

The Anthropocene

The Promise and Pitfalls of an Epochal Idea

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Time gets thicker, light gets dim
Allen Ginsberg, "The Gates of Wrath"

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What does it mean to imagine *Homo sapiens* as not merely a historical but a geological actor, a force of such magnitude that our impacts are being written into the fossil record? What does it mean to acknowledge that, for the first time in Earth's history, a sentient species, our own, has shaken Earth's life systems with a profundity that paleontologist Anthony Barnosky has likened to an asteroid strike? How does that perceptual shift disturb widespread assumptions about the deep past and the far future, about planetary history, human power relations, and the dynamics between humans and nonhuman agents of Earth's metamorphosis? If our actions have become geologically consequential, leaving an enduring archive that will be legible for tens or even hundreds of millennia to come, what will that archive disclose about social relations, above all, about the unequal weight of human communities possessing disparate earth-changing powers? And, in terms of the history of ideas, why now? Why has the idea of *Homo sapiens* as a fused biological-geological force gained traction in the second decade of the twenty-first century, when in the twentieth century geologists typically dismissed our species' occupancy of this planet as not just ephemeral but as geologically trivial?

Such consequential questions follow from the turn to the Anthropocene, a hypothesis advanced by Nobel Prize-winning atmospheric chemist Paul Crutzen

and paleoecologist Eugene Stoermer in 2000. Stoermer had been using the term “Anthropocene” informally since the 1980s, but it only achieved academic prominence when the Nobel Prize-winning Crutzen threw his weight behind it and, together with Stoermer, gave the term an interdisciplinary reach and urgency. Crutzen and Stoermer argued that the Holocene was history: the earth had entered a new, unprecedented geological epoch, triggered by human actions. The Anthropocene has many disputed beginnings: some date its emergence to the rise of sedentary agricultural communities roughly 12,000 years ago, others to 1610 and the colonization of the Americas, others still to the onset of Europe’s industrial revolution circa 1800 or to the Trinity nuclear test of 1945.

Crutzen and Stoermer favored placing the golden spike—locating the Anthropocene break—in the late eighteenth-century beginnings of the Industrial Revolution, and this remains the most broadly cited position. According to their dominant Anthropocene script, over the past two and a quarter centuries we have been laying down in stone a durable archive of human impacts to Earth’s geophysical and biophysical systems. Those long-term impacts have become particularly acute since 1945 during the so-called Great Acceleration. We have decisively altered the carbon cycle, the nitrogen cycle, and the rate of extinction. We have created unprecedented radionuclides and fossilized plastics. We have erected megacities that will leave an enduring footprint long after they have ceased to function as cities. We have changed the pH of the oceans and have shunted so many life forms around the globe—inadvertently and intentionally—that we are creating novel ecosystems everywhere. Of vertebrate terrestrial life, humans and our domesticated animals now constitute over 90 percent by weight, with less than 10 percent comprised by wild creatures. Over the past century the global temperature has risen ten times faster than the average rate of Ice Age-recovery warming. Over the next century that rate is predicted to accelerate at twenty times the average. What kinds of signals will all these momentous changes leave in the fossil record?

The Anthropocene’s Interdisciplinary Energy

When Crutzen and Stoermer (2000) advanced their hypothesis, they couldn’t possibly have imagined what an immense, omnivorous idea it would become. It took a while, but by the millennium’s second decade those enthralled and appalled by the Anthropocene were being sucked, in their interdisciplinary masses, into its cavernous maw. Enthusiasts and skeptics poured in from paleobotany and

postcolonial studies, from nanotechnology and bioethics, from Egyptology, evolutionary robotics, feminist psychology, geophysics, agronomy, posthumanism, and druidic studies. The classicists arrived alongside the futurists, where they mingled with students of everything from plastiglomerates to romantic prosody, from ruins to rewilding.

This has arguably been the most generative feature of the Anthropocene turn: the myriad exchanges it has stimulated across the earth and life sciences, the social sciences, the humanities and the arts, bringing into conversation scholars who have been lured out of their specialist bubbles to engage energetically with unfamiliar interlocutors. The Anthropocene, at its best, has prompted forms of interdisciplinary exchange that didn't exist before, giving impetus to creative collaborations across intellectually debilitating—dare one say fossilized—divides. Despite some of the nefarious uses to which it has been put, the Anthropocene paradigm can be used productively to pose large questions about the ways we partition knowledge and delimit being.

