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Law in the living cosmos: the 'ought' at the core of the 'is'

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1. Early days of environmental philosophy: the problem of dualism[1]

In the 1970s-80s a radical critique of traditional Western approaches to nature emerged simultaneously at various flashpoints in the Western world, notably Australia, Norway and the USA.

The Norwegian critique emanated from philosopher, Arne Naess, who became the founder of the deep ecology movement. In the USA a handful of emerging philosophers, amongst them Holmes Rolston, Baird Callicott and Eugene Hargrove, gave voice to their environmental concerns in a new journal, *Environmental Ethics*. There was a less well-known but just as trenchant Australian critique from the Routleys (later known as Richard Sylvan and Val Plumwood) at the Australian National University. All these early philosophers recognized that the environmental problems that were coming into view at that time were the result not merely of faulty policies and technologies but of underlying attitudes to the natural world that were built into the very foundations of Western thought.

For all of them, the notion of *anthropocentrism* (or as the Routleys termed it, *human chauvinism*) was key to these attitudes. Anthropocentrism was the groundless belief, amounting to nothing more than prejudice, that only human beings matter, morally speaking; to the extent that anything else – animals, plants, ecosystems, the natural world generally – matters, it does so only because it has some kind of utility for human beings. Together these early philosophers challenged this assumption. As Richard Routley put it in the title of his 1973 paper, "is there a need for a new, an environmental, ethic?". (Routley 1973) By an environmental ethic they meant an ethic of nature, an ethic that treats nature as morally considerable in its own right.

This early challenge to anthropocentrism set the agenda for the new discipline of environmental philosophy, which matured through the 1980's and 1990's as a whole new generation of thinkers joined the inquiry.

[1] This chapter includes passages adapted from Mathews 2019a and Mathews 2019b.

Why, these philosophers wondered, had the West developed such a blinding moral prejudice against nature and in favour of humanity? It was clear that some kind of *dualism* or *binarism* was at work – a dichotomizing tendency that set the human apart from and above nature. The human stood as the measure of all meaning and value against the brute facticity of nature. Why? What was so special about the human?

2. The roots of the dualistic conception of matter and mind in classical science

In due course many environmental philosophers converged on an answer: the special attribute that was perceived as setting humans apart from the rest of nature was *mind*. Without mental attributes of some description, an entity cannot matter to itself or in itself since it cannot have meaning, value, interests or ends of its own. Only a being that matters to itself, that seeks its own good or pursues ends of its own, can have intrinsic moral, as opposed to merely instrumental, significance: if a thing does not matter to itself, why would it matter what we do to it, except insofar as what we do might have consequences for other humans? If humans alone possess mind, then humans alone are entitled to moral consideration. But why assume that humans alone possess mind and that the rest of nature is blank and blind?

In searching for an answer to the question of why it had for so long been assumed that humans alone possess mind, environmental philosophers often blamed the mechanistic view of matter that the West had inherited from Newtonian science of the 17th century.[2] (Easlea 1973; Merchant1980; Berman 1981; Mathews 1991; Keller 1996)

From the Newtonian viewpoint, nature can be exhaustively described and explained in materialist terms. Matter in itself is, from this perspective, sheer externality – there is nothing in it that is not empirically observable, which is to say, observable from the outside. There are no indwelling powers or agencies that cannot be fully accounted for in terms of regular or lawlike patterns of external motion that are themselves attributable to external, specifically mechanical, forces.[3] Macro-level material objects are merely aggregations of particles that are likewise fully externalized and inert, moved and arranged by external forces.

Our own experience of ourselves as animate beings, moved from within by inner, inherent impulses not observable from the outside, stands in contrast to such reductive materialism. While the observed behaviour of other living things seems, from the Newtonian perspective, to be at least in principle explainable in mechanistic terms, our own behaviour defies such explanation. We cannot doubt

[2] The ultimate origins of dualism may arguably be traced much further back than the 17th century – to ancient Greece, for example, or even to the agricultural revolution that took place in the Neolithic. (Mathews 2019b) But the Scientific Revolution unquestionably represents a moment in which dualism came into sharp philosophical and historical focus.

[3] Gravitation was, for Newton, an anomaly in this respect: it was posited by him as an 'occult' force, not yet explainable in the mechanistic terms he considered proper to science.

that aspects of this behaviour emanate from a mysterious 'inner life' that is invisible to others. This inner, felt dimension of our being seems then to set us apart from nature understood in mechanistic terms – a categorical divide that was immortalized by Descartes as *cogito ergo sum*.

This inner, felt dimension is of course what is meant by *mind* in the materialist framework. And it is this indisputable but mysterious, inner dimension of the body, enabling the subject to reference itself and hence matter to itself, that renders the bearer of mind morally considerable: a being endowed with a mental dimension, and hence with meanings and ends of its own, possesses self-sovereignty, in a way that mere objects do not. Such a being cannot be despatched or subjected to the ends of others in the same morally neutral way as can a mere object devoid of such self-sovereignty: it is accordingly possessed of inherent moral significance. (Taylor 1986)

3. The environmental challenge to this dualistic conception of mind and matter

But surely, environmental philosophers, writing in the late 20th century, protested, such a black-and-white dualism of mind and matter, that reserves mind for humans and represents the rest of nature as literally mindless and hence devoid of meaning, purpose and moral status, is simply wrong? From the 1980s, and over the next three decades, the race was on to expand the traditional conception of mind and discover mental attributes, in some larger than Cartesian sense, in nature – thereby extending the scope of moral significance beyond the human.

