

Ecological Biology; Intersecting and Overlapping Fields

By Laura E. Weed

The College of Saint Rose, Albany, NY

Holmes Ralston III has been researching ecological systems in the natural world, and arguing that the anthropomorphic approach to ecology that interprets humans as the most important facts about a landscape, is basically a misunderstanding of nature and our place within it. He argues for a deep ecological point of view, according to which every natural kind is a good kind, and value in nature is inherent to autopoietic and self-sustaining systems of every kind. Our language tends to substantialize objects, and ignore the inter-relations and reciprocal flows of energy that take place between and among DNA, organisms, species, ecosystems and biospheres. Ralston argues that this form of blindness, coupled with our egotistical overvaluations of ourselves as individuals, and our species as opposed to others, is leading to catastrophic moral errors in policies and activities, that could well result in the collapse of the earth's biosphere.

In this essay I will explore resonances between Ralston's Ecological philosophy, and the Field Being approach to reality, with its Daoist roots and analysis of reality as a dynamic relationship between Dao and de, Tai and chi, and nature, both within and without individuals. Both philosophical perspectives accent the interbeing and harmony of all that exists, as well as the mutual flows of energy among field-like systems of dynamic interaction. Both accent the inherent value of everything that exists, in the natural as well as in the human world, and both stress the need for humans to respect that inherent value, and develop one's own nature in harmony with the values of other overlapping and intersecting fields of value.

Ecological Field Being in Ralston: Autopoesis and Inherent Value in Nature

All living things, from very simple one-celled protozoa up, have cells that operate using DNA and RNA. The DNA and RNA are primarily information-carrying structures. Ralston calls them cybernetic, because, like a computer, they convey digital information to a cell, giving it directions about what proteins to produce in order to carry out the life functions of the cell. The self-preserving and reproductive processes that the DNA and RNA engage in are, according to Ralston, both purposive and intelligent. Ralston says,

A genome has a sophisticated array of enzymes to cut, splice, digest, rearrange, mutate, reiterate, edit, correct, translocate, invert and truncate particular gene sequences. ¹

So even a single-celled living thing is actively and purposefully adapting itself to the conditions in which it finds itself, and proactively taking whatever actions it can to sustain its own life and pass its vital information on to the next generation of living things. Traditional science regarded evolution as mechanical, and the roles of DNA and RNA as only suppressing mutations in a mechanical system. If that were true, it might be true that genes are just mechanisms as described by substance dualists. But contemporary geneticists are rejecting the mechanical view of how genes operate. Ralston quotes a variety of geneticists who describe genes as spontaneous, creative, wise and adaptive, rather than blind and random. ²

When we think of human purposes or intentionality we tend to think of complex plans such as your intention to get your degree and go to grad school, or the murderer's intention to kill grandma to inherit the family fortune. But the Latin root word 'intendo' means only to

¹ Holmes Ralston III, *A New Environmental Ethics*, Routledge Press, New York, New York, 2012, p. 103

² *Ibid.* 103

‘stretch toward.’ Ralston points out that Ernst Mayer invented the word teleonomic³ to identify a level of planning in living things that is far short of human planning and plotting, but substantially more than the dead causation that occurs when a rock rolls down a hill after an earthquake. The activity of simple life forms is deliberately going somewhere. In addition, the communication of information from one life form to another, and the gathering of information from an environment and responding to it that takes place in creatures containing DNA is teleosemantic according to Ralston. Information transfers can exhibit a number of properties that no causal functions exhibit. Information can transfer accurately or inaccurately, it can succeed or fail, it can contain errors, or feature mismatches in described proteins. None of these truth-evaluative terms make any sense in a mechanical causal system.

Further, Ralston argues, the fact that cells can err or fail, succeed or thrive, indicates that there is basic moral value in the cells. Cells and organisms are far-from equilibrium systems. They pump out disorder and maintain persistent states of low entropy, which means high organization . A rock is an equilibrium neutral system: unless something else makes it move, it is subject to the law of inertia in physics and will not move. It has high entropy. In contrast, organisms and cells are self-moving and self-changing, and constantly working to maintain their own homeostasis, which is always a state different from that of their immediate environs. The cell walls keep threats to the cell out, and bring nutrients and necessary chemicals in. Just the fact that things rate as ‘threats’ or ‘nutrients’ indicates that there are things that are bad or good for cells, while there is nothing that is bad or good for a rock. That cells can succeed or fail in maintaining their own state of homeostasis indicates that there is a

³ Ibid, 105

good for the cells; to succeed in maintaining low entropy, sustaining homeostasis and reproducing. Because cells containing DNA are self-making and self-sustaining they exhibit autopoiesis, a form of autonomy, independence and value that makes them good kinds. This is the inherent value of all things in nature.