The humanities and arts have become vital to the conversational mix over what the Anthropocene can and should convey, which is as it should be. For the Anthropocene—or at least the iconoclastic part of it—began as a provocation, an exhortation, a shock strategy of a kind that we are attuned to in the arts and the humanities. What will the world look like if you change the frame, scramble the view, upend the perspective, in pursuit of some startled state of sensory and imaginative vitality? A quest for creative disturbance is one impulse behind the Cabinet of Curiosities, which gives body to a conviction that rarefied theorizing needs to be grounded in intimate encounters. For there is a real risk that the Anthropocene at its most compendious can be diminishing, promulgating—ironically, for a theory of expanded human agency—a mood of inaction, quietism, nihilism, inertia.

To give any version of the Anthropocene a public resonance involves choosing objects, images, and stories that will make visceral those tumultuous geologic processes that now happen on human time scales. The lively array of object-driven stories assembled for the Cabinet of Curiosities affords immense biomorphic and geomorphic changes a granular intimacy. Encounters with the granular—as opposed to the grandiose—world, can, depending on one's perspective, conceal or reveal. Imaginative revelations may prompt modest moments of self-transformation, but they need not be limited to that, as we have seen in the ever more dynamic relations emerging between the visual arts, the performing arts, and the climate justice movement, a dynamic that has helped shift political and ethical sightlines. Above all, to insist on the value of imaginative encounter—be

it with a fossilized Blackberry, a cryogenic zoo, a jar of sand, a cement mixer, or the lonely mating call of an extinct bird—is to refuse the quantifiers ownership of the Anthropocene, to insist that the immeasurable power of storytelling and image making is irreducible to the metrics of human impacts. Indeed, the arts and humanities can serve a restraining order on the runaway hubris of technocratic Anthropocene expertise by resisting the political logic of Team Future, whereby those who crunch the numbers are first in line to engineer the new worlds.

If the Anthropocene is reverberating across the humanities, this makes another kind of sense, for it shakes the very idea of what it means to be human. To invest a young species like *Homo sapiens* with geologic powers—to open up the human to what in the postenlightenment would be considered inhuman time scales—is a tectonic act. We’re simply not accustomed, maybe even equipped, to conceive of human consequences across such a vastly expanded temporal stage, across which we stride as (more or less) ambulatory rocks. To revisit Barnosky’s asteroid trope, what does it mean for the “being” in “human being” to depict us as a hurtling hunk of rock that feels?

The novelist Amitav Ghosh, in a series of perceptive lectures, has suggested how the Anthropocene turn can help us recognize the imaginative limits of the forms—from the arts to urban planning—favored by enlightenment modernity. Ghosh (2016) observes how the legacy of enlightenment modernity’s attachment to linear progress has suppressed modernization’s contradictions, hindering the imaginative and strategic responses to the Anthropocene and the global climate crash. The realist novel that fed off and advanced an idea of linear progress typically centered on a small cast of characters and a delimited landscape that became background to the unfolding action. But the Anthropocene has made the environment as background to the growth of character untenable, as it becomes increasingly difficult to ignore the inconceivably vast forces emanating from the environment, forces entangled with human actions but scarcely subordinate to them. The realist novel, in contrast to a form like the epic, has proven ill-equipped to make the vast scalar leaps across space and time that the Anthropocene demands, leaps from the cosmological to the microbial, from the deep past to the remote future. Moreover, the design of enlightenment forms like the realist novel and the colonial city downplayed the irruptive powers of nonhuman actors: the unruliness of volcanoes, rivers, locusts, rats, shape-shifting leopards, and moody mountains, all of which in the epic speak to the arrogant limits of an isolationist view of human development.

Rational enlightenment forms like the realist novel and the colonial city, Ghosh suggests, have suppressed vital intuitions about the vulnerability of human

designs to forces that other art forms and other cosmologies have kept alive through an awareness of human precariousness before the powers exercised (for good and ill) by nonhuman actors. Indeed, the refusal of the human-nonhuman distinction—by now such a central theme of Anthropocene thought—has persisted in many cultures in a state of contradictory entanglement with developmental modernity. Could the rise of animal studies be linked in this way to climate chaos, to a disillusionment with a separationist, hubristic ideology of hyperationality, and to a renewed fascination with the instinctual, the bodily, the ineluctable connectedness between us and the biota that permeate our lives? And could it be, as Ghosh argues in a suggestion of direct pertinence to the Cabinet of Curiosities, that digital culture’s reassertion of imagistic power over the enlightenment’s elevation of the word has created a hybridized image-word milieu that is more responsive to the challenges of Anthropocene representation than the word-besotted, linear forms that the enlightenment extolled?

