

Law and Cosmology: An Earth Jurisprudence*

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Law expresses a temporal consensus on the order of society and this consensus is derived from a society's values. Law is never simply a matter of rules; it is imbued with a sacred dimension. Rules of law are richly bound in books embellished as holy texts. Judges, like priests, come robed to court. Lawyers are sworn by oath to uphold the law and each court hearing begins with a ceremony invoking a spirit of reverence. Ordering principles are important, the very life of society depends on it.

"Jurisprudence," in English, has two meanings. Its first meaning is the philosophy of law. This is the study of the basis of law. Its second meaning is a division of law. For example "education law" would be a division of law, which is to say of jurisprudence. In this paper I am primarily using jurisprudence in the first sense because the topic of this paper, Earth Jurisprudence, concerns the basis of law, not a division of law. Earth Jurisprudence has a relationship to environmental law, but it also has a relationship to other branches of law, such as commercial law, tort law and constitutional law. Environmental law is both included in Earth Jurisprudence and would be transformed by it. Environmental law is not identical with Earth Jurisprudence.

"Earth Jurisprudence" is not a term with an established meaning. The term was introduced in April 2001 when the London-based Gaia Foundation invited a small group of individuals from various parts of the world to meet with Thomas Berry¹ at a conference center in Northern Virginia, just outside of Washington, D.C., to discuss the feasibility of developing an Earth Jurisprudence. Since that meeting, other small conferences have been held² and a book has been published on the subject by Cormac Cullinan of South Africa

entitled *Wild Law: A Manifesto for Earth Justice*.³ The major premise of the book is that we as humans have our written laws and we call that "the law." There is, however, another kind of law and it comes from the dynamics of Earth that create and sustain life. Cullinan calls this "the Great Jurisprudence."

Further, there are now two centers of Earth Jurisprudence, one associated with the Gaia Foundation in London and one a collaboration of two law schools in Florida: St. Thomas University Law School in Miami Gardens, and Barry University Law School in Orlando. The Earth Jurisprudence Center in London defines this subject as a "system and jurisprudence based upon the concept that the planet and all of its species have rights—and they have those rights by virtue of their existence as component members of a single Earth community."⁴ The Center for Earth Jurisprudence in Florida offers this more extensive statement:

Earth Jurisprudence is a newly emerging field of law based on a recognition of and respect for the rights of nature. It is related to many current fields of law, including environmental law, animal rights law, rights of indigenous people, and jurisprudence. The distinctive features of Earth Jurisprudence are that it looks at law from the standpoint of the health of ecosystems and the role humans play as an integral, interdependent member of a single, comprehensive Earth community. Earth Jurisprudence focuses on how legal norms may be established and disputes may be settled involving human-Earth relations. It opens the door to a fundamental rethinking of the basis of law.⁵

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¹ Thomas Berry is the author of *The Dream of the Earth* (San Francisco, CA: Sierra Club Books, 1988); *The Universe Story* (San Francisco: HarperSanFrancisco, 1992) (co-authored with Brian Swimme); *The Great Work* (New York: Bell Tower, 1999); and *Evening Thoughts* (San Francisco, CA: Sierra Club Books, 2006).

² For a list of conferences, see www.earthjurisprudence.org; "Earth Law: Background" (accessed June 19, 2007).

³ Cormac Cullinan, *Wild Law: A Manifesto for Earth Justice* (London: Green Books, 2003).

⁴ See www.earthjurisprudence.org; "Earth Law: Principles" (accessed June 19, 2007).

⁵ See <http://www.earth-juris.org/home.htm>; Internet (accessed June 19, 2007).

Earth Jurisprudence Involves Rethinking the Basis of Law

In this paper I would like to go through that door to fundamentally rethink the basis of law based on Earth Jurisprudence. A new source of “common” law is needed for our now globalized and integrated society—integrated with the entire Earth community.

Our Historical Situation

I believe we are at a turning point in history. Human history in broad outline begins with the appearance of our species, *homo sapiens*, 250,000 years ago. Around 30,000 years ago language and symbolic communication developed. Ten thousand years ago agriculture gave rise to Neolithic villages and began what we call “civilization.” Around 3,000 years ago the classical civilizations arose. In a stunning period of only a few hundred years, the Hebrew prophets, Socrates, Plato, Aristotle, Gautama Buddha, the Hindu mystics, Confucius, Mencius and Lao Tzu gave birth to the ideas and religious traditions that undergirded these civilizations.⁶ Around 1,500 years ago a feudal period began. Five hundred years ago, starting in the West, the modern period began and only a little over two hundred years ago, the industrial revolution.

