ANALYSING GREGORY BATESON'S 'ECOLOGICAL INTELLIGENCE': WHERE BATESON AND ARISTOTLE MEET

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ABSTRACT. Gregory Bateson's ideas have infiltrated various academic disciplines, providing insights into the nature of mind in nature and society. Bateson's reformulation of mind as being immanent in nature is the cornerstone of his paradigm. Bateson was also concerned by rampant ecological degradation to the planet. For Bateson, humanity's treatment of the environment reflected deeply entrenched behavioural patterns which needed to be changed. To this end, he encouraged individuals to live with a sense of earth's sacredness. Bateson foregrounds the importance of connectedness found in nature as characterised by his famous mantra, "the pattern which connects". In this paper I examine Bateson's notion of ecological intelligence and consider how this concept accords with Aristotelian ecological thought.

KEYWORDS: ecological intelligence, mind, flexibility, difference, virtue, sacred, patterns, interconnectedness, practical wisdom

1.

Gregory Bateson (1904–1980) was a polymath who mastered several areas including anthropology, psychiatry, biology, ecology, ethology and cybernetics. He is considered a pioneer in cybernetics along with Norbert Weiner. During his illustrious and diverse career Bateson spearheaded a way of thinking which many considered controversial yet informative. This way of thinking became crystalised in his two major works: *Steps Towards an Ecology of Mind* (1973), and *Mind and Nature: An Essential Unity* (1980). In these works he expounds the rudiments towards an understanding of mind which is informed by cybernetics. Here, mind is no longer an artefact of humankind but is immanent throughout nature. As Bateson (1973:436) expresses in this famous passage:

> The individual mind is immanent but not only in the body. It is immanent also in pathways and messages outside the body; and there is a larger Mind of which the individual mind is only a subsystem. This larger Mind is comparable to God and is perhaps what some people mean by "God," but it is still immanent in the total interconnected social system and planetary ecology.

For Bateson, mind refers to the cybernetic and autopoeitic processes found in nature which are based on mutuality, relationality and are recursive. Bateson claims that mental and biological processes are similar. Moreover, evolutionary processes should not be viewed as being unilinear but are rather as multi-linear and circular. For example, when examining the genus of *Homo*, previous scientists had placed *Homo sapiens* as the highest form of this genus. This was largely predicated on brain size which equates to greater cognitive capacities and abstract thinking. However, this kind of unilinear taxonomy is both incorrect and illusory and tends to reflect Platonic essentialism. *Homo sapiens* do not represent a taxonomical zenith but are the latest

version of an evolutionary process which is stochastic. The western taxonomical penchant to categorise according to unilinear schemata is for Bateson one of the fundamental mistakes of western civilisation. Straight lines do not exist in nature but only in the minds of humans. I would argue that unilinearity which is an entrenched western trope has been so successful since it imbues the idea of control over one's lifeworld. This is precisely what Heidegger was referring when he discusses the notion of 'thrownness' (*geworfornheit*). In this sense, unilinear and linear paradigms induce in the observer the notion of ontological security. Constraining the immensity of life forms to vertical and horizontal taxonomies should be viewed as a human tool for understanding and not characteristic of nature's design. Linearity is an artifice of western civilisation. Nowhere is this idea more evident than in the linear notion of time. The linear model of time is misleading and does not correctly reflect the processes of biological and cosmic patterns. Bateson's notion of interdependencies within life systems is a more appropriate heuristic. In this idea life systems are self organising and self regulating, operating through feedback loops. A life system is holistic, whether operating at macro (ecological systems), multi-cellular (multi-cellular life forms) or cellular levels. Life systems respond to their environments and continually maintain their internal equilibrium (Bale 1992).

2.

