

The Mutable, the Mythical, and the Managerial: Raven Narratives and the Anthropocene

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ABSTRACT: *The Anthropocene is rooted in the proposition that human activity has disrupted the ecological balance of the earth to the point that humanity has entered into a new geological age. We identify three popular discourses of what the Anthropocene means for humanity's future: the Moral Jeremiad admonishes the transgression of planetary boundaries and advocates reductions to live sustainably within Earth's limits; the Technofix Earth Engineer approach depicts the Age of Humanity as an engineering opportunity to be met with innovative technological solutions to offset negative impacts; and the New Genesis discourse advocates re-enchantment. By contrast, we find that in many indigenous and pre-modern narratives and myths disseminated across the north Pacific and East Asia, it is the trickster-demiurge Raven who is most closely linked to environmental change and adaptation. Whereas Raven tales disseminated among north Pacific indigenous communities emphasize a moral ecology of interdependence, creative adaptation and resilience through practical knowledge (mētis), robustly centralizing Zhou Dynasty elites transposed early Chinese Raven trickster myths with tales lauding the human subjugation of nature. Raven and his fate across the north Pacific reminds us that narratives of environmental crisis, as opposed to narratives of environmental change, legitimate attempts to*

invest power and authority in the hands of elites, and justify their commandeering of technological fixes in the name of salvation.

KEYWORDS: Anthropocene, Raven narratives, folklore, North Pacific Rim, China, managerial ecology

The Anthropocene as Scientific and Popular Narrative

The imperative for science to classify timescales of environmental change in the earth's development recently has resulted in the promulgation of a suggested new geologic epoch: the Anthropocene. The term combines the Greek root for humans, *Anthropos*, with the term for new, "cene," and is usually glossed as "The Age of Humankind." It was first used by the Nobel laureate scientist Paul Crutzen and his colleague Eugene Stoermer (2000:17) as a label "to emphasize the central role of mankind in geology and ecology... [and that] the impacts of current human activities will continue over long periods." The scientific community has been cautious about embracing the Anthropocene as the legitimate heir to the reigning Holocene ("Recent Whole") as Earth's post-glacial epoch, despite calls to do so (Zalasiewicz et al 2008). The International Commission on Stratigraphy (ICS), the scientific body charged with authenticating classifications of the planet's developmental stages, will render its decision on whether or not to accept the new term and epoch in 2016.

Meanwhile, the Anthropocene appears to be gaining some traction as a popular concept and umbrella term for understanding the "perfect storm" of environmental challenges humans now face. In its May 26th, 2011 edition, *The Economist* launched a special feature on the new epoch with the bold cover headline: "Welcome to the Anthropocene." And since 2010, the Anthropocene has been

deployed with increasing frequency by popular media discussing not only the conjuncture of human impacts on the planet but potential human responses to these self-imposed stresses on critical systems--from climate to water to soil to forests--that support life on earth. However, it is not yet clear that the Anthropocene will succeed where climate change seemingly has failed: as a compelling concept and narrative for motivating human action to recognize, mitigate, and adapt to the major challenges we face in light of anthropogenic global environmental change.

To motivate constructive thought and behavior on the part of the public, however, a temporal and causal concept like the Anthropocene needs compelling narratives that work within a human frame. Narrative frames often organize our perceptions and interpretations of experience, transforming “what would otherwise be a meaningless aspect of the scene into something that is meaningful” (Goffman 1974:21). They are important guides for understanding phenomena such as social and environmental change, which develop as plots, with causal chains, perpetrators, victims, conflicts and resolutions. In the view of many activists, a significant weakness of the climate change narrative is that some “perpetrators”, or “drivers,” of change can be dismissed as disembodied “natural” phenomena that independently cause variation in earth’s processes. Moreover, the portion of climate change attributable to human impacts, despite the high confidence levels of the United Nations Intergovernmental Panel on Climate Change (UNIPCC), always contains uncertainty or confidence gaps, often serving to redirect attention away from ameliorative measures while drawing out blame-casting debates (Baskin, 2015). The Anthropocene, by contrast, is unambiguous about humans as perpetrators. As Chakrabarty (2012: 9-10, 12) remarks, “Humans, collectively, now have an agency in determining the climate of the planet as a whole, a privilege reserved in the past only for very large scale geophysical forces.” Yet, implicit in this recognition is a set of troubling questions for both policy-makers and the public: “[W]ho is the ‘we’ of this process?”

Foremost, there is the issue of differentiated responsibility; some societies and segments of humanity (we) are more culpable than others for deleterious impacts on the earth. Correlatively,

there is the problem of how to conceptualize collective human agency in the era of the Anthropocene. Chakrabarty concludes that scientists interested in creating an informed public around the crisis of climate change must first overcome the challenge imposed by this new imagining of human agency on an unprecedented scale: “Our thinking about ourselves now stretches our capacity for interpretive understanding.” On the other hand, when we consider the full range of human impacts on earth systems, many of which are attributable with certainty to localized human activities, it is much easier to implicate humans, or human subgroups, as the major agents of environmental change. “The Anthropocene” clearly identifies humans as the key perpetrators of environmental change. However, without additional storylines concerning the development of environmental change from a multiplicity of perspectives, including humans’ and non-humans’ diverse linkages with and impacts on earth systems, it is not clear that the Anthropocene will evoke a compelling master narrative to motivate the lay public. Furthermore, “fear framing” or risk-focused appeals to motivate public support of climate change policies have proved largely ineffective at triggering behavioral shifts (Spence and Pidgeon 2010; Bain et al. 2012). As Moser and Dilling (2011: 265) note, “An excessive focus on negative impacts (i.e., a severe ‘diagnosis’) without effective emphasis on solutions (a feasible ‘treatment’) typically results in turning audiences off rather than engaging them more actively.”

Folklore and traditional mytho-historical narratives offer an alternative approach to framing anthropogenic and other causes of environmental change, one that has existed since the dawn of humans’ capacity to historicize their lives and place in the cosmos. These narratives arguably have much to teach us about framing our understanding and contingent responses to environmental change over time and across spaces. They remind us of the futility of a managerialism that governs only for control and stability without proper consideration of relational feedbacks and the dynamic and anarchic forces in nature. As James Scott (1998) observes in *Seeing like a State*, human social and environmental disasters that arise from even well-intentioned state-initiated managerialist efforts all too frequently involve the pernicious combination of four elements: 1) dangerous

adherence to the administrative ordering of nature and society; 2) a commitment to a "high-modernist ideology" involving undue self-confidence about the value of scientific and technical progress; 3) the intervention of a powerfully centralising or increasingly non-democratic forms of political organisation; and 4) weakened civil society organisations. Prevailing discourses of "managing" climate change in the face of looming ecological disasters contain elements of all four of the above set within the broader narrative framework of crisis, which, as Edelman (1988) observes, often serves to mitigate resistance to, and helps to build popular support for, extraordinary interventions by social and political elites.

