



## Nature in Process

Novel Approaches to Science and Metaphysics

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11<sup>th</sup> International Whitehead Conference Abstracts  
**THURSDAY, 27<sup>TH</sup> JULY**

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#### **Michel Weber**

#### **“Would Whitehead be tantalized by Medical Nemesis: Bankers, Workers and the Mechanisation of Life”**

[Abridged; apologies – MD] Illich (1926–2002) is sometimes seen an author who is both historically essential for the philosophy of technique and of technology and nevertheless disposable. A Whiteheadian reflection helps to establish why. *Tools for Conviviality* (1973), “*Medical Nemesis*” (1974) and Illich’s eponymous book (1975) are of course quite technologically outdated, but this fact does not falsify their underlying thesis. On the contrary, the power of Illich’s argument remains untouched in so far as vision is concerned. Illich’s fundamental claim is that “by transforming pain, illness, and death from a personal challenge into a technical problem, medical practice expropriates the potential of people to deal with their human condition in an autonomous way and becomes the source of a new kind of un-health.” In other words, the expropriation of pain, sickness and, ultimately, of death by medicalization amounts to a total loss of meaning, autonomy and culture. A truly civilized society simply cannot afford old-fashioned citizens (in the Greek democratic sense of the term) anymore. Even science has to be bridled for the sake of stability.

In comparison, Whitehead’s *Aims of Education* (1929), and perhaps even more *Adventure of Ideas* (1933), constitute a fully-fledged technophilia. The growth of technology —starting with chipping of flints, the invention of fire, the taming of animals,...— is clearly one modality of the creative advance of Western societies, that were lucky to discover “empty Continents.” It provided physical ease, helped terminating the practice of slavery, enabled mankind to transcend such limitations of unguided nature... In sum, Whitehead underlines the correlation of civilization and technology, and especially of commerce and technology, but seems to find the latter axiologically neutral. Mumford’s *Technics and Civilization* (1934) shows how, since the very first moments of industrialism, capitalism has warped the new achievements of technology and intentionally crippled communities. Mumford, who had meditated on Whitehead’s optimism, correlates technique, capitalism and warfare. The first unholy alliance was sealed by bankers between soldiers, miners and priests. Thanks to technique, measurement, calculation and quantification have secured the contempt of the upper class for life in general and workers in particular. The consequence was plain to see: industrial capitalism, nurtured by the commoditisation of nature, and the mechanization of life and speculation. From that triple perspective, Illich appears to embody the return of common-sense through a phenomenology of authenticity.

**Ricardo Lopes Coelho**

**“A novel approach to conceptual problems”**

Philosophers of science have addressed the topic ‘cause in science’ intensively in the last two decades. A similar discussion has taken place in physics for more than two centuries. This concerns the question of whether force is the cause of acceleration or not. I will present the data: arguments in favor of the claim that force is the cause of acceleration and reasons for criticism of it. Despite the efforts made by physicists and philosophers, that question is still open. Even though physicists disagree with each other regarding the concept of force, all of them agree with the equation  $force = mass \cdot acceleration$ .

The attempt made in my paper to clarify this issue is very simple. I will admit, with majority of the textbook writers, that force is the cause of acceleration. I accept then that  $F$  in  $F=ma$  stands for the cause of acceleration. Applying this equation to a phenomenon, I obtain a quantity in the place of  $F$ , which I then take as the cause of acceleration in that phenomenon. Finally, I carry out an experiment to check whether that which is referred to by that quantity, is causing the acceleration. Thus, we have an experimental result, which serves to check a concept in physics. Consequences of this procedure will then be addressed.

**Diane Gamache**

**“Sense : a phenomenon induced by language contact”**

Is the process of human-machine interaction based on event programming, "action gesture" (Cartmill & al.)<sup>1</sup> and public but anonymous presence at the source of the data (the atom of the web) is a process of nature? If not, what is the missing link? To this day this "new web world" is in the hands of a very small number who reigns supreme. Truth is theirs. In the digital age of Do-It-Yourself (DIY) can we see a better power place for the free and autonomous Internet user, who is also capable of truth value? This is the big question: can a modern Internet user, mechanised, connected, networked, alone contour the space-time (two inseparable co-incident concepts) of the web to embed her own meaning of truth within it? Recognizing that “true practice is the fruit of speculation, not its opponent” (Foley, 1946)<sup>2</sup> Whitehead's phenomenology and process thought offer alternatives to open (deepen) this new web space of thought and action. On a concept of intertwined languages called “DOE/UX language contact” we set up a new logical, coherent and sufficient reading/writing framework for doing so.

**John Cobb**

**“Causality and Influence”**

Although many of us find in Whitehead an escape from the oppressive individualism of modern times, others have pointed out that Whitehead's language works against a full escape. He calls his position an "atomism" and, more problematically, he limits "causality" to pure simple physical feelings, which relate one atom to another. Cliff Cobb has shown that this limitation of causality has led Whiteheadian political theorists to back off from attributing anything of a causal sort to societies in distinction from the atoms that make them up. This puts process

political theory back in the individualist camp. I propose to show that Whitehead limited "cause" to a relationship in which what happens in the effect is totally controlled. In other words, it is a deterministic relation. He discusses many other factors that participate with the decision of the new occasion in determining the final outcome. In other words there are many influences that interact with the initial phase of the subjective aim, each other and the new actual occasion in a nondeterministic way that together do determine the outcome! For social theory, these influences show up statistically.

**Wm. Andrew Schwartz**

**“A Shortcut on the Jain Path of Liberation: Aparigraha as Ahimsa in a Process Metaphysic”**

Liberation, in Jainism, is a matter of shedding karmas. The process is thought to take many lifetimes. Jains take 5 great vows that are designed for the purpose of eliminating karmas. Two of the most prominent of these great vows are *ahimsā* (non-violence) and *aparigraha* (non-possession). I will attempt to convince you that process philosophy provides a shortcut on the path to liberation within the context of Jainism.

