of a million years. Humans finally appeared in the last meter of the 4.6 km walk. From this place, looking back over hill and dale, we could see where the ferns appeared and further back we had walked through the appearance of the seaweeds.

Ferns are in the Division Pteridophyta of which there are 20,000 species. Most ferns are land-bound though some float in water such as Azolla. The fossil record indicates they first appeared in the Early Carboniferous era around 360 million years back. The modern genera evolved 250 million years back (Triassic) and spread worldwide 145 million years ago. Ferns are the first vascular plants but do not have roots only rhizomes. Ferns grew all along the deep-time hike. Though ferns are not considered acutely poisonous, some evidence exists that some species can be carcinogenic over time if consumed regularly.

The other day when Justin, Mary and I were doing an inventory of the plants on the land here at Schumacher, we encountered a dozen or so ferns. We knew maybe half the names and left the others to another day to identify. Why is this? I have noticed in my journey with the plants these past thirteen years that even among the plant experts, few have a grasp of the ferns. I believe this is because ferns evolved without the presence of or need for the humans. They do not rely on us, do not reach out into our psyche and spark us. Our brains are sparked by showy flowers and fruits. There is this sense that ferns generally look the same. Upon really looking at its features, each genus is quite unique though subtle in their distinctions. As Goethe says, “Can I look at things with clear, fresh eyes?...Can the grooves of old mental habits be effaced? This is what I am trying to discover.” (Goethe, *Italian Journey* from Craig’s handout).

This is contrasted with our flowering plant guardians who (as is illustrated in the *Botany of Desire* by Michael Pollan) may actually be cultivating us to perpetuate their species.

Seaweeds

Evidence suggests seaweeds (certain types of algae) appeared in the Proterozoic era about 550 million years back. Any ocean I encounter I usually know some of the seaweeds I see because I have been fascinated by them for the last eight years. Most seaweeds are generally grouped into three main phyla: Green (Chlorophyta) 1200 spp.; Brown (Ochrophyta) 1750 spp.; and the Red (Rhodophyta) 6000 spp. Seaweeds lack a vascular structure and have no roots. They hold to the ocean floor by a clasping thallus. Though they exist in all the oceans of the world they are much more diverse in colder waters. Stephan spent time describing how “warm oceans form a layer of higher temperature water (a thermocline) blocking nutrients from

coming to the surface and thus starving the algae.” Cold water areas do not have thermoclines so algae can live and grow.

Green algae containing chlorophyll are thought to be the predecessors to the first land plants. Remarkably, no seaweeds are considered poisonous (though one should be careful of the cleanliness of the waters they are growing in) but one brown genus, *Desmarestia*, produces Sulfuric Acid which will burn the mouth if you try to eat it. On the deep-time walk mentioned earlier we spent time in the tidal zone. I picked a small bag full of bladderwrack (*Fucus*) and kombu (*Laminaria*), saw many others and tasted a couple of new ones.

Algae generally play important roles in Gaia's self-regulation via bio-feedback loops. Normally, algae remove CO₂ from the air by making their bodies out of carbon and calcium forming chalk. Stephan creatively shared this with us through animating the elemental personalities in the chemical processes. When these organisms die their bodies may sink to the bottom and enter the long term carbon cycle. Stephan described that algae resist osmosis by making a compound DMSP. When these organisms die the DMSP breaks down into volatile Di-methyl Sulfide (DMS) seeding clouds. Algae under stress can also make DMS. Clouds act to cool the planet by reflecting away sunlight. These processes inter-relate with other feedback loops including those that influence algae growth rates and absorption of nutrients from the water. When conditions are favorable algae can reproduce rapidly into blooms. Some companies have been formed to reduce CO₂ in the atmosphere by introducing micronutrients into the ocean and encouraging blooms to happen.

With the mineral content of seaweeds paralleling those in the ocean and our own bodies, they provide an obvious link to our own health. With the ocean shores of the world covered with seaweeds, it is a wonder that our species even has the word *malnutrition* in its languages. It is our own lack of co-operation within our species that brings this about for Gaia abundantly provides everything our species needs. As Brian notes, “Good health comes from clear communication.... Disease is a lack of coherence.”