The tenor and rhetoric of the prevailing discussions of climate change and the Anthropocene are at odds with an alternative heuristics circulating in many indigenous communities that are instead shaped by the shared understanding that humans are but a small part of a relational universe that cannot be fully cognized, much less managed, by any one species. Raven tales of the Pacific Northwest and East Asia from the early Holocene, for example, celebrate the trickster-demiurge who excels at "improvisation in the face of unpredictability" (Scott 1998:6), as a driver of, or respondent to, environmental shifts. Although Raven frequently appears as either the harbinger of or an active agent provoking extraordinary ecological events, they are nonetheless not cast in the rhetoric of crisis. Instead, Raven adapts, innovates, and transforms with Earth's changes, sometimes by relying upon his intimate knowledge of local species, sometimes by cunning and wiles, and sometimes by happenstance as a result of his ulterior manipulations, and, at times, buffoonery. In contrast to the overtly mechanistic cause and effect models that prevail in popular and scientific discourse today, the lessons Raven can and does teach offer a multivalent understanding of the place of human activity in the world. Taken collectively, Raven tales disseminated among and between indigenous communities across the Northwest Coast of the North America, Alaska, Japan and Siberia today emphasize a moral ecology of mutual dependence, intersubjectivity, survival, resilience, feedbacks, and adaptation in the face of ceaseless and open-ended ecological change.

Yet, by contrast, in early Bronze Age China, the conquest of the Shang peoples by the militaristic Zhou led to a rewriting of similar indigenous Raven tales so as to justify the consolidation and expansion of Zhou dynastic power. Zhou elites transposed the preexisting totemistic Raven of the Shang peoples with tales lauding the human subjugation of nature in the name of subverting environmental crisis. In the hands of the Zhou, the Raven of earlier Shang myths was recast as a dangerous and unpredictable force of nature that wrecked havoc until it was extinguished by human hands. As the historical record shows, the Zhou proceeded to carry out an ambitious programme of sedentisation and deforestation as it pressed to expand agriculture to support its burgeoning population. By contrasting the still-surviving Raven narratives in indigenous communities on either side of the Bering Strait with the fate of Raven myths from early China, we seek not only to “place Asia in the Anthropocene” (Hudson 2014), but also to highlight the potential value of alternative, and subaltern, figures like the Raven-as-trickster-demiurge to prevailing crisis narratives of impending ecological disaster, and to the single-minded fidelity to state or corporate managerialism driving the contemporary discourse of the Anthropocene.

Raven represents multiple knowledges, both practical and conceptual, and we argue that his intersubjective encounters manipulations of earth systems and species reveals the integrity, balance, exigencies, and contingencies of life on earth. Indeed, we propose that Raven, through his knowledge and encounters, often exhibits what Scott (1998:6) has termed *mētis*: “the indispensable role of practical knowledge, informal processes, and improvisation in the face of unpredictability” (Scott 1998:6). Raven is a master of this mode, even if his novel experiments and improvisations do not always produce their intended ends. Raven’s other crucial modality is as a mutable transducer of conventional boundaries. He marries other species, becomes their offspring, and otherwise pushes beyond the conventional limits of intersubjectivity and interanimation, such that nothing is beyond his manipulations. In this respect Raven in the “Ravencene” anticipates humanity in the Anthropocene, both as an agent (or “driver”) of change

through his appetites and aspirations to control things for his own purposes, and as a resilient respondent to change (through coping, mitigation, adaptation, etc.) when earth systems and their constituent elements prove too powerful, dynamic, and complex to be harnessed for the benefit of one being or species.

After first laying out the major evolutionary framings associated with anthropogenic environmental change in the scientific literature, we identify three emerging popular narrative frames in the discourse on the Anthropocene: the Moral Jeremiad, the Managerial Engineer, and the New Genesis. We then contrast these contemporary discursive positions, both underpinned by a distinctly managerialist ethic, to the dynamic intersubjective trickster of Raven who succeeds neither in achieving moral rectitude in acting on the world, nor in engineering the world he wants, and thus is fated to continuously adapt to novel circumstances, relationships, and knock-on effects he himself has engendered. We suggest that the Raven-trickster frame, rather than contemporary crisis narratives and managerialist solutions, may present a more compelling narrative for framing the novel and unruly futures we face in the future Anthropocene.

Evolutionary Framings of Anthropogenic Climate Change

Most popular accounts associate the origins of the Anthropocene with the rise of CO₂ and other greenhouse gases in the age of industrialization—Crutzen and Stoermer (2001), for example note coincident rises in CO₂ and CH₄ gases in dates from core samples to the advent of James Watt's steam engine in 1784. However, there are in fact at least four periods of origin posited for Anthropocene, implicating all of the major human modes of production from hunting-gathering to industrial agriculture.

The earliest origin links the rise of the Anthropocene to the so-called Pleistocene Overkill. This thesis, originated by Paul Martin (1968), argues that humans played a major role in the extinction of megafauna at the end of the last ice age, due to their migrations, development of

organized group hunting, and invention of powerful weapons such as spears and atlatls. This hypothesis has been controversial, as the evidence is mainly circumstantial and few archaeological sites have been found that directly reveal anthropogenic “overkill.” Still there is evidence that the arrival of humans onto new continents from Africa coincides with extinctions of many animals larger than themselves (Barnofsky et al 2004), including some 83 species in the Americas and 21 in Australia (Barnosky 2008). It is likely that non-anthropogenic climate change, impacting critical habitats for these species, was also a primary factor behind these extinctions, perhaps exacerbated by human activities, including encroachment and hunting.

The loss of these large fauna, in turn, led to major, cascading changes in ecosystem structure and functioning, including afforestation of major grasslands previously maintained by the grazing of large herbivores, and a reduction in nutrient cycling and transport through animal dung (Doughty, et al 2010; Doughty, et al 2013). Afforestation on formerly-grazed grasslands on all the major continents also may have contributed to early global warming by reducing the albedo effect of the (often snow-covered) savannahs, thus causing the earth to absorb more heat (more than offsetting any effect from CO₂ sequestration in the additional trees) (Bala et al 2007). If we accept this causal chain of events, then even hunter-gatherers can be said to have had a significant impact on earth systems, including climate, which has heretofore been underappreciated (Malhi 2014).

