

# DECOLONIZING NATURE: MAKING THE WORLD MATTER

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*Mastery and possession: these are the master words launched by Descartes at the dawn of the scientific and technological age, when our Western reason went off to conquer the universe.*<sup>1</sup> Michel Serres

Living at a time of ecological tipping points, resource over-consumption, widespread environmental degradation, and runaway climate change—some twenty-five years after Michel Serres made the above observations—we are more than ever conscious of the disastrous effects of that scientific and technological age of post-Enlightenment Western modernity, now increasingly global in its reach. For the philosopher of science, the origin of the crisis is located in our fundamental relation to the material world around us: “We dominate and appropriate [nature]: such is the shared philosophy underlying industrial enterprise as well as so-called disinterested science, which are indistinguishable in this respect. Cartesian mastery brings science’s objective violence into line, making it a well-controlled strategy. Our fundamental relationship with objects comes down to war and property.”<sup>2</sup> If environmental matter has been treated historically as an external thing to be used, exploited, commercialized, fetishized, and colonized by humans—long recognized by many Marxist critics and indigenous peoples alike<sup>3</sup>—then what we need, Serres proposes, is a “natural contract,” one that will bring about a new conceptualization of our relation to material objects and nonhuman life forms. While Serres’s prescient analysis has been taken up specifically in different works by the participants in World of Matter—including Paulo Tavares’s research video *Nonhuman Rights* (2012), Emily Eliza Scott’s *Audio Tour*

accompanying the 2014 exhibition *World of Matter: On the Global Ecologies of Raw Material*, and Lonnie van Brummelen & Siebren de Haan’s notes on their cinematic essay *Monument of Sugar: How to Use Artistic Means to Elude Trade Barriers* (2007)—it also proposes a useful entry point in considering the projects of the collective as a group. For these all variously operate on the dual registers of critical documentary analysis of the present order of things and speculative modelings of alternate possible worlds, which echoes the central terms of Serres’s writing. Bringing together ecological research, social justice activism, and environmental humanities research, their efforts could not be more relevant to our current world of global crisis. As the group explains in one of their recent collective statements:

*Humans have exhausted virtually all known resource deposits on the planet with heightening efforts geared toward locating yet undiscovered and untapped reserves. Large-scale mining is penetrating ever deeper layers, multinational land grabs are advancing to remote corners, and the race is on for the neocolonial division of the seabed. . . . With growing consciousness about global environmental limits, there is urgent need for new discourses and modes of representation that shift resource-related debates from a market-driven domain to open platforms for engaged and decentralized public discourse.*<sup>4</sup>

World of Matter is one such platform, generating research that reinvigorates the longstanding environmentalist urgency of inventing a new approach to finite resources and exploring proposals for creative sustainable options.<sup>5</sup> Indeed, they provide a place for contemplative speculation, researched analysis, and pioneering aesthetic articulations regarding different ways of defining and organizing our relation to the natural environment. As well, they critically approach the question of how we might “decolonize nature”—as poignantly expressed in Tavares’s video—in ways that directly reference or indirectly resonate with Serres’s terms. Generating critical documentary research via a diversity of videos, photographs, presentations of material evidence, and analytical and speculative texts, their work investigates how the current regime of resource colonialism, industrial ecocide, and the neoliberal agroecology is socially and environmentally destructive, economically and politically unequal in the distribution of its negative effects, and historically rooted in paradigms of imperialism that go back centuries.

What would it mean to decolonize nature? Colonialism, at its most basic, imposes a subject-object relation of power, defined by mastery and appropriation, to reiterate Serres’s terms. For the Martinican author and thinker Aimé Césaire, writing in the mid-twentieth century, the colonial relation (as between European colonizers and Afro-Caribbean colonies) involved manifold

techniques of domination, including “forced labor, intimidation, pressure, the police, taxation, theft, rape, compulsory crops, contempt, mistrust, arrogance, self-complacency, swinishness, brainless elites, degraded masses.”<sup>6</sup> Writing more recently, the Johannesburg-based theorist Achille Mbembe argues that colonialism constitutes multiple forms of violence: an inaugural violence, whereby it creates and defines the terms of its own existence; a second violence, where its authority asserts its exclusive power in terms of law, right, and legitimacy; and a third violence, where its control is maintained, spread, and made permanent.<sup>7</sup> If we accept this admittedly schematic definition stretched across half a century of anti-colonial theory and practice, then to “decolonize nature” would suggest the cancellation of this subject-object relation between humans and the environment, the removal of the conditions of mastery and appropriation that determine the connection between the two, and the absolution of the multiple levels of violence that mediate the relation of human power over the world.