This inquiry of course raised a plethora of questions without clear-cut answers. What was 'mind' in this larger sense? Did it necessarily entail consciousness or subjectivity? Who or what was imbued with it? Living things? But what counts as a living thing? Do individual organisms alone count as living things, or do larger living systems count as well? Should an environmental ethic cover *all* living things? Should plants and fungi count as morally considerable in their own right? If so, how considerable? As considerable as animals? Should a distinction be made, morally speaking, between higher and lower animals? But which animals are higher and which lower? And what about microbes? Single cells? Viruses? Species? And natural features of the landscape that are not alive, such as rocks and rivers? Is the entire landscape a living thing? Or indeed, is the universe as a whole alive? And again, might we regard either the landscape or the universe in its entirety as alive without ascribing mind to it?

Environmental philosophers of course disagreed with one another in their answers to these questions. Some even argued that it was not necessary to challenge anthropocentrism (nor hence dualism) in order to extend adequate protection to the natural environment: instrumentalism – the view that we need only value nature as a stockpile of natural resources for human use - might

afford a sufficient basis for an environmental ethic.[4] It was also proposed that nature might be regarded as intrinsically valuable and therefore morally considerable but on other grounds than that it was imbued with mind; on the grounds that it was beautiful, for example, or God's Creation.[5]

But many environmental philosophers of this period did seek to extend moral considerability to nature on the grounds that it was at least in part imbued, like humans, with mental attributes, in some larger sense of 'mental' that nevertheless implied self-meaning or self-mattering. (Lawrence Johnson 1991; Paul Taylor 1986)[6]

4. In the 20th century, many other streams of philosophy also sought to deconstruct the dualist system of binary oppositions

Critique of dualism was not the province of environmental philosophers alone: the analysis of binary oppositions was a central preoccupation of feminist theory throughout the last quarter of the 20th century. According to feminist thinkers, dualism was the axis around which patriarchal thought was organised. Core binaries, such as mind/matter, mind/body and human/nature, were heavily gender-laden, constituting corner stones for an ideology of domination that arrogated to masculinity the value-generating properties of mind while relegating to femininity the value-null residue – all that was left of a nature stripped of intelligence, awareness, sentience, agency, meaning and purpose. Woman was symbolically constructed, within this ideological framework, as mere body-nature to man's mind-culture. The subjugation and instrumentalization of nature was thus, according to ecofeminists, inextricably linked, within the Western episteme, with the subjugation and instrumentalization of women. (Plumwood 1993; Warren 1990) The attitude to nature that had given rise to the environmental crisis was, in other words, no mere unfortunate philosophical error, as environmental philosophers had until then supposed, amenable to philosophical correction. It was integral to a political order that would require political overthrow.

Politically motivated critical analysis of dualism was also core to *deconstruction*, a project that was at that time unfolding in France under the leadership of Jacques Derrida. Deconstruction was in no way allied with environmental philosophy though it did eventually give rise to its own stream of ecological thought – as, for example, in the work of Timothy Morton. Earlier, in Europe and the United States, *critical theory*, the legacy of the *Frankfurt School* in Germany, associated with thinkers such as Horkheimer and Adorno, had also argued that the domination of nature served as ideological template for political domination generally. Even in science, the definitive binary between subject and object or

[4] See, for example, John Passmore and Bryan Norton for arguments that anthropocentrism can provide a perfectly adequate basis for environmental ethics.

[5] For an aesthetic approach to environmental ethics, see Eugene Hargrove 1989; Janna Thompson 1990; Thomas Heyd 2007. For a Christian approach, see James Gustafson 1994; Pope Francis 2015.

[6] See Andrew Brennan and Yeuk-Sze Lo (2015) for an overview of different arguments within environmental ethics for the intrinsic value and consequent moral considerability of nature.

observer and observed came under challenge via the paradox of observer dependence in quantum mechanics – the finding that any act of observing a quantum system that involves measurement inevitably disturbs that system, thereby seemingly rendering quantum reality unknowable in any fully objective sense.

In many ways then, the quest to dismantle dualism was one of the great philosophical projects of the 20th century, a quest pursued across many of the disciplinary channels of the Western academy. Nevertheless, environmental philosophers were the first systematically to focus on the consequences of dualistic habits of thought for nature itself rather than on the ways in which these habits served to legitimate domination of human groups by associating them with a wholly morally disenfranchised nature.

5. How to dismantle dualism?

If dualism were the problem, environmental philosophers reasoned, then the solution would presumably lie in the dismantling of dualism. But, even setting aside the issue of its political role – as ideology - in wider systems of domination, how could dualism be conceptually dismantled? Would dismantling it consist simply of putting back together what dualism had sundered - restoring mind in some larger sense to matter; re-uniting mental faculties, such as reason and cognition, with bodily faculties, such as sentience; resituating the human in nature - redefining binary categories in ways that integrated them?