**Andrea Mazzola**

**“Whitehead and Eurhythmic Becoming”**

In the debate on the philosophical foundations of quantum mechanics, Whitehead's philosophy of organism plays an essential role. Despite the efforts made by many scholars, Whitehead's realistic stance invalidates any attempt to relate his philosophy to either the Copenhagen's and the orthodox interpretation of quantum mechanics. By contrast, the Physics of Becoming, as proposed by the scholars of what I have called in precedent works the “Lisbon's School”, has notable theoretical tunings with Whitehead's thought. By getting rid of the notion of “passive matter”, both perspectives paved the way for a new vision of *physis* as proactive functioning. Natural entities are conceived as self-organizing complex non-linear systems (not simply located) arising from, and interacting through, a continuum of potentialities. Indeed, their physical existence as such and their endurance is explained as due to their capacity to treat the information grasped during that interaction. Still, the emergence of higher-level complexity is accounted for by a set of synergistic interactions, guided by a natural tendency to persist and to increase the intensity of the system. Thus, the Principle of Eurhythmy, proposed by the Portuguese physicist José Croca in the wake of Luis de Broglie *formule du guidage*, appears as the hypothesis that in the contemporary theoretical physics better matches a revisited quantum mechanics to the organicist vision of the universe as a social developmental process: an universe that, as an evolving organism, should be described as guided toward emergent complexity by an immanent teleological principle. Furthermore, Rui Moreira's metaphysical consequences in Giordano Bruno's way, i.e., his claim to an ontological unification able to overcome any kind of dualism (not only that between wave and particles, but also those between matter and spirit, body and mind, nature and culture) are clearly reechoing Whitehead's effort against the mechanistic image of the world.

**Michael Heather**

**“Laws for an Ecological Civilization”**

Ecological Civilisation coined and promoted in China is more than just a powerful phrase for the whole world. It is a very deep practical concept that needs a transdisciplinary mind of the calibre of Whitehead to fathom fully and rigorously with complete intellectual honesty for it can very easily be sidelined by commercial and political interests. Although originating from a biological context when put under the Whiteheadian microscope the Ecological Civilisation immediately takes on the much wider and richer characteristics of process. Ecology is part of nature and perhaps synonymous with it. It therefore includes human life and society as well as all other forms of organism. This almost makes the phrase ecological civilisation tautologous. Rigour restores the suffix '-logical' to its rightful throne of Logic that rules the cosmos. Unfortunately both law and economics have for the last 150 years been both dominated by the philosophy of positivism to the detriment of natural process. Law and Economics need natural logic if they are to be integrated. For instance the issue of perpetual economic growth whether to promote or curtail and the means of its control in society is essentially a question of logic and therefore requires the metaphysic attention of Whitehead. Thus trans-national companies cannot be controlled bottom-up. This leads to the question to be addressed in this paper: is there an international common law that can lead us to an ecological civilisation?

**John Pickering**

**“Whitehead, Biosemiotics and Value”**

This paper will open by examining the claim that Whitehead’s philosophy of organism offers: “... a unique theoretical foundation both for ecology as a science and as a normative worldview.” The conclusion will be that while it could, it does not, unless there is more development of some key ideas and concepts. The rest of the paper will suggest how to do this. The second section will critically explore some particular Whiteheadian concepts such as ‘aim’, ‘prehension’ and ‘causal efficacy’, which are of limited relevance to ecological science unless made more specific. Likewise, there needs to be a more detailed exemplification of Whitehead’s view that to properly understand nature conventional boundaries must be relinquished e.g.: “... we cannot tell with what molecules the body ends and the external world begins. The truth is that the brain is continuous with the body, and the body is continuous with the rest of the natural world.” (*Adventures of Ideas*, Cambridge University Press, 1933, page 290). This aspect of Whitehead’s thought anticipated the shift to a systems/process relational view that has been seen in many disciplines and in scientifically informed metaphysics over the past decades. Explicating this view is crucial in making Whitehead relevant to ecological thinking since, although continuity is asserted, more needs to be said to justify it. This section of the paper will attempt to say what’s required by suggesting that it is semiotic processes that underlie transmission of “aim” from one moment of experience to another and that ensure causal continuity across what are conventionally seen as boundaries. The concluding third section will touch on some problems that must be solved if Whitehead’s metaphysics are to be taken as normative. Some aspects of Whitehead *oeuvre* are clearly

normative, such as his work in education, but his metaphysical speculations are not. It will be suggested that normativity is essentially to do with value and that in order to have value entailments some Whiteheadian concepts, in particular the notion of 'aim', have to be used univocally in relation to all orders of being. This proposal, which connects human values to the prehuman world will be put forward in terms derived from biosemioticians such as Charles Sanders Peirce and Jesper Hoffmeyer.

**Krishan Voigt**

**“Ultimate reality in Whitehead and Buddhism On the prospects and limits of a Buddhist-Whiteheadian dialogue”**

Repeatedly there has been brought forward the thesis that Whitehead's metaphysics of process would rather suit with the dynamical, anti-substantialist teachings of Buddhism than to the traditional substantialist metaphysical conceptions in the west. This paper will focus on the question whether this intuition is right and furthermore how Whitehead's cosmology and the teachings of Buddhism do interrelate with each other. Due to the vast number of schools within Buddhism, the discussion will focus on some ideas being rooted in the teachings of Nagarjuna – the founder of the Mahayana Buddhist Madhyamika School - and its further developments within Zen-Buddhism and the Kyoto School. In this respect, the positions of two authors with considerably different positions will be discussed: Firstly that of Masao Abe – a prominent representative of the Kyoto School and former dialogue partner of John Cobb and secondly that of Takao Tanaka – a Japanese Philosopher of Buddhism and adept of Whitehead's Philosophy. Abe argues for a conceptual difference between Whitehead's Philosophy and Buddhism. While admitting that at the surface there might seem to be some similarities, to his mind there are undeniable differences, which are not just of degree but essential and fundamental. In order to illustrate that, he focusses on a comparison between the Buddhist teaching of dependent co-origination and Whitehead's concrescence (while actually meaning Nagarjuna's teachings on emptiness when saying „dependent co-origination“) and argues for a categorical difference between the two concepts. To his mind, dependent co-origination as well as concrescence seem to describe some sort of causality but with the difference that concrescence is an irreversible process within time, while dependent co-origination (or that is to say “emptiness”) is beyond time. Tanaka on the other hand, while also seeing some differences between Whitehead and Buddhism, is confident in his view, that these differences are not insurmountable and argues even for the establishment of a Buddhist-Whiteheadian natural theology. In order to exhibit the root of these differences, he compares the Whiteheadian conception of God with Nishida's conception of “absolute nothingness”, which is a further development of the notion of emptiness. To his mind, both have a similar function – namely to unify the diversity of the “many” within the whole “one” of reality. But while Whitehead's conception of God does not really seem to satisfy him in the endeavour of finding an appropriate solution to the question how it can be that the diverse “many” originate in the comprehensive “one”, he points at Nishida, whose conception of “absolute nothingness” as a “standpoint without standpoint” solves this problem to his delight. From his perspective it is not only possible to enter a fruitful dialogue between Whitehead and Buddhism at this point but rather he sees in it the opportunity to promote a better