The imaginative questions that the Anthropocene provokes are accompanied by historical ones. The Anthropocene has profound implications for the meaning and object of history, reframing the future by rethinking the past as shaped by a fused biological-geological actor. Crutzen and Stoermer’s neologism is both historically belated—suggesting that people possessed planetary geomorphic powers long before they realized it—and anticipatory. For if our actions have indeed propelled us beyond the Holocene, the new epoch we have set in motion is in its infancy. The Anthropocene thus pulls us simultaneously into deep pasts and deep futures that are unfamiliar, uncomfortable terrain for historiography.

The implications of the Anthropocene for history making are inseparable from the history of technology. New technologies of detection have generated new geophysical archives of inquiry that are reshaping—across the sciences, the social sciences, the humanities, and the arts—assumptions about what stored knowledge looks like, about archival reading practices, and about the interdisciplinary literacy such readings may require. The advent of paleoclimatology and dendroclimatology, our ability to posit tree growth rings, ice cores, deep sea cores, and fossil soils as proxies for past climates, the rise and spread of drones, and ever more elaborate satellite imaging all allow us to generate more varied perspectives, newly minute and newly vast, on planetary life and time.

But if new technologies of detection have proven crucial to the Anthropocene’s burgeoning authority, the technological dimension can mask relations of power. Who gets to don the white coat of expertise? Who becomes central, and who marginal, in the contest over narrative authority? As Susan Schuppli (2014) observes in her work on material witnessing, traces of the apparently inanimate

world can be given voice by increasingly sophisticated technologies. But there is inevitably conflict over what stories those material traces release in, for example, a war tribunal or a truth commission. Who gets to dragoon those traces into delivering certain kinds of stories as opposed to others? Such questions pertain with equal force to the contouring of the Anthropocene grand narrative. From the perspectives of anticolonialism, feminism, multispecies ethnography, queer ecologies, and environmental justice, among others, we are seeing the emergence of a kind of strategic witnessing, a pushback against the risk that the Anthropocene may become a resurrected selective enlightenment in disguise, an apparently novel but potentially regressive Age of Man.

Anthropocene Pitfalls

To gauge the promise and pitfalls of the Anthropocene we need to position the proposed epoch in the history of ideas. As has been noted, Crutzen and Stoermer's theory had several partial precursors. But there is a more recent history that has been overlooked. Crutzen and Stoermer began promoting the Anthropocene together in 2000, but for almost ten years it achieved very little public resonance. The debates over the merits of the term were rarely heard outside narrow intellectual corridors, dominated by a handful of earth scientists, life scientists, and archaeologists. How do we explain the belated emergence of a more public Anthropocene? How do we explain the paradigm's lost decade?

Less than a year after Crutzen and Stoermer launched their explosive vision of humanity as geological actor, 9/11 happened. Then in 2002 the Bali bombings killed 202 people (Australian tourists comprising the largest number), followed by the Bush-Blair invasion of Iraq in 2003, the 2004 Madrid train bombings, and the 2005 bombings in London. Of course, greater numbers of people were killed elsewhere—by state and nonstate actors—but those bombings were the ones that most viscerally shook Westerners' faith in history's continuity, catapulting them into a feeling that "people like us" had entered a new age of violent vulnerability. Against this backdrop, time shrunk. And the efforts of an atmospheric chemist and a paleoecologist to expand time—or, metaphorically, to explode our temporal norms—was no match for the bomb-dominated temporal frameworks of the day. The vast scales of geologic time, even the more modest intergenerational timescales of accelerated climate change, were inimical to the dominant perceptions of catastrophe. In a news cycle fixated even more than usual on instantaneous violence, a preoccupation with Islamic extremism marginalized efforts to dra-

matize how extreme climate change and extreme extractive practices (tar sands, cold-water deep-sea drilling) would incrementally inflict untold human and ecological casualties. The 2008 Great Recession reinforced this bias toward instant crisis, especially in the United States, where Big Carbon bankrolled the zero-sum ideology of jobs versus the environment as part of its perpetual war on climate science. In short, during the millennium's first decade, both the long emergency of the climate crisis and the even longer emergency of the Anthropocene struggled to gain urgency in an inhospitable political and temporal frame.