Considering the diverse projects of World of Matter allows for further and more precise approaches to what the process of decolonizing nature might mean, beginning with those that present us with critical analyses of the destructive industrialization and domination of nature in Brazil. Tavares’s *Field: Amazonia* (2012), for instance, offers a photo-essay travelogue of his

recent trip across the country investigating the socioenvironmental disaster zones of Brazil's modern ecopolitical history, from the regime of state-supported deforestation, ranch and farm development, oil exploration, and resource colonization between the 1960s and 1980s to the subsequent wave of IMF-supported privatization and neoliberalization of the 1990s. In the wake of this development, the Amazon lies depleted and degraded, even as it submits to a continued conflict between resource grabs for global markets and social movements struggling for democratic, local, and indigenous sovereignty.<sup>8</sup> Complementing Tavares's overview, and focusing on agrobusiness in Western Brazil's Mato Grosso, Frauke Huber and Uwe H. Martin's video *LandRush: Frontier Land* (2011–14) portrays large-scale commercial farms that use chemical pesticides and consider their socio-environmental impacts. Research footage presents indigenous activists explaining that such development comes “without limits” and fouls traditional farming lands with agrottoxics and transgenics, forecasting a dark future of conflict over quickly vanishing clean water supplies.<sup>9</sup> In further sections that compare Brazil to other geographies, they track farming developments in Ethiopia, where small-scale growers have been engulfed by debt owing to the high costs of chemical inputs and the environmental stress of climate-change-induced drought.

With similar attentiveness to the industrial mastery and appropriation of nature, Ursula Biemann's video *Deep Weather* (2013) depicts the exploitation of the Albertan tar sands, where corporations extract dirty, hard-to-access hydrocarbons, in the process devastating this biodiverse environment in Northern Canada. Portraying the befouled oil fields in the Athabasca River region, her footage, complemented by the artist's whispered voice-over speculation, also depicts the socioenvironmental consequences of fossil-fuel development in such far-away places as Bangladesh's delta, suffering from the threat of rising sea levels owing to melting polar ice brought on by the anthropogenic warming of the planet. The video is exemplary of a relational geographical

analysis, which, like Huber and Martin's, connects diverse regions and complex Earth systems, showing the human costs of industrial development, among them the monumental effort carried out by Bangladeshi collective labor to reinforce embankments and protect against catastrophic submersion—a disavowed, if distant, externality of the oil industry in Canada that translates into backbreaking toil and increased environmental risk borne by the multitudes, many from the underclasses in the global South.

Consider as well Uwe H. Martin's *White Gold* (2007–14), another comparative model of North–South and East–West ecocultural geographies, here joining agriculture, land-use policy, advanced technology, and neoliberal economics. The ten-part video project presents a documentary ethnography of family farmers in Texas, who explain how corporate agriculture has brought financial pressure to buy commercialized GM seeds, flooding the market with cheap products and making organic cotton production ever precarious as a cooperative industry. *White Gold* develops this analysis further by comparing the Texas cotton industry to the ruinous situation in India, where farmers have received none of the subsidies granted to their counterparts in the United States, leading to debt (owing to rising expenses of chemical inputs, farming technology, and WTO policy that drives down cotton prices) and, tragically, farmers' suicides on a massive scale. Activists see the cycle as repeating an old colonialist relation of power. Indeed, for the scientist and ecoactivist Vandana Shiva, interviewed extensively in this video, these agrobusiness arrangements constitute “economic genocide”—a deliberate program, she contends, to eliminate the seed sovereignty and economic independence of Indian farmers, just so corporations like Monsanto can expand their markets worldwide.