Seeking to address this question in the late 20th century required coming to terms with shifts that had occurred in the configuration of dualism since the 17th century. Mind had been posited by Descartes at that time as a God-given metaphysical 'substance' in its own right, categorically distinct from matter and exclusively the province of humans. By the late 20th century however, materialism *sans* Cartesian mind had thoroughly infiltrated Western consciousness via science, especially via the industrial praxis to which science had given rise. The Cartesian assumption of mind as a distinct metaphysical 'substance' no longer had currency outside minority philosophical (and perhaps religious) circles. Rather, by this time, mind was regarded as an – admittedly mysterious – correlate of certain specialized physical – neurological – structures. Matter was thus treated as ontologically primary; mind, though still special, was considered derivative. While this triumph of materialism might look like the collapse of mind-matter dualism - albeit a collapse that threatened to drain meaning and moral significance even from the human, by reducing the mental to matter - it in fact perpetuated dualism in its conception of matter. Matter continued to be construed, from the materialist perspective, as fundamentally mindless: the elements of matter – particles and fields – were in themselves devoid of any capacity for experience, even though they could, in complex aggregate, give rise to such a capacity. Humans were moreover still widely regarded as the exclusive possessors of the neurological equipment required for consciousness. In this sense, the old value-dualism that had accompanied the original Newtonian-Cartesian version of metaphysical dualism persisted through the transition to late 20th century materialism.

Some philosophers of this period took a step towards challenging value-dualism and overturning anthropocentrism by attributing mind, and hence moral considerability, to a range of nonhuman animals. (Singer 1975; Tom Regan 1983) The animals in question were deemed by them to be neurologically endowed to the degree necessary for morally relevant levels of consciousness. This position has recently received resounding validation from science itself: leading neuro-scientists have acknowledged that many species of animals share with humans the basic neurological substrates that generate consciousness. Neurology pertaining to emotions, for example, is found in many species; animals who are neurologically wired in this way must, scientists now insist, experience the same emotions and associated states of consciousness – including fear, terror, jealousy and grief - as humans similarly wired do.[7] Even entomologists, such as eminent conservation scientist, E. O. Wilson, describe certain species of ants and bees as literally learning from experience and making decisions. (Wilson 2009)

Even more recently, an array of philosophers and botanists have gone so far as to ascribe mind, or at any rate mind-like properties, to plants and perhaps to fungi: in forests, for example, trees communicate with one another via electrical and chemical signals transmitted through underground mycorrhizal (fungal) networks (the 'wood-wide web'). (Wohlleben 2015) Mature, healthy trees also deliver nutrients and water through these same networks to trees in need; they can warn neighbours of insect attacks. In experiments, botanist Monica Gagliano, has shown that plants can 'learn' to distinguish between relevant and irrelevant stimuli and will 'remember' what they have learned for extended periods. (Pollan 2013) Not all botanists agree with such interpretations of the experimental findings, but these interpretations are being widely discussed.

Indeed, many people in the West now seem prepared to admit that animals, plants and perhaps fungi are beings endowed with degrees of consciousness. The inference that such beings may be entitled to moral consideration in their own right is likewise in the air.

However, though undoubtedly an advance over the older version of value-dualism that was still prevalent in both science and Western society only a generation ago, this new inclusiveness scarcely represents a thoroughgoing dismantling of dualism. As I have already remarked, the materialist approach to mind leaves in place the Newtonian assumption that matter is, at the most fundamental level, inherently dead and blind. Instances of emergent mind exist only as a scatter of tiny islands of self-transparency in an otherwise dark, self-indifferent and meaningless universe. In this sense, materialism is still essentially dualist. The ground we walk, the sky overhead, the stars above, are still dead matter, in themselves sheer meaningless externality, and accordingly there for us to use as we see fit. Selectively including animals and plants in the circle of the mentally endowed - and hence morally elect - amounts only to an

[7] See the 2012 Cambridge Declaration on Consciousness. http://fcmconference.org/img/CambridgeDeclarationOnConsciousness.pdf Accessed 8 January 2020.

extension of the logic that underlies anthropocentrism. In other words, such a strategy represents, not so much a departure from anthropocentrism as a mere extension of it – it is a case of moral extensionism. (Rodman 1982)

Truly to reorient ourselves to reality, however, to walk with a gentler, kinder step that betokens true escape from the dualist mind-set, with its default instrumentalism, we might need to assume a somewhat more *panpsychist* perspective.

6. Relational and distributive approaches to dismantling dualism: mind that exceeds consciousness

Some environmental philosophers, refusing to settle for a merely extensionist approach, sought rather to open the category of mind up to larger-than-neurological interpretations. Typically, such approaches relied on relational or distributive perspectives: mind was construed as inhering in the relational aspect of larger systems as a distributive property of those systems, rather than as emanating exclusively from a neurological or neuro-equivalent core. The simplest example of such a system is perhaps the ecosystem: individual organisms belonging to a given ecosystem may prima facie possess specific degrees of intelligence but, from a relational perspective, the system itself also possesses its own pervasive – distributive - intelligence in which all its members share. So, for example, while the Blue Whale is known to be a creature of prodigious intelligence, capable of complex communication across astonishing distances, it has functionally evolved to feed on tiny krill. Its entire anatomy – in particular its baleen mouth – embodies a non-contingent reference to krill. In this sense, from an ecological point of view, Blue Whale identity is 'internally related' to the identity of krill: Blue Whales are not merely causally, but also logically, inextricable from krill. When species identities are viewed relationally in this way, then mental attributes cannot be seen as the preserve of just one or a few special species: cetacean intelligence is not the province exclusively of cetaceans but is rather implicated in the ecosystem to which the whale or dolphin belongs. In the case of the Blue Whale, it is shared by the humble krill. (Mathews 1991, 2017)