understanding of both. In this way, he believes, it is possible to foster an encounter between the East and the West and it is this motive which lets him come to the conclusion that a Whiteheadian Buddhist natural theology would be highly desirable. The thesis of the paper will be that Tanaka's plea for an intensified dialogue and his idea of a higher synthesis of both Buddhist and Whiteheadian thinking should be taken more seriously and that Abes's judgement on the relationship of both traditions is based on the neglected categorical difference between them. It will be argued, that both traditions, Whitehead and Buddhism, are pursuing different objectives – namely a metaphysical description of reality versus a primarily soteriological purpose and that therefore differences within the conceptions are to be expected. Nevertheless it will be shown, that both traditions are seemingly pointing into a similar direction when addressing ultimate reality, but only from different perspectives. This will be expounded by addressing the role of language in both Whitehead and Buddhism: While Whitehead, in his “fallacy of misplaced concreteness”, showed his awareness of the limits of language and strongly hold against considering abstractions to be concrete reality, he still developed a metaphysical system which aims to overcome the inconsistencies of traditional western thinking and to bridge the gap between science and subjective human experience. Obviously, such a metaphysical system still needs to operate at the level of language and is therefore bound to abstractions which can only point to ultimate reality. Buddhism on the other hand is aware of the limitations of language in a similar way but does not even try to describe ultimate reality. Rather, false dualistic linguistic conceptions are considered to be the root cause of human suffering and are therefore to be overcome. Still, since linguistic conceptions and abstractions are forming the starting point of science (which is affecting modern Buddhist societies to the same degree as Christian ones), it seems desirable to establish a conceptual framework that bridges Buddhist spiritual insight and rational scientific enquiry to the same degree as has been achieved in Christian process theology. It is this direction into which a Buddhist Whiteheadian natural theology as proposed by Tanaka could point to.

### **Rui Moreira**

#### **“Whitehead and the eurhythmic physics”**

The XVII century scientific revolution was grounded on a successful heuristic and methodological choice that was uncritically generalized as a set of ontological postulates: natural becoming was reduced to the local movement of particles of matter, considered to be inert and point-like. After that the philosophical influence of Kantian transcendental idealism and successively of positivism, neopositivism, analytical philosophy and the semantic turn, leads theoretic physics to a foundational crisis, consisting in the lack of efforts in establishing new basic ontological postulates for science. In this way, ancient notions survive incoherently, without matching the new empirical data. The notion of field, first introduced by electromagnetism, is not reconcilable with the mechanist image of the world. Still, both in relativity and quantum mechanics, non-linear phenomena have shown the limits of applicability of classical postulates. To solve the theoretical crisis we are facing, and to enable a new scientific revolution, we need renunciation of the ontological reductionism mentioned above, deeming the local transmission as a manifestation of the permanent interaction with the underlying

subquantum medium, an undulatory continuum that works as a medium and as gateway among potentialities and actualities. Moreover, we need to renounce the epistemological wave-corpuscule dualism, conversely deeming every entity as an internally complex structure, non-describable via a simple location in space-time, and as able to feel its surroundings and to act accordingly with the information acquired. The latter capability also leads to rejection of the mind-matter dualism, opening the way to an evolutionary unified ontology. Whitehead's cosmological scheme seems like the pioneering and more appropriate philosophical foundation for the physical theory that we are now working on in Lisbon, thus contributing towards a new paradigmatic vision of *physis*.

**Maria-Teresa Teixeira**

**“Growth, Commodification and Property Rights”**

For many years, growth has been one of the main tenets of Western social and economic order. Growth-based development has also been preached and implemented in the so-called Global South. Growth has evolved to sustainable growth in an attempt to reconcile the need to protect ecological systems with the need to boost the economies. But consumerism has emerged both as the natural outcome and the fuelling element of growth. For many years, the need for growth led to the attribution of economic value to things that were not previously considered in economic terms. Commodification has devastated world societies and ancient cultures, monetizing and undermining valuable and traditional livelihoods. For more than two centuries, property rights have been based on individualism. The old, Christian (mainly Catholic) communitarian worldviews were replaced by the capitalist/ collectivist ideologies, both propounding a fragmented view of society and its economic organization. In this paper we will take a Whiteheadian perspective that can overcome both growth economies and commodification; we will search for new models for property rights, based on a holistic, inter-relational, integral standpoint."

**Taeyeon Kim**

**“A Reconstruction of Ecology in the Dialogue Between Whitehead and East Asian Perspective: A Reception and Reinterpretation of Whitehead's ecological ideas in East Asia”**

The thoughts of Alfred North Whitehead have been creatively stimulating the approach on the problem of cosmology and ecology. This study is an attempt to rediscover the meaning of Whitehead's thoughts on nature from ecological perspectives. The terms *eco/ecology* do not come up in his works, but they stand as significant elements in the flow of his thoughts. *Nature* had been increasingly becoming important as a key term, especially in his late thoughts. However, his understanding about *nature* does not direct to the traditional meaning of nature and environment. It rather sheds light on it from the perspective of ecological communication and the horizon, which goes beyond the limits of consciousness and the epistemology of the subject. Thus, for him ecological ideas are linked to the immutable nature of the foundation of all living creatures.

This paper tries to elaborate on how Whitehead built up his terminological perception of *nature* based on meditative biological and anthropological understanding and attempts to determine the meaning of his new way of epistemology of the *nature*, which gives us new ideas on the current ecological discourses.