In the millennium's second decade the Anthropocene has begun to spread beyond the university and permeate the public sphere. Bloggers, filmmakers, public intellectuals, and curators are now trying to reimagine, through the prism of the Anthropocene, what geographer Doreen Massey calls "the ancient manoeuvrings of life and rock" (2005). Debates over the paradigm's merits and implications have attracted an ever-wider cast of disciplines and arts. We have seen special Anthropocene issues or cover stories in the *Economist*, *Nature*, *National Geographic*, and *Smithsonian* and lively debates hosted by the *New York Times* and the BBC. From Germany to Australia, Switzerland to the United States, curators are staging ambitious Anthropocene shows that range, in mood, from the celebratory to the despairing, from the earnest to the antic. The Age of the Human is making itself felt in modest galleries and mega art shows, from the Venice Biennale to Art Basel Miami. The Anthropocene's digital presence has also skyrocketed on Flickr, YouTube and in Ted Talks. A Google Alert that yielded five results a week in 2011 yielded seventy a week four years later.

Yet the timing of the Anthropocene's breakthrough into the public realm coincided with another public turn in the history of ideas. The millennium's second decade also saw an even more decisive rise in public attention to an apparently unrelated issue: deepening economic inequality, in society after society—in countries as varied as China, Sweden, South Africa, Argentina, Italy, Jamaica, the United States, India, Nigeria, Indonesia, and the United Kingdom.

The disparities are alarming. In 1980 the average American worker-to-CEO pay ratio was 1:40. By 2014 that ratio had soared to 1:296. New York City boasts seventy billionaires, yet 30 percent of the city's children languish in poverty. In a single year, 2013, the average price of a London home soared by \$120,000. In South Africa the two wealthiest businessmen (both white) have amassed a net worth that surpasses the net worth of the nation's poorest 50 percent. Californians burn more gasoline than the 900 million inhabitants of Africa's fifty-four nations combined. A one-way flight from Los Angeles to New York produces more carbon emissions than the average Nigerian does annually. Oxfam reports

that in 2013 the combined wealth of the world's richest eighty-five individuals equaled that of the 3.5 billion people who constitute the poorest half of the planet. And a 2013 study concluded that since 1751—a period that encompasses the entire Anthropocene to date—a mere ninety corporations have been responsible for two-thirds of humanity's greenhouse gas emissions. That's an extraordinary concentration of earth-altering power.

With few exceptions, discussions of the Anthropocene and inequality have tended to travel along parallel paths. Yet what does it mean, in terms of the history of ideas, that the Anthropocene as a grand explanatory species story has taken hold in plutocratic times, when economic, social, and environmental injustice is marked by a deepening schism between the uber-rich and the ultra-poor, between gated resource-hogs and the abandoned destitute? Doesn't lumping together under the sign of the human the average twenty-first-century Liberian and the average twenty-first-century American as agents of planetary change risk concealing more than it reveals? Is it not the case, as Jennifer Jacquet (2013) has suggested, that while some humans are leaving Anthropocene footprints that are indubitably geological, other humans are not geological actors at all? There is of course a profound need for concerted action to slow the most deleterious, life-threatening processes of anthropogenic planetary change in order to secure viable futures. But the call for coordinated transnational strategies should not become the kind of totalizing gesture that suppresses the radically unequal history of human impacts and hence of human responsibilities.

Imaginative perspectives have political implications. An epic Anthropocene vantage point risks concealing—historically and in the present—unequal human impacts, unequal human agency, and unequal human vulnerabilities. So a crucial challenge facing us is this: how do we tell two large stories that can often seem in tension with each other, a convergent story and a divergent one? First, a collective story about humanity's impacts that will be legible in the earth's geophysical systems for millennia to come. Second, a much more fractured story that acknowledges dramatic disparities in planet-altering powers. For Anthropocene thinking to retain any credibility, it needs to negotiate the complex dynamic between a shared geomorphic narrative and increasingly unshared resources. We may all be in the Anthropocene but we're not all in it in the same way.

"We" is a tricky word at the best of times, doubly so in the context of Anthropocene-species speak where "we" serves as an assumed point of departure, not the product of historical contingencies. Stylistically, "we" is difficult to avoid unless the writer ducks behind the passive voice, that hiding place of preference for academics determined to avoid confronting the subject of agency head

on. In Anthropocene thought, agency becomes a particularly high-stakes game, as evolutionary psychologists, neurobiologists, new geologists, philosophers, and liberal humanists emit mutually reinforcing “we’s” that are too often deficient in any textured acknowledgment that “we” is a historically and culturally shape-shifting formation. There is no transcendent “we,” Anthropocene or otherwise: the appearance and disappearance of collective identities is inseparable from the vexed institutional histories that contour struggles over power.