In this paper I examine Bateson's notion of ecological intelligence and consider how this concept accords with Aristotelian ecological thought. Bateson, particularly as he became older was concerned about ongoing ecological degradation of the biosphere. For Bateson, humanity's treatment of the environment reflected deeply entrenched behavioural patterns which needed to be changed. Consequently, technological solutions were insufficient to address the enormity of the ecological problem. Having spent earlier decades on exploring human communication and its psychiatric and social implications, Bateson became interested in human/non-human communication. To this end, in 1963 he received a scholarship to study cetaceans. During this phase of his eclectic research he attempted to develop a theory of human/non-human communication. I would argue here that such research probably enabled Bateson to gain invaluable insight into the non-human world and its dependency on human actions. In his 1969 lecture Bateson stated that the depth of human maladaptive behaviour had reached such a point that it would take a herculean effort to unravel its programming (Charlton 2008:119). Bateson went on to explain that at least 70% of modernity's premises on human nature and nature were delusional (Charlton 2008:119). Many thinkers after Bateson have agreed on this point. The Cartesian based interpretive models are inadequate in explaining and describing the multivariable processes of biological and human evolution (Bale 2006). Macy (1978) also points out that there are a lack of viable cognitive approaches towards decreasing the immense social and ecological problems which have beset humanity. However, Bateson was not merely in the mood in offering an insightful homily to humanity. He was adamant that humanity was on board a fast sinking ship that would take a large portion of nature along with it.

3. Ecological intelligence and *Telos*

Both Bateson and Aristotle encouraged human beings to be more observant of their interaction with the non-human world. Aristotle's *theoria* notes that humans beings need to examine the nature of natural things (Aristotle *De Anima* 1981, 1986; Foster 2002; Bartlett & Collins 2011; Lee 2007). For Aristotle, there is a natural purpose in the world that is informed by our 'reaching out' (*orexis*). Moreover, natural beings move from potentiality to actuality via processes of change. An organism's form is the totality of its parts working towards its actualisation (Aristotle *De Anima* 1981, 1986). Interestingly, Aristotle also believed that life forms (fauna and flora) contained a soul (*psuche*) (Lee 2007; Foster 2002; Lee-Lampshire 1992). Aristotle further categorises the *psuche* as the nutritive *psuche* which is responsible for the self-preservation of the organism. The nutritive *psyche* "instantiates the interactive relationship between the life of an organism and its environment" (Lee-Lampshire 1992:41). *Psuche* works according to a hierarchical principle since the powers of the *psuche* are differentiated in relation to the constitutive conditions of higher development (Lee 2007:74).

> All living things then have life in virtue of this principle, but they are not animals unless they have perception (Aristotle *De Anima*: 413a 31-b6).

Aristotle believed that nature was characterised by order and beauty, and that there was a continuity of life forms which was based upon the powers of the *psuche* (Verhagen 2008:4). Aristotle's *psuche* was predicated on a linear schema where plants "plants existed for the sake of animals, and animals for the sake of humans" (Verhagen 2008:4).

In human beings the *telos* or *finalis* was to become healthy; included here were physical health but also moral health and spiritual health. In Bateson's terminology human *telos* was based on its capacity to be flexible. In short, flexibility means the ability to think outside the square toward finding solutions and re-adapting. Such flexibility is predicated on changing an individual's thinking patterns (Bateson 1973, 1980, 1991). This is an essential part of attaining ecological intelligence. In *Homo sapiens* flexibility is the ability to adapt to specific socio-historic environments and that such adaptation is based on cultural learning. For Bateson, cultural learning is the key and is linked to adaptive and maladaptive behaviours. In biological systems, flexibility is fundamental in maintaining communication between an organism and its environment (Harries-Jones 2010:2362).

The antithesis of flexibility is characterised by pathological cultural systems which perpetuate conflict at multiple levels. For example, dominator learning patterns are often rooted in "fear based system" that lack corrective mechanisms that are central to flexibility (Montuori 1993). In addition, dominator learning patterns are characterised by the repetition of cognitive mistakes (Montuori 1993). Consider the dominator patterns in learning in western schools that encourage competition and individuality. While critical learning is also encouraged, this is often at the expense of more co-operative learning styles. The current emphasis in judging students' cognitive ability based on intelligent

quotient tests merely increases competitiveness and individuality. Dominator learning patterns are essentially linear and emphasise dichotomies (male-female, rich-poor, powerful-powerless). As stated earlier, linear causative approaches embedded in social thinking and behaving are inaccurate. In Bateson's epistemology, circular chains of causation are privileged which he terms "mutual-causal".

> By this he means that simple formulations of the form "A causes B" do not accurately describe what happens in the natural world. In circular models of causation A has an effect on B; B has an effect on C; and so on around the circuit until eventually Z has an effect on A. In such a system there is no simple cause and effect. It is possible to punctuate[1] this sequence to suggest that A has caused B, or, if a different starting point is chosen, it can be said that B caused the chain of events that caused A (Bilson 2007:938).