Out of this have come our contemporary civilizations,⁷ which Samuel Huntington identifies as follows: (1) *Sinic* or Chinese civilization, which dates back to at least 1500 BCE. Confucianism is a major aspect of this civilization yet it is more than this and its boundaries extend beyond China to include Chinese communities in Southeast Asia as well as the related cultures of Korea and Vietnam; (2) *Japanese*, an offspring of Chinese civilization, yet distinct, which emerged around 100 CE; (3) *Hindu* (referred to also as Indian or Indic) the dominant civilization in the subcontinent of India since 1500 BCE; (4) *Islamic*, a civilization that began in Arabia in the seventh century CE and extends today from North Africa to Southeast Asia; (5) *Orthodox* a civilization centered in Russia and distinct from the West as a result of its Byzantine parentage and Orthodox Christian religious heritage and its “limited exposure to the Renaissance,

Reformation, Enlightenment and other central Western experiences”; (6) *Western* a civilization emerging around 700 CE and having three major expressions, European, North American and Latin American. (7) *Latin American*, an offspring of Western civilization but differing in its incorporation of indigenous cultures, its lack of exposure to the Reformation and its “corporatist, authoritarian culture”; and (8) *Sub-Saharan African* with its blend of tribal and colonial cultures and an emerging African identity.⁸

Huntington also identifies the emergence of a “universal culture”⁹ based on Westernization, modernization and industrialization and raises the question whether this is an emerging universal civilization. This globalized culture has become the central problem because it lacks the characteristics of a cohesive civilization, yet much of the world’s centers of power, especially economic, scientific, technological and military centers, are dominated by it.

Chuichiro Hirose of Japan writes about how this universal culture is disrupting the order of the contemporary civilizations:

The global expansion of information, communications and transportation resulting from advances in science and technology has turned not only the economy that deals with goods and services but also the various forms of knowledge and culture of the world into simultaneous platforms in terms of both time and space. As a result, the artificially and forcefully created “compression” and “chaos” on a global scale threatens immediately cultural diversity and respect for the values of each culture.¹⁰

He continues:

[T]oday’s globalization is a historical extension of a diversity of civilizations and cultures. By being almost instantaneously cast and by expanding at an historically hyper-accelerated rate into the “present location” in line with the Western European civilization and culture, today’s globalization has become a phenomenon

⁶ The German philosopher Karl Jaspers called this the “Axial Age” because the history of civilization turned upon it. For a thorough treatment of this period and its significance, see Karen Armstrong, *The Great Transformation: The Beginnings of our Religious Traditions* (New York: Alfred A. Knopf, 2006).

⁷ Samuel Huntington gives these characteristics of a “civilization”: “A civilization is the highest cultural grouping of people and the broadest level of cultural identity.” Samuel Huntington, *The Clash of Civilizations and the Remaking of World Order* (New York: Simon & Schuster, 1996), 43. A civilization involves “the values, norms, institutions, and modes of thinking to which successive generations in a given society have attached primary importance.” *Ibid.*, 41, quoting Adda B. Bozeman, “Civilizations under Stress,” *Virginia Quarterly Review*, 51 (Winter 1975). A civilization is “comprehensive [which is to say] none of the constituent units can be fully understood without reference to the encompassing civilization.” *Ibid.*, 42. “Religion is a central defining characteristic of civilizations.” *Ibid.*, 47.

⁸ *Ibid.*, 45-47.

⁹ See generally Chapter 3 on “A Universal Civilization? Modernization and Westernization,” *Ibid.*, 56-80.

¹⁰ Chuichiro Hirose, “The Turning Point of Western European Civilization—The Capitalist Economic System and the Global Environmental Problems,” *The Ecozoic Reader* 4, no. 3 (2005), 16.

that occurs simultaneously in both time and space dimensions in the world. It is as if by having time, and cultural and environmental differences “compressed,” civilization has fallen into a “chaotic” condition. This compressed chaos . . . has yet to be unified into a shape with a central core. After going through a number of processes including adjustment, adaptation, separation, and integration, a meaningful future form of civilization will emerge from this compressed chaotic situation¹¹

This compression and chaos has another source, however, and it is nature. To understand this we must also look at history from a geo-biological standpoint. Five billion years ago our planet Earth came into being. Four billion years ago the incredible phenomenon of life turned our planet into a shining blue marble in a vast universe with no known equivalent. Five hundred million years ago all of the major phyla of animals came into being in the miraculous Cambrian explosion. Sixty-seven million years ago following the death of the dinosaurs, our present Cenozoic Era, the age of mammals, began.

