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LEADING AND MISLEADING METAPHORS

From Organism to Anthropocene

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We need Carolyn Merchant today, more than ever. Her showing of the power of dominant metaphors, of paradigm shifts reshaping, misshaping our history is happening all over again on the contemporary scene. She can make us much the wiser if we see that the twenty-first century is in even more danger than the sixteenth or seventeenth of being misled by high powered and arrogant ideals. Facing an Anthropocene Epoch, we need her insights into how limited metaphors get elevated into commanding worldviews, how the strictures of an ideology control us with controlling images of nature.

Organisms and Machines

Merchant laments the loss of the organic category, which she couples with the feminine category.

The world we have lost was organic ...Central to the organic theory was the identification of nature, especially the earth, with a nurturing mother: a kindly beneficent female who provided for the needs of mankind The metaphor of the earth as a nurturing mother was gradually to vanish as a dominant image as the Scientific Revolution proceeded to mechanize and to rationalize the world view The female earth and virgin earth spirit were subdued by the machine.

(Merchant [1980] 1990:1–2)

The contemporary worldview is more complex than either organism or machine. For the pre-scientific ancients, earth, soil, was female perhaps. But they did not know they were on a planet—that comes thanks to the Scientific Revolution. Earth, upper case, our home planet, is dominant in our thinking, expanded from

earth, lower case, the soil. Taken to the planetary level, that projection requires some analysis. We are specifying the fertility and creativity, not the gender.

We do not really think that ecosystems are feminine, much less that Earth is a feminine planet—despite the Lovelock Gaia metaphor. Those are category mistakes, rather like thinking of God as being male. One ought not to sex type planets—the feminine Venus, or the male, war-like Mars.

The origin of sexuality in evolutionary natural history is a puzzle. Many species propagate by cloning, but this is a disadvantage for most species because it does not permit sufficient interchange of genetic information. Sexuality provides more adept generativity, and that does characterize planet Earth. We may speak of the whole genesis rhetorically or symbolically as feminine, Mother Earth; we also need to translate this into claims that are more philosophically and scientifically exact. We mean that there are generative forces that have produced the biota that surrounds us. Nature is the primal and programmatic fountain of being and value.

The Scientific Revolution was characterized by the transition from the organism to the machine as the dominant metaphor. “Between the sixteenth and seventeenth centuries the image of an organic cosmos with a living female earth at its center gave way to a mechanistic world view” (Merchant, 1990 [1980]:xvi). “The new mechanical order and its associated values of power and control would mandate the death of nature.” “The removal of animistic, organic assumptions about the cosmos constituted the death of nature—the most far-reaching effect of the Scientific Revolution Nature was now viewed as a system of dead, inert particles, moved by external forces” (Merchant 1990 [1980]:190, 193).

The first successes of that Scientific Revolution were astronomical, in physics, and we still do think of physics and astronomy as mechanical and non-organic. Isaac Newton’s celestial mechanics was perhaps the greatest breakthrough in this revolution. This interprets mathematically the motions of solar system bodies as resulting from forces operating on them, largely gravitation. This has since expanded to dynamic astronomy, including celestial body rotation, tidal evolution, mass and mass distribution determinations for stars and galaxies, fluid motions in nebulae, and so on. But this is all covered rather well by the machine metaphor. We can predict eclipses of the Moon to the exact minute a hundred years hence.

Robert Boyle argued that the transforming image of the seventeenth century was the famous astronomical clock in the tower at Strasbourg. The clock kept time, had astronomical features, and every hour human actors came out, originally the Virgin Mary with child and the Three Kings, who praised the child.

According to us, it [the world contrivance] is like a rare clock, such as may be that at Strasbourg, where all things are so skillfully contrived that the engine being once set a-moving, all things proceed according to the artificer’s first design, and the motions of the little statues that at such hours perform these or those things do not require (like those of puppets) the peculiar interposing of the artificer or any intelligent agent employed by him, but

perform their functions on particular occasions by virtue of the general and primitive contrivance of the whole engine.

(Boyle [1686] 1996:13)

The first artificer was soon pushed out by the mechanistic paradigm. Despite the fact that machines commonly have their intended functions, their uses, scientists concluded that this contrivance was a purposeless machine.