This is what founding ecophilosopher, Arne Naess, meant, back in 1973, when he wrote that the notion of a 'thing in its environment' should be replaced with a "relational, total-field image". Organisms should be viewed not as separate entities in their own right but as "knots in the biospherical net or field of intrinsic relations". (Naess 1973; Rodman 1982)

Human identity, according to ecophilosophers of this stripe, is no different from Blue Whale identity. It is constituted through and through by its relations with other species and communities of life. Far from being a 'higher' mentally-endowed subject, set apart from and looking down on a 'lower', blind nature, the human self is an *ecological self*, its identity a mesh of relations with other species and elements of the earth environment. (Naess 1985, 1988; Fox 1990; Mathews 1991) Mind is implicated in, or distributed throughout, this mesh of relations, and cannot be regarded as the province of a privileged entity.

Another variant of this relational, distributive approach to mind in nature is that of Gregory Bateson. According to Bateson, mind is a process that continually occurs at every level of living systems, from the cellular to the biospheric. It is intrinsic to the kind of organizational processes whereby living systems interact with one another in order to evolve, differentiate and maintain themselves in existence. Bateson pictures mind not as a 'thing' (as in 'my mind' or 'the mind of a dolphin') that belongs to an entity but as a vast, dispersed, systemic process drawing entities into complex, mutually constituting interactions, while always also opening out into new, nested levels of organization. In this sense, mentality is conceived by him more as verb – as thinking – than as noun. (Charlton 2008; 68)

A key to understanding Bateson's interpretation of thinking is the notion of *information*. He famously, though opaquely, defines information as any difference that makes a difference. By this I take him to mean that, for a given system, S, information inheres in any change in the physical environment which potentially makes a difference that matters to S. S must be structured in such a way that it can register the change in question and respond to it according to its own internally generated preferences. What makes 'difference' constitutive of information is, in other words, not merely that the change or condition, C, is registered by S but the fact that it is relevant to the constitutive ends of S. Such relevance is not in itself part of the physical furniture of the world but is what renders C *informational*, relative to S, rather than merely *causal*. Wherever events occur as a result of such informational stimuli, as opposed to blind causation, thinking is taking place. As Bateson's daughter, Mary Catherine Bateson, explains, the distinction between the realm of mind and that of mere matter is precisely this: in the realm of mind, systems respond to informational stimuli, while in the realm of mere matter, changes are due to physical causes alone. (Charlton 2008; 44)

Such adaptive and productive thought processes are, according to Bateson, taking place everywhere in both nature and society. They encompass systems of interaction amongst human individuals in groups – families, communities, committees, corporations, nations - and amongst the elements of biospherical systems and cycles. The paradigm of such a thought process is evolution itself.

The majority of such thought processes are understood by Bateson to be unconscious, but this in no way leads him to value them less than the activities of human intellect. Indeed, biological, ecological and evolutionary processes are regarded by him as paradigm instances of intelligence: human ratiocination, so vaunted by us, trails far behind the unconscious thought processes even of the human body, let alone the wider processes structuring ecology and evolution.

Relational or distributive approaches to mind in nature, such as those I have just outlined, are sometimes described as panpsychist, but this is a weak form of panpsychism inasmuch as it attributes mind (in the relevant enlarged though unconscious sense) only to *living* systems, up to and including the biosphere as a whole. Aliveness is not here regarded as co-extensive with matter. For Bateson,

certain elements – particles, rocks, grains of sand – are purely inanimate and as such lacking in mental properties. Living systems are organized out of such inanimate components but the inanimacy antedates them.[8]

Although such an enlarged view of mind may seem to take us considerably further towards the dismantling of mind-matter dualism than extensionism did, we might again wonder whether, in the final analysis, it goes far enough. Does this approach really discover mind in nature or does it merely redefine already well-known and understood aspects of nature as mind? In other words, is the category of mind in this context really doing any theoretical work that was not already being done by, say, evolutionary biology? Perhaps such a revised account of mind does indeed encourage a deeper valorization of the life-world than had previously been achieved, thereby breaking down the value-dualism that has traditionally accompanied mind-matter dualism. Under its direction, we may indeed comport ourselves more respectfully towards all forms of *biosis*. But our default modality will still remain the instrumental one: wherever our actions do not impinge on living systems we shall be at liberty to continue blasting and carving up landscapes in our habitual manner.

In order genuinely to dismantle dualism, and so reinhabit reality in an entirely new, non-instrumental fashion, we may need to take the next step, the step towards a fully-fledged panpsychism - or panpsychism properly understood.

7. Introducing Panpsychism

According to the view that I am here calling panpsychism, mind is a fundamental aspect of matter per se. That is to say, mind is not merely distributed more widely in the living world than Western science traditionally allowed. Mind is actually intrinsic to matter – there can be no matter that is not also inherently imbued with mind. Mind is a part of what matter most fundamentally is. There is in this sense no 'brute matter', no such thing as the purely externalized 'stuff' proposed by classical physics.

Whether the 'inner' properties thus ascribed to matter are characterized in terms of agency, teleology or intentionality or more overtly psychological properties, such as consciousness, experience, phenomenality or spirit, they cannot be captured in purely *extensional* terms ie they cannot be described in terms of properties that are fully observable from the outside. In other words, according to panpsychists, materiality per se has a depth dimension, inaccessible to observation, as well as an external, observable aspect. The universe is inwardly textured, as a terrain of subjectivity, as well as outwardly articulated as matter behaving in accordance with the laws of physics.