In particular, this study will examine the relationship between his concept of *nature* and the East Asian perspective of nature. I will further examine how Whitehead's ideas on *nature* is accepted and reinterpreted in East Asia and especially South Korea. Through dialogues with Whitehead's ecological ideas we can expect important impulses from interdisciplinary works involving ecology between West and East.

### **Adrian Ivakhiv**

#### **“Time, Ecology, and a Whiteheadian Understanding of the Image in a Digital World”**

A. N. Whitehead’s understanding of time is encapsulated in this often-cited quote: “The creativity of the world is the throbbing emotion of the past hurling itself into a new transcendent fact. It is the flying dart, of which Lucretius speaks, hurled beyond the bounds of the world” (*Adventures of Ideas*, p. 177). Expanding on this sense of time, Michel Weber proposes that the “secret of the Whiteheadian ontological reform is quite simple: the actuality-subject grows, concretes, at the edges of the World — *beyond the bounds of the world* –, buttressing itself on the determinism materialized by the actualities-object. ‘When’ its organic growth is terminated, it topples into objectivity and becomes an actuality-object fully integrated in the mundane plenum” (*Whitehead’s Pancreativism*, xv). This movement of time might be imagined as a kind of spherical whole whose outer perimeter is always expanding, while its inside is being sucked into itself as into a black hole—something that remains as objective data, but that, if not actively prehended (or if “negatively prehended”), effectively disappears from view into Weber’s “mundane plenum.” Time, in this sense, is like a train that is going in countless directions at once, spreading outwards from a center and laying down its tracks, whilst swallowing those behind it, as it goes. “We,” to the extent that we identify as agents within this creative flow of time, find ourselves always at the creative edge, hovering just slightly “beyond the bounds of the world.”

With the advent of recording, preservation, retrieval, and decoding technologies of various kinds—from historical and archaeological tools to heritage preservation practices, to the media of photography, cinema, sampling technologies, and the internet—the “creative edge” of the open present arguably becomes deepened and thickened, developing recursive loops or “folds” within the ever changing substance of the world. Cinematic technologies, for instance, enable us to capture audio-visual fragments of the world so as to “save” them from “perishing,” and with their reproduction, to make more of the past directly available for the novel production of the future. Living in the midst of a global civilization that makes great efforts to preserve valued elements of its heritage, even as it transforms and (arguably) destroys the world with ever greater rapidity, the question of what to retain of the past, and of the unintended effects of that retention, becomes acute. This paper builds on my book *Ecologies of the Moving Image* (Wilfrid Laurier University Press, 2013) to propose a Whiteheadian, process-relational understanding of the image as something that “thickens” and “deepens” our engagement with the world within a series



of process-relational ecologies—material, social, and perceptual ecologies that bind us to the products of our technical labors and to the Earth that serves as their ground, their surround, and their substance. What are the ethical implications for image production and for viewership of such a view of deepened time? What images facilitate our understanding of the living processual ecologies of the world? The answers I offer are tentative, yet rooted in a deep historical analysis of the technologies of image production, preservation, distribution, and reproduction.

**Gordon Reid**

**“Thoughts on Gravity from a Process Perspective”**

In this short paper I set out to describe my early science background in the late 1960’s graduating in 1971 in Electrical and Electronic Engineering, with a particular interest in Field Theory, and an early questioning whether Gravity should actually be described as a ‘field’.

I then describe briefly my encounter with Process Theology, Philosophy, and in particular, for the purposes of this paper, Metaphysics.

From this start and career change, I became involved in Science and Religion, and in particular the Process approach, which led to my participation in Conferences both as part of the Whiteheadian community at the 6<sup>th</sup> and 10<sup>th</sup> Whiteheadian conferences, and also in the UK, the Science and Religion Forum and which advanced my interest still further, till retirement took me out of the Church Ministry workplace and allowed me the time to give further thought to my earlier concerns about Gravity, but this time with a fresh perspective, that of Process Metaphysics.

In this paper, I give thought to the interconnectedness of the universe which suggests to me that even light must be part of that network. Given that Whiteheads system is iterative in structure, this may indicate a quantum universe rather than a continuum. I speculate whether the Prehensions of Whitehead could include ‘attraction’ as a fundamental characteristic, and that this could better describe Gravity than the accepted teachings of recent centuries.

This approach has the advantages of uniting Gravity and Inertia; uniting the photonic and wave characteristics of light; and also consequentially, calling into question the need for spacial curvature.

I did mention my thoughts about 6 years ago to Prof. John B. Cobb Jr. and was advised to include a quantitative aspect to this theory of mine, and thus delayed opening up my ideas to scrutiny until now. I do offer an indication of how this approach could fit in with long established empirical facts. That said, as I will indicate, I do have one area of concern which still requires further thought!

On the basis of the above, first, I apologize to the professionals in this area of study, since my own studies are about 50 years old and have been little used during the intervening time. To the best of my ability I have sought to disprove my own ideas and have so far not succeeded. I thus present this paper with a request that its content be considered and any flaws pointed out, but if some or all of it does make sense, then I would welcome those interested, to take it further, or point out how I myself can take it further.

**Charles Walter**

**“Integral Jurisprudence for Integral Economics”**

[Abridged; apologies - MD] Legal reasoning is based on the aspect of natural intelligence (“observations selected from a universe of potential observations and a finite number of states of mind” at NMI18) wherein the states of mind are generated by teleogenesis a process (capable of generating information and its own goals) similar to that described in Whitehead’s concrescence and also Bergson’s duration as discussed in ‘Creative Evolution’ (1911:4), i.e. “the continuous progress of the past which gnaws into the future and which swells as it advances.” However, neither philosopher attempted to apply it to legal reasoning. To one trained in the philosophies of both science and law, there is a tension between speculative philosophy about non-deterministic systems such as nature presents to us in biology and a progressive Earth jurisprudence based on variables measurable at the higher levels of biological abstraction. As we leave the Holocene Epoch and enter that of the Anthropocene, it is evident that unlimited growth is not sustainable and climate change is happening. Clearly, we face drastic change or even extinction unless we reform our jurisprudence to a more earth-centered view of nature as a subject with its own rights and mitigate unsustainable depletion of natural resources.