These diverse presentations evidence a collective commitment to bringing investigative analysis and visual documentation to bear on industrial modernity's colonization of nature. While they do so in aesthetically singular ways, there are nonetheless several shared areas of concentration in

terms of visual approach. The most notable is a collective investment in documentary video practice, realized through a variety of individual inflections, among which the employment of the researched video essay (joining audio-visual moving images and essayistic narratives to create complex, hybrid aesthetic constructions<sup>10</sup>); interview-based portrayals of diverse stakeholders; the use of contextualizing video footage delivered with sociopolitical analysis and historical investigation (often as voice-over or explanatory titles); and the presentation of philosophical speculative narration. The latter resonates in particular with recent developments in New Materialism and object-oriented ontology, creatively engaging the work of assorted theorists such as Serres, Bruno Latour, Karen Barad, and Graham Harman, among others, in addition to connecting to the climate-justice activism of figures like Vandana Shiva and formations such as the Landless Workers' Movement (Movimento dos Trabalhadores Rurais Sem Terra). The group's approach to ethnography and field research, far from exhibiting a naive unawareness of power relations between subjects of knowledge and objects of observation, is critically experimental, involving theatrical reenactments and collaborative, self-reflexive knowledge production (especially in the case of the films of Van Brummelen & De Haan).<sup>11</sup> In addition to these various models of ethnographic and documentary practice, the group also offers multiple forms of mixed-media installations, pedagogical presentations (some drawing from the natural sciences), and informative critical cartographies and computer-generated diagrams (as in the work of Ursula Biemann, Elaine Gan, and Peter Mörtenböck and Helge Mooshammer), all of which demonstrate a shared investment in interdisciplinary research, bridging fields as diverse as cultural geography, chemistry, visual culture, agriculture, political science, and—particularly in the case of Emily Eliza Scott—an ecologically concerned model of eco-art history, and more broadly, environmental humanities.<sup>12</sup> The group's investment in developing ways to materialize and translate the language of things—the

Earth's systems as much as nonhuman life—resonates as well with the aims of forensic science (as developed conceptually, technologically, and practically in the Research Architecture program at Goldsmiths<sup>13</sup>). In sum, World of Matter defines a cutting-edge mode of collective artistic and interdisciplinary research, mediated through constellations of texts, images, and videos, which shares the imperative to explore how the world *matters*—how it enters into both materialization and conflicted forms of valuation.

If World of Matter aims to question the mainstream governmental policies of “sustainable growth” as embedded in a generally unsustainable neoliberal economy, then it joins a long history of environmentalism going back to the “Limits to Growth” discourse of the early 1970s. In 1972 the Club of Rome commissioned their eponymous report, which deployed computer modeling to forecast the negative effects of growth on Earth systems, chiefly in relation to world population, industrialization, pollution, food production, and resource depletion. It concluded that only by reducing growth could humanity save itself from the collapse of those global systems by the end of the twenty-first century.<sup>14</sup> This “limits” approach defined the first wave of postwar environmentalism and was superseded by the “green capitalism” of the 1980s and 1990s, which, as policy analyst Richard Smith observes, wanted to “align” profit-seeking with environmental goals,<sup>15</sup> so that restoring the environment and growing the economy were ideologically reconciled.<sup>16</sup> Now, at the tail end of that eco-economic compromise, corporations commonly advertise “green business practices” and model “sustainable development,” supported by most governments and organizations like the World Bank and the WTO, where what is to be “sustained” is most of all economic “development.”<sup>16</sup>

As such, the logic of mastery and appropriation that Serres identified as the founding episteme of the present ecological crisis has only been exacerbated with contemporary approaches to climate change, especially where current environmental

calamity is viewed principally as a market failure, the solution being to integrate nature (including natural disaster) ever more fully into global financial systems. According to the tenets of the current mainstream approach, nature should be valued economically if we are to protect it globally.<sup>17</sup> Yet it is now clear that green capitalism—including initiatives such as carbon taxes, dematerializing the economy, cap-and-trade schemes, debt-for-nature swaps, market-based green design, hybrid cars and biogas—has completely failed. As critics argue, we are destroying the environment and its life-support systems so quickly that, in the words of the environmental activist and founder of 350.org Bill McKibben, “we’re running Genesis backward, *decreating*,” and bringing about a substantial reduction in biodiversity, even a global mass species extinction event, from which there is no return.<sup>18</sup> Or as Smith puts it, “for all the green initiatives, corporate business practices have changed little—or the little they’ve changed has had no great effect.”<sup>19</sup> With increased devastation to land and water and uncontrolled growth in greenhouse gases, green capitalism has only brought us ever closer to an irreversible ecocatastrophe.<sup>20</sup>