Nature unfolded outside human influence through most of this vast period of time. Since, the industrial revolution, however, and especially in the last 50 years¹², humans have caused massive changes in the Earth. As Norman Myers and Jennifer Kent write: “We are the first species to have become a geophysical force, single-handedly altering Earth’s atmosphere and climate. We have initiated the sixth great extinction spasm of geobiological history by the massive destruction of ecosystems and the loss of plant and animal species.”¹³ Further we remain in a state of exponential growth in terms of population, consumption and human impact on the environment.¹⁴

Convergence of Humans and Nature on a Global Scale

The same force that has led to a globalization of culture with its attendant compression and chaos in relation to our classical cultures or civilizations—namely the modern industri-

al, technological market economy with its supporting intellectual and institutional framework—has led to the global colonization of nature with attendant compression and chaos in relation to species and ecosystems. The future of human civilization and the future of nature (of species and ecosystems) have merged.

We are at a turning point in human history. The time in which nature functioned relatively autonomously in relation to the human community has ended.¹⁵ In the human dimension, globalization fits uneasily into the established patterns of culture. The future will have to be worked out in the context of the convergence of these two realities where human and nature have become inseparable and globally integrated.

Inadequacy of Modernity and Neo-Traditionalism as Responses

Our laws, the ordering principles of our societies, were not designed with these convergent realities in mind. This is why there is a need for a fundamental rethinking of the basis of law. This is not a rethinking for the sake of nature alone, it is a rethinking to enable, as Chuichiro Hirose suggests, the adjustment, adaptation, separation, and integration of the values and norms of historical civilizations into a meaningful future form of civilization for the benefit of all beings.

There are necessarily ongoing efforts at such adjustment. The efforts tend to follow two paths: One is the path of adapting traditional cultures to modernity (“modernization”), and the other the turning away from modernization to traditional values and culture (“neotraditionalism”). Both of these paths are reflected in the development of law. The trend in international commercial law is toward modernization. Yet, at the same time, in the Islamic world, there is a broad movement to strengthen traditional Sharia law, even in codes of commercial law.

Neither modernization, nor neotraditionalism is a satisfactory path to the future. The values of modernization, such as human rights, individualism, freedom, rule of law, pursuit of profit, market-based economic prin-

¹¹ *Ibid.*, 19-20.

¹² This is a minuscule period within the geo-biological time scale—only 1/100,000,000th of Earth’s history.

¹³ Norman Myer and Jennifer Kent, *The New Atlas of Planet Management* (Berkeley, CA: University of California Press, 2005), 8

¹⁴ *Ibid.*, 14.

¹⁵ Thomas Berry calls this the end of the Cenozoic Era because humans have irrevocably interfered with the geo-biological dynamics that were characteristic of that era. This is causing the sixth mass extinction in Earth’s history. Berry calls for an “Ecozoic Era,” a time of conscious human participation of humans in evolutionary processes as the successor to the Cenozoic Era. He also notes that the ending of a geo-biological era is a unique event in human history, the last such event occurred 67 million years ago with the ending of the Mesozoic Era. Thomas Berry, *The Great Work*, 3.

principles, consumerism, rationalism, pragmatism, and the importance of science and technology largely originated in the West. In their globalized form, however, these values are shallow because they are separated from the humanistic and religious traditions of the West, which both gave them birth and to which they were a response. Being separated from these traditions, they may promote secularism, materialism, individualism, hedonism and anthropocentrism and come into conflict with the traditions and values of other civilizations. Even in the West, modernization has been criticized on these grounds and has been a disruptive influence as well as a creative one.

Neotraditionalism is not strictly traditionalism, rather it is a reaction to modernity. Neotraditionalism seeks to look into the past to discover the principles to guide the future. Fundamentalist and neo-conservative movements around the world are expressions of neotraditionalism. Neotraditionalism may be successful for a time in rolling back influences of modernity, as for example has happened in Iran under the ayatollahs and in Afghanistan under the Taliban. Even in the United States we are seeing a strong neo-conservative reaction to modernity. Yet, it is difficult to be hopeful about the efforts of the neotraditionalists because they are prone either to look back and recreate a past that never was, or to restore a past that was a proper response to its time, but is inadequate for ours.