If we intend to continue to inhabit this planet, there must be a paradigm change from this philosophy based on weak sustainability to one based on strong sustainability. Man-made capital and natural capital are not interchangeable, so the former cannot be used in any balancing act that depletes the latter. As a consequence, jurisdictional philosophies permitting so-called “green economics” are inadequate to reshape laws or markets to achieve strong sustainability. Unlike the usual situation in dispute resolution where past values retaining merit should be incorporated into progressive change, there is no “middle course” available to this dispute because strong sustainability is the only viable option. Three approaches to achieving the paradigm shift that is needed to implement Earth jurisprudence will be discussed: Strong sustainability is historically evidenced and scientifically sound. Codifying Native American jurisprudences would provide flexibility focused on the many different situations from which these historically evidenced and well-tested rules of law evolved. Environmental constitutionalism is perhaps the most difficult to achieve without force in a divided world. However, establishing an unambiguous world-wide paradigm shift quickly would be the most likely result in survival of our species. The existing laws of biology suggest there is no other choice.

**Ashley M Holmes**

**“Immanence and its distortions: spawning coral in a lab for an artwork”**

Presented by an artist who is also a research academic specialising in creative practice, this is a reflective account of the thinking behind an art-science collaborative digital movie featuring spawning coral captured under controlled conditions. The ‘Australian Sea Simulator’ laboratory where filming took place is adjacent to the Great Barrier Reef which has suffered three progressively more catastrophic bleaching events since 1998; the worst being in 2016. With reference to process philosophers Alfred North Whitehead, Gilles Deleuze, Félix Guattari and Henri Bergson, it is speculated how axiology in art can counter the positivism of science and

address the relativism and apathy of postmodern and post-truth society attitudes. Recent contributions to Whiteheadian scholarship by authors such as Brian Henning (on environmental ethics) and Mark Hansen (on digital media post-phenomenology) are also discussed. The artwork and discussion are presented as pharmacological irritant and salve to any audience concerned by foreboding and seemingly insurmountable global environmental challenges. Without didacticism; rather through a short audiovisual that conveys pathos and sublimity; the intent is to heighten empathy with the immanence of cosmic creativity.

### **Sophie Frei**

#### **“Transformational Kenosis through Emptiness and Beyond”**

In buddhism, as in process philosophy, process psychology and phenomenology, we aim to reach the underlying oneness and togetherness of all living beings as a network and matrix through a *special deconstruction*. The deconstruction is similar to that of a *kenosis*. From the deconstructed fragments in the emptiness arise some new kind of organic flow and fluctuality, which keeps the atomically separated particles naturally together. This type of flow is a visionary, imaginary flow of emotions and desires in the form of visioning. We need to be able to return to these fields of energy to activate ourselves and to go ahead with our vision.

In my paper I wish to go in detail about how I understand Emptiness itself. I bring associations like *the durée* of Bergson and the *extensive continuum* of Whitehead among others like the *li* of chinese philosophy, the *chora* in the Timaeus, that *materia prima*, that *arkhe* and *matrix*, *brahma nature*, *prakriti*, buddhist understanding of *emptiness*, *Worldsoul*, *morphological field of creation*, *akasa*, *aither*, *wind*, *divine water*, *sacred space*, *space-time continuum*.

Tim Burnette writes a brief summary of the essential kenosis: „...whereas many theologians who hold to kenotic forms of theology emphasize God’s self-emptying nature as some kind of ontomutation into a Christ-Form. Thomas Jay Oord has suggested to us, that this self-emptying is actually God’s nature“..When .. apostrophises the thesis of Oord about the new understanding of the kenosis by God as a Gods love nature, or pure love he- Oord- argues that this kenosis is nothing else but the pure love itself, the emptiness of God. I wish to follow that chain of thought adding my personal ideas and visions as a buddhist whiteheadian practitioner.

### **Philip Tryon**

#### **“Event Ontology, Decoherence, and the Result of Favoring Recurrence“**

In “Quantum Mechanics and the Philosophy of Alfred North Whitehead,” Epperson suggests an event ontology represents a coherent and intuitive understanding of quantum mechanics whereby the model describes the evolution of facts about a system from initial state to final (post-measurement) state. The predicted outcome is not a singular state but a collection of probable states. Epperson’s analysis recognizes as primary an ontology of process or becoming in which reality is comprised of two fundamental species: actuality and potentiality. It is during periods of potentiality (presumably between measurements) that wave functions describing physical systems become increasingly entangled with the outer world and its occasions in a process called decoherence.

A state of being characterized by potentiality not only involves decoherence and entanglement, it also reflects a fundamental indeterminism. If this space of indeterminism is resolved into facts simply according to chance via random selection from among the possible outcome states, then agency is ruled out *a priori*.

Whitehead asserts that an undetermined occasion, in the course of evolution toward actuality and the generation of facts, is conditioned, in part, by its interpenetration with all previous occasions and so, presumably, is not chosen randomly from among the possibilities. But what is the nature of this connection and the influence imparted from past to present occasions? Certainly not all past occasions are equally important and influential.

By assuming that an actual occasion is influenced to follow the path of similar past occasions involving similar entities, the preponderance of recurring processes and the apparent habit forming nature of the universe may be explained.

In addition to furthering the integration of process philosophy with quantum mechanics, this hypothesis of increased likelihood of repetition may serve to eliminate the necessity of invoking eternal objects, rendering the philosophical model of organicism more suitable for replacing mechanistic materialism as a paradigm for science.

### **Ion Craiovan**

#### **“On Law's Concept in Process within Juridical Reality”**

Within metaphysical philosophy of science and legal epistemology we need to investigate the meaning of how Whitehead's cardinal formula all things flow applies to the concept of law. This requires an analysis of the concept of law which follows a long path through essentialism, conventionalism, pragmatism and integrationalism, all within the main paradigms of juridical knowledge. It is to be noted that every definition of law operates as a 'stop' event on a social and historical time that is without movement and dynamics in the understanding of legal reality. We argue that this is to understand process of law within Whitehead's idea of the continuum. This approach tracks the development of law's imagined path within process. It is an epistemological step that has profound contemporary implications for transdisciplinarity within a semantic web of juridical knowledge.