It is here that World of Matter intervenes as a collaborative project dedicated to thinking beyond the dead end of green capitalism and reinventing a “limits to growth” discourse, but one shed of both its erstwhile neo-Malthusianism (as it connects degrowth imperatives to social justice considerations) and its former provincialism (exchanging a Western top-down approach to governance for a sensitivity to the global South, including the democratic participation of indigenous peoples). As such, World of Matter positions ecology and sustainability beyond the automatically assumed, cynical, and paradoxical assumptions of free-market capitalism and its financialization of nature. To further these goals, World of Matter groups diverse practitioners and demonstrates transnational reach, thereby contributing to the momentum around the formation of new modes of widening social organization, and joining global social movements, networked activism, and online communities in search for

new possibilities for alternative resource ecologies.<sup>21</sup>

The diversity of the projects, moreover, radiates out into shifting constellations of practice brought together for the different occasions of specific exhibitions, publications, and website presentations<sup>22</sup>—for instance, the website platform currently includes artistic researcher Nabil Ahmed’s video-based project on the entanglement of natural and political violence relating to the history of arsenic poisoning in the Bengal Delta (*Earth Poison*); sound artist and acoustic ecologist Peter Cusack’s investigation of post-disaster soundscapes (*Chernobyl: Sounds of Contamination*); photojournalist Ed Kashi’s documentation of oil industry pollution in Nigeria’s Niger Delta (*Black Gold*); and artist Judy Price’s examination of the neocolonial geopolitics of Israeli resource extraction in the quarries of occupied Palestinian territories (*White Oil*). Particularly in its online media appearance, the group’s extensive geographical range parallels the expansiveness of its open-access sharing of knowledge. And just as World of Matter’s media network extends its distribution internationally, its trans-disciplinary research enlarges the collective’s “matters of concern,” moving beyond the exclusivity of specialist debate or hierarchical modes of disciplinary authority and inviting diverse stakeholders to the discussion and deliberation of the politics of ecology. Its participants, in other words, develop a new media ecology as much as an innovative collaborative and transdisciplinary social practice—one that, as Scott proposes, intends to contribute to an emergent “knowledge commons,” pitched against the ongoing privatization and surveillance-equipped mechanisms of the Internet’s corporate-governmental technoscape. There is a globalized research methodology as much as an expanded interdisciplinary platform, which addresses what for Bruno Latour is a key contemporary imperative and fundamental element of an emergent political ecology—to carry out “the progressive composition of a common world.”<sup>23</sup>

By exploring the political, social, and economic dimensions of land use in the global field, with specific attention to areas in the South such as Bangladesh, Egypt, Ethiopia, Brazil, and Ecuador, World of Matter overcomes one limitation of past environmentally concerned artistic research, which is to focus primarily on the developed North, and in particular the United States, as with the Center for Land Use Interpretation (CLUI) and the Critical Art Ensemble (CAE).<sup>24</sup> While this is not to dismiss the significance of the work of CLUI and CAE, World of Matter’s areas of concern arise from an additional genealogical connection to postcolonial critiques of what Ramachandra Guha and Joan Martínez Alier term the “ecology of affluence,” an ecology attentive primarily to environmental conditions in developed nations and generally invested in conservationism and recycling rather than in social justice, poverty alleviation, and combating corporate ecocide in underdeveloped areas of the South.<sup>25</sup> These latter areas, as is commonly acknowledged, are also most prone to the negative effects of climate change—including sea level rise, desertification, deforestation, and biodiversity loss—and possess disproportionately less ability and fewer material resources to confront the resulting crises of environmental degradation, which is of course caused historically by fossil fuel development in the North. As such, World of Matter breaks the familiar cycle of artists and collectives based in the West that investigate primarily the environments of developed nations, gaining high visibility for their studies of land use within those regions, but thereby inadvertently perpetuating the general blindness to non-Western transnational geographies, social movements, and environmental politics. In its non-Western commitments, World of Matter shares a research framework sensitive to postcolonial globalization with collectives like Platform in London and Sarai in Delhi—ecopolitical formations that are still too few—and thereby proposes a new comprehensive model of what counts as “common,” even while attentive to forms and histories of inequality and conflict