Used as metaphor, this fed into the model that all events were clockwork, from the astronomical heavens to human behaviors. That is far too reductionist for human behaviors, but for the clockwork heavens and earth physics it is still not a bad image. Whatever moves—stars, planets, mountains, rivers, particles of dirt—moves as and only as physical forces push it so. Used appropriately and within its limitations, I accept a mechanical concept of astronomical and physical events, and I suspect Merchant does too.

The problem is that, pushed to a worldview: the nothing-but clockwork, purposeless machine view takes us where it took Steven Weinberg, a Nobel laureate: “The more the universe seems comprehensible, the more it seems pointless” (Weinberg [1977] 1993:154).

But one doesn’t have to go there. One can find wonder and beauty in the mathematical nature of physics and astronomy, as did both Newton and Einstein. Einstein concluded, famously, that “the eternal mystery of the world is its comprehensibility” (Einstein 1970:61). Eugene P. Wigner, a physicist and mathematician, contends that

the enormous usefulness of mathematics in the natural sciences is something bordering on the mysterious and that there is no rational explanation for it The miracle of the appropriateness of the language of mathematics for the formulation of the laws of physics is a wonderful gift which we neither understand nor deserve.

(Wigner 1960:2, 14)

As far as our capacities for thought reach, whether in word or in mathematics, the universe seems unreasonably “reasonable,” intelligible, despite the fact that we can no longer visually represent, verbally model, or perceptively sense it. The math still works even in realms where sense and intuition do not easily serve.

Rather curiously, it is with high level abstract mathematics that the human mind is so adept at probing micronature and cosmology. Thinking of nature as a great clock, it was easy to forget that all but a few of the “natural” numbers going into the equations were in fact artifacts, gained with ingenious theories that constructed the looking units, schemes composed in the attending mind. Nature, unobserved, contains no ergs, seconds, or meters, and no wavelengths. These were really not objective units, only intersubjective ones, shared by those educated into an agreement about their appropriateness. This seeming

objectivity came with conceptual overlays that in their very success had become invisible.

We need to stay alert to the paradox that these universal physical sciences, which seem so powerful in interpreting what results from the primordial explosion, also drastically oversimplify. Neither mathematics nor other forms of physics anywhere know the categories of life and death, nor mind and conscious experience, which become the phenomena that most cry out to be explained. Even within physical cosmology, the factual claims (as with those involving the anthropic principle) may be mathematical, based on values in equations, but the cosmological interpretation of these facts is not. The interpretation is historical, metaphysical, theological.

The clockwork world, if a machine, turns out to be a sophisticated one. The electron, and all other atomic entities, are really what are called superpositions of quantum states, nested sets of possibilities as regards their forthcoming world lines, partly indeterminate matrices, partly coagulated this way and not that way by, among other things, the demands of observation or interactions with other particles. We make the glasses through which we darkly see, but also partly make the events we see. The electrons, as charge clouds and waves, have increasingly complex interactions with each other and with a nucleus that also becomes more complex as it is built larger.

The nucleus itself, in fact, proves even more complex than the electron shell, and here too the particles, mostly protons and neutrons, are simultaneously to be thought of as waves, with protons charged although neutrons are not. Like the electrons, the protons and neutrons too have probability locations. They are bound together by dramatic new forces, the nuclear forces, which are so short-range as never to be manifest macroscopically. Analogously to the electrons in their shells, the nucleus too emits and absorbs radiation and is subject to excitation. If it is interconnectedness we wish, there is plenty of that in physics.

A challenge to the hard world of determinism has come in chaos theory (as Merchant notices in the preface she added to the 1990 edition of *The Death of Nature: Women, Ecology, and the Scientific Revolution*) (Merchant [1980] 1990). Physical systems, although largely determinate or statically determinate, can contain elements of chaos. These include both determinate chaos, such as the intersection of two or more previously unrelated causal lines, and indeterminate chaos, such as events linked to random radioactive decay, or trigger events where systemic outcomes originate in small-scale threshold events that are genuinely open and might have been otherwise. This has been observed in weather patterns, with the memorable image of a butterfly's wings in China affecting the weather in California. There is still mathematics here, but it also turns out that in complex systems, this involves solving equations that become so complex that their solution is impossible with any computer either on hand or on the horizon.