Such a view of the nature of reality may be theorized in a variety of very different ways, from W. K. Clifford's 'mind stuff', Whitehead's 'prehending' particles and

[8] Bateson calls the realm of the living, *Creatura*, and that of the non-living, *Pleroma*. (Bateson and Bateson 1987)

Williams James' 'mind dust' to the self-active universes of Spinoza, Schelling and David Bohm. (Skrbina 2005)

There are several streams of panpsychism in contemporary philosophy. By far the most influential is panpsychism as a *theory of consciousness*.[9] Under this aspect, panpsychism addresses the very difficult, indeed so far profoundly unresolved, question of how and why consciousness, as it appears in the history of evolution, ever emerged out of brute matter, via mere physical mechanism. As philosophers of consciousness such as David Chalmers have pointed out, and as in fact the views of Bateson imply, organisms could have evolved sophisticated information-processing faculties, together with appropriate responsive capabilities, without ever having become conscious at all. (Chalmers 1996) The panpsychist reply to this problem, a reply again variously theorized, is that consciousness never did emerge out of brute matter because no such thing as brute matter ever existed: matter has always been imbued with mental characteristics and is so imbued all the way down to the most elementary level. [See Chalmers chapter]

Arguments for panpsychism in the theory of consciousness follow an analytical pattern, adhering closely to the accounts of consciousness offered by neuro-science and evolutionary biology. Indeed they share the entire schema of neurological and evolutionary explanation with science, merely adding, at every level of theorization, the rider that the theoretical particles and structures defined at that level must also be ascribed with an undefined mental attribute. Any explanatory work that analytical panpsychism does is therefore arguably ad hoc: it merely stops up, by metaphysical fiat, an explanatory hole in the scientific account of mind. In my own opinion, panpsychism should most certainly be consistent with science but it should also exceed science in its explanatory reach and in this sense challenge the exclusive authority of Western science to set the parameters of our understanding of reality.

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[9] Two other contemporary streams of thought with affinities to panpsychism are (i) animism and (ii) the so-called new materialisms.
(i) Animism is less a philosophical theory than a worldview adopted for ethical reasons as an article of faith from Indigenous traditions. As leading exponent, Graham Harvey, puts it, animism is generally understood less as a philosophical explanation of mind in nature than as a metaphysical conviction emanating in a protocol for comporting oneself in a world filled with other-than-human agencies and intelligences. (Harvey 2009) (Exceptions to this generalization however include environmental philosopher, Val Plumwood, who described herself as a 'philosophical animist' while nevertheless providing a detailed theorization, based on intentionality, of mind in nature; and David Abram, whose environmental animism is well theorized in terms of phenomenology. (See Plumwood 1993; Mathews 2014 for discussion of Plumwood 1993; Abram 1996.)
(ii) The new materialism has arisen recently in the context of cultural studies. As a school, it may be regarded principally as an attempt, variously theorized by different authors, to reconcile the deconstructive tradition, with its tendency towards epistemological relativism, with material realism. For some new materialists, such as Jane Bennett, whose view of matter is perhaps comparable to Bateson's, environmental implications are indeed seen to follow from such attempts to reconcile epistemology with a realist ontology. But environmental concern per se by no means seems to be a principal motivation for this school of thinking more generally. It is beyond the scope of the present chapter to explore the connections between the new materialisms discourse and the discourses of panpsychism. (Bennett 2010; Dophijn and Tuin 2012)

For a position that seeks to preserve consistency with science while nevertheless exceeding both the explanatory reach of science and the horizons of possible experience staked out by science, we might need to move up to the cosmological scale.

8. Cosmological or living cosmos panpsychism

Cosmological panpsychism itself is currently coming into vogue as a theoretical initiative in the philosophy of consciousness (Goff 2019; Shani 2015; Nagasawa and Wager 2016), but it has much deeper roots in environmental metaphysics, and indeed in the history of Western thought. (Skrbina 2005) In the history of Western thought it originated not specifically as a response to the riddle of consciousness but as a speculative response to the primordial question of metaphysics: what is the ultimate nature of reality. My own version of this position, which I shall briefly outline here, owes a great deal to Spinoza. (Mathews 1991; 2013; 2019) According to this loosely Spinozist rendering, which I call 'living cosmos panpsychism', the manifest world, as described by physics, is the outward appearance of an inner, felt field of subjectivity, where subjectivity is understood as the sense of self-presence that is a pre-condition for experience. Reality is, from this point of view, both a unity and a manifold of finite modes or differentia, a One and a Many. Viewed from within, it is a felt field of subjectivity, with a conativity – which is to say, a will to realize itself and increase its own existence - of its own. From the viewpoint of its finite modes however, or those of them that are capable of acting as observers, it is an external order of space-in-time, as represented by physics.

Let us take a moment to unpack these brief remarks. As a first step, it might be helpful to consider some of the basic questions of metaphysics to which this view is addressed. Why is the universe—the observable world, as represented by physics — a *uni*verse, a unity ie why does it cohere, hang together, in the way that it does? Why is it *spatial*? Why is space—which is to say, the very frame of physics—unbounded yet unbroken, an indivisible wholeness, a fieldlike manifold? Why does it not break up, fragment, and hence cease to be fieldlike?