that mark the uneven developments of global neoliberalism.<sup>26</sup> This observation regarding the participants’ post-colonial sensitivities and their global field of operations points as well to the significance of social ecology in their collective practice, committed to portraying the concerns of a range of stakeholders—for instance, the challenging circumstances of women miners in Brazil (in Mabe Bethônico’s *Mineral Invisibility*); former subsistence farmers in Egypt driven out of business by government policy favoring monocultural cash crops (Biemann’s *Egyptian Chemistry*); the plight of small-scale Indian farmers suffering from growing debt and suicides among their numbers in a climate of high-tech, chemical-intensive corporate agrobusiness (Martin’s *White Gold*); and fisherfolk in the Netherlands’ coastal area of Urk struggling with increased global competition and the threatened viability of their regional identity (Van Brummelen & De Haan’s *Episode of the Sea*). By depicting the devastating results of global agricultural policies on those with the least means to resist, by interviewing people at the lowest orders of the sociopolitical and economic scales, who live in diverse and often interconnecting geographies, the group proposes additional ways to bring about a decolonization of nature—in this case, the decolonization of human nature, which, as Vandana Shiva suggests, might start by reclaiming the seed commons as part of our collective heritage and growing a “living democracy” against global capitalism’s genocidal economy—goals her own organization, Navdanya, pursues.<sup>27</sup>

In this sense, World of Matter’s diverse practices are attentive to an environmentalism of the poor and the “slow violence” inflicted on such people—those forced to endure the protracted temporal effects of oil industry devastation on rainforest land and fragile deltas, or the multi-generation scale of economic attrition imposed by corporate agriculture on village farming communities.<sup>28</sup> As such, they resonate with the approach to social ecology that sees the destruction of the environment as mirroring exploitation and

inequality within human relations and therefore considers that to repair such destruction necessitates addressing and rectifying forms of social violence and inequality.<sup>29</sup> But to repair such violence and inequality, one must first understand them, and herein lies the importance of researching and representing forms of life that are often invisible, and kept so at times by corporate and governmental design. Bethónico's research into the conditions of women laborers in mining operations in Brazil unravels one such area of institutionalized invisibility, and her contribution of new archives of documentation (as part of *Mineral Invisibility*) aims to enable public debate on the environmental impact of this industry, but also on the need for workers' rights and gender equality—subjects that have been impossible to address until now owing to the absence of publicly available documentation. The case is similar with World of Matter's focus on village-based subsistence farmers in India, members of Brazil's landless peasants, and indigenous tribal people in Ecuador's Amazonian rainforest, each group variously impacted by corporate industry. At the same time, World of Matter's research enters into those fields of corporate practice within developed countries. Consider Huber and Martin's *LandRush*, especially the video interviews with diverse agents, including a commercial farmer in Brazil who commonly applies chemical inputs such as pesticides and fertilizers to his crops, a biotechnologist in a Texas university who describes his research into genetically modified cotton and argues for the value of such agricultural science, and a Brazilian farmer engaged in business transactions in Sudan to develop greater efficiency in production and profits. These examples demonstrate how World of Matter investigates a diversity of concerns, leaving it open to viewers to form independent views and political opinions on how the world does and—perhaps all the more importantly—might matter differently.

The extension of representability to the widest range of social groups in diverse geographical regions, however, still fails to capture the full extent of World of Matter's conceptual reach. Such

a social ecology, while valuable for its political expediency of generating greater democracy and social equality of participation within the debates around land use, nonetheless remains contained within the anthropocentric dimensions of human-based social composition. Indeed, it is among the collective's goals to surpass that limitation and explore the possibilities for a social composition that extends beyond human agents alone (even while the group resists subscribing to the misanthropic proclivities of “deep ecology,” with its dismissal of human exceptionalism altogether<sup>30</sup>). Drawing on Latour, among others, the group's work also explores ways to conceptualize and materialize an inclusive field of collectivization, positing what Mörtenböck and Mooshammer term a new “cooperative of things,” which surpasses the assumptions of anthropocentrism, whether understood as positioning humans as sole agents within systems of material causality or as central subjects of politics and legal standing. Avoiding as well the reduction of nature to inert matter—to a passive object awaiting human instrumentalization, mastery, and appropriation—World of Matter proposes a further way of decolonizing nature by recalibrating ways of composing the commonality of which Latour speaks.<sup>31</sup>