Returning to what Merchant laments as a lost worldview, nothing in contemporary astrophysics or microphysics would regularly be interpreted as "organic" or in any "nurturing mother" image. There is no "death of nature" because the

astronomical worlds and the microphysical worlds were never alive—*pace* the Whiteheadians with their panpsychism, or whatever the Medievals and their predecessors thought. Still, elements in this enlarged scientific description are of a wonder full, awe inspiring, and “user-friendly” universe. Discoveries commonly gathered under the name “the anthropic principle” find that astronomical phenomena such as the formation of galaxies, stars, and planets depend critically on the microphysical phenomena. In turn, those mid-range scales where the known complexity mostly lies depend on the interacting microscopic and astronomical ranges.

This, we now say, is a “fine-tuned” universe. The astrophysical start up begins to look something like a set-up. That can put this cosmic machine on a course that results, rarely but in parts of it at least, in organic creativity, as proved by events on Earth. Martin Rees, British astronomer, even refers to the heavens as “our cosmic habitat” (Rees 2001). So Merchant can get back into the conversation.

Merchant, as a feminist, is always concerned to link the exploitation of nature with the exploitation of women. Merchant cites, and laments, Francis Bacon: “She [nature] is put in constraint, molded, and made as it were new by art and the hand of man; as in things artificial.... Nature takes orders from man and works under his authority” (Bacon, cited in Merchant [1980] 1990:170–171). “I am come in very truth leading to you nature with all her children to bind her to your service and make her your slave” (p. 170). Nature is a disorderly female who needs to be shaped into a better servant of her man.

A machine is not a woman; a woman is not a machine, and this juxtaposition needs to be analyzed. It is true that those prone to exploit will exploit whatever they can, nature and women alike, or poor, or minorities, the needy, the sick, or markets. Bacon’s language, as Merchant observes, is revealingly sexist, as he links dominion of women and dominion of nature. Meanwhile, it strikes me that, on the whole, women are as pleased to enjoy the benefits of the scientific revolution as men—glad to have wealthy husbands, if not wealth of their own, amply enjoying consumption and the technologically-gained comforts in life. Given opportunity, they pursue power in business and politics with all the assertive enthusiasm of men (*vide* Margaret Thatcher, Indira Gandhi). There is more to the feminine psyche than the desire to be a nurturing mother.

Merchant finds that what is distinctive about males, especially those educated into the Scientific Revolution, is their capacity to reason, compared to the caring, nurturing capacities of women. She hopes that there is place for emotions, for tender-minded thinking. So far as she thinks that men demonstrate tough-minded thinking better than women, she can undermine her own argument, because she so amply demonstrates herself exactly those powers of reason in her historical analysis.

Survival of the Better Informed

The astronomical picture is of a paradoxically vast, simple, mechanical, but user-friendly universe. The biological picture is undoubtedly organic, which Merchant

will welcome, and yet this too has proved challenging. To use a metaphor, it has proved difficult to “flesh out” organisms as machines. Biology is radically different from physics because of the struggle. Survival is the name of the game; nature is red in tooth and claw.

There is a feminine dimension that connects with the past. The evolutionary picture is of nature laboring in travail. The root idea in the English word “nature,” going back to Latin and Greek origins, is that of “giving birth.” Birthing is creative genesis, which certainly characterizes evolutionary nature. Birthing (as every mother knows) involves struggle. Earth slays her children, a seeming evil, but bears an annual crop in their stead. This pro-life, generative impulse is the most startling and valuable miracle of all. The “birthing” is nature’s orderly self-assembling of new creatures amidst this perpetual perishing.

Merchant knows that this historical coupling of organism and the feminine is well founded. The original meaning of “nature” is “to give birth,” Latin: (*g)nasci, natus*, a root in such words as native, nation, natal, navel. The root goes back to the Greek for giving birth, *ginomai*, surviving in such words as genesis, gene, progeny, pregnant, genius, gentile, generate. Such origins have given nature a feminine cast, which is not surprising, since females give birth. Generalizing, the whole system is Mother Nature. Mother Nature is a symbolic term, like Uncle Sam or Santa Claus, that does stand for something real: the prolific creative system to which we give the more mundane name Earth (like Uncle Sam stands for a real nation, and: “Yes, Virginia, there is a Santa Claus”). They remain mythical terms even while they stand for something real. Meanwhile we do not think that Earth is a mythical term, though it can be a symbolic term, because it is a real place.