Furthermore, circular systems are self corrective and are based on interdependence. As Bilton (2007:938) notes, circularity demands that we reconceptualise dominator principles of learning and control and exchange them with adaptable processes. This is central to ecological intelligence.

4. An Interconnected World

For Bateson, a fundamental error of western epistemology was to view things as being separate (Bowers 2010). This view was not unique. Vedantic and Mahayana Buddhist schools observe that the world is inter-connected as characterised the mythical web of Indra. In this eloquent metaphor the universe is depicted as a web connected by illimitable jewels. When looking through one of the multifaceted jewels at each vertex one can perceive all the other jewels initiating "an infinite reflecting process occurring" (Cook 1977). In Vedic thought, the notion of separateness is a characteristic of *maya* (delusion) which can only be overcome by advanced yogic practices. In Islamic thought, the notion of Divine oneness (*tawhid*), is the fundamental principle in Islam. *Tawhid* is the unifying principle of existence, evident in all cosmic, biological and social processes. According to Nasr the principal aim of Islamic sciences is to reveal "the unity and interrelatedness of all that exists" (198722). In Buddhism the inter-relatedness of existence is referred to as the 'rising-together-of-things' (*pratityasamutpada*). All sentient beings arise in a mutually inter-dependent world of causation. *Pratityasamutpada* is to Buddhism as *tawhid* is to Islam. Both concepts offer different but similar approaches to the unity principle underlying existence.

Bateson's position continues these sacred traditions in that he encourages us to invest nature with sacredness. "The sacred, for Bateson, is the vast, interconnected whole that is the totality of all the nested mental systems or minds in the living world" (Charlton 2008:163). However, each organism, each mind, is dependent on a whole set of genetic and environmental conditions and circumstances which make a difference to its growth and actualisation. The concept of difference is vital to understanding Bateson's ecological intelligence. By difference he refers to a unit of information which makes a difference to an organism's structure/behaviour and its relationship with other organisms. Remember, that for Bateson an organism is involved in an inter-relational system comprising multiple organisms. Information communicated through differences are transmitted within a system and its subsystems which in turn trigger more

differences. Differences are processed at various levels – genetic, epigenetic, social (Bowers 2010:14). For example, the introduction of DDT in the United States during the 1940's and 1950's led to a difference in the food chain. This made a difference for many predatory bird species which had absorbed DDT, leading to eggshell thinning – which resulted in the decrease of predatory birds which made a difference to disrupting the natural checks and balances between predatory/prey species – which could be evident for decades. Top line predators such as Californian Condors continue to have egg shell thinning even after forty years of the introduction of DDT (Moir 2010).

5. Aristotle's Theory of Virtue and Ecological Intelligence

Aristotle's theory of virtue is based on the consideration of practical wisdom and ethical behaviour. Practical wisdom refers to reacting in an ethically appropriate manner to a specific situation (Aristotle *Nicomachean Ethics* 1941, 1962). In relation to ecological intelligence, practical wisdom takes into account the moral consideration of the non-human world; practical wisdom recognises the moral status of ecology and the need to cultivate virtue. In this way, nature is protected by human moral agency. It also means that non-human life forms should not suffer due to the unvirtuous behaviours of humankind (Lindemann 2005:94).

Aristotle's theory of virtue may act as a guiding principle to ecological intelligence. Thinkers such as Rolston have also expressed the need for the emergence of a pan-human consciousness that considers an ethics to all non-human species. Rolston (1988:158) points out that while environmental exploitation is a characteristic of all organisms, this does not justify overt human consumption habits which have cause species extinction. For Rolston, the extinction of a species "erodes the regenerative powers on our planet" (1988:158). Similarly, Evernden (1993) contends that an examination of the current ecological crisis must begin with an examination into those recurrent thought patterns which inform our viral attack on nature.