This returns us to the debate over the value of nature and the nature of value. How does the world matter? As we have seen, there are different forms of valuation, some normally covered up by the economic dominance of neoliberalism. One model that World of Matter rescues as a resource is that of scientific methodologies inquiring into the biophysiological workings of natural systems and science studies approaches establishing the intelligibility of those systems via various sorts of mediation, deciphering, and interpretation. Things, of course, have their own material circuitry, modes of reproduction and interaction, and chemistries of materialization that are independent of human meaning, intentionality, and causality—but how to track, translate, and understand them outside of human-centric systems? Such a question is central to World of Matter's collective project. Broadly,

the participants' experimentation constitutes a transitional move from considering nature as a “natural resource” to viewing the world of matter variously as an “aesthetic-philosophical arena,” a field of material processes carrying social and political effects on human systems, and a realm of nonhuman subjects requiring public debate outside of market-based assumptions or financial priorities.<sup>32</sup> As Jane Bennett observes—developing certain of Serres's earlier thoughts—“modern selves are feeling increasingly entangled, cosmically, biotechnically, medially, virally, pharmacologically, with nonhuman nature. Nature has always mixed it up with self and society, but lately this comingling has intensified and become harder to ignore.”<sup>33</sup> World of Matter investigates precisely this comingling.

Consider in this regard Ursula Biemann's recent projects, particularly *Egyptian Chemistry*, which investigates the world of watery matter in Egypt, its recent transformation being cause and consequence of geoengineering interventions, aquaculture innovation, and revolutionary politics. The project engages a postanthropocentric methodology of new materialism and speculative realist philosophy while also drawing on chemistry, demonstrating an aesthetic sensitivity to the agency of objects, both beyond the sovereignty of human determination and intertwined with human systems in unexpected ways. In her related photo-essay, which articulates the piece's concerns, Biemann describes the Nile as a “hybrid interactive system that has always been at once organic, technological, and social. . . . The question is how we can conceive of a reality indifferent to humans.”<sup>34</sup> *Egyptian Chemistry* is a case in point. It explains how, during the 1990s, institutions like the World Bank and the IMF, in conjunction with economic policies pushed by the United States and the European Union, guided President Mubarak's government to move Egypt increasingly toward an export-based agroecology that prioritized state funding of monocultural farming (with many leading corporations owned by Egyptian MPs and military officers) and defunded small-scale subsistence farmers (a number of

whom are interviewed in her video). The result brought cuts in local food production, which led in turn to food scarcity, unemployment, and social conflict, in many ways forming a familiar cycle unleashed by corporate neoliberalism as mapped also in Tavares's *Nonhuman Rights*, Martin's *White Gold*, and Huber and Martin's *LandRush*.<sup>35</sup> Biemann shows how the global economy has privileged corporate profits over local need, propelling urbanization, with multitudes thrown into precarious labor and informal architecture, creating slum-like conditions in Cairo and setting the stage for the Arab Spring, which brought down the Mubarak government. She thus maps a complex chain of relations, a “cooperative of things” that comprises an assemblage of aquapolitics and social revolution introduced by neoliberal macroeconomic policy, which—with some degree of poetic justice—ended up destroying that system's very basis of governmental legitimacy (even if the revolution remains unfinished).

In Biemann's model, while nature appears far from an isolated or pure category, separate from human activity, it is neither positioned as an inert object of human instrumentality or passive screen of financial speculation. Rather, *Egyptian Chemistry* moves us toward a complex dynamics of causality and “inter-agential becoming,” in feminist science theorist Karen Barad's terms.<sup>36</sup> (In this vein, Biemann's focus on such hybrid Earth objects is shared by Elaine Gan, whose *Rice Child (Stirrings)* comprises a wall-sized map including text, graphics, and documentary images charting the global history of rice cultivation, development, and biotechnological modification, where diverse rice varieties emerge through a nexus of human, nonhuman, environmental, and technological interactions and temporalities.) The dispersed consequences of the human–nature assemblage envisaged in Biemann's project are beyond what could be blamed moralistically on a single individual (such as Mubarak),<sup>37</sup> and instead her narrative posits a human–nonhuman multi-causal network. That network allots agency to nonhuman matter—a non-intentional agency,

to be precise, constituting a subjecthood of biochemical causality modeled on scientific paradigms, as when the Aswan Dam project effectively changed the biological conditions of the Nile (favoring fish like the tilapia), demonstrating what Biemann calls chemistry's "ontology of internal relations."<sup>38</sup> More, matter is endowed with political implications beyond human control, as when Egypt's state agricultural policy introduced a new material environment that created the social conditions culminating in profound social transformation.<sup>39</sup> Biemann's is a politico-ecological analysis of networked causality, dispersed agency, and multiple effects.