The Need for a Third Way

This interaction among traditional cultures, modernization and neotraditionalism will continue unavoidably. I think there, however, is no resolution of the conflicts that result, even if we take into account only the human dimension. Taking into account the convergence of humans and nature though, the prospects are especially dim and we must look for a third way.

I will describe some of the requirements for such a third way and then I will name four constructive features of what I believe to be this third way, namely "Earth jurisprudence."¹⁶

The Requirements of a Third Way

The requirements of a third way are that it must deal with the problems arising from the convergence of traditional cultures and universal civilization, and the convergence of humans and nature on a global and local scale.

Four Constructive Elements of Earth Jurisprudence

I believe Earth Jurisprudence meets these requirements. I will explain how by discussing four constructive elements of Earth Jurisprudence. These elements are as follows:

Earth Jurisprudence

- Is cosmologically (ecologically) grounded
- Recognizes and protects the rights of other-than-human beings
- Provides standards of conduct based on a new Gaian humanism
- Is locally and globally integrated (justice and equity)

I will only cover the first of these elements in this paper.

Cosmological Grounding

As we have already noted, we are in a time of confusion. Our traditional groundings are no longer regarded as having universal applicability and they often conflict with modern principles and contemporary aspirations. People in each of the contemporary civilizations cannot be confident in their conclusions because they are grounded in traditional ways of understanding things and yet must cope with the ideas of modernity. One might say, "We are cut off from our roots."

Elimination of Value and Meaning Categories in the Universe

The philosopher E. Maynard Adams offered profound insight into why this is so. Modernity is at heart a product of the science that emerged in the West beginning in the 15th century of the Common Era and has con-

¹⁶ One may wonder if the philosophical considerations that follow in this paper are relevant to law, which is often seen as a set of neutral, value-free rules. I have come to the conclusion that a philosophical reassessment of the basis of law is needed. I did this over the last two years in my work with the Earth Jurisprudence Center in Florida as I thought about (i) the importance of law, (ii) how it affects the ordering of society, and (iii) how it is the embodiment of a society's values. In other words, I came to realize that law is not value-free, but rather is value laden. Further, I became convinced that legal theory and value analysis (in other words, jurisprudence) belong in the legal profession and in the teaching of law. In my own development as a lawyer, I was never taught jurisprudence, the philosophy of law, I was only taught the practice of law. I don't know if the situation is similar in China or not. In any event, even if I had been taught jurisprudence, it would not have been the Earth Jurisprudence described in this paper.

tinued to grow and expand in the West and elsewhere to the present day. In Adams' view, the modern scientific account of the world eliminated value and meaning concepts as categories that described or explained reality. Without the reinstatement of these categories, he believed we are left only with political laws based only on ideological preferences without any claims to objective truth to regulate behavior.¹⁷

Let's go a bit further into this. In general, what Adams observed is science became such a powerful tool for manipulating and controlling nature and yielded such benefits that only those aspects of knowledge that promoted these capacities were regarded as veridical. Chief among these aspects is the idea that an event "is caused by the environmental, elemental, or antecedent factual conditions that necessitated it."¹⁸ This is the "naturalistic" concept of causation that undergirds modern science. It stands in opposition to the teleological concept of causation, the idea that something happens for the realization of an end (for what ought to be). Adams argues, this choice of naturalistic over teleological causation was not based on empirical discoveries.¹⁹ It occurred primarily because of a shift in purposes for which people sought knowledge; that is, because of a change in the dominant conception of the human enterprise. The modes of experience in which normative, value, and meaning concepts are grounded do not yield the kind of knowledge that is useful in our materialistic pursuits. And so they were discredited as knowledge-yielding modes of experience.

And with this shift in our ontological categories for understanding reality, our understanding of the universe shifted. Adams wrote:

[T]he scientific account of biological evolution and of the development of the physical universe in general is that it is a blind process, with no ends involved; it is not a becoming, not a process fulfilling or realizing an ought. The causality in the process is not teleological. The dynamics of the universe do not work toward the real-

ization of an order of goodness. In other words, the scientific account of the origin and development of the universe is cast in terms of a world-view in which there are no ends, normative laws, or value structures in nature. Whatever happens is the consequence of elemental, environmental, or antecedent factual conditions, without the pull or constraint of an end in view or a normative requirement.²⁰

Remi Brague in *The Wisdom of the World: The Human Experience of the Universe in Western Thought*,²¹ makes a similar point. He wrote "The image of the world that emerged from physics after Copernicus, Galileo, and Newton is of a confluence of blind forces, where there is no place for consideration of the Good."²² The stars, for example, no longer reflect the order of heaven, an ethical model to which one is to adapt oneself, but rather lack any significance until some new theory accounts for the facticity of their existence. To the extent that post-Copernican science reveals a truth about nature, it is of its moral indifference. Further, in this modern view humans appear as no exception to the new laws of nature. Morality has been reconceived, in the liberal movement, to emulate amoral nature's pursuit of self-interest as the way to the good; in various strains of existentialism, as a protest against nature's indifference; or, in reactionary circles, as an "unworldly" adherence to traditional, ideological, or religious values.