But now the problem is not the *death of nature*, but *death in nature*. Nature is nothing but death. The evolutionary slaughter seems so uncaring. Again, there is a more inclusive perspective. The very idea of adapted fit also requires a niche, a place to be, and includes a life support system. The organism is selected to “fit in” as much as to control. An ecology is a home. That takes Merchant to her focus on ecosystems, toward which we are headed.

As dominant a metaphor as any in contemporary biology is *information*. Those who took physics a century back were taught that there are two fundamental things in the world: matter and energy. Einstein found that matter and energy are different forms of the same thing. Recently the biologists have been insisting on another metaphysical level: information. That is what is coded in the DNA, a “cybernetic” molecule. Indeed this “coding” and “information” can seem as literal as metaphorical. They seem pretty much fact of the matter.

Events on Earth stand in marked contrast with events on other planets, such as the gases that swirl around Jupiter. The life story is different, because in biology, unlike physics, chemistry, geomorphology, or astronomy, something can be learned. An organism is “informed” about how to make a way through the world, how to cope in its niche. Past achievements are recapitulated in the present, with variations; these results get tested today and then folded into the future.

Random mutation figures into a larger generative process; species generate and test new possibilities. The challenge is to get as much versatility coupled with as much stability as is possible. This requires optimizing twin maxima, keeping past knowledge while exploring the nearby search space for better adaptation. The genes function to conserve life; they also make possible a creative up-flow of life struggling through turnover of species and resulting in more diverse and complex forms of life, producing more out of less over millennia. The molecular processes are quite sophisticated; organisms regularly result that, engineers may say, are quite well built—as with dragonfly wings.

There is, we might notice, nothing feminine about this—although the natural history does result in more elaborated caring. This caring is by both female and male organisms; often, however, natural selection results in more caring for the young in females. Merchant with her feminism anticipates this “ethic of caring” (Merchant [1989] 2010:272) as characteristic of her webworked partnership ethic.

This evolution of more caring results not simply in caring for mates and the offspring, but in increasing webworked interdependence—equally for males and females. Life at such a boundary needs, above all, information, for it is such information by which it can form, or inform, matter and energy into the living molecules by which life is generated, regenerated, and maintained. If we are using metaphors, such as coding and information, to describe historical facts, is this leading or misleading?

Do we dare to say that the system is “headed” toward discovering more and more information? Some events do happen repeatedly. Consider forests. The phenomenon of forests is so widespread, persistent, and diverse, appearing almost wherever moisture and climatic conditions permit it, that forests cannot be accidents or anomalies in the Earth processes but rather must be a characteristic expression of the creative process. Likewise with grasslands. Consider species. One does not go from zero to five or ten million species, over several billion years, setbacks notwithstanding, by accident. Photoreceptors and eyes have evolved multiple times, discovering and reusing some basic light sensitive molecules. Flight has evolved on several occasions.

Something is at work additionally to life aimlessly tracking changing environments. The Earth has potential unfolding, and, whatever the accidental elements, we need to put an arrow on evolutionary time, at least on the up-building parts of it. Science discovers fertility in the system. Speaking of Mother Earth is the rhetorical, popular, classical way of doing this. Further, since nature is not particularly self-explanatory, this has often also been coupled with a Father God, who authorizes and undergirds this earthen creativity. But neither the female nor the male gender is the issue; the issue is parenting, come to focus on Earth, the only place where we know that this birthing has taken place. We need a historical account first, and then an ethic adequate for this creativity by which more comes out of less.

There is a systemic process, profoundly but partially described by evolutionary theory, a historical saga during which spectacular results are achieved. This value,

commonly termed “survival value,” is better interpreted as valuable information, coded genetically, that is apt for “living on and on” (*sur-vival*), for life’s persisting in the midst of its perpetual perishing. This fecundity was classically termed “Mother Earth” or “Divine Creation.” The fact of the matter is literally true, whatever we may think of the mythology used to explain it. Earth is a fertile planet, and in one sense that fertility is the deepest value category of all. Dismissing the mythology does not dissolve the valuable facts. Has evolutionary nature any *telos*? Does the genetic information produce more capacity for caring? Have we then moved to misleading metaphor? We might need Merchant’s insights to find out.

Ecosystems and Partnerships

The machine image that has dominated Western culture for the past three hundred years seems to be giving way to something new. Some call the transformation a ‘new paradigm’; others call it ‘deep ecology’; still others call for a postmodern ecological world view.