To such questions, physics itself of course has no answers. Spatiality is presupposed. There are 'laws' that hold physical structures together and thereby guarantee the overall cohering of things but physics cannot explain why those particular laws hold. From its viewpoint, this cohering is ad hoc, contingent; there is nothing in the nature of physicality per se that appears to underpin it.

Cosmological panpsychism, by contrast, offers answers to these questions. As soon as an inner or subjectival dimension – the subject's sense of presence to itself - is seen as integral to the nature not merely of matter but of physicality per se, which is to say, the entire field of spatiotemporal existence in its totality, then the necessity of this cohering of physical existence into a unity, a *uni*verse, an indivisible manifold such as that of space-in-time, is explained. For the quality

of subjectivity is itself, by its very nature, fieldlike, holistic, internally interpermeating, indivisible, unbounded. Subjectivity cannot be constituted atomistically, as an aggregate of discrete units of experience or even as a continuum of point-like experiences. If mentality is as primal as is physicality in the overall scheme of things then, and if it is understood as the innerness, the sense of self-presence or subjectivity that grounds consciousness, then physical existence must reflect the indivisible nature of mind. Physicality must exhibit the same field-like structure as mind.

We might ask however why mind itself is field-like and indivisible? A possible answer is that mentality is a function of *meaning*, or of the sense of meaningfulness that inheres in things with an interest in their own existence. Such beings are shaped by an investment in their continued existence that renders all that happens around them, potentially meaningful to them. Meaning by its nature is indivisible – different meanings pervade, inter-permeate and inflect one another, morphing according to context. (Think of the layering of meaning that renders good poetry resistant to analysis.) Mind, as the experience of meaningfulness, must share this field-like quality of indivisibility.

Let us call beings with an interest in their own existence, *selves*: a self is any entity, human or otherwise, that is systemically organised to maintain itself in existence by its own self-referring efforts. Spinoza's term for this will to self-existence was *conatus* or conativity. Selves may accordingly be described as conative beings or systems: they have a constitutive interest in self-actualization, self-maintenance and self-increase. If selves did not exist, nothing that occurred would matter more or less than anything else, so nothing would be meaningful.

If mind, as a function of meaning and ultimately of self-mattering, is the province of selves, and the universe as a whole has an inner, mental dimension, as the cosmological panpsychist affirms, then this must be because the universe as a whole matters to itself and is hence imbued with self-meaning. Being imbued with self-meaning, it qualifies as a Self - a very special, *sui generis* kind of self, indeed, but a self nonetheless - self-actualizing, self-preserving and self-expanding.[10]

The manifest or empirical world, as charted by physics, is thus, according to this view, the 'outward' appearance of an inner field of conative experience, the experience of a cosmological Self. This inner field being necessarily indivisible and self-cohering, the outer universe will also partake of such coherence and indivisibility, where this will be manifested in the lawlikeness that ensures that the universe hangs together as a spatiotemporal unity.

How, it might be objected, can the universe as a whole – the totality of all existence – be viewed 'from the outside'? Although this universe, under both its outer and inner aspects, coheres as a unity, it also, as I have mentioned,

[10] It is not hard to appreciate that a view of the universe as self-actualizing, self-preserving and self-expanding is by no means incongruent with expanding universe models in contemporary cosmological physics.

undergoes self-differentiation. Such self-differentiation is an aspect of its self-realization and self-increase. Its field-like fabric ripples and folds locally to form a dynamic manifold of ever-changing, finite 'modes'. Among these modes or differentia are some that have undergone sufficient (though always relative) individuation to count as self-realizing systems in their own right, thereby distinguishing themselves, from within their own perspective, from the surrounding field. Such modes qualify as (relative) selves. They include organisms and possibly higher-order living systems, such as ecosystems and biospheres. It is from the perspective of such perceiving selves, situated within the wider field but differentiating themselves from it, that reality may be said to present an 'outward' appearance.

When selves are understood as finite modes of a cosmos that is structured by its own conative ends, it is clear that those selves must contribute in their own small ways to those larger ends: the purpose of their existence, within this larger scheme, must ultimately be to further the overall cohering and regenerativity – the self-realization and self-increase - of the cosmos. They will do so in part by actualizing themselves in accordance with their own conativity; but such self-actualization must be consistent with, indeed support, the conativity of fellow selves, since those fellow selves also represent finite modes contributing to the self-realization of the cosmos.

There is thus an innate pattern in the unfolding of this cosmos, discernible particularly in the unfolding of living systems, since living systems represent the context within which finite selves are constellated. The pattern is one of mutually accommodating conativities, or, as I have elsewhere termed it, a pattern of synergy characterized by the twin principles of (i) conativity, and (ii) accommodation or least resistance. (Mathews 2019a) In the biosphere, the behavior of most species broadly follows these twin principles because this is a strategy that, being energy-conserving, logically results in natural selection. Here in Australia, for instance, small marsupials such as bettongs and bandicoots want truffles and tubers and in digging for them, aerate woodland soils. Such aeration boosts vegetation, increases water retention and improves conditions for seed germination, thereby helping to assure the future of the woodlands on which the marsupials themselves depend. The healthy woodland, for its part, freely gives what bettongs and bandicoots desire, thereby sparing them the effort of providing for themselves. By each adapting its conativity to that of the other in this way then, both parties conserve their energy, thereby enhancing their chances of survival.