The second major catalyst for anthropogenic environmental change was the Neolithic revolution, which spawned the independent development of agriculture in the Middle East (up to 10,000 BC), Asia (5000 BC), New Guinea (up to 5000 BC), Southern Europe, the Americas (3-5000 BC), and Africa (2-3000 BC). As agriculture intensified and spread from these areas, large swaths of forest were cleared to make way for fields. According to paleoclimatologist William Ruddiman (2001, 2003, 2005, 2007), this anthropogenic deforestation was significant, especially in terms of the combined release of greenhouse gases from forest clearing and the loss of CO₂ sequestration in standing trees. Ruddiman’s argument is partly based on the fact that in previous

ice ages greenhouse gas levels peaked shortly after the end of the ice age, then declined steadily, while in the Holocene they only declined for about 3000 years, until the advent of intensive agriculture, whereupon they leveled off and started to rise again. In addition to the release of CO₂ (from forest burning and irrigation development), Ruddiman also implicates expanding rice production (especially wet rice agriculture) and domestication of livestock to rises in methane levels beginning about 5000 years ago. According to one recent study, up to 80% of additional methane in the atmosphere as of 1000 years ago can be attributed to expanded rice production in Asia (Fuller et al 2011), with increased livestock accounting for the remainder, though impacts of these anthropogenic drivers are disputed (Peterson 2008, Singarayer et al. 2011; Stocker 2011)

Either way, these hypotheses of a long-developing Anthropocene, implicating revolutions in human hunting, pastoralism, and agriculture as drivers, constitute at most a slow-build up to the giant wave of anthropogenic impacts wrought by the explosion of the industrial revolution since 1800. The latter initiated a series of contingent transformations in production, distribution, and consumption, fueled initially by coal and subsequently by other fossil fuels. Critical to the success of manufacturing was the advent of steam powered equipment, which, combined with the development and iron and steel furnaces and urban population explosions, necessitated exponential increases in coal burning. As Mitchell (2009:402) suggests, “Thanks to coal, Great Britain, the United States, Germany and other coal producing regions could be catapulted into a new ‘energetic metabolism,’ based on cities and large scale manufacturing.” However, the combustion of dirty coal contributed to major air pollution and the rising accumulations of CO₂ and other greenhouse gases into the atmosphere, creating a host of additional environmental problems beyond warming, such as smog and acid rain.

The Great Acceleration (Steffan et al 2007) of post-World War II industrialization, catalyzed by revolutions in oil and gas production and distribution, provided step change in global anthropogenic environmental impacts, marking the beginning of the modern Anthropocene. For Steffan et al, The Great Acceleration is typified by the rapid increase in CO₂

levels in the atmosphere from 310 ppm (parts per million) in 1950 to 400 ppm today. Such acceleration is unprecedented in the Holocene and correlates closely with the rising levels of fossil fuel consumption throughout the world. While some scientists (and a major NGO, 350.org, named for the figure) consider 350 ppm as a threshold over which dangerous climate change is likely to occur (Rockström et al 2009), others, and increasingly the IPCC, see the issue in terms of cumulative carbon emissions (Allen et al 2009). Beyond this, Steffan et al point to other deleterious effects of The Great Acceleration on earth's systems, including rising levels of inorganic nitrogen in watersheds and oceans from industrial agricultural fertilizers, and heightened sulfur dioxide concentrations in the atmosphere from industrial pollution. When coupled with increases in human population, mobility, and consumption, and the concomitant losses in biodiversity since 1950, The Great Acceleration is assuredly the most critical, if not original, phase of the Anthropocene.

It is important to note that these scenarios of the Anthropocene's development are based largely on the effects of anthropogenic emissions on the earth's atmosphere. However, anthropogenic signatures can also be measured in terms of human consumption and signatures on the earth's other biotic and abiotic systems. One promising approach to assessing these impacts as a contribution to the Anthropocene involves attempts to quantify humans' collective metabolism and appropriation of the earth's productive energy (Malhi 2014). A human at rest has a basal metabolism of 60-80 Watts (comparable to an ordinary light bulb) in line with other mammals our size. Human energy use can be conceptualized as sociometabolism and added to basal metabolism to obtain a per person energy consumption figure. As humans have evolved, they have increasingly commanded a larger share of the earth's energy or net primary productivity (NPP). In their pre-agricultural state, humans appropriated a comparatively small part of the earth's energy, about 300W per capita (Krausmann et al 2008), as their population densities were low (.02-0.1 per km) and their hunting and gathering activities had comparatively little impact on ecosystems, at least until the advent of large-scale hunting of megafauna (which,

as suggested above, had a comparatively greater impact on local ecosystems through their grazing). It is possible that some small-scale human modifications of the environment made landscapes more productive (see Posey and Balée 1989; Clement 2006) for biodiversity and bioenergetic flows, but no attempt has been made to quantify these impacts.

With the development of agriculture, human appropriation of NPP increased markedly as farmers “colonized” ecosystems with human-adapted foodstuffs (e.g., cereals in the Middle East, rice in Asia, and maize in the Americas) and pasture for livestock (cattle, goats, pigs, sheep, and others). These modifications were further aided by human fire-setting (in swidden and other agricultural systems) and biofuel consumption for cooking and heating. As increasing land acreage was modified under agriculture to support larger human populations, humans came to capture up to 80% of NPP in pre-industrial agricultural systems (Haberal et al 2007), yielding a social metabolism of approximately 2000W per capita, more than 7 times that of hunter-gatherers. In addition, through their modifications of landscape to eliminate competing plants and animals, humans typically reduced its NPP (though there are exceptions with irrigation of arid areas) (Malhi 2014).

Industrial society has accelerated this energy appropriation precipitously. Even with the pre-industrial expansion of agriculture throughout the temperate and tropical regions of the world, appropriation of total global terrestrial NPP remained at a lowly four percent. In the industrial age human sociometabolism has soared to 8000W, as a result of the development of fossil carbon energy sources for fuels. With this transformation, biomass energy becomes a relatively small contributor to sociometabolism compared to these new sources of energy, and, with the storability and transportability of fossil fuels, human sociometabolism effectively is decoupled from the limits of local ecosystem NPP, thus allowing humans to become populous city-dwellers (Malhi 2014). In terms of energy capture, this evolutionary argument was anticipated by White (1943) and others (e.g., Sahlins and Service 1960).

In the twenty-first century, humans now appropriate an alarmingly high 11 % of global

terrestrial metabolism, by far the most of any species, and approaching that of the world's total vegetation (17%, see Malhi 2014). This massive energy capture and the greenhouse gas emissions resulting from it, even more than human driven biodiversity loss and other planetary impacts (MEA 2003), may be the ultimate human signature on Earth's systems for centuries to come.

Anthropocene Narratives and Future Earth

The Anthropocene is not only about narratives of past human transformations of earth systems but also about human responsibility for present and future trajectories of change and impacts on earth's biocultural diversity and systems. Concerning this human responsibility for Future Earth, three broad crisis response narratives have already emerged on the spectrum of responses to the Anthropocene: the Environmental Jeremiad, the Technofix Earth Engineer, and New Genesis approaches.

Framed as an environmental Jeremiad, the Anthropocene is a discourse with moral overtones admonishing that planetary limits are being irresponsibly transgressed by human activity, the footprint of which must be reduced in order to live sustainably within planetary boundaries. Johan Rockström and colleagues (2009) declared that there are at least 9 critical biophysical boundaries governing human sustainability and wellbeing on earth, three of which—climate change, biodiversity loss, and nitrogen cycling—already have been exceeded to dangerous levels by human activity, with others approaching similar tipping points. The key to sustainability, these authors suggest, is to find ways to live at safe-levels within these planetary boundaries. Although calling for stronger limits on human activity, there is optimism in this narrative that a “safe operating space” for humanity exists, and with closer attention to mitigating human effects on these critical biophysical processes, we can live within the boundaries, likely with the help of advanced geo-engineering efforts and improved global governance schemes

(Steffen et.al 2011). The boundaries are hypothesized, however, and the precise thresholds that will trigger catastrophic shifts or feedback in earth systems are uncertain. Moreover, as with tackling climate change, living within these limits requires lowering our impact through large-scale collective action over long timeframes, a feat that has proven difficult to achieve. Can states effectively coordinate their differential responsibilities in contributing to a safe operating space for a human population of 9 billion within this century?