If public attention to inequality has risen during the millennium’s second decade, it has been assisted by the spread of the 1 percent meme that Occupy coined and—alongside the so-called international square movements—helped disseminate. However, the narrative tension between a unitary species narrative and socioeconomic fracture does not exist merely in relation to current practices, but reaches back into industrial, colonial, and neoliberal history. Indeed, if the mid-twentieth century marks, in most Anthropocene accounts, the advent of the Great Acceleration in human impacts, the bulk of the period since has been distinguished by the spread of neoliberal practices through the Washington Consensus, the World Bank, the IMF, the rise of the antiregulatory World Trade Organization and the Reagan-Thatcher counterrevolution, practices that have accelerated the globalization of elite resource capture. Despite determined resistance to neoliberalism, we have witnessed increasing attacks on the public sphere and a retreat, across many societies, from governmental responsibility for citizens’ basic welfare amid what George Monbiot calls “a bonfire of regulation” (2010).

In 1987 Margaret Thatcher notoriously declared, “There is no such thing as society. There are individual men and women and there are families.” Less than a year later, James Hansen (then director of NASA’s Goddard Institute) delivered a historic address calling for collective action to avert climate change. Hansen testified before US congressional hearings that climate science was 99 percent unequivocal: the world was warming and we needed to act collaboratively to reduce emissions. So just as Hansen was summoning humanity to tackle collectively a problem too vast to be fixed by individual lightbulb-changing efforts, the very idea of collective identity and collective values, indeed, the very idea of the public, was being ridiculed and assailed. Such assaults helped promulgate an ideology of hyperindividualism and hyperconsumption that twinned freedom to atomized consumer choice and vilified government as freedom’s adversary. Thus the idea of the public good atrophied in favor of individual consumer goods, resulting in a scaled-down civic sphere mismatched to a scaled-up climate crisis. A similar mismatch emerged in the domain of environmental time: a crisis that demanded collaboration for long-term collective survival was ill-fitted

to the accelerated, hypercarbonized pursuit of immediate wealth at any cost by megacorporations unanswerable to the *longue durée*, corporations that became more mobile, wealthier, and more powerful than most of the societies they operated in. All this has had profound implications for environmental justice during the Great Acceleration, as the crisis of futurity has become inextricable from the neoliberal crisis of disparity.

So any account of the political, ethical, and narrative challenges inherent in the Anthropocene needs to address the relationship between the Great Acceleration and the Great Divide, the economic splintering under neoliberalism that Timothy Noah (2013) has also called the Great Divergence. Diane Ackerman's best-selling *The Human Age* (2015), one of the most influential public explorations of the Anthropocene, demonstrates the costs of ignoring the connections between the Great Acceleration and the Great Divide. During her sunny-side up tour of Anthropocene effects, she encounters the futurist Ray Kurzweil, whom she quotes uncritically as predicting that "by the 2030s we'll be putting millions of nanobots inside our bodies to augment our immune system, to basically wipe out disease." Pray tell, which "we" would that be?

Technological innovation will clearly play a critical part in the battle to adapt to the breakneck pace of anthropogenic planetary change, but let's acknowledge that we're doing a far better job of encouraging innovation than distributing possibility. One billion people remain chronically hungry, while 2.5 billion survive on less than two dollars a day. According to the United Nations Refugee Agency, in 2014 the number of displaced people reached 59.5 million, the highest figure ever recorded. One out of every 122 humans is now either a refugee, an asylum seeker, or internally displaced. As the report observes: "If this were the population of a country, it would be the world's 24th biggest."

In celebrating the culture of innovation, Ackerman focuses on the interplay between technology, design, and rapid evolution. But what of the decisive role played by forms of governance? In the plutocratic milieu of the twenty-first century, how do we ensure that innovations aren't by the few for the few, that they don't compound the trend toward islands of extreme affluence barricaded against vulnerable multitudes?

A technology's emergence is no guarantee that its benefits will trickle down to humanity at large. When men gang-raped two teenage girls and hanged them from mango trees in India in 2014, the atrocity drew attention to the fact that the women had to risk entering the forest at night in order to defecate. Two and a half billion humans still lack access to a rudimentary latrine, a venerable technology developed 5,000 years ago. Deprived of any formal sanitation, residents

of Kibera, the sprawling Nairobi slum, routinely resort to “flying toilets,” defecating into plastic bags that they hurl onto the streets. Indeed, the absence of sanitation—and consequent water pollution—causes, by some calculations, 70 percent of diseases globally.

Can Anthropocene-inspired thought help generate more equitable policies in a spirit of transformative justice? Can the Anthropocene help rouse citizens and governments to act for long-term, concerted change? Those are vast questions, but they remain essential ones. Too often the Anthropocene assumes a hasty universalism that masks the connection between our conjoined crises—between accelerating environmental devastation and rising inequality. As Andreas Malm notes, “Dehistoricizing, universalizing, eternalizing, and naturalizing a mode of production specific to a certain time and place—these are the classic strategies of ideological legitimation” (Malm and Hornborg 2014). To these strategies we can now add “geologizing” as a way of legitimating processes that could proceed very differently under more progressive, more equitable economic systems and forms of governance.