(Merchant [1980] 1990:xvii)

Merchant knows science; she is after all a professor of the history of science; she majored in chemistry and once did graduate work in physics. She appeals to ecology, and analyzes “ecological revolutions.” She can be anti-mechanism, anti-control, anti-capitalism, anti-technology, anti-reductionism, anti-instrumentalism, anti-maps and measurements, but she is pro-organism, pro-ecology and human ecology, pro-process, pro-webworks, pro-holism, pro-community (citing Leopold). “Ecological thinking, however, offers the possibility of a new relationship between humans and nonhuman nature that could lead to the sustainability of the biosphere in the future.” “Ecology also offers a new ethic for grounding human relations with nature” (Merchant [1989] 2010:263).

Merchant seeks a partnership ethic, men partner with women, humans partner with nature. “Ecological thinking constructs nature as an active partner.” “Non-human nature is an actor; human and nonhuman interactions constitute the drama” (Merchant [1989] 2010:23). This is well enough as a general principle, although it is rather hard to think of our relationship with wolves, or butterflies, crocodiles, snakes, whooping cranes, as partners. Mostly they just want to be left alone. We do have relationships with them. Are we partners with the wilderness areas we have set aside? Or with the giant sequoia trees? There is considerable drama in Americans setting aside 758 wilderness areas, or in international efforts to save over 5,000 endangered or threatened species. Humans are certainly related to their ecosystems; the “webwork” metaphor gets at this. Are we “partners” with anything, at least anything important to us in our webwork?

Are we partners with nonhuman nature? That depends on how you want to spin this metaphor—or, Merchant would say, what “social construction” we

choose. Yes, if one wishes to consider as “partner” a dynamic Earth where the biota is inextricably linked to atmospheric, oceanic, and terrestrial processes. It is remarkable how, once the life forces are underway, they remold the environment out of which they first came further in a prolife direction. Life is not passive before geological and meteorological vicissitudes, but is interactive with these forces. The soil with its humus results from what otherwise would be only mineralogical earth. The atmosphere with its oxygen, carbon dioxide, and ozone shielding layer is a product of plant and animal life. The rivers and springs flow moderated by runoff which is controlled by vegetative cover, plant respiration, and evaporation rates. Life to some extent modifies its climate. There are feedback loops set up between the organic and the nonliving world, and these sometimes become feed forward loops. The phenomenon of organism on the planet does not simply accept a random physico-chemical nature, but rebuilds it with results that are more favorable to life. If one wishes to be feminine about it, the Earth is the womb from whence we come and which we really never leave. When we really do understand all this storied achievement taking place on our home planet, an *ought* arises from an *is* that is of *value*, *valuable*, able to generate momentous value.

Entering the Anthropocene Epoch?

“Ecological revolutions,” Merchant argues, “are processes through which different societies change their relationships with nature” (Merchant [1989] 2010:23). *The Economist* announces: “Welcome to the Anthropocene”—the newest revolutionary relationship with nature (Economist, The 2011). Erle Ellis, celebrating what he calls the “Planet of No Return: Human Resilience on an Artificial Earth,” concludes,

We must shoulder the mantle of planetary stewardship Creating that future will mean going beyond fears of transgressing natural limits Most of all, we must not see the Anthropocene as a crisis, but as the beginning of a new geological epoch ripe with human-directed opportunity.

(Ellis 2011:44)

He joins colleagues in the *New York Times*: “The new name is well deserved ... The Anthropocene does not represent the failure of environmentalism. It is the stage on which a new, more positive and forward-looking environmentalism can be built” (Marris et al. 2011).

This high profile discourse showcases the expanding human genius. Is there any way to conceive of humans and nature in mutual partnership in this forthcoming Anthropocene? Or does there come with this ecological revolution a fear of human domination of nature returning with a vengeance?

We need to re-figure conservation in this novel future in which we celebrate a new epoch, named after ourselves. The way forward for conservationists is to embrace an

ever-increasing human management of the landscape, perpetual enlargement of the bounds of the human empire. Humans are in the driver's seat. The Anthropocene is "humanity's defining moment" (Seielstad 2012). We are "the God species" (Lynas 2011). The editors of a *Scientific American* special issue, "Managing Planet Earth," ask "What kind of planet do we want? What kind of planet can we get?" (Clark 1989).