As a result of this, modern thought has had a bias toward an acosmic, nonmetaphysical, nontheistic account of the world. Further, the ethical value of cosmology has been neutralized because of the conception of nature as amoral or even immoral.²³

Cosmology as the Common Ground—Reinstatement of the Categories

This being the case, it may seem unlikely that I would propose cosmology as the basis for a third way. I do this because we need a common ground that transcends our differences. We know there is no common ground for our globalized society in the tenets of

¹⁷ E. Maynard Adams, *A Society Fit for Human Beings* (Albany, NY: State University of New York Press, 1997), 28.

¹⁸ E. Maynard Adams, "Is Science Really Compatible with Religion?" *The Ecozoic Reader 2*, no. 3 (2002): 28.

¹⁹ It could not be arrived at empirically, because "[i]t is part of the conceptual framework that makes empirical investigations possible." *Ibid.*, 28. In other words the concept of causation is presupposed.

²⁰ *Ibid.*, 30.

²¹ Brague, Rémi. *The Wisdom of the World: The Human Experience of the Universe in Western Thought*, Teresa Lavender Fagan, trans. (Chicago: The University of Chicago Press, 2003).

²² *Ibid.*, 185.

²³ *Ibid.*, 194.

modernity or of those of neotraditionalism. Some believe we may find a common ground in a global religion or political theory, or in commerce, but I do not think so. I believe our common ground can only come through cosmology, because the universe (and Earth as our place in the universe) is what we truly do have in common. But cosmology will be unifying only if understood as value-laden, purposeful and meaningful, that is if it is understood through the ontological categories that Adams rightly stated have been eliminated from the modern descriptive/explanatory framework of the universe.

So my argument for cosmology as the common ground for a third way is that there is no common ground other than cosmology. Then I argue that if the cosmology is the amoral cosmology of modernity, then it will not serve as the unifying influence needed for a third way. So the question becomes, how may we understand the universe to be meaningful? This is possible now in a way it was not before. It is possible through the phenomenological awareness of a meaningful universe, through post-modern science, through process metaphysics and through authentic recovery of traditional insights into cosmology. Separately I will discuss ecology as a functional cosmology.

Phenomenological Awareness of a Meaningful Universe

When asked “What is cosmology?” one answer Thomas Berry gives is to recite his poem “It Takes a Universe.” The poem begins this way

The child awakens to a universe.
The mind of the child to a world of wonder.
Imagination to a world of beauty.
Emotions to a world of intimacy.
It takes a universe to make a child.²⁴

These are the primordial experiences that make us human—without “wonder,” Berry says we have no mind; without “beauty,” we lack imagination; without “intimacy,” we have no emotional bonding. These are given to us by virtue of being Earthlings. Earth is given to us by virtue of the evolutionary

developmental processes of the universe.²⁵

Phenomenology concerns the examination of our experience without consideration of what is objective reality or purely subjective response.²⁶ So to say one becomes phenomenologically aware of a meaningful universe, simply means that one finds this awareness to be present in one’s experience. Who, as a child or as an adult, has not had moments of awakening to a world of wonder, beauty and intimacy? Intuitively we know that such a universe has meaning.

Post-Modern Science and Meaning

It is possible, however, for one to become disconnected from this awareness or not to trust it. We are our minds as well as our awarenesses. We see things in the world that don’t correspond to wonder, beauty and intimacy. We are required to interact with our world to sustain ourselves and even to overcome threats to our existence. We may come to explain the world in a way that it lacks meaning and dismiss positive experiences of meaning as romantic or childish. As stated above, such an explanation was given by modern science beginning in the 15th century—the world was understood as composed of objects in motion that were subject to mechanistic laws of causation. In the biological world, Darwin introduced the ideas that the evolution of life was determined by random mutation and natural selection.