Despite efforts to communicate Anthropocene thought to nonspecialist audiences, concerns linger over the limited demographic character of the paradigm’s public appeal. The Anthropocene remains a heavily top-down model: the rethinking from above is unmet by any comparable energies rising from below. By contrast, we have witnessed a truly diverse, international cast of communities mobilize behind calls for environmental justice, climate justice, indigenous rights, and the environmentalism of the poor. We have also witnessed communities mobilize internationally against neoliberalism and austerity. In such contexts, memes like the 1 percent and “We Can’t Breathe” have rippled well beyond their origins. But we have yet to witness any similar spread of the Anthropocene—and I suspect are unlikely to—as an international mobilizing device. The term has several disadvantages stacked against it. For one thing, it sounds academic: there’s an arcane, egghead quality to the word. Unlike, say, indigenous rights or the environmentalism of the poor, “the Anthropocene” is not self-explanatory, but requires elaborate intellectual mediation.

The intellectual mediators have been mostly white and male, in a process that often has an unselfconsciously regressive dimension. Two European men first advanced the Anthropocene thesis and the trajectory of its spread has failed to shake that association. Anthropocene theorists, mediators, and popularizers remain overwhelmingly white Europeans, North Americans, and Australians and skew heavily male. In Africa, Asia, and Latin America the Anthropocene has failed to achieve any comparable purchase among thought leaders, let alone

any resonance on the streets. The situation is familiar: the few talking among themselves—as if their confined demographic were universal—on behalf of the many.

Such a dynamic is perturbing, doubly so because “on behalf of” are loaded words in the context of the Anthropocene’s fraught politics of agency. As the only inhabitable planet is losing that vital quality in irreversible increments, who will get to be the deciders? Who will rearrange the conditions of life for all humanity’s social strata and for other organisms as well? Will the architects of those rearrangements naively and dangerously assume that humans are the planet’s only consequential actors? If humanity—or rather, a selective set of humanity—has narrowed the possible trajectories of Earth’s future, who will determine the necessary, always imperfect, countercorrections? Will the drivers of change be swayed by lobbyists, enjoy corporate sponsorship, and stack their think-tanks with billionaire philanthropists who speak in visions of innovation, sustainability, resilience, and adaptation, those increasingly green-washed, greed-tainted words, retrofitted to neoliberal policies?

We face the dismaying prospect that the Anthropocene will be mobilized in increasingly autocratic ways that flow from—and potentially exacerbate—the authoritarian streak already evident in neoliberal practices. To allow plutocrats to deputize for the species would represent a new twist in the sorry history of government for the people without the people.

Species thinking, particularly when partnered with Silicon Valley-style technoexuberance, tends to sidestep thorny questions of representative governance. That tendency is evident in those we might call command-and-control Anthropocene optimists, like ecologist Erle Ellis, who believes “we must not see the Anthropocene as a crisis, but as the beginning of a new geological epoch ripe with human-directed opportunity” (2011). Ranked alongside him are science journalists Mark Lynas (author of *The God Species*) and Ronald Bailey, who insists that “over time, we will only get better at being the guardian gods of the earth” (Bailey 2011). As their mantra, these Anthropocene optimists cite Stewart Brand’s exhortation: “we are as gods and must get good at it” (Brockman 2009).

But for others, talk of *Homo sapiens* as god species, as Earth’s surrogate divinity, is positively chilling. Hasn’t a hubristic mindset of earth mastery, of dominion over nature, gotten us into this mess as out-of-control geological actors? Earth mastery, moreover, conjures up disturbing associations with the race, gender, and class hierarchies of the selective enlightenment. More than twenty years ago, feminist scholars like Anne McClintock (1995) and Val Plumwood (1994) were laying bare the implications of the standpoint of mastery. The climatologist Mike

Hulme (2014) sees a direct line between the new wave of magisterial thinking and the reckless adventurism of a small, powerful set of geo-engineers and their billionaire backers who harbor ambitions to “reset the global thermostat.” Philanthrocapitalists with designs on “fixing” the global climate now sponsor research with that end in mind at a variety of think-tanks and universities.