The similarities of ferns and seaweeds are extensive. Both reproduce via spores and an additional sexual cycle. They both need moist to wet environments to carry out their reproduction. Neither have roots or flowers or seeds. Morphologically they generally grow up as fronds from a clasping thallus (rhizome). They both have relatively rudimentary chemical compositions. They are autotrophic getting their energy directly from the sun via photosynthesis.

Creative Visualizations

“Within the Shamanic domain, imagination is guided by the phenomenon” -
Brian Goodwin

Perhaps the best way to see that ferns are the land's expression of the sea's weeds is through the imagination. In permaculture it is often said that the action happens at the edges. In Holistic Science we speak of the robustness of life and activity happening at the edge of chaos. Let us look at the edge zones to recognize their similar gestures.

Think about where ferns and seaweeds like to grow. Ferns are often found on the edge of waterways on the air side; Seaweeds edge the land in the tidal zones on the ocean side. Note their positions mirroring each other.

Which is fern? Which is seaweed?

Ferns as Seaweeds

Relax and open your mind to see the creek flowing through the land around Schumacher. Down along the creek are large, green fronds of ferns. Visualize the water level slowly rising up...higher and higher. Soon the rhizomes of the ferns are covered, but they hold fast the fern to the earth. Deeper and Deeper the water gets. After a short while the ferns are fully under the water waving gently in the current. They could not survive a long time like that but are equipped to be happy there for the duration of the gentle flooding. How are they different than seaweeds in this state? Let the waters come gently back down releasing the ferns' seaweed-ness and restoring them to their air life.

Seaweeds as Ferns

Relax and open your mind to see the early dawn high on the cliffs above the deep, blue ocean. Descend the rocks, noting that we have come during this special occasion that occurs several times a month when the tide is negative. Cross the beach sinking a little bit with each step. The ocean retreats laying bare her bed of life.

Step from the sand onto the slippery glistening rocks. In little pools urchins and anemones undulate aware their mother has left. And there on the rocks in bands by species are the seaweeds. They could not survive a long time like that but are equipped to be happy there for the duration of the moons pulling. How are they different than ferns in this state? Let the waters come gently back in releasing the seaweeds' fern-ness and restoring them to their water life.

This study for me has helped to see beneath the surface manifestations. As Henri says, differences relate. Inquiring with a Gaian state of consciousness, I was able to see this unity of early life organizing itself around common themes as it adapts to different environments. I am thankful for this opportunity to look more deeply into the unity of life. As Terry Irwin said in her presentation, "Indeed we are all connected. We are all one." A phenomenological approach gives us the means to articulate that.

Section 2

*"Don't try to define with language, instead point toward meaning...not **the** meaning but a possible meaning" -Brian Goodwin*

A Council of Gaian Beings

Naiag entered the sacred circle having been lost for several hours. Though he had no idea where he was, he could still remember what had brought him there. He had risen from his bender early that morning and made his way through the woods,

crossing a small stream on a tree that had fallen three cycles back. With him he carried his bag, full but not heavy, providing his needs for the foreseeable future.

He had been sad and depressed for weeks feeling separate from his soul, uncertain of his path. On the trail to the village appeared a white dove with what seemed to be a golden ring on its foot. It was not simply a band of ownership. The morning sun had come through the wood and glistened off it. At the same moment Naiag recognized its ring-ness, he caught the dove's eye and felt a longing to have both the ring and the dove.

As he moved towards the dove, it flew from the trail a little ways into the woods. Naiag followed and each time he got close, the dove would fly again out of reach but still in sight. Outside of time and space, Naiag pursued the dove further and further from the path, into woods he had never ventured.

When he began finally to tire of this game, he realized he was lost. With this realization the trees around him seemed to grow bigger. He wandered lost hoping for clues to get his bearings. His feet carried him forward eventually into the sacred circle.