Like Aristotle, Bateson declares that acting without moral agency misguides human beings, resulting in a life without virtue. In this way, Bateson foregrounds the importance of connectedness as characterised by his famous mantra, "the pattern which connects" (Charlton 2008:141). Humankind is at a crossroad and on the verge of being alienated from the web of planetary life, as characterised by Adam and Eve who were cast out from the Garden of Eden, which represented a state of integration. Like the first human couple who were plunged into a world of separation, current dualist ideologies maintain our estrangement from nature. Bateson disliked dualistic thinking since he believed that it misrepresented how nature operates. On this theme, Mazzocchi (2011) notes that Western reductionism has been unable to recognise the complexity of living systems, but rather assumes that such systems can be understood according to mechanistic understandings. For this reason Mazzocchi a la Bateson call for the emergence of a new paradigm for comprehending the complex and non-linear nature of living systems. We are reminded that Aristotle's notion of happiness (*eudomonia*) can only derive from our awareness of our connectedness with the non-human world (Aristotle *Nicomachean Ethics* 1941, Bartlett & Collins 2011).

6. Aesthetics as Process

Bateson's idea of aesthetics was that it was an integrative process. Aesthetics explains the movement of interactive patterns which are immanent in nature. From the full bodied movements of Kung San dancers to the symmetrical patterns of crystals, each underlines "interconnectivity and wholeness" (Keeney 2005:80). This sense of interconnectivity was apparent in cosmic creation with the formation of subatomic particles which led to fully formed atoms and the subsequent emergence of universal matter. Within the biological domain, interconnections to produce integral wholeness were apparent in bacterial life during the Proterozoic Eon (2.5 billion years ago−540 million years ago). Margulis and Sagan suggest that during this period cellular parts such as mitochondria had entered primitive bacteria, thereby forming an alliance with their bacterial hosts (Margulis & Sagan 1993). Mitochondria's role in early proterozoan life was in regulating oxygen based energy and waste disposal. This kind of symbiogenesis formed the first microbiological colonies and became the building blocks of multicellular life during the Cambrian period. Proterozoic life forms come close to characterising Bateson's notion of mind. Bacteria routinely form alliances and transfer their genes. This multitudinous transference occurring over vast periods of time enabled bacteria to create a single gene pool (Margulis & Sagan 1993). Bacteria were the first species to create a global *nous*. The dynamic networking ability of bacteria catalyses all evolutionary processes and maintains macro and micro homeostasis.

7. Ecology and Returning to the Senses

Bateson's emphasis on integrative patterns which connect may include the rhythmic dance of the senses with the environment. In phenomenology, the senses not only continually access information of the environment but are the conduit for 'presenting' the non-human other. Abram (1997) has written extensively of the sensuous engagement between the senses and the environment. According to Abram the senses are the primary source of aligning with ecology. For this reason Abram calls for a 'returning to the senses'. The senses are primordial in that they preceded language and technology. However, over long evolutionary periods the human senses have been finely tuned to the rhythms and subtleties of the environment. The senses of ancestral humans must have been attuned to the cavalcade of environmental patterns, the migratory routes of animals, the textures of the air, the sonorous songs of birds during mating season, the terrain animated with flora and fauna. Extant hunter and gatherer groups are familiar with the living patterns and habits of animals which goes beyond the field of vision; the aural and olfactory signatures of specific animals, the sensuous dance of the wind as it embraces the flesh. The sensory world is both enigmatic and a source of power. As Abram notes, the senses mediate our experience, attuning our emotions with the animate world. Indeed, our senses have evolved to reciprocate with the earth's biorhythms, binding our bodies with the cadence of the seasons (Abram 2002). In his important work, *The Visible and the Invisible* (1968), Maurice Merleau-Ponty discusses how humans reciprocate with the non-human world. This relationship is referred to as "flesh in the world." The flesh is the integument which bonds the observer and the observed, the "sentient and the sensible" (Abram 1997:66). Abram refers to this reciprocal play of the senses as

"touching and being touched" (1997:68-69).

> The presence of the world is precisely the presence of its flesh to my flesh, that I 'am of the world' and that I am not it… the flesh we are speaking of is not matter…It is the coiling over of the visible upon the seeing body, of the tangible upon the touching body (Merleau-Ponty 1968:127,148).

This kind of sensuous reciprocation works within the ambit of Bateson's aesthetics and ecology. Bateson viewed the non-human world as an enchanted realm, the source of human myths and sacred power. Bateson hoped that human beings would retrieve a sense of the sacredness of nature due to "our interconnective membership within the biotic world" (Charlton 2008:159).

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