The Technofix Earth Engineers present the Age of Humanity less as a looming crisis than an engineering and enterprise opportunity, replete with calls for planetary management that put scientific and technical personnel at the helm in creating a “good Anthropocene.” This “Men Like Gods” (to borrow from H.G. Wells) perspective is the one favored by *The Economist*: “[B]etter to embrace the Anthropocene’s potential as a revolution (or ‘evolutionary leap’) in the way the Earth system works...than to...retreat onto a low-impact path that runs the risk of global immiseration.” Ellis (2011), for example, asserts that “There will be no returning to our comfortable cradle. The global patterns of the Holocene have receded and their return is no longer possible, sustainable or even desirable. It is no longer Mother Nature who will care for us, but us who must care for her.” In a more recent New York Times editorial, he goes so far as to argue that “The idea that humans must live within the natural environmental limits of our planet denies the realities of our entire history, and most likely the future. Humans are niche creators. We transform ecosystems to sustain ourselves. This is what we do and have always done” (Ellis, 2013). Lynas (2011: 34) concurs, arguing that “The Age of Humans does not have to be an era of hardship and misery for other species; we can nurture and protect as well as dominate and conquer. But...the first responsibility of a conquering army is always to govern.” Crutzen (2002: 23) proposes that the “task [that] lies ahead for scientists and engineers is to guide society towards environmentally sustainable management during the era of the Anthropocene. This...may well involve internationally accepted, large-scale geo-engineering projects, for instance to ‘optimize’ climate.”

In this visionary view, we can innovate our way beyond conventional environmental limits by capturing and storing or otherwise mitigating our greenhouse gas emissions and other impacts on the planet, and creating more “adaptive environmental practices” that stimulate “holistic sustainability in the Anthropocene epoch” (Nicholas 2012). A video entitled “Welcome to the Anthropocene,” screened at the June 2012 “Planet Under Pressure” conference in London, expounds: “This relentless pressure on our planet risks destabilisation. But our creativity, energy and industry offer hope. We have shaped our past. We are shaping our present. We can shape our future.” Yet technofix is always a mixed bag. There are unintended consequences and knock-on effects (of Green Revolution pesticides and fertilizers, for example, which boosted production, but often with negative environmental consequences). As well, there is the curse of Jevon’s paradox, or the rebound effect, whereby savings created by doing things more efficiently are rapidly channeled into further consumption to meet humanity’s insatiable needs. Finally, although technofix discourses may inspire popular optimism, they obscure the socioeconomic realities of unequal responsibilities for impacts, and the likelihood that only developing nations will have adequate resources to deploy such measures.

Emerging on a different plane from either the moral admonishments and lamentations of the Jeremiad and ambitious Technofix Earth Engineer approaches lies a third narrative frame that Sideris (2013: 148) dubs the “New Genesis,” informed in part by the eco-spiritual and “rewilding” movements that “understand scientific worldviews not as a leading cause of nature’s disenchantment but as the primary vehicle for restoring enchantment, wonder, meaning, and value to the natural world.” Proponents of this view argue that humans constitute “that part of the universe that has become conscious of itself,” enabling the advent of what Swimme and Berry (1992) have dubbed the dawning “Ecozoic” era, “in which humans will live in greater intimacy and harmony with the Earth.” In contrast to the Anthropocene, the “Ecozoic era” is both normative and prescriptive, offering a positive and spiritually-informed vision of humans constructively shaping the next phase of cosmic unfolding for the better. One means to stimulate

this re-enchantment, according to Powell et al (2014) is through a narrative of “intersubjective resilience” characterized by “pragmatism” and “dialogical existentialism” within an interspecies network of human and non-human persons characterized by fluid and reciprocal relations. Buck (2014: 8) sees in urban rewilding, biophilic cities, planetary gardening and smart landscapes the possibility of a “beautiful” and “charming” future Anthropocene capable of enchanting “humans-in-nature.” Yet as Buck herself acknowledges, “unless we build participatory, experiential infrastructure that offers room for enchantment, a data-driven future of surveillance, disciplinary architecture, and algorithmic decision-making seems grim”. Visionary “New Genesis” discourses of re/enchantment may offer something toward which to strive, but in many cases are as contingent as the moralistic Jeremiad and Technofix Earth Engineer approaches in their reliance upon futuristic innovations and investments of resources in both the human and natural sciences to realize their ends.

Clearly, current discussions of the Anthropocene are marred by significant shortcomings and limitations. All three of these positions within the Anthropocene discourse promote, to a greater or lesser degree, managerialist approaches and expert-led interventions in response to the present and future ecological “state of emergency” (Baskin, 2015). Likewise, as Head (2014) points out, the consensus view implicitly adopts a deterministic, linear and teleological understanding of human history that is not supported by both scientific and social scientific concepts of evolutionary and historical contingency. Malm and Hornborg (2014) argue that existing discussions first denaturalize climate change by relocating it from the sphere of natural causes to that of human activities, only to re-naturalize it again by connecting the process to innate human traits, like the ability to control fire. The “Anthropocene displacement” of Malm and Hornburg’s trenchant critique highlights the ways in which the current discourse elides nature with human nature, excluding nonhuman perspectives and experiences. Finally, Dalby (2013: 191) suggests, rather than focusing on the Anthropocene either in the context of an unfolding emergency or in Žižek’s formulation as a “matter of end times,” we are better served by

understanding the present in continuity with the past, instead of within the context of an unknown and unknowable future.

The Ravencene: Disruption and Reorganization in the Dynamic North Pacific

Seeking to broaden the contemporary discussion, and perhaps to push it in a new direction, we offer an alternative vision of the Age of Man with roots in the early Holocene, a rambunctious heuristic that we term the Ravencene for the trickster-transformer figure found in folk traditions around the world, but especially the dynamic North Pacific Rim. In these environments the impacts of climate change, sea level rise, tectonic shifts, and other major environmental transformations have been felt and interpreted by long-dwelling indigenous peoples over millennia. Many major environmental shifts are associated with the rambunctious activities of the mythical Raven. For his part, Raven is neither a moralist nor a manager, but a restless rogue who manipulates, transcends, and transforms the constituents and boundaries of the cosmos in a relentless quest to gain particular resources and outcomes for his own ends. His resulting misadventures and their repercussions are relevant to how we conceptualize and respond to the new geological era we propose to name for ourselves. Raven's fate is in many ways the human fate, one of constant appetites leading to confounding consequences and the need for continuous adaptation. Yet Raven is not human, and his fate is not exclusively the human fate, but rather the fate of all species that reach beyond their means, their limits, their territory, their niche.