Conflict, competition and predation do of course still occur in nature. Often synergy is evident only at the population level rather than at the level of individuals. Predation, for example, may be essential to prevent populations of herbivores from over-grazing the very grasslands on which they depend, though the relation between predator and prey as individuals could hardly in this instance be construed as synergistic. In cases in which parties cannot achieve synergy at all, whether at the individual or population level, conflict will occur. But such conflict will always entail an energy-cost for the individuals or populations in question, and modes of conflict themselves will accordingly tend

to be shaped by the principle of least resistance. (Martial arts follow this model of conflict: practitioners learn to conserve their own energy by turning the force used by opponents back onto those opponents). At the end of the day, the imperative to desire what others need one to desire will be what ensures that every living thing, in effortlessly following its own desire, at the same time perpetuates the larger system that satisfies it.

Within the specificity of different environmental circumstances then, such adaptivity to the ends of others helps to shape the morphology and functionality of each organism. Working together, the two principles result in complex systems of mutual accommodation: each organism seeks its own existence in ways that help to perpetuate the existence of the organisms surrounding it. In aggregate, mutually adaptive organisms make up larger, self-perpetuating systems. The principle of accommodating others by adapting one's own desires to theirs in this way assures the ongoing regeneration of life.

Since finite selves, such as organisms, exist, relatively speaking, for themselves, and not merely as currents in the larger field, they matter to themselves and hence possess self-meaning as well as being part of the flow of those larger currents. Such self-mattering enables them to act in accordance with preferences of their own rather than merely merging with the contours of prevailing forces. This implies that finite selves may opt *not* to act in accordance with the pattern that preserves the ongoing cohering and regenerativity of the cosmos, even if this will result in their eventual demise by undermining the local system on which they depend. This pattern, characterized in terms of the twin principles of conativity and accommodation/least resistance, is thus *normative* rather than deterministic. It may be seen as the Law of the living cosmos - not a law in the sense of a mere fact of physics, nor a law in the sense of a mere juridical convention, as in the legal systems of Western societies, but a normative imperative at the core of existence - an 'ought' at the very root of the cosmic 'is'.

9. Aboriginal Law and living cosmos panpsychism

In pre-agrarian societies, in which peoples lived by hunting and gathering in close association with and attunement to ecological systems, this normative pattern in the fabric of reality was readily discerned and indeed enshrined as Law. Such Law was explicitly acknowledged – and is still acknowledged today by peoples who have managed to preserve Indigenous ways of life - as immanent in the land itself.

A classic account of Law by anthropologist, Deborah Bird Rose, based on her study of the people of Yarralin in Northern Territory, characterizes Law in terms of four norms: *balance, symmetry*, *autonomy* and *response. Balance* must be achieved between competing interests or opposing forces, all of which must be treated as *symmetric* in the sense of equal in respect of moral considerability, with none being regarded as in any sense less than or properly subservient to others. Each, in other words, must be treated as 'boss for itself', an entity endowed with *autonomous* agency. All such agencies are required to

acknowledge and adapt to the wider fields of agency that surround them by way of continuous two-way, or *responsive*, communication. When these four norms – which effectively revolve around the axis of balance - are observed, Rose notes, *sustaining relationships* are preserved – between people and people, people and other species, species and species, species and country, country and country. The cosmos, as governed by Law, is a moral order, in the sense that every being, whether human or non-human, has free will, and can choose whether or not to play its part in keeping the system of relationships knitted up. To disregard Law is to allow the cosmos to unravel. (Rose 1993)

Law in this sense is inferred not merely from empirical observations of natural processes but from *stories*, stories that are discoverable within every aspect and element of the natural landscape. There is, in other words, a meaning dimension that lies hidden within the manifest world. Aboriginal people refer to this dimension as *Dreaming*; particular stories that translate those meanings into the language of humans are known as Dreamings. As an interviewee of Rose, Mussolini Harvey from the Gulf of Carpentaria in northern Australia, explains:

"The Dreamings made our Law….This Law is the way we live, our rules. This Law is our ceremonies, our songs, our stories; all of these things came from the Dreaming……our Law is not like European [l]aw which is always changing - new government, new laws; but our Law cannot change, we did not make it. The Law was made by the Dreamings many, many years ago and given to our ancestors and they gave it to us…..The Dreamings are our ancestors, no matter if they are fish, birds, men, women, animals, wind or rain. It was these Dreamings that made our Law. All things in our country have Law, they have ceremony and song…" (Harvey quoted in Rose 1996, 26)

The Aboriginal notion of Dreaming then, and in particular the notion of Dreaming Law, may, like living cosmos panpsychism, be construed as pointing to an inner dimension of mind and meaning that is integral to a self-constituting, self-cohering cosmos.[11]

When Europeans first colonized Australia over two hundred years ago, they regarded Aboriginal peoples as 'savage', and, shamefully, this view has lingered throughout the colonial history of Australia. Aboriginal thought is rarely included in philosophical discourse. Yet Aboriginal culture has the longest continuous history of any human society, ever. At least 50,000 years, and the estimates of its duration are continually being revised upwards. A culture that can endure for so long, through such enormous climatic and geological vicissitudes, surely has incomparable adaptivity. Aboriginal societies, at the time of European contact, had one of the 'simplest' material technologies of any known society. They had little in the way of clothing, buildings or transport systems. Their material tools were basic – digging sticks, boomerangs, bark canoes and bowls, fish traps, grinding stones. But this was deceptive: they had

[11] Although the term, *Dreaming*, is much used in Aboriginal English, it is but a loose rendering of a wide variety of terms found in Aboriginal languages, each of which brings its own unique set of inflections to the concept.

other ‘technologies’ that were invisible to European eyes because they did not consist of artefacts – ‘technologies’ such as the intentional use of fire.