We should not equate human planetary impact with human planetary control, as either a possibility or an ideal. Although Crutzen initially floated the possibility of climate engineering, he later backed away from that intimation. Giddy fantasies of omnipotence are a far cry from the stronger, cautionary impulse that animates his work: “what I hope is that the term Anthropocene will be a warning to the world” (Kolbert 2011). In heeding that warning, we need to face the incalculable complexities of a rapidly changing Earth by shedding illusions of mastery and adopting instead an engaged humility that is not synonymous with quietism.

The Breakthrough Institute has become the primary think-tank for Anthropocene brightsiders, the self-declared ecomodernists. The Ecomodernist Manifesto sets out to “use humanity’s extraordinary powers in service of creating a good Anthropocene.” The institute’s Ted Nordhaus and Michael Shellenberger (2009) berate environmentalists who “warn that degrading nonhuman natures will undermine the basis for human civilization. But history has shown the opposite: the degradation of nonhuman environments has made us rich.” But as Chris Smaje (2015) notes: “There is no sense [in the Ecomodernist Manifesto] that processes of modernisation cause any poverty. . . . There’s nothing on uneven development, historical cores and peripheries, proletarianisation, colonial land appropriation and the implications of all this for social equality. The ecomodernist solution to poverty is simply more modernization.” To embrace the kind of uncritical techno-idealism that the Breakthrough Institute promulgates is to gloss over the violent, socially divisive history of environmentally unsustainable practices that designate certain communities and ecosystems as disposable in the name of the modernity’s onward march. In keeping with the long, suspect history of modernization theory, that march becomes an innate good. It does so regardless of whether it exacerbates brutally exclusive practices of resource capture, human and nonhuman community abandonment, and the creation of uninhabitable sacrifice zones.

Science writer Elizabeth Kolbert has tweeted: “two words that probably should not be used in sequence: ‘good’ & ‘anthropocene’” (2014). Environmental philosopher Kathleen Dean Moore goes further, suggesting that the Anthropocene would have been better named the Unforgiveable-crimescene (2013). Nonetheless, the technocratic hubris of ecomodernist thinking is powerfully inflecting the

way the Anthropocene is being activated in the public sphere. Here's Ackerman's celebration of the new epoch: "We are dreamsmiths and wonder-workers. What a marvel we've become, a species with planet-wide powers and breathtaking gifts" (2015, 310). That we may be, but such awestruck Anthropocene optimism can feel eerily unearned in the absence of a measured acknowledgment of the losses, the traumas, the scars that afflict the mesh of human and nonhuman communities in this volatile new epoch. And so the ecomodernists become the grief police: no mourning permitted here, move on already, you're creating an inadmissible disturbance.

Command-and-control Anthropocene thinking evidences other limitations. Does not calling something the Age of Humans risk an isolationist mentality that encourages species narcissism? It's one thing to recognize that *Homo sapiens* has accrued massive bio- and geomorphic powers. But it's another thing altogether to fixate on human agency to a degree that downplays the imperfectly understood, infinitely elaborate matrices of nonhuman agency, from the microbiome to the movement of tectonic plates, that continue to shape Earth's life systems. To be sure, humans—especially the wealthiest among us—possess planet-altering powers, but we do not exercise those powers in a state of segregation from the actions of other forces. As Aldo Leopold noted many decades ago, dreams of environmental mastery are nothing but "biotic arrogance" (1935).

Ecomodernists tend to posit humanity in the aggregate as bossing the biosphere, as the indisputable winner in the planet-altering stakes. But that assumption exaggerates the cohesiveness of "the human" actor while simultaneously ignoring the earth-altering effects that flow from interspecies actions, be they collaborative or competitive. To treat *Homo sapiens* as a transcendent super species is to head down the slippery slope of exceptionalism. For the ecomodernists, it is a short, untroubled step from human exceptionalism to technocratic exceptionalism, as a small, unelected clique of visionary "innovators" gets tasked with leading the species to higher ground. But what are the geopolitics of this synecdoche? By what right do the technocrats elevate themselves as humanity's self-annointed "mini-we," in a time of heightened economic fracturing, of wildly disparate levels of vulnerability, when the burden of resilience and the possibilities of survival are marked by brutal disparities?

At least pause to ponder this: is it ethical that as the super-rich capture ever more resources, the outcast poor, who have contributed least to our planet's headlong transformation, are abandoned to the climate frontlines where they must weather the brunt of the chaotic effects? Ackerman may be right that "a warmer world won't be terrible for everyone, and is bound to inspire new technologies

and good surprises, not just tragedy” (2015). But her assertion deserves a follow up question: who is in line for the good surprises and who is queuing up for tragedy? Hurricane Sandy brought precisely that question to the fore. Manhattan? Too valuable to lose. Bangladesh, even Far Rockaway, not so much.