With such calls for controlling Earth, and mindful of Merchant's warnings about controlling metaphors, we worry that those who forget history are condemned to repeat it. Perhaps she can help us use history as a corrective for better focus on our controlling assumptions.

A more considered if still Anthropocene future is celebrated in *An Ecomodernist Manifesto*, advocated by a dozen and a half international environmental leaders. We "describe our vision for putting humankind's extraordinary powers in the service of creating a good Anthropocene" (Asafu-Adjaye et al. 2015:7). Their dominant metaphor (social, material, natural) is "freedom," which appeals to us all. But the question, combining "eco" and "modernism," is: Are we seeking freedom from nature, control over it, or freedom within nature, harmony with it? "Modernism is the long-term evolution of social, economic, political, and technological arrangements in human societies toward vastly improved material well-being, public health, resource productivity, economic integration, shared infrastructure, and personal freedom" (Asafu-Adjaye et al. 2015:28). This is extraordinary humanism, but what are the human relations with nature?

The ecomodernists hope for "an ecologically vibrant planet" (Asafu-Adjaye et al. 2015:31). Surely this modern humanism will treasure ecosystem services. But no. These ecomodernists anticipate what they call "decoupling." "Human technologies ... have made humans less reliant upon the many ecosystems that once provided their only sustenance" (p. 9). Yes, technology can be "double-edged" (p. 17); there is serious threat of environmental deterioration, such as with climate change, or pollution, but future humans can fix these human-caused problems. With increasing industrial agriculture and rising harvest yields, there are no foreseeable limits to producing food. People now are free to and prefer to live in cities, and they will prefer fewer children. This frees up landscapes no longer needed. So the freer humans are, the more they can let selected natural areas go free, wildlands, restored forests. Humans will, of course, often want to recreate in such areas, they are even freer if they have such opportunity. Humans encountering original nature can be "important for their psychological and spiritual well-being" (p. 25).

Taken together, these trends mean that the total human impact on the environment, including land-use change, overexploitation, and pollution, can peak and decline this century. By understanding and promoting these emergent processes, humans have the opportunity to re-wild and re-green the Earth—even as developing countries achieve modern living standards, and material poverty ends.

(p. 15)

Such decoupling results in more freedom for humans and more freedom for nature. “Decoupling raises the possibility that societies might achieve peak human impact without intruding much further on relatively untouched areas. Nature unused is nature spared” (p. 19).

But none of this sounds like partnership. “We affirm one long-standing environmental ideal, that humanity must shrink its impacts on the environment to make more room for nature, while we reject another, that human societies must harmonize with nature to avoid economic and ecological collapse” (p. 6). The dominant hope is, that “the trajectory of the Anthropocene” is “The Great Acceleration”—to use the title of Will Steffen (Steffen et al. 2015). When human progress is progressively upscaled, peaked out, managing an engineered planet, the importance of ecosystem services is downscaled.

There is nothing here of nature as an active partner, nothing of a drama of interdependence. Entering the Anthropocene denatures us—even if this is, as the ecomodernists themselves worry, “not a world we want” (Asafu-Adjaye et al. 2015:26). Merchant was involved in a seminar entitled “The Fate of Nature in the Anthropocene” during the academic year 2015–2016. Perhaps we will hear from her more directly analyzing, unmasking the framework of justifications in the Anthropocene. She now says she prefers an Epoch of Sustainability, and dislikes any thinking of an Anthropocene Epoch.

Earth: Planet with Promise

Merchant laments the death of nature and claims that long-standing senses of community and participation were lost in the Scientific Revolution. Can any of those ancient worldviews still offer insight for modernists entering the Anthropocene Epoch?

Prominent among those classic worldviews, going back three millennia was Jewish monotheism, continued in the Christian faith, still vital in the Medieval period. This tradition does have a father God, patriarchs, and limited the role of women. Nonetheless, both Judaism and Christianity were convinced that the earth was divine creation. The ancient Hebrews had their promised land, a land flowing with milk and honey, their corner of landscape which they envisioned, in ideal if not in real, as a garden earth, a sacred gift, provisioned for life. The Hebrews discovered *who* they were as they discovered *where* they were.

Jesus saw the presence of God clearly in the natural world in which he resided, the birds of the air, the flowers of the field. Not even the grandeur of the courts of Solomon exceeded the glories of the lilies. Divinely given, earthen nature is the original act of grace. Made in the image of God, humans did have dominion over nature, yet humans were put in their place, stewards, trustees of a creation found to be very good.