Ralston uses an example to accentuate his point. When Americans first noticed Giant Sequoia trees in California, someone carved a tunnel through one tree that was big enough to drive a car or horse carriage through. Driving through the tree tunnel rated as human entertainment for a while, until it killed the thousand year old tree. It is now recognized that trees have a good that is violated by carving tunnels through them. As autopoietic organisms they are worthy of “respect, restraint and gratitude” as inherently good things.

Ecological Field Being in Daoism; Intrinsic Value in Nature

For Daoists, the most basic reality is the Dao, also thought of as nature, and the source and basic character of everything that exists in the world. Individual things embody nature as De, which might be thought of as individual or perceptible manifestations of the Dao in particular occurrences in the world. Livia Kohn describes the unbounded Dao of the *Dao De Jing* as “beyond all knowing and analysis, it cannot be grasped.”⁴ At the periphery, however, Dao is “clearly visible [in] patterns of nature and society and points out various concrete patterns of alignment.”⁵

The dynamic according to which Dao and De interact is the interplay of yin and yang. Dao flows through processes of nature, now producing growth and vitality, later producing

⁴ Livia Kohn, *Introducing Daoism*, (New York: Routledge Press, 2009) 23.

⁵ *Ibid.*

withdrawal and rest. Neither is good or bad in an unqualified sense, for both must balance each other to produce a natural state of harmony. Doing without doing (*wuwei*), and naturalness (*ziran*), are the virtues that one should espouse to properly align oneself with the interplay of yin and yang in nature. What is wrong, according to Daoists, is to use violence or egotism to force an outcome of a natural process that does not go in the direction that the natural process would ordinarily proceed. The goal of Daoism, according to Kohn, is “...finding a sense of where life, nature and the world are headed,” while disciplining oneself to “abstain from forceful and interfering measures that cause tensions and disruption in favor of gentleness, adaptation and ease.”⁶

It becomes apparent at the outset that Daoism always valued all of nature equally with human lives. In the above passages, Ralston is arguing against the dualism in Western thought that justifies claiming that humans have a monopoly on inherent value, while nature exists only as a resource for humans to exploit. When properly understood, humans are embedded parts of nature, not superior creatures outside it, and to function properly, we must respect the de of every being that exists, and be willing to live in harmony with the yin and yang of nature.

Ralston faults the inflated sense of self arising from the enlightenment as largely to blame for our inflated sense of our own importance and right to dominate in the world.

Daoism historically opposed the anthropomorphism of Confucianism and the inflation of the human and social worlds that Confucianism represented. Daoists, in contrast to the Confucian stress on ritual, hierarchical social relations, and deference to important people and important linguistic formulations, stressed living simply and quietly, viewing one’s own needs in

⁶ Ibid. 24

equilibrium with those of other humans and other natural things. The *DaodeJing* expresses the harmony of Heaven, Earth and humans, as follows:

Heaven is long lasting;
Earth endures.
Heaven is able to be long lasting and earth is able to endure, because they do not live for themselves.
And so, they are able to be long lasting and to endure.
This is why sages put themselves last and yet come first;
Treat themselves as unimportant and yet are preserved.
Is it not because they have no thought of themselves, that they are able to perfect themselves?⁷

So, to conclude this section of the essay, Holmes Ralston III is expressing some very Daoist ideas in his contemporary and scientific analysis of the place of the human in nature and the intrinsic value of nature, whether it is of use to humans or not. For the rest of the essay I will analyze the ecological understanding of reality as an interaction of dynamic fields in both Daoism and Ralston's contemporary ecology.

Ecological Field Being in Ralston: Reality consists of a dynamism of fields within fields

Ralston discusses the human relationship to our species, other species, and ecosystems in ways that are novel in Western philosophy, although quite compatible with Daoism. In analyzing the tragedy of the sixth massive extinction on earth, he points out that our Enlightenment sense of ourselves as isolated and autonomous individuals is threatening not only our own future on the planet, but also that of most other species that also are at home