Biemann's attention to a postanthropocentric world of matter complements radical new juridical developments in relation to the "rights of nature," a concern also addressed by the World of Matter collective. For example, Tavares investigates such discourses in *Nonhuman Rights*, which posits the revaluation of nature in ways that exceed the framework of not only anthropocentric epistemologies, but modern capitalism itself. Tavares finds a promising resource for natural rights jurisprudence in Latin American indigenous rights claims. His video's theoretical point of departure is once again *The Natural Contract* and Serres's observation that after centuries of abuse, when humanity has assumed the power to transform the planet, the Earth is no longer in a position to be ignored: "Global history enters nature; global nature enters history: this is something utterly new in philosophy."<sup>40</sup> Serres's prescient observation is driven home by the recent legal revolution in Latin America, particularly in Ecuador, where the government rewrote its constitution in 2008 so as to grant rights to nature. By extending legal standing to mountains and seas, rocks and rainforests, the novel ecocentric law dissolves the boundaries between worlds of matter and cycles of life, human subjects and nonhuman objects, agents of law and resources of industry. As Tavares notes in his video, this legal transformation represents nothing less than a "radically new universalism"—initiating a new subjectivity

shared by all life forms and their life-sustaining biosphere that is legally recognized, one that proposes a "decolonization of nature" from centuries of domination and a further conceptualization of a postanthropocentric commonality.<sup>41</sup>

Tavares contextualizes this development further with references to current conflicts over deforestation and environmental despoliation in the Ecuadorian Amazon, where, for instance, peasants and indigenous communities (including the Sarayaku) have successfully sued the state over the destruction carried out by oil companies that operated in Ecuador between the 1960s and 1990s, leaving waste pools of toxic petrochemicals over 200 square kilometers of the rainforest.<sup>42</sup> "It is genocide in the Ecuadorian Amazon," argues activist Donald Moncayo in the video, as Tavares's handheld camera shows areas of sludge still lying on the surface of the forest floor. His point echoes Shiva's indictment of corporations operating in the Indian countryside, pointing to the global scope of such ecocide, which is simultaneously a form of human genocide, as we have seen.<sup>43</sup> Ecuador thus provides a legal laboratory for the implementation of natural rights law and, as such, offers a test case for one possible approximation of the natural contract that Serres called for more than twenty years ago.

In his video, Tavares interviews numerous stakeholders, including Alberto Acosta, a politician and former president of Ecuador's Montecristi Constituent Assembly (responsible for writing the 2008 Constitution), who explains that Ecuador's recent legal changes originated in the struggles of the country's indigenous people during the 1990s. As he is shown speaking, Tavares's video intermixes historical TV footage covering several of these protests. The connection between social and natural rights is also reaffirmed by Luis Macas, a Quechua politician, scholar, and founding member of the Confederation of Indigenous Nationalities of Ecuador (CONAIE), who notes that when these past struggles for collective rights to ancestral land are taken to their logical conclusion, they cannot but reaffirm the rights of nature,

protecting the larger biodiverse environment on which tribal life depends. In this regard, granting nonhuman legal agency extends from indigenous biopolitics. Many Amerindian cosmologies recognize a shared subjecthood among all living things (and even some inanimate things), which informs indigenous political struggles and finds a certain affinity with Serres's call for a natural contract (though he doesn't discuss indigenous philosophy).<sup>44</sup> Of course, such developments are not limited to the Ecuadorian context, and this commitment to natural rights represents a political priority for social movements worldwide who are fighting against green capitalism's incursions. This convergence was affirmed, for instance, in the recent Kari-Oca II Declaration, agreed in Rio in 2012 (in parallel with the Rio+20 meeting of the United Nations Conference on Sustainable Development, generally seen as one more failed attempt by global governance to introduce effective solutions to avert climate change) and signed by over five hundred grassroots indigenous peoples from many countries: "We see the goals of UNCSO Rio+20, the 'Green Economy,' and its premise that the world can only 'save' nature by commodifying its life-giving and life-sustaining capacities as a continuation of the colonialism that Indigenous Peoples and our Mother Earth have faced and resisted for 520 years."<sup>45</sup>