This is not to suggest that Raven is not an anthropogenic character, but rather that he is an anthropogenic mirror on humanity as one among many competing, strategizing species. Raven is in essence a mirror of the human capacity to desire what belongs to other species and to disrupt

the natural order in the process. Paul Radin (1956) in his classic study of the trickster, termed this mythological figure an archaic “*speculum mentis** wherein is depicted man's struggle with himself and with a world into which he had been thrust without his volition and consent * [*Speculum mentis*, Latin: "mirror of the mind."]?” He elaborates, “Trickster is at one and the same time creator and destroyer, giver and negator, he who dupes others and who is always duped himself . . . He possesses no values, moral or social, is at the mercy of his passions and appetites, yet through his actions all values come into being” (1956:xxiii). Raven’s purpose as trickster, according to Radin, is to highlight “our problem,” the basic psychological dilemma of human existence in a changing world. “In fact, only if we view it as primarily such, as an attempt by man to solve his problems inward and outward, does the figure of Trickster become intelligible and meaningful” (1956: xxiv). In this way, Raven’s “mirror” reflects the totality of animate relations and values in dynamic and contingent world, rather than a stable “system” or hierarchy of relations. Indeed one of the key themes of Raven myths is to teach humans, who are often woefully ignorant, about the web of relations that constitutes and maintains life on earth, so that they may survive within it. This is to appreciate that environmental change is not so much ‘anthropogenic’ as “sociogenic” (Malm and Hornborg 2014:5).

The outward problems of environmental change, limits, and stress are Raven’s critical challenges, and he approaches them not as scientist, humanitarian, or manager, but as rogue demiurge, pushing planetary boundaries incautiously according to his selfish, short-term interests. He is never satisfied living in the “safe operating space.” Raven is human-like in this regard: his selfish, ignoble, and insatiable appetites and acts have cosmic consequences, as well as unanticipated knock-on effects. And things often don’t end well for Raven. In many traditions he starts as a pure white being, only to be permanently blackened by his own misadventures with fire and its sooty emissions. In this regard, Raven may be the best personification we have of carbon and its cycles, fluxes, and reactions. He also personifies the human condition, as ultimately his meddling in earth systems is like humans’ meddling; seeking more for himself now, with little

consideration for others, Raven often (but not always) makes things harder for others and for future generations. At the same time, Raven's mutability, adaptability, and resilience, his ability to fly away, take a bird's eye view, and revise his response to changing planetary conditions always leads to sustainment even in the face of environmental transformations.

Yet perhaps one of the most interesting early mythic transformations that Raven undergoes is at the behest of the transition to settled farming during the Neolithic age in the north Pacific region. As Jochelson (1904) observed, on the Eurasian side of the Bering Strait, Big Raven manifests as "the organizer of the universe," "the first man," and the ancestor of the Koryak of northeastern Siberia. He gave men light, taught them how to hunt both on land and in the sea, and gave them the drum and the fire-drill. When Big Raven ruled, the boundaries between the human and natural worlds were shifting and infinitely permeable; but when the human race stopped heeding his teachings, Big Raven left suddenly, and the boundaries between the human and the non-human became fixed and unyielding. The miraculous transformations of one life form to another ceased, and the human connection to a natural world of ceaseless change became a source of social uncertainty and concern.

The loss of the trickster element of the Raven tale is presented as well in the earliest Chinese myths, in which Raven appears as the progenitor of the Shang peoples who settled along the major river basins of eastern China during the Neolithic and early Bronze Ages. However, unlike the trickster Raven myths that persist among the peoples of the North Pacific even today, the unpredictability and volatility of Raven and all that he represents was brought to heel by the conquering Zhou civilization, and the rise of an early centralizing imperial state. In the recorded myths of the Zhou peoples who succeeded in vanquishing and uniting the scattered Bronze Age tribes of early China, the progenitor Raven was shot down on the orders of an early emperor so as to ensure the predictability of natural cycles upon which early agricultural life depended, thus allowing Zhou civilization to grow and thrive. Coincidentally, this is also the time and place when coal first began to be mined systematically for energy (Ebrey et al 2006).

To further probe the relevance of the Ravencene perspective on contemporary human-environmental relations, we review the literature on Raven tales of environmental change in the dynamic North Pacific rim, where many of these tales appear to have evolved, and also in East Asia, particularly China, where the “domestication” or devolution of Raven may indicate yet another point of origin for the Anthropocene.

Raven Myths from the North Pacific

Among nearly all hunting and gathering peoples of the north Pacific, from the Vancouver Island tribes north to Tsimshian, Haida, Tlingit nations of the northern British Columbia and southeastern Alaska rainforests (Boas 1916; Hymes 1990; Swanton 1905, 1909) to the Eskimo-Aleut and Athabaskan peoples of northern and western Alaska tundra and boreal forest, across the Bering Sea to the Chukchi (Bogoras 1902; 1910), Koryak (Jochelson 1904, 1908), and other paleoasiatic groups of the northeastern Asia (Meletinsky 1980), Raven is associated with major transformations in cosmic, earth, and local ecological systems (Goodchild 1991). The two great tomes on north Pacific Mythology, Boas's *Tsimshian Mythology* (1916) and Jochelson's *The Koryak* (1908), include hundreds of Raven stories belonging to the serious transformer and comic trickster cycles (whereas in neighboring groups, the trickster-transformer roles are often separated, and played by other creatures, such as Mink, Coyote, or Bluejay), as well as statistical analysis of continuity between Raven narratives in the New World and Old World. Jochelson (1908:358) found an 84% overlap between Siberian Koryak and North American Indian Raven myths and 24% with Eskimo-Aleut, while only a 20% overlap with other Old World mythologies, suggesting the uniqueness and spread of the Ravencene across the North Pacific. Significantly, however, the myths are almost always (re)localized within the local cultures geographic lifeworld.

Raven is a survivor of all of the Earth's major cataclysms, including the proverbial Great

Flood. In the Alaskan Tlingit version of his biography (Swanton 1909; Boas 1916), Raven is said to have endured the Flood by retreating to the mountains and temporarily becoming a large rock, resistant to the roiling waters, before transforming back to his winged self to assess the new world begotten by the receding deluge. Beyond his role as transformer, Raven is also a trickster, acting selfishly deceitfully to satiate his endless appetites at others' expense, and paradoxically, as Culture Hero or Demiurge (literally "People Worker"), acting on behalf of the people's needs (often unconsciously), as in his freeing of the sunlight, freshwater, and salmon runs from those that hoarded them. Because of the complex nature of contingency, cause, and effect, these roles are often intertwined. Together, these themes of transformation and dynamic intercourse with the constituent elements, beings, and forces of the cosmos comprise the corpus of Raven myths throughout the north Pacific. In them we find all possibilities for human futures, both good and bad, and the balances that need to be struck to live sustainably in dynamic, animate social-ecological systems.