The science of the 20th and 21st centuries, both the physical sciences and the biological sciences, however, offer the possibility of understanding the universe that is consistent with categories of meaning. Instead of a clockwork universe, we have, through relativity theory and quantum mechanics, a much different picture of a dynamic universe with an element of uncertainty. In physical cosmology, we have moved from a picture of a static universe, which has always existed somewhat as we know it, to a universe that has a story, a universe that has evolved through time with surprising developments. In the biological sciences we have moved from reductionistic studies of nature to ecology, which in the words of Edward Goldsmith, understands

²⁴ Quoted by Thomas Berry in an interview with Caroline Webb. Carolina Webb, “The Mystique of the Earth,” *Caduceus* (Spring, 2003): 7; available at, http://www.caduceus.info/archive/59/59_archive.htm (accessed June 21, 2007).

²⁵ Thomas Berry says that if we grew up on the moon our minds, imaginations and emotions would be as barren as the moon.

²⁶ “Phenomenology” is defined as “1. The study of all possible appearances in human experience, during which considerations of objective reality and of purely subjective response are left out of account. 2. A [philosophical] movement based on this study, originated about 1905 by Edmund Husserl.” *The American Heritage Dictionary of the English Language*, 3d ed. (New York: Houghton Mifflin Company, 1992).

“living things [as] differentiated parts of the hierarchy of natural systems that make up the ecosphere, and the ecosphere has a critical structure which enables it to maintain its homeostasis in the face of environmental challenges and to provide each of its subsystems with an optimum environment.”²⁷ It has even been advanced in the scientific community, though not without controversy, that Earth as a whole is a kind of self-regulating organism. Evidence of this is that despite dramatic changes over millions of years in the climactic conditions on Earth and kinds and dispersion of species, the concentration oxygen in Earth’s atmosphere has been 20.7%.²⁸ Some refer to this 20th century science as post-modern because it differs from the mechanistic science of modernity. This science still seeks to discover patterns or laws of nature, but does so in a more holistic, interdependent, dynamic way.

Process Metaphysics and Meaning

Much of modern philosophy in the West has been an attempt to reconcile philosophy with modern science. An obvious example of this was logical positivism in which an attempt was made to say that nothing was true unless it was empirically verifiable or could be arrived at through logic. The subjugation of humanistic categories of understanding to those of naturalistic science led Maynard Adams to say that value and meaning categories have been eliminated from the descriptive/explanatory framework for understanding our universe. For there to be an intellectual defense for the reinstatement of these categories, there needs to be a philosophy that encompasses our experience and the understandings of contemporary science in a coherent, logical system. Such a system is referred to in philosophy as “metaphysics,” which we might pragmatically define (as I believe William James did) as thinking about the world in the broadest possible way.²⁹ In philosophy, cosmology is a branch of metaphysics, which is to say that ultimately, in a philosophical sense as opposed to a physical science sense, cosmology must be sustained by metaphysics.

Metaphysics has been problematic throughout the modern period. This is because of the difficulty of reconciling our human experience (including our conceptions of God and meaning) with modern science. Rene Descartes famously divided the world into mind and matter. Matter conformed to mechanistic science of modernity, mind did not. The problem since Descartes has been to integrate mind, matter, and the universe. Within the disciplines of education, the problem has been that of integrating the humanities and science. This has been more than an obscure, philosophical problem. It goes to the heart of how we are to understand ourselves as humans, how we relate to the world external to us, and the purpose of existence. Science, as Thomas Berry once observed, can measure the vibrations of the string of a violin, but science cannot hear the music. This brings us to the simple, but profound question: “Is the music real?”

There is a contemporary metaphysics that encompasses science and the humanities and reinstates the categories of value and meaning in the descriptive/explanatory framework of the universe. It is process metaphysics. The fundamental aspects of process metaphysics are creativity, organic change over time, interiority (pan-experientialism), and interdependence. There have been many philosophies that are based on process. Heraclites of ancient Greece, Lao Tzu (or Laozi) of China,³⁰ Sri Aurobindo in India, Henri Bergson and Teilhard de Chardin of France, and many others both ancient and modern based their thought on some or all of these process understandings. I would like, however, to call particular attention to the process metaphysics of Alfred North Whitehead.

Alfred North Whitehead was educated at Cambridge University and wrote on mathematics. Later he developed a keen interest in physics and proposed a relativity theory that was a rival to Einstein’s. He then turned to write on the philosophy of science and later general philosophy. His *magnum opus* was *Process and Reality: An Essay in Cosmology*.³¹ He described the work as “speculative philosophy” and defined this as “the endeavor to

²⁷ Edward Goldsmith, *The Way: An Ecological World-View* (Athens, GA: University of Georgia Press, 1998), 16.