On a stump in the middle of the circle stood an older man dressed in black suit, dark-blue overcoat and a top hat. His eyes glistened. He spoke with authority to the woods. Naiag stood transfixed, listening.

"Today I've come to speak for the Earth! We are not separate from this place. S/he lives! This is as self-evident as you and I are self-evident. All the requirements of life are met by he/r. We are part of he/r."

So peculiar were these thoughts to Naiag that his brain hurt a little bit and yet... Those thoughts flowed on as the old man spoke about theories and experiments. He told of goddesses, rainbows and self-consciousness. He put forth the challenge to "find the wildness in all molecules." He told the stories of the living molecules...of passionate princes and stable priests. He shared for a long time making all sorts of gestures and analogies. "The Love of Gaia is holding us UP!" he shouted. Naiag's mind buzzed.

"The wizard is telling you the earth is alive. Don't you feel it?" said a disheveled, wizened artist drawing complex images on her canvas. Her hair was frizzled orange with a face prone to gaiety and laughter. "I try to paint these trees but each time they emerge differently." Naiag felt a strange attraction towards her. Butterflies flittered in his stomach. "Each leaf is unique, yet there is an overall signature of recognition. All forms are similar, yet none are identical."

Suddenly he saw a flash out of the corner of his eye and turned to see a man with hair standing straight up...electrified. His eyes bugged out and enlarged behind goggles. Naiag felt a shiver go up his spine. "Shocking!" shouted the man. "Light travels in packets of quanta and are neither and both energy and matter!!!!" With that said he touched two wires together and another flash of light burst forth with ripples of colorful lightening radiating off in all directions. "Energy is Matter! Matter is Energy! As above so below. On the outside is also the inside." Naiag felt both intrigued and fearful. He was not sure what to say or how to be. Then he heard a whisper to his right.

“Come to my side, young man” came a whisper from the far side of the circle. From the chaos to his left, and the light show in front of him, Naiag was drawn to the quiet figure draped in earthen colors, stirring up brews that bubbled and steamed. “Think of your favorite smell,” said the alchemist, and handed Naiag a small flask of liquid. To his surprise it smelled of the flowers on the hedge that grew next to his mother’s house.

“Try a sip,” said the alchemist, “It has come time for your transformation. Your life is a wonderful story. Live into it!” Naiag held the cup hesitantly as the smells wafted up seductively, the liquid enticing and calling to him to drink. He looked back around the circle. The artist continued painting, colors flying about. Sparks flew off the electric-man. And the alchemist with infinite eyes stood looking into his soul. In the middle, on the big stump, the wizard had paused in his eulogy with his hands held high, eyes raised to the sky smiling like a crescent moon. Naiag’s ears buzzed with the call to drink. Breathing in deeply the sweet smell of the hedgerow flowers, he took a sip of the liquid. As soon as the brew touched his lips, he fell gently to Mother Earth amongst the soft mosses and ferns.

When he awoke from a dreamless sleep, all was quiet. The amazing characters were gone. Where the artist had been, a small whirling dervish of colored leaves rose and dispersed into the wood. Where the electric-man had stood, only a blackened mark of a lightning strike remained. On the stump that had been the alchemist’s table grew a colorful cluster of mushrooms.

The wizard’s stump now bore a live oak tree and in the tree cooed the dove. It flew down to Naiag and the ring slipped off its foot into his hand. He put it on and felt a subtle, profound shift in the core of his being. With each breath, Naiag felt the life force energy electrify him. His eyes saw the dancing of matter and energy. Where he touched the earth, he felt he/r touching him back.

In the distance he heard the coo of the dove and rose lightly following the call. The dove led him back through the woods to his village just before dark. His heart glowed, his soul glistened, his body tingled with electric life force. He felt inspired to share the aliveness of Gaia with his people. In Naiag’s search for meaning in his life, he found a life of meaning.

Oh Gaia! We ask thee to
come forth into our daily lives
and instill in us meaning .
Please Gaia, support our
re-awakened feelings and intuitions
about our place in the Web of Life

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