It is noteworthy that Kari-Oca adopts the Quechua word *Pachamama*, meaning "Mother Earth," a term common among Andean Indians and also used by the Ecuadorian Constitution—a choice, as Macas explains in Tavares's video, that reaffirms indigenous understandings of a common world infused with interconnected life, inseparable from humans, and contests the separateness of nature, as some conceptualizations have had it.<sup>46</sup> As the ecologist and activist Esperanza Martínez explains in *Nonhuman Rights*, *Pachamama* discourse constitutes a process of "opening to diversity," building an episteme in which multiple worlds coexist, against the hegemony of Western modernity's domineering and appropriative relation to nature—in other words, we approach the conditions of multinationalism

that decenters human views of the environment, exceeding the multiculturalist understanding of multiple cultures sharing a single nature. As such, the Ecuadorian case—and by extension Tavares's work—forms part of an international movement for an ecocentric paradigm of law (including "Wild Law" and Earth Jurisprudence<sup>47</sup>), moving beyond the market-based legal relation to nature that has dominated law in the past.

With so many apparent connections between, and singular characteristics within, the disparate geographical studies of World of Matter, is it possible to have a planetary overview, one that transcends the specificity of micro-level analyses of particular places? As Scott asks in her *Audio Tour*, "How to picture globalization—including its complex networks and dizzying temporalities—in a way that does not generalize or flatten? In a way that attends to the hyper-local while keeping larger geopolitical and Earth systems in view? That considers how global forces hit the ground, unfolding and mutating as they interact with particular contexts?"<sup>48</sup> This too represents a broadly shared concern of World of Matter. While Mörtenbock and Mosshammer's wall-sized map, *A World of Matter* (2014), might not address all aspects of Scott's complex series of inquiries—and in this regard it would be best to consider the group's work collectively as addressing such questions—it does chart the system of maritime and overland trade routes that is global in scope. Modeled after the Dymaxion Map designed by Buckminster Fuller in 1943, which shows the planet as a single landmass in one ocean without visually distorting relative geographical sizes or fragmenting continents, the expansive cartography notes the sites of rare earth and oil deposits, the "choke" points of trade congestion, and borders of transportation and immigration controls. Reproducing the research of the Social and Spatial Inequalities (SASI) group at the University of Sheffield and of Mark Newman at the University of Michigan, additional diagrams visualize the world's "economic center of gravity," calculated by translating regional GDPs into the respective sizes of nation-states. The map thereby offers a visually

striking demonstration of the disproportionate wealth and corresponding ecological footprints of countries such as the United States, member states of the European Union, China, and India, whose relatively weighted shapes balloon outward, while areas such as Africa and Central and South America dwindle to mere slivers, identifying a system of eco-economic and politico-environmental disparity. As Mörtenböck and Mooshammer observe in the map's annotations, "resources" function as "a mechanism aimed at the manipulation of social and political climates, the regulation of civic anxieties, and the creation of order based on narratives of technological mastery and environmental control"—familiar terms from the perspective of Serres.

Moving beyond the visualization of real-world economic and environmental dynamics, the map's text calls for "intervening in the geopolitical circuits of value production via the development of a democratic politics," inventing a new and different sort of "ecological capital," which, reiterating the conclusions of much of the research that constitutes World of Matter, shows just why we need to bring together "a new ecological understanding" with "the call for a new political economy." Theirs is a further justification for the definancialization of nature, for considering the environment's sustainability as a source of intrinsic value and as integral to the biosphere's life-giving capacities, which matters in ways infinitely more significant than economic wealth. As resource scarcity, overconsumption, and environmental destruction become increasingly visible realities, Mörtenböck and Mooshammer argue, we will encounter greater stimulus to envision alternative worlds, including those that will transcend the logic of mastery and appropriation to which nature has so long been submitted. As we have seen, environmental and social devastation have already inspired the introduction of a contract inaugurating an emergent age founded on the universalism of rights-bearing subjects, and it is this very movement that World of Matter advances.

- 1 Michel Serres, *The Natural Contract* [1990], trans. Elizabeth MacArthur and