In theory, Raven has always existed as a force of change, although in some origin myths, he rebirths himself as a humanoid by impregnating a wealthy nobleman's (Old-Man [or Raven]-at-The-Head-of-Nass, in Tlingit versions, referring to Nass River in British Columbia; see Swanton 1909) daughter, who ingests him in the form of a spruce needle floating in her drinking water. Once in the family, Raven's insatiable curiosity leads him to crave all the treasures of his grandfather, who jealously guards his possessions—the sun, the moon, and the stars—within his house. Curious, cajoling, and conniving, Raven maneuvers to obtain them from his possessive but doting grandfather: first the stars, then the moon, and finally the sun. Raven's selfish interventions release these cosmic ingredients from sequester through the smoke hole of the great, dark dwelling and into their rightful place in the sky, creating the world as we know it. This is cosmogenesis theory writ local, where a single actor's insatiable acquisitiveness leads to a reorganization of the universe. In the new epoch that emerges, humans, whom Raven is said to have fashioned from leaves (Tlingit, see Swanton 1909:81), or freed from a clamshell (Haida, see

Hymes 1990), and who were previously dwelling in darkness and poverty, are given the solar and food energy (and in some versions the reproductive means) they need to develop and thrive in this world. All must adapt to this new world, however, including humans, Raven himself, and the other inhabitants of land, sea, and sky.

Raven's insatiability also leads him to acquire and distribute freshwater and fire from their selfish hoarders. In the elaborate Tlingit Raven cycle, the hoarder of freshwater is the seabird Petrel, who guards its wellspring on a remote island, keeping it covered and even sleeping upon it to prevent its theft. Raven, who was originally a great white bird, tricks his "brother-in-law" by wiping dung on his behind while he is sleeping. He then wakes up Petrel, explaining that the seabird has defecated all over himself. When Petrel goes outside to clean himself, Raven proceeds to the spring, greedily imbibes the freshwater until the contents of the spring are nearly gone. When Petrel returns, Raven attempts to escape, but Petrel inveighs the spirits of the smoke hole to catch him. Petrel lights a pitchwood fire underneath the great white bird, as the spirits detain Raven in the sooty smoke. Raven is blackened but eventually escapes with the freshwater. As he flies away water spills from his beak, the large releases creating the great watersheds of the Nass, Stikine, Taku, Chilkat and Alsek rivers, and the smaller dribblets forming the lesser rivers. In this way Raven reorganizes the coastal habitat to include the rich riverine and estuarine resources upon which the people come to rely for their livelihoods.

The story of fire is similar, except in this case Raven's unwitting accomplice is a hawk (*k'ákw* in Tlingit, possibly Northern Goshawk) with a very long beak, whom Raven convinces to fly out to fire's source (seemingly a seaward volcano) in order to fetch some embers. Hawk's long beak is burned off, and hence remains short to this day. Raven, meanwhile captures the embers in red cedar and a special white marble flint stone (*néix'*) wherein "they could be found ever afterward all over the world" (Swanton 1909:11).

Having captured and redistributed solar energy, fire, and water, Raven has completed a powerful reorganization of Earth's biophysical systems. He goes on to unleash a host of other

planetary forces, including the ocean tides, which, among the Tlingit (Swanton 1909) and other traditions are said to be regulated by an old woman, who at first refuses to let them ebb and flow. To move her, Raven climbs down a bull kelp to the bottom of the sea and pricks the Old Woman of the Tides with the spines of a sea urchin until she agrees to let the sea waters rise and fall each day. This provides yet another significant transformation and source of energy for the human inhabitants of the North Pacific Coast, who as “People of the Tides” come to depend heavily on the intertidal resources nourished and regularly unveiled by the flux of the tides.

Raven’s knowledge is both instrumental and relational. He knows the local ecology intimately, and is always looking to capitalize on what he knows to obtain more from the environment--to fashion a more effective fish hook, net, egg collector, or harpoon, for example (cf. Swanton 1905, 1909), or even to transplant keystone species, like herring (Thornton 2015). This is *mētis*, the practical and improvisational knowledge requisite to making a living in the rugged north Pacific, and Raven’s lessons--his work--is literally inscribed in the names on the land (Thornton 2008, 2012). At the same time Raven understands that it is not only what you know but who you know, as others are in control of critical biophysical systems—freshwater, tides, fire, daylight—and must leverage his relations with these beings to free these forces for wider use from those who would horde them.

Raven Myths of Early China

In the Chinese case as well, Raven has been associated with ecological transformations in prehistory, including both mythic flood and drought. Although classical Chinese thought is often characterized as human centered, preoccupied with the social order and the quest to establish the moral parameters of human conduct, Raven makes an early appearance as a harbinger of unpredicted change. Although only a few Chinese texts predate the fifth or sixth centuries BCE, the archeological record reveals that Raven emerged as a clan or tribal totem in Neolithic China.

Dating back as far as 5000 BCE., articles excavated from settlements associated with the Hemudu culture of the lower Yangtze River delta bear a raven-sun totem (Liu, 2002). The Yangshao peoples (4000 - 3000 BCE) of the Yellow River delta region manufactured colored pottery that also depicts either a single raven with the sun in its wings, or a pair of ravens bearing the sun (Gong, 2011). This motif is largely repeated in artifacts unearthed from the Longshan culture, which later settled the North China Plain and Shandong from 2500-1900 B.C.E., and again carved into numerous jade items found from the Liangzhu culture in the Yangtze River Delta (Hung, 1990).

According to the earliest recorded Chinese raven myths, various groups of tribal peoples who settled in eastern China during the Neolithic and early Bronze Ages claimed the corvids depicted on their ceremonial objects as their founding ancestor or progenitor. The earliest Chinese geographic treatise, the *Tribute of Yu (Yu Gong)*, described an early China divided into nine *zhou* or districts, four of which were predominately inhabited by groups who either claimed a bird or sun-bird totem, took the names of birds, or who regarded bird feathers as precious commodities worthy of tributary trade (Hung, 1990). According to Allan's (1981, 1991) research into early Chinese raven myths, the Shang ruling elite was most likely organized into ten clans or extended families, each of which claimed a totemic relationship to one of the ten ravens.

By the time the earliest Chinese texts were produced during the Shang period (c. 1600 BC–c. 1046 BC), this primordial black bird who carried the sun on its wings came to be referred to as *xuan niao* (玄鸟), and was heralded as a divine bird that legendarily gave birth to a remote ancestor of the Shang people. According to the *Records of the Grand Historian (Shi Ji)*, a consort of the Emperor Ku saw a black bird laying an egg when she and two other women went out to bathe. The emperor's consort took the egg and swallowed it, and subsequently gave birth to Xie (Chen, 1999: 129-30). Although it has been suggested by a few scholars that the black bird in question may possibly have been a phoenix or a swallow, most agree that the *xuan niao* of the

legend is a corvid; and many, following Allan (1981, 1991), identify the black bird that gave birth to the Shang emperors as the raven (*jun* 俊) who bears the sun. Totemic objects from this and earlier periods occasionally depict the sun-bearing raven as having three legs, likely because three was a number associated with the sun.