²⁸ This is the “Gaia hypothesis” first developed by Dr. James Lovelock. He named this hypothesis after the Greek goddess, Gaia, the goddess of Earth. Today the Gaia theory is more commonly referred to as “Earth systems science” and focuses on “scientific models of the geo-biosphere in which life as a whole fosters and maintains suitable conditions for itself by helping to create an environment on Earth suitable for its continuity.” “Gaia Hypothesis,” *Wikipedia*, available at http://en.wikipedia.org/wiki/Gaia_hypothesis (accessed, June 16, 2007).

²⁹ “Metaphysics” is defined as “1. the branch of philosophy that examines the nature of reality, including the relationship between mind and matter, substance and attribute, fact and value. [and] 3. A priori speculation upon questions that are unanswerable to scientific observation, analysis, or experiment.” *The American Heritage Dictionary of the English Language*, 3d ed. (New York: Houghton Mifflin Company, 1992).

³⁰ I recognize that there is a debate about whether Lao Tzu was an historical figure.

³¹ Alfred North Whitehead, *Process and Reality (Corrected Edition)*, ed. David Ray Griffin and Donald W. Sherburne (New York: The Free Press, 1978).

frame a coherent, logical necessary system of general ideas in terms of which every element of our experience can be interpreted."³²

Whitehead felt that no philosophy, including his own, would ever complete this endeavor. Yet, Whitehead contributed much on which to build and may prove to be as foundational to the future of philosophy as Plato and Aristotle have been in classical Western thought.

If, as Adams writes, "according to the presuppositions of modern science, there are no normative laws, values, inherent structures of meaning, ends or teleological causality in nature—only existential and factual structures and elemental and antecedent causes that engage them,"³³ and this has been the central problem for modern philosophy, the humanities in general and in human-Earth relations, then Whitehead offers a way out. Whitehead offers a way to give us back our common sense notions about the world, our moral consciousness, and our feelings of affection, beauty, wonder and intimacy in a way that both encompasses contemporary science and redirects it.

I cannot describe Whitehead's metaphysics here other than to say it is a philosophy of organism. I understand that "philosophy of organism" was Whitehead's own preferred name for his philosophy. (The term "process philosophy" was given by others who followed him.) I will offer this brief explanation Whitehead's metaphysics from the brochure of the International Process Network:

The central claim of Whitehead's 'process-relational philosophy of organism' is that the world is not made up of independent material objects. In contrast to Cartesian philosophy, in which the world is thought to be made up of 'static substances,' dependent only on themselves for their existence, Whitehead's philosophy depicts the dynamic inter-relatedness of the multitudes of entities which compose the world. In this way of thinking, each entity requires others in order to exist, and each is

thoroughly engaged in creative life-processes of becoming.

Indigenous Traditions and Meaning

I have written about finding the basis of a meaningful universe in one's own experience, in post-modern science and in process metaphysics, and now I turn to indigenous traditions. I do this because indigenous traditions are characteristically cosmologically grounded.³⁴

One understanding of indigenous traditions is that nature has a language and we can communicate with nature. The tree speaks, the bird speaks, the wind speaks, the river speaks, the cloud, the sky and the sun speak. They are also our brother, sister, mother, grandmother, father and grandfather. There is one spirit common to all. Humans are part of nature. We can no more go out into nature than we can go out into our bodies. We do not "make" laws, we discover them. Our well-being depends on maintaining harmonious order in obedience to the laws that govern all of nature, including the human part of it. The role of law, as expressed by the shaman, is to mediate between "sky and earth." In this pair, "sky" is heaven, which is to say it is the order of the universe, and "earth" is our daily affairs among humans and all of creation.

This indigenous wisdom makes sense, not when it supports superstition or other negative aspects, but when we bring to the intuitive understanding of those who developed the indigenous traditions our own phenomenological experience, the wisdom of post-modern science, and post-modern process metaphysics.

If we do this, we will have established a cosmological basis for law. Instead of thinking about a human constitutional basis for law, we may again authentically find the ground of law in the order of the universe. Then we will no longer be making laws based on our ideological preferences, we will be discovering laws to which we must conform our behavior if we are to have an ordered existence.

³² Whitehead, 3. This definition of speculative philosophy is also a definition of "metaphysics."

³³ E. Maynard Adams, "The Mission of Philosophy Today," *Metaphilosophy* 31 (2000): 353-54.