Conclusion

In the annals of the Anthropocene, August 29, 2016, proved to be a significant—if not yet decisive—date. On that day the Anthropocene Working Group, an interdisciplinary and international committee of geoscientists, recommended to the International Geological Congress gathered in Cape Town that the Anthropocene be formalized as a new epoch within the Geologic Time Scale. It took the group seven years to sift the evidence and debate the science before they concluded that the geological signals were sufficiently strong and incontrovertible to warrant recognizing the new epoch, which began, they argued, circa 1950. However, even this laboriously achieved consensus far from guarantees that the Anthropocene will gain official acceptance. The deliberations of the International Commission of Stratigraphy and the International Union of Geological Sciences must now inch forward as they in turn weigh the merits of the working group’s recommendation.

But how many people are waiting, with bated breath, for a tiny circle of geological deciders to certify the Anthropocene’s existence or otherwise? If the deciders determine that the Anthropocene is nothing but a deep-time hallucination, will the idea vanish from museums and art galleries, from rich-nation scholarly debates and interdisciplinary conventions, from Flickr and YouTube? Not likely. Ironically, the geologists’ slow-motion—dare one say glacial—assessment of the Anthropocene’s claims has eroded their authority over the outcome, as in a time of digital acceleration the paradigm has undergone a high-speed adventure through fields well beyond the jurisdiction of earth scientists. If the Anthropocene peters out, it will be through paradigmatic exhaustion and a failure to strengthen its social purchase, not because the idea lacks geological certification.

Indeed, the Anthropocene has become so ductile, so infinitely malleable that we should perhaps view it less as a paradigm than as a spectrum of paradigms that range from the hubristic to the humble, from the reactionary to the positively iconoclastic. What began as a data-driven scientific debate over how to calibrate and classify the human fingerprint in the fossil record has since spread to almost every imaginable scholarly field, across the arts, and spilled out into the world beyond. The Anthropocene—by turns enlightening, exasperating, alarming—throws up

questions that metrics in isolation cannot answer. As environmental historian Libby Robin observes, “the question is how people can take responsibility for and respond to their changed world. And the answer is not simply scientific and technological, but also social, cultural, political and ecological” (2008).

At its most suggestive, the Anthropocene can stimulate new forms of noticing that may help provoke layered thinking about responsibility. At its most suggestive, the Anthropocene can help us rediscover the vitality of mundane objects and, in a spirit of anticipatory memory, encourage us to grapple with the barely comprehensible, emergent worlds toward which we’re plummeting. At its most suggestive, the Anthropocene can lead us toward consequential questions about the relationship between the imaginable and the unimaginable, between possible lives and probable ones, and stimulate debate over how we negotiate—from our diverse Anthropocene positions—the challenges that shadow the path ahead.

The Cabinet of Curiosities is expressive of this ambition. It can hopefully help, in some modest way, by offering alternative forms of thinking through time, alternatives to the catastrophic temporal parochialism that afflicts the neoliberal order. Collectively, the Anthropocene objects, performances, and stories arrayed here have the power to disturb and to surprise, goading us toward new ways of thinking and feeling about the planet we have inherited and the planet we will bequeath.

Yet in the context of the Anthropocene every “we” remains an uneasy one. Does “we” promulgate illusions of an isolationist human supremacy or of *Homo sapiens* as a collective actor? “Nature no longer runs the Earth,” writes Mark Lynas. “We do. It is our choice what happens here” (2011). That’s dubious on two fronts. First, humans are inseparable from other planet-shaping powers that are never fully other, not least microorganisms that vigorously impact the conditions of human and planetary being. Second, the notion that we “run the Earth” smacks of egotistical arrogance and suppresses the deep, painful divides in what it means to be human in a world littered with neoliberalism’s sacrifice zones, a world where the ghosts of disposable people wander the perimeters of gated communities that deny them their humanity.

This, then, is surely the primary obligation that adheres to Anthropocene endeavors: to resist the imposition from above of a quick-and-easy “we” that becomes complicit in disenfranchising the many. Above all, the Anthropocene challenges us to devise more just institutions of governance that can better distribute finite resources and technologies, thereby enhancing the life chances of all humanity as well as enhancing ecosystem viability. We cannot risk giving a free pass to buccaneer billionaires, disaster profiteers, and venture philanthropists to

deputize for the species. We cannot risk allowing them to usurp authority over the worlds to come, to determine who gets a future and who is denied one by geoen-gineering quality of life—however temporary—for elite zip codes only. We live in times that call for concerted action but only if such action acknowledges and seeks to heal the disconcerting fractures in the meaning, the possibility of the human.

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