According to a myth recorded in the succeeding Zhou Dynasty (c. 1046 BC–256 BCE) classic, the *Classic of the Mountains and Seas* (*Shanhai Jing* 山海经), in predynastic times there were ten suns carried by ten ravens, which used to sit or perch in a mulberry tree. Every morning the sun-raven that was to fly that day across sky would first be bathed by its mother, Xi He, in a pool of sweet spring water, a ritual that was repeated for each raven three times each calendrical month. However, one day, all ten sun-ravens rose at the same time, and their scorching heat triggered catastrophic drought across the land. In order to save the earth and restore harmony to the world, the Emperor Yao ordered Archer Yi 后羿 to shoot nine of the ravens. Wang Yi, an early commentator on the classic *Heavenly Questions* (*Tian Wen*) observed, “the nine birds inside [the suns] all died, dropping their feathers and wings, so that one sun from among them was left.” (Allan 1981: 301-02).

The tale of Archer Yi and the ten ravens is part of a corpus of myths and heroic odes describing a series of environmental transformations in early China that were met with vigorous corrective and ameliorative measures by human agents at the dawn of the imperial period. According to the Han dynasty classic, *The Masters of Huainan* (the *Huainanzi* 淮南子), the preceding period had been one of perfect ecological harmony that admitted no division between the human and the natural worlds: “people entrusted their infants to the safety of nests, and placed their excess grain at the head of the fields. Tigers and leopards could be pulled by the tail; vipers and snakes could be trod upon...[but] when it came to the time of Yao, the ten suns came out together, withering the crops of grain and killing the grasses, so that the people had nothing to

eat...” (Allan 1981: 302). The drought caused by the ten raven-suns rising at once was quickly followed by a period of raging floods during the reign of Yao’s successor, which took extraordinary measures and well over a decade to bring under control. Taken as a whole, as Lewis (2006) notes, such tales constitute a mythology of origins that justifies the formation of the early centralized state by celebrating its robustly managerial role in facilitating the development and protection of agricultural land and early irrigation works, the geographic anchoring of anthropogenic space and time, and the subjugation of the forces of nature to human control. Raven thus appears in Zhou myth, not as a transformer per se, but as a harbinger of unpredictable environmental change requiring an organized human response and constant human regulation.

Raven’s metamorphosis from progenitor and totemic figure in Neolithic times to the subjugated trickster in Zhou Dynasty myth unfolds alongside what Elvin (2004: 11) refers to as “the war against wild animals” waged in early Chinese history as human populations—including both the Zhou and Shang peoples-- settled along key river basins. The Zhou people first appeared in central China in c. 1200 BCE, overlapping and competing with the raven-sun worshipping Shang. Over time, increasing strife between warring states on the plains of central China provoked large-scale deforestation in order to support settled farming, and the expansion of agricultural production sufficient to feed standing armies. The relentless expansion of agricultural and other human-centered pursuits at the expense of local flora and fauna is described in the earliest Chinese historical records. Venerated early emperors and celebrated cultural heroes led the way in such endeavors: the *Guanzi* lauds Huangdi 黄帝 for having “deforested the mountains and dried out the swamps,” while Shun 舜 “burned out the swamps and slew the numerous plagues (*qun hai* 群害), i.e., the ‘wild animals’ (*qin shou* 禽獸). The *Mencius* (*Mengzi*) details how Yi 益 “burned down the mountains and the swamps, causing the animals to flee and hide themselves,” and the *Classic of Odes* [*Shi jing* 史经] describes how the ancestors of the Zhou

dynastic rulers systematically deforested surrounding lands in order to make their expanding territory more hospitable for their people (Roetz 2010, 201-202). The Zhou subjugation of Raven brought to an early end his role not only of playful trickster, but also as teacher, as small-scale local practices of Scott recognizes as *mētis* was overwritten by larger-scale managerial efforts to organize the environment to support the expansion of agriculture.

Although the raven totem of the Shang peoples was extinguished in the hands of the Zhou elite, resistance to the vigorous managerialism of the early Chinese empire survived. Classical Daoist texts, for example, descry the environmental devastation that ensued at the behest of the early imperial Chinese state, which wrought nothing less than wholesale havoc on the world. In the *Book of the Master of Huainan* [*Huainanzi* 淮南子], ruthless expansion of human society at the expense of natural realm is described in lurid detail:

“[A]s the age of downfall commenced, humans drilled holes in the rock of the mountains. They worked metal and jade, broke open oysters and mussels, melted copper and iron, and the myriad things no longer flourished. [Humans] slit open pregnant animals and killed the young for their skins, and the unicorn appeared no more. They turned over nests and destroyed the eggs, so that the phoenix no longer flew. Humans spun their fire drills to make fire leap into flame and they made terraces from wood.

“They set the forests on fire to hunt, and they drained lakes to catch the fish in them. Their mechanical devices were never enough for them and their storehouses overflowed with goods.

“So the myriad things no longer grew in masses, and the greatest part of them had to die even before they could sprout or wiggle or be born. [Humans] heaped up the earth and lived on the hills, they fertilized the fields and planted grain, and they broke the ground and bored wells for drinking water. They cleaned the bed of the rivers to gain their advantage even from this, too. They built city walls and expanded them into

fortifications. And they caught wild animals in order to tame them.

“Then the *yin* and *yang* plunged into the four seasons of the year lost their order. Sleet and hail poured down, dense fog, frost and snow prevented the heavens from clearing up anymore and the things of nature found an early death. [Humans] brought calamity over brushwood and thickets, they erected fields, and they cut down the primeval forests in order to let sprouts and ears of grain grow there. There was no counting the grasses and the trees that died as they were just sprouting, blossoming, or bearing fruit” (as cited by Roetz 2010: 202-203).

The core of the Daoist critique, as suggested in the passages above, is the rejection of the anthropogenic in favor a primordial unity with the natural world. In the Daoist view, “nature is a well ordered chaos, made up of processes and beings all of equal rank” in which any human “intervention would lead unfailingly to destruction,” whereas the Confucian response highlights the primacy of the anthropogenic over the disorder of a natural world in which “animals devour each other,” and, therefore, the desirability of subjugating nature to culture. Centuries later, by the late imperial period the quintessential Confucian world view as articulated by Wang Fuzhi (1618-1692) steadfastly maintained that “all life, all that crawls and pants, soars in the heights and dives in the depths—all is under the dominion of man. It is man through whom nature governs all things” (*zhi wanwu* 治万物) (Roetz 2010: 206, 211, 216). In the classical Chinese perception of the world, mediation between the human and natural realms hinged upon the role of the ruler-king, or the learned sage. From at least the time of the Zhou and the Shang onwards, early Chinese emperors exercised not only the right but also the moral obligation to transform the natural world into a subjugated anthropogenic landscape, and wild beasts into refined and cultured animals that served the growing needs of the rapidly expansionist Chinese state (Sterckx 2011:1-8).