We can imagine the progress of law in the icons of art. The law was first a single realistic picture but full of potential meaning like, say, Rembrandt's Night Watchman. Then a thematic collection as in an art gallery with specific paradigms, or in a cubist manner for the postmodern period as Picasso. It is possible to think of Whitehead as a screen play writer and director of a film on a reality that embodies legal reality. After an introduction to the subject this paper brings together: (1) interrelations and interference in Nature and Society with Law as a tool for social control bridging between the epistemology of natural sciences and the epistemology of social and human sciences to give a unified understanding; (2) the concept of law as Process; and (3) transdisciplinary operations of process within a contemporary web of Juridical knowledge. The outcome provides some important conclusions in this field.

### **Stephen Cochenour**

**“Polyculture and Biodiversity as an Act of Possibility: A vegetable Farmer’s interaction with Whitehead”**

A subtle undercurrent of agriculture grows in the United States of America that is identifying the relational dynamics between the soil microbiome, plant health, human health, and the greater ecosystem. While exploring these relationships as a vegetable farmer, I began to see Alfred North Whitehead’s philosophy of organisms expressing itself on my farm. Whitehead’s rejection of a mechanistic view of nature helped me recognize how soil fertility is based on a complexity of relations between mineral content, soil structure, microflora, and many other natural influences. Taking seriously the life and relationships that exist within the soil, I was able to also address a new understanding of the plants that I was growing. Within much of Western agriculture, plants are viewed as carbon-based machines where certain identified inputs can be given to a plant so that a particular yield can be achieved. This mechanistic view results in a type of “force feeding” the plants rather than allowing a symbiotic relationship between plants and the microbiome. Understanding the living and interrelated ecosystem that exists within the soil, I began to see soil biodiversity as an act of co-creating new possibilities, an ecosystem that reflects Whitehead when he writes, “The many become one and increased by one” (*Process and Reality*, p21). When taking seriously this cocreative community within the soil, I started to find new value in growing a diverse group of crops. This polyculture not only created a resilience within the soil community; it allowed me to sell through direct market channels in ways that encouraged my customers to eat a diversity of healthy produce. Whitehead’s work has given me a metaphysical and philosophical grounding for the work I have done on the farm, and I believe his work can help us develop new language for an agriculture shaped by life-affirming acts of possibility.

**Wang Jiran**

**“The Significance of Whitehead’s Cosmology to Confucianism on the Construction of Ecological Ethics”**

From the perspective of ecological ethics, Confucianism is often regarded as having an inclusive-anthropocentric trait, which needs to be further explained and developed. On this issue, Whitehead's cosmology - which was found to have similarities to Confucianism in many aspects by studying the dialogue between them - is of considerable significance, which cannot be ignored. The idea of prehension and organism within Whitehead’s cosmology, as well as their implicitly internal relations, intrinsic values and other ideas can be valuable references to Confucianism on elaborating the ecological meanings of its ideas such as "everything is connected and all in one" (一体之仁), "treat everything well" (仁民爱物), "being frugal on spending time and resources" (遵时节用), and "harmony between the heaven and mankind" (天人合一). Consequently, they not only prompt Confucianism to creatively transform its thinking-mode from the pre-modern to post-modern era, but also improve the Confucian anthropocentrism to be more inclusive and comprehensive. The significance of

Whitehead's cosmology to the construction of ecological ethics in Confucianism is one of its contributions to global ecological ethics.

**John Pickering**

**“Eastern traditions, Western Science and Whitehead”**

Systems, scientific and philosophic, come and go. Each method of limited understanding is at length exhausted. In its prime each system is a triumphant success: in its decay it is an obstructive nuisance. Alfred North Whitehead (1933) *Adventures of Ideas*, p. 203. We are presently experiencing a global geopolitical crisis. At the same time, and possibly linked in some important historical ways, there is also a crisis in many aspects of science. It is not due to a lack of knowledge. Technology has extended the senses and we now know far more about Nature than previous generations. But we know more than we can explain. We have a surfeit of phenomena that cannot be integrated, a state of knowledge was seen clearly by Whitehead and motivated much of his work. Perhaps as an effort after integration, recent developments in physics, biology and psychology seem to be questioning the assumptions of their disciplines in significantly similar ways. Physicists are groping towards phenomenology, biologists and chemists are turning towards a systems view and psychologists are developing theories of cognition that do not separate minds from bodies. These developments point beyond reductive mechanism to an organic, process-relational worldview such as that advanced by Whitehead. Although science may presently be suffering a crisis, the past four centuries or so of Western history has seen it displace religious traditions as the most authoritative guide to understanding the mind and its place in nature. However, the religions so displaced were predominantly Abrahamic and Eastern traditions have not been displaced to anything like the same extent and co-exist with science in comparative comfort. It is notable that major physicists, Bohm, Heisenberg, Bohr, Pauli and Schrödinger among them, were drawn to Eastern thought. Indeed, Heisenberg compared Western scientific culture to a ship that lacked a compass and suggested we might search for one in the East. The developments in Western science noted above suggest the time is right to pursue that Eastward search, with philosophy and the life sciences taking the lead. Now a compass does not drive a ship but shows the way it's going. Presently the mis-application of science and technology are taking us into dangerous waters. The geopolitical realities of the Anthropocene are ecological damage, the alienation of urbanised human beings from the natural world and increasingly grotesque economic inequality. Science itself is not to blame for this. However, the technological and economic forces that are responsible share with science some assumptions that have altered our perception of nature. Perhaps the most fundamental of these is that nature is radically decomposable and hence can be treated as little more than a standing resource for human use. On this basis, the investigation of mind and nature will be restricted and our actions upon it will be harmful. Such assumptions are more than an “obstructive nuisance” they are profoundly destructive. Eastern traditions engage with nature based on very different assumptions. These, broadly, see nature as an interdependent web of which human beings are a part. From Daoism come the ideals of harmony and balance that run counter to the rapacious exploitation of nature. From Buddhism come the doctrine of *paticca samuppada*, and the metaphor *Indira's Net*, both emphasising a metaphysics of dynamic

interdependence. This paper will show how aspects of Eastern thought match the shift in contemporary science towards the organicism of Whitehead. It will conclude with some practical proposals about how to synthesise Eastern traditions and Whitehead's metaphysics to bring about a much needed change in the direction of technological culture.