Aboriginal people used fire to keep the landscape productive for their own needs, but they did this in a manner that did not degrade, though it did modify, ecosystems. They also used techniques of selective harvesting and soil disturbance likewise to render the land productive not only for themselves but for the entire community of life. In this sense they worked with, rather than seeking to impose themselves upon, the natural grain of things. They refrained from overlaying the natural landscape with built and engineered environments of their own design.

It was thus knowledge rather than material instruments that enabled Aboriginal peoples to flourish in Australia on a geological time scale - knowledge of natural processes and of how to harness them while simultaneously serving them. The material simplicity of their culture, so disparaged by Europeans, was precisely the measure of their fitness: they needed nothing more than this knowledge in order to flourish. Being materially unencumbered, moreover, they were free to move easily during periods of climate disturbance or other natural disasters. There was no heavy material superstructure or ‘civilization’ to come crashing down, as modern civilization is perhaps likely to do in the near, climate-deranged future.

Meanwhile, they also cultivated a deep humanity, to which social inequality and large-scale warfare, the hallmarks of civilization, were alien. They inhabited a kinship-oriented culture in which everyone and everything – seen and unseen - had its inalienable and honourable place in a morally ordered cosmos. This approach in fact left Aboriginal people more secure and better nourished than most peoples throughout the history of civilizations. Writing in 1770, Captain Cook himself, the navigator and explorer who laid claim to the Australian continent on behalf of the British, described Aborigines as the “happiest people upon the face of the earth”. (Lucashenko 2013)

Europeans, equating civilization with a clutter of commodities - derived from wealth - rather than with happiness, humaneness, kinship with Earth and ecological prosperity, remained blind – at least until recently - to the sophistication of Aboriginal culture. An awakening to this sophistication is now finally dawning in non-Indigenous Australia, and there is greater readiness to adapt Aboriginal thinking to our contemporary – very different – context. It seems well advised then to try to rediscover Law, in something like its Aboriginal sense, and reconcile it with our modern consciousness. Living cosmos panpsychism offers one way of doing this.

It is also worth noting that many of the religions that accompanied the rise of agrarian civilizations throughout the world retain a memory of Law in this original Indigenous sense – a law of accommodation to the needs of others in the interests of a larger, life-giving whole. “Do unto others as you would that they would do unto you” remains the moral touchstone of all major religions. But agrarianism, setting society as it did at a remove from nature, led to

estrangement from the rest of life. (Mathews 2019a) The 'others' intended by the injunction, 'do unto others', progressively contracted to the exclusively human, till most religions eventually became arch-vehicles of anthropocentrism. However, living cosmos panpsychism, with its recognition of normativity in the fabric of reality, may be seen as a metaphysical underpinning for the centrality of this law of accommodation – whether in the form of Dharma, Covenant, Dao (Way) or Sharia (also Way) - in the configuration of religion, while also insisting upon its necessary application to *all* living things.

10. Can we continue to deny Law?

One of the oldest questions of philosophy, and one for which philosophers, starting with the Greeks, have never found a satisfactory answer, is the question, why be moral? We all sense that we should behave morally, but in the final analysis there seems to be nothing irrational about choosing not to do so, provided one is confident one can avoid social penalties. As societies have become larger and more culturally diverse, freed from the moral edicts of a common religion, this dilemma has only deepened. Governments lay down complicated legal codes to facilitate social co-existence, but cannot legislate an answer to the question, why be moral. If our modern worldview, based on science, does not enable us to answer the question why we should behave morally towards one another, how will it ever mandate a moral attitude towards the rest of earth-life?

As I write these words, the continent of Australia is burning. These are not the small, cool, selective, Aboriginal burns of yesteryear that skilfully renewed and reinvigorated vegetation, bringing vibrancy to the landscape, but ecocidal holocausts consuming millions of hectares, engulfing wildlife in terror, pain and death on an unimaginable scale, cooking the very roots and seeds and microbes in the soil, desolating all life.[12] Climate catastrophe no longer belongs to the future. It is here. It is as if, in this last year, 2019, we have witnessed the grand, gala opening of the catastrophe: fires in the Arctic, fires in the Amazon and now fires across the length and breadth of Australia. We are all invited to this event, this era. Indeed, we have no choice but to attend. It is the event to which scientific materialism, with its denial of mind in nature, has brought us. It has given us hard-edged technologies and a vast clutter of commodities, and in the process untaught us how to live.

The epitaph on Kant's tombstone expressed awe in face of "the starry heavens above and the moral law within". All his life, Kant tried to bridge these two realms: the realm of the 'is', as detailed in empirical science, and the realm of the 'ought', as abbreviated in the Categorical Imperative. He failed, because his entire philosophy remained captive to transcendental dualism. Surely it is time to put the moral law back where it belongs, at the heart of the cosmos.

[12] The number of native animals so far destroyed in the 2019 fires is estimated to be upwards of 480 million. (Sherbon 2020)

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