The Enduring Lessons of the Ravencene

Much has been written on the ecological crisis currently unfolding in contemporary China. However, as Roetz (2010:201-202) is quick to point out, in contrast to many other areas of the developing world that are also coping with severe environmental disruption, not only is “the ecological devastation in China ... a process that has largely taken place without participation on the part of Western profiteers,” but it has a distinctly local history with roots that extend over the *longue durée*. The continuing struggle of the early but vigorously centralizing imperial state in China to subjugate the unpredictability of the natural world to demands of a rapidly expansionist agricultural civilization arguably reached its apex under what Scott has dubbed the “high-modernist” hubris of the social engineering of revolutionary socialism, when Mao Zedong famously set the collective developmental will of the Chinese nation *against* the environment in 1957 when he declared:

What we waged in the past was class struggle. During the period of the democratic revolution and the period of the socialist revolution, people waged war on people, and people struck people. People made rebellion amongst themselves ... Now we have entered a different kind of battle. We have declared war on nature ... To sum things up, it's a new task of a new era. When class struggle is over, we declare war on nature (quoted in Schoenhals 1986: 101).

Certainly, elements of Daoist tradition survive in certain strands of contemporary Chinese thought, and, as Tu Wei-ming (2001) has recently argued, some Neo-Confucian scholars of the late imperial period may have embraced an “anthropocosmic” vision of a trinity of humanity,

Heaven and Earth that offers a compelling counter-narrative to those that emerged from Western Enlightenment thinkers. Yet it is equally clear that the ecological turn in what Tu dubs “holistic Confucian humanism” remains an underdeveloped peripheral tradition to the mainstream central-state driven process of economic development that has long defined Chinese patterns of social and ecological interaction. Similarly, new ecological thinking in the West with Daoist-like leanings toward adaptive management to earth system changes and feedbacks rather than anthropocentric command and control, such as ecosystem stewardship (Chapin et al 2010), have so far failed to gain significant purchase against the more economically rationalized and maximizing managerial ecologies.

Scott draws a contrast between the radically simplified designs for natural environments forwarded by “high modernist” developmental state elites and the wide array of practical skills and acquired intelligence that emerge from local actors who are pressed to adapt to a constantly changing natural and human environment at the social grassroots. In Scott’s telling (1998:7) the value of *mētis* lies less in the breadth and depth of techno-scientific knowledge than “in the limits, in principle, of what we are likely to know about complex, functioning order.” Invoking the example of Odysseus, who was frequently praised for his cunning intelligence, and for have made ample use of it to outwit his enemies and make his way home, Scott highlights the value of classical Greek narratives of resilience and adaptation in the face of uncertainty and unpredictability in a manner uncannily like what we find in both the early and enduring Raven myths of the North Pacific and classical China. Like Odysseus, ultimately, Raven teaches us that humans, or other pretentious beings, cannot single-handedly engineer their futures or know all the critical thresholds, boundaries or safe spaces of the complex systems in which they dwell.

Raven suggests we must recognize and respect, as Gaia theory and most indigenous cosmologies hold, that earth systems’ responses are contingent in part upon anthropogenic stimuli. Wallace Broecker, a preeminent climate scientist, put it this way: “The climate is as an angry beast and we are poking at it with sticks,” an analogy Julie Cruikshank’s (2005: vii)

animistic Tlingit and Tagish informants could readily identify with in terms of their own intersubjective view of glaciers, which “listen” and respond to humans in a moral way. Indeed such conceptualizations confirm that earth’s complex systems collectively comprise not only a kind of colossal being—a beast—but one capable of listening, and of being seriously insulted and reactive if perturbed by human activity (be it consciously directed or not). This is the anarchic stuff of Raven stories. Of course, the reaction is contingent on the level of insult; and our ability to respond appropriately is contingent upon our ability to recognize what constitutes an insult as opposed to an acceptable level of manipulation (as in Raven pricking the Old Woman of the Tides), and adjust our behavior accordingly. In short, Raven teaches us, through his accomplishments and failings, how we must become aware and respectful of the contingency and integrity of human-environmental relations. He does not accomplish this through high moralism against human profligacy as an environmental Jeremiad, or through the high managerialism of the Technofix Earth Engineer, or by re-enchanting scientific knowledge as New Genesis proponents seek to do. Rather, Raven demonstrates—sometimes with humor and sometimes with hubris—his own capacity to adapt to the exigencies of life he faces and dynamic reactions he catalyzes in a world in which critical thresholds are often exceeded.

While the Ravencene embraces the resilience and adaptive capacity of Odysseus, it also avoids the narcissism of the Anthropocene by shifting the focus to an even more impactful and enfolded character. For while Raven may be a “mirror for man” he is not merely a psychological mirror, as Radin suggests, but a social-ecological mirror too. As such the Ravencene reflects, refracts and refocuses human consciousness away from Anthropos’ own ingenuity and unique intellectual capacities, concerns, and influences—what Vernadsky, Teilhard de Chardin, and Le Roy term the *noösphere* (cf. Vernadsky 1998 [1926]; Crutzen and Stoermer 2000) —and towards humanity’s (indeed any species’) interdependence and integrity with earth’s systems and communities of beings. The question is not whether or not it is ethical or rational to poke the angry beast of climate with sticks, nor the Old Woman of the tides with sea urchin spines, but,

instead, what are the consequences if we do? There will be consequences, potentially beyond our intellectual grasp and control. Yet this “disruptive imagination” and “polytropic” (“turning in many ways;” see Hyde 1998:52) quality of the trickster, is basic to the creation and adaptation of culture. This is another of the lessons of Raven.

Thus the results of the Anthropocene may be novel and unpredictable, producing a rambunctious garden, as Marris (2011) suggests. But a more apt metaphor for this new epoch may be the rambunctious tidepool, continuously subject to the dynamic lunar pull of the tides and currents and exchanging and mixing seawater, sediment, and life in its shifting bounds. John Steinbeck suggested that greatest human imaginations, be they scientists or poets, learn to see the unity in this diversity and vice-versa, by “turning in many ways,” by alternating their perspective on life, in ways akin to Raven’s disruptive imagination. When they do so, suggests Steinbeck (1951:21), they discover through “non-teleological thinking” that “all things are one thing and that one thing is all things—plankton, a shimmering phosphorescence on the sea and the spinning planets and an expanding universe, all bound together by the elastic string of time. It is advisable to look from the tide pool to the stars and then back to the tide pool again.” This is yet another of the lessons of Raven, who, the North Pacific narratives tell us, spent a lot of time relating the local to the global and the planetary, and vice-versa. In this way, Raven is the elastic being in time, “breaking through” rigid perspectives, boundaries, and paradigms. When he is extinguished, the diversity and dynamism of life withers and culture becomes monolithic, possessive and stagnant, managing only for itself, at its own peril.

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