**Ronald Preston Phipps**  
**“The Ontology of Fields”**

This paper will develop and apply Whitehead's Philosophy of Organism and Process to the important subject of Fields.

The concept of Fields in Whitehead's ontology provides the fundamental basis by which the Many Become One and the One Becomes the Many. The concept of Fields provides the ontological counter-point to the Illusion of the Independence and Insularity of Being which from Greek atomism to Cartesian modes of Thought have influenced physics and other scientific disciplines. In contrast, the creative development of the Ontology of Fields expresses the fundamental facts of 1) the Community of Being and 2) the organic nature of reality by which the understanding of the development and evolution of the Universe continuously manifests the Intersection of Multiplicities of Communities of Being within an Infinite, Eternal, Open, Organic and Integrated Cosmos in Perpetual Flux.

Within the Integrated Cosmos different types of Fields – Gravitational, Electromagnetic, Higgs-Boson – as well as Fields of Empathy, Curiosity, Discovery - are co-present. Within our Universe the Dualities of Physical and emergent Mentality are Co-present as abstractions from the Flux and the Fields which constitute the history of the integrated Flux of Being.

Within this Open Cosmos the Velocities and Intensities in which the Fields and Causal Futures of Events spread are variable. That means, that the Universe as a whole is neither bifurcated nor rigid, restrained and fixed by static Constants and rigidities pervading a temporally eternal and a spatially infinite Reality.

We note that the propagation of Fields, and in particular the propagation of Gravitational Fields, does not consist of the “Curvature of Space” but rather the Propagation of Causal Potentialities among the events constituting a given event's, or a given aggregation of event's, Causal Future. The Propagation of Fields through the Manifold of Events, like the velocities and trajectories of enduring objects, is at finite, but variable, velocities.

Constants, like  $c$  and  $h$ , are cosmic local phenomena which derive from Higher Generalization of Causal Orderliness. Fields of Events reflect and are generated by both variety and Causal Orderliness within Infinite Seas of Cosmic Epochs.

The understanding of the dynamics of the universe requires the concepts of pure possibilities, causal potentialities and reality. From the very causal orderliness of the cosmos, a fact essential to the very possibility of teleology, wonder, tenderness and beauty, we can logically deduce that within all events, and all aggregates of events, are Co-Present Multiple Causal Potentialities which are compatible for co-present but incompatible for Co-Realization. The evolution of the universe, therefore, inevitably entails the loss of real causal potentialities inherent within all events and all continuous aggregates or structural communities of events. Realization and Loss

of Inherent Causal Potentialities are intrinsic to the perpetual emergence and perishing of the " puffs of becoming " constituting the Real.

The infinite and eternal universe in Flux is organic in that every event and aggregate of events has its Beyond with which it causally interacts. Thus, the evolution of all finite Domains of events within the universe depends upon the internal dynamics of each Domain and the causal interactions with that Domain's environment. This is true of elementary particles, atomic occasions, genomes, living organism, civilization and Cosmic Epochs.

Within the Theory of Fields, we postulate the Ontological Conjecture applied to the generation of every atomic occasion and all micro quantum events. The Ontological Conjecture is a profound departure from, and fundamental alternative to, the historic sway of Reductionism and Atomism which have guided Physics for over two and a half Millennia. The Ontological Conjecture posits Field Equations governing the Causal Pasts, or the Confluences of Events and Multiplicities of Variables and Relations, by which atomic occasions are generated perpetually emerging and perpetually perishing within the infinite, borderless and boundary-less Flux of Being. If those Field Equations are amenable, as posited by the Conjecture, to infinite solutions, then there is infinite qualitative diversity within the smallest and most fundamental constituents of the universe. The Cosmos is thus Infinite in both its Spatio-Temporal Extensiveness and its Qualitative Diversity. Causal Orderliness and Infinite Qualitative Diversity are Harmonized, the latter as the logical consequence of the former. The Ontology of Fields is the Ontology of an Infinite, Open, Organic, Dynamic and Integrated Universe.

### **Mihai Badescu**

#### **“Whitehead’s Ideas Within Some Romanian Juridical Thinkers”**

This paper explores a comparison of some of Whitehead's salient ideas with the work of juridical thinkers who were his contemporaries in Romania particularly Nicolae Titulescu (1882-1941), Mircea Djuvara (1886-1944) and Eugeniu Speranția (1888-1972). Titulescu wrote on the mobility of the social organism that under the abstraction of law moves people requiring the legislature to take account of legal experience as crystallised by practical experience. Djuvara presents the realities of living as reported in his conception of rational law and the idea of justice in concreteness within the specific conditions of a historical time. His metaphysical dimension is relevant to the area of law on account of the great importance of culture for legal concepts. Speranția notes that the law is meant to help sociality in its most profound affirmation and expansion of spirituality. These writers exemplify the pathway of Whitehead's concepts within the ideas of Romanian jurists especially in the period between the two world wars. These helps to expound on Romanian culture of their time and its more recent development.

### **Juliet Bennett**

#### **“Process *in* Reality: Locating Whiteheadian worldviews and their impact in the real world”**

A substantive body of interdisciplinary literature connects holistic, ecological and process-oriented understandings of the world with social and ecological justice. This paper offers preliminary insights into a larger research project bridging this theory with practice, examining



Whiteheadian worldviews and their implications in the real world. The project combines an extensive literature review with quantitative analysis of online surveys with process thinkers, World Values Survey and census data to explore two key questions: (1) Where is the integral, ecological, process-oriented worldview articulated by Alfred North Whitehead in *Process and Reality*, and by other process thinkers, found in the real world? (2) What impact does this worldview have on values, attitudes and actions relating to global social and ecological justice (or “ecological civilization”)? Early analysis finds implicitly-Whiteheadian worldviews within progressive expressions of the world’s major religions and within many ecological, spiritual and global justice movements. It suggests that people with this worldview have a more empathic, big-picture and long-term orientation to the world that is conducive to moving towards ecological civilization. The paper posits that ecological civilization can be furthered by increasing awareness of integral ecology and process philosophy as a way of thinking and being in the world.