⁷ Laozi, *The DaodeJing*, chapter 7, in *Readings in Classical Chinese Philosophy*, 2nd ed., eds. Phil Ivanhoe and Bryan W. Van Norden, (Indianapolis, IN: Hackett, 2001), 166

here. Ralston stresses that a nonanthropomorphic ethics will not only reject the notion that we are superior to and outside of nature, but will also reject the notions that species are autonomous of one another, and that any species is autonomous of the ecosystems within which all species thrive in dynamic interaction with one another. Ralston suggests reversing the order of priority that values individual organisms first, species second, and ecosystems last, if at all. He points out that individual living things last from a few days for some insects through a few hundred years for some trees. In contrast, species last for about five million years a piece, if massive extinctions do not intervene. Ecosystems provide the conditions within which species may live, and ecosystems last for billions of years. So, Ralston argues that the Ecosystems should be thought to be the most basic and essential unit of organic reality. Ecosystems can outlast species, and accept substitutions of one species for another within the dynamic system of the ecosystem. However, if the ecosystem collapses, all species are eliminated with its collapse.

When most ecologically minded humans think of the crisis of species extinction, we tend to think of the 'charismatic' animals that we are losing: the pandas, the polar bears, the Siberian tigers, and other such picturesque creatures. Most human efforts to replace and preserve species have been dedicated to the photogenic ones. Ralston argues, in contrast to our value on these types of creatures, that more humble creatures are, in fact, the ones who anchor the ecosystems of the earth and prevent massive dissolution of the web of life. Creatures such as soil microorganisms anchor all of the plant life, preventing desertification, and creatures such as krill anchor the oceanic life, limiting dead zones in the ocean. Ralston

points out that humans must value these creatures more if we are to prevent the collapse of all life on earth.

The change in perspective needed to embrace the preservation of ecosystems is a very Daoist change in perspective. Humans must recognize the degree to which our own lives exist as a dynamic interchange with our ecosystem and the other species within it, including species as humble as soil bugs and krill.

We must also come to recognize our radical dependence on the processes of nature, such as the carbon and nitrogen cycles that we are disturbing through our use of fossil fuels and industrial farming techniques, respectively. There is no sense in which we own or control these dynamical processes, and the damage that we are doing to them cannot avoid rebounding on ourselves, because we inter-be in consort with these processes. In a world consisting only of deserts, we can grow nothing to eat, and in a world without rainforests, we would have no oxygen to breathe.

Ecological Field Being in Daoism: Reality consists of a dynamism of fields within fields

A *de* in Daoism is never an autonomous creature, but, is rather, a center of focus for a set of activities. No activity occurs in isolation, but only within the context of a dynamic exchange of energy (*qi*) and structure (*tai*) with other *des* featuring sometimes complementary and sometimes antithetical foci of activity. The flow of activity that results from the diverse and variable interactions of all of the dynamically interrelated fields of activity can drive some *des* in *yang*, or enlarging directions, and other in *yin*, or receding directions. Lik Kuen Tong described the optimal accommodation of the many fields within fields with one another as strainless or fluid activity. Each field of activity must exhibit deferential respect for all of the other *des*

striving for self-realization in the environment, while simultaneously seeking opportunities for self-realization amid the flow of activity.

This dynamic interrelation of one's own focus of activity with multiple other foci of activity takes place for a human even within and in the surroundings of one's own body. Biochemically, our bodies dynamically interact with our own DNA, sometimes resulting in diseases that we would rather not deal with. Whether we are aware of it or not, our bodies and psyches react to pollutants in the atmosphere, which can cause cancer, asthma or other biological challenges. Color, visual or sound pollution, have negative effects on human abilities to concentrate and cause high levels of stress. Toxic social situations can cause illnesses such as high blood pressure, arterial disease, and mental illness. Likewise, calm and supportive environments, free of toxic chemicals promote creativity and contentment in humans. Medicine in the past systematically underrated many of these dynamical interactions between a human and his or her environment, but contemporary research is making these relations more apparent.

Beyond the level of the individual human and his or her body, fields of social dynamics afford some opportunities and deny others for human *des*. Issues such as sexism, racism, classism and economic privilege or deprivation also provide what Sally Haslanger identifies as restrictions on what someone can do resulting from pervasive bigotries in a social environment. She points out that it is not up to an individual to decide that pink does not mean girl, for example. Durable markers such as racial identifications, and language barriers isolate groups of people from one another and prohibit neutral social relations across the barriers.

When one amplifies all of the above by considering human animal or human nature interfaces, all of the cumulative barriers, strains and field dynamics are amplified once again. We interact with nature as bio-chemical foci of activity, as organic wholes as foci of activity, as social constructs as foci of activity, as a species as a foci of activity, and as the most destructively invasive species in the history of the planet as a foci of activity. What may be good for any of these foci of activity may conflict, or work in consort with any of the others, as well as with the Dao as a whole.