Today and for the century hence, a powerful and increasingly attractive worldview is to see Earth as a planet with promise, destined for abundant life. When Earth’s most complex product, *Homo sapiens*, becomes intelligent enough

to reflect over this earthy wonderland, nobody has much doubt that this is a precious place. Rocket scientists, loving their marvelous, high-tech machines, are still concerned to celebrate our organic, vital planet. Viewing Earthrise from the Moon, the astronaut Edgar Mitchell, was entranced:

Suddenly from behind the rim of the moon, in long, slow-motion moments of immense majesty, there emerges a sparkling blue and white jewel, a light, delicate sky-blue sphere laced with slowly swirling veils of white, rising gradually like a small pearl in a thick sea of black mystery. It takes more than a moment to fully realize this is Earth ... home.

(Mitchell, quoted in Kelley 1988, at photographs:42–45)

The astronaut Michael Collins recalled being earthstruck: “Earth is to be treasured and nurtured, something precious that must endure” (Collins 1980:6). Even Edward O. Wilson, scientist and secular humanist, still exclaims, “The biospheric membrane that covers the Earth, and you and me, ... is the miracle we have been given” (Wilson 2002:21).

We love our home country, cherished often as a divine gift. The American landscape with its purple mountains’ majesties, fruited plains, its fauna and flora from sea to shining sea is divinely created, no less than Canaan from the Negev to Mount Hermon. John Muir, recalling the Psalmist, sings, “The forests of America, however slighted by man, must have been a great delight to God; for they were the best he ever planted” (Muir [1911] 1988:331; Psalm 104.16). And landscapes around the globe, east and west, north and south, on six continents (though not the seventh) have proved homelands that peoples can come to cherish and on which they can flourish. We are increasingly concerned to be ecologists who know the logic of our home, “*oikos*”; or, to reach for a religious word, ecumenists, those whose vision is the “*oikumene*,” the whole inhabited Earth. That promises an ecologically-based partnership ethic of global dimensions.

The challenge of the last millennium has been to pass from the medieval to the modern world, building modern cultures and nations, an explosion of cultural development, made possible by science and technology. Merchant contends that this aggressive vision has led us astray. She is right to challenge us that, in the next millennium, we must learn to contain those cultures within the carrying capacity of the larger community of life on our home planet. We are natives of nations and we are Earth natives too.

The ancient Hebrews insisted that they were given a blessing with a mandate.

You shall walk in all the way which the Lord your God has commanded you, that you may live, and that it may go well with you, and that you may live long in the land which you shall possess Hear therefore, O Israel, and be careful to do [these commandments] that it may go well with you,

and that you may multiply greatly, as the Lord, the God of your fathers, has promised you, in a land flowing with milk and honey.

(Deuteronomy 6)

That the land flows with milk and honey (assuming good land husbandry) has to be coupled with divine law, if there is to be a sustainable society. Again, Merchant is not so interested in divine law, nor are many of our contemporaries today.

But before dismissing this as archaic patriarchy, consider what that law urged. The Hebrew prophets insisted that their promised land does not flow with milk and honey for all unless and until justice rolls down like waters. There can be no intelligent human ecology except as people learn to use land justly and charitably. Nor is this only an ethic for dripping honey into human mouths. Fauna and flora are included within their covenant. “Behold I establish my covenant with you and your descendants after you, and with every living creature that is with you, the birds, the cattle, and every beast of the earth with you” (Genesis 9.5). This is “the covenant which I make between me and you and every living creature that is with you, for all future generations” (Genesis 9.12–13). “Keep them alive with you” (Genesis 6.19). There is no “death of nature” in the Bible.

Spelled in the lower case, earth is the ground under our feet; we can own it and manage it to our liking, or live in a penthouse and hardly ever touch it. Spelled in the upper case, Earth is not something we outgrow or rebuild and manage to our liking; it is the ground of our being. We humans too belong on the planet; it is our home, as much as it is for all the others. But the glistening pearl in space may not be something we want to possess, so much as a sacred biosphere we ought to inhabit with love. “Welcome to the Anthropocene!”—seen as an epoch in which the dominant species—humans—increasingly treasure their planet with promise. With that conviction, we can bring Merchant forward to the cutting edge of the world agenda today.

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