**Denise Paiva**

**“The Environmental Crisis in the Anthropocene as a Whiteheadian Space-Time Experience”**

The consubstantiality between Humanity and Nature is illustrated by Danowsky and Viveiros de Castro (2014) by the image of the Moebius’ band, which is permanently under threat of damage by modernist scissors. Human agency has led us to such a degree of realization of its own world that it has been possible to produce extracts made of concrete, plastics and other residues on the earth's surface that will become future archeo-fossils in the sense that Meillassoux (2008) uses the term. The historical time of humanity came into resonance with deep cosmological time. More than ever, we have never been modern. The possible imminence of a planetary collapse associated with the anthropic climate crisis at once shows this consubstantiality or immanence of thought-world and, consequently, the invalidity of the modern episteme, which image is that of man dominating nature. The "Gaia intrusion" suggested by Isabelle Stenger (2015) reveals an unstable, non-colonizable nature. Gaia is the event that embrace us. Similarly, for Latour (2013) Gaia is more like a war than the image of a self-regulated Lovelock organism.

With this new geological age, the Anthropocene, a new temporality breaks out. A new experience with space is cognized with the "Gaia intrusion." The ontological difference of the climate crisis is expressed in a new space-time, because it is not a crisis *in* time and *in* space, but a degradation *of* time and *of* space, as we know them. The modern framework of kantian transcendental idealism, which foresaw space and time with forms of sensibility, which would be the condition of any experience, go from conditioning to conditioned by the anthropic environmental crisis. In this sense, in recognizing the sinister realizing potential of human thought on the world, Danowsky and Viveiros de Castro (2014) move completely away from the anti-correlationalist perspective of Meillassoux (2009), a posture that assumes a bifurcation of nature as understood by Whitehead (1920).

But above all, the ontological difference of this crisis in relation to others, for example, the nuclear crisis, lies in the relation with human agency, since the significant actions to determine the crisis in analysis have already been taken or have been taken since the industrial revolution,

while nuclear crisis would be determinable by a button press. This phenomenon also poses an epistemological challenge, since the significance of theories of rational choice to deal with this crisis (Danowsky and Castro, 2014) became implausible. It is no longer a mere capitalist management. Thus, if we follow the whiteheadian intuition in the case of the environmental crisis and hence the management of natural resources, we may think of them as a problem of "misplaced concreteness". Substantialist metaphysics fails in this area by presupposing resources as possessor of always stable properties, when there is no Water but many waters of distinct qualities. When Whitehead (1929) replaces the category of the primary substance of Aristotle by the category of the ultimate, he introduces creativity and multiplicity as inherent and synonymous notions of "being" and "entity." This allows him to critique Newton's notion of absolute space-time and to suggest with the extensive continuum theory, closer to the platonic notion of *khora*, which evokes the image of a proliferative receptacle (Teixeira, 2009). In the scope of this work, I aim to point out how this philosophy of the organism brings a renewed look to think environmental solutions in a world in continuous change.

**Yang Li & Wen Hengfu**

**“Whitehead’s critique on Substance-Philosophy of 17 Century”**

A.N. Whitehead’s Organic Philosophy is based on the critiques and modifications of Substance-Philosophy of 17 century. These critiques mainly include: Substance-Philosophy doesn’t provide a clear theory hypothesis; it has a paralogism about the ‘fallacy of misplaced concreteness’; there is no changeless and isolated substance; the dualism of substance ruins the development of philosophy; the epistemology based on perceptions is parochial; the methodology is limited. Moreover, Whitehead argued that Substance-Philosophy has negative influences on the development of our society.

**Jack Wizard**

**“World Systems in Collision: Revitalising Cultures in the Face of the Military-Industrial Complex”**

The triumph of our present mechanistic cosmology took place in Europe during the seventeenth century, but was not inevitable in spite of those who believe in economic determinism or historical inevitability. In this short paper, I wish to draw your attention to highly relevant events that took place in Christendom whilst the Reformation was ripping the Western Church apart. Rome and Prague were not just the centres of the two warring religious factions but also of other even more profound alternative forms of consciousness. Human understanding of the nature of the physical universe itself was about to be transformed by two men, one of whom triumphed and the other disappeared into ignominious obscurity, Galileo and Kepler. The mechanistic and reductionist metaphysics of the currently established but out of date scientific establishment has become patently absurd “scientism”. Only wilfully blind academic bureaucrats refuse to take into account the facts before them. The choice being made in all the current educational and scientific institutions is not based on the truth of any particular model but its usefulness to the military-industrial complex. After all they pay for their research and often their salaries. There are a few

exceptions but they are politely sidelined. The global situation is so catastrophic that a cultural revitalisation movement has become essential. The process anthropologist Victor Turner constructed a theory of changes in social structures following crises taking into account the potential impact of what he calls “liminal” or “outsider” personalities in deconstructing and reconstructing roles, narratives and social systems, producing temporarily social anti-structures and a sense of “communitas”. So this paper will look to articulate a process cosmology founded in Turner’s work and constructed around the principles of intention fields (will), eventuality systems (time) and extension kinematics (space) as a means of achieving the all-too-necessary cultural revitalization.

**Glenn McLaren**

**“Re-Conceptualizing Health through Process Philosophy”**

Whitehead’s philosophy of organism has influenced relational approaches to understanding reality. Such relational thinking has been fundamental to the development of the field of ecology and the concept of ecosystem. As Australian Process Philosopher, Arran Gare argues in his recent book, *The Philosophical Foundations of Ecological Civilization: A Manifesto for the Future*, ecosystems ‘...can be healthy or unhealthy.’ According to Gare:

Health is characterized by mutual augmenting of the whole community and the component communities of each other, facilitating their continued successful functioning, their resilience in response to perturbations, new situations and stress, and for ongoing development and creativity to maximize developmental options, and can be measured as such. Characteristically, health is associated with the generation of forms consisting of mutually augmenting centres at multiple scales.

Influencing Gare’s holistic, relational views are not only Whitehead, but new developments in ecology, particularly hierarchy theory, as well as the newly emerging field of biosemiotics, which synthesizes both Peircean Semiotics and Von Uexkull’s *Umwelt* Theory. Important also are the theories of anticipatory modelling developed by mathematician, Robert Rosen.

In this presentation, I will briefly outline these various influences and show how we at Swinburne University are bringing them together to develop a process conception of health which can displace the defective mechanistic and reductionist approaches still dominating our health systems.