³⁴ For an introduction to Whitehead's philosophy, see Robert Mesle, *Process-Relational Philosophy; An Introduction to Alfred North Whitehead* (West Corshohaken, PA: Templeton Foundation Press, 2008).

³⁴ We should exercise caution in appropriating the wisdom of indigenous traditions. Our scientific understandings of the universe are different than the understandings of those who developed these traditions. We cannot hope to experience what indigenous people experienced in these traditions. What we can do is have our own knowledge and experience enriched by the intuitive wisdom of these traditions. We can also rediscover sources of knowing that have been lost to modern humans.

Ecology as a Functional Cosmology

I will close this paper with a discussion of how ecology is a functional cosmology. Our interpretations of our phenomenological experiences, post-modern science, post-modern metaphysics and indigenous traditions are very broad. Further, few will thoroughly explore and develop these sources of wisdom. While these will sustain the basis of the new post-modern civilization and will be studied in school, we need a practical guide for common usage. This is ecology, which is a functional cosmology.

The unique feature of Earth is life. This is sustained by the upper layers of the Earth's crust, the surface features of Earth and a narrow layer of atmosphere. I was told that if Earth was the size of a globe, this band that sustains life would not be as wide as the varnish on the globe. The primary purpose of law must be to maintain and promote this unique feature, that is to maintain and promote life in its fullness.

I think of ecology as the science of life. It is the one nonreductionistic approach to understanding life on Earth and how it is sustained by dynamic interrelationships. As noted above, Edward Goldsmith states ecology understands "[l]iving things [as] differentiated parts of the hierarchy of natural systems that make up the ecosphere, and the ecosphere has a critical structure which enables it to maintain its homeostasis in the face of environmental challenges and to provide each of its subsystems with an optimum environment."³⁵

He also states "Ecology Seeks to Establish the Laws of Nature,"³⁶ by which he means:

To study the structure and function of the ecosphere and its constituent natural systems is to seek out their pattern. The general features of this pattern are relatively non-plastic, which is another way of saying that they are subject to constraints—in this case, that particular set of constraints required to ensure that their behavior

will serve to maintain the stability of the ecosphere. It is these constraints that we must refer to as the laws of nature or Gaian laws."³⁷

In the post-modern practice of law, these patterns of order must be primary. Ecology is a functional cosmology on which to base law.³⁸

These patterns of order are not fixed, rather they are dynamic. Edward Goldsmith writes:

The laws of nature are not absolute laws as were those that Laplace and La Mettrie saw as applying to the mechanistic world that they depicted. Gaian laws can be violated, but only at a cost—that of reducing stability, both directly at a specific level of organization and indirectly at other levels in the Gaian hierarchy including that of the biosphere itself.

Adherence to a specific set of laws is required to maintain the order and hence the stability of a natural system; if these laws are disregarded the degradation and eventual demise of the system will follow. As we move from one level of organization to the next, up the hierarchy of the biosphere, so do new sets of laws—usually referred to as "emergent laws"—become operative.

So the task of a cosmologically grounded law would be to discover and operate within this dynamically patterned order. I believe in classical Chinese understanding this would be the patterning of the heavens—*tianli* (the order of the universe, cosmology), and the patterning of earth's topography—*dili* (the order of Earth, geology and ecology). These orders are apprehended by *xin* (the human heart-and-mind).

Of the four essential characteristics of Earth Jurisprudence, cosmological grounding is the most important. Having discussed this topic, I will end this paper here and take up the other three essential characteristics in future writings.

³⁵ Goldsmith, 16.

³⁶ This is the title of Chapter 2 of Goldsmith.

³⁷ *Ibid.*, 12

³⁸ Yet, as we are seeing today, while scientists may come to agreements about constraints in the biosphere, such as they have on global warming, people may not accept their agreements and will resist taking the actions needed to conform to the Gaian laws. Thus, while ecology is "functional" because it relates to things that are verifiable and subject to reasoned, evidenced-based discussion, factors beyond the evidence and reason will still cause resistance. Overcoming this resistance requires an educational process where people are awakened to a meaningful cosmos through appeals to experience (phenomenological awareness of our connection to nature), to post-modern science, to philosophical understandings that can bridge the gaps of ideology, religion and civilizations, and also to the wisdom of indigenous traditions. Further, appeals to experience, post-modern science, process metaphysics and indigenous traditions are needed to extend cosmological understandings to human affairs. Cosmology ultimately involves both how we understand the patterns of order in the universe and the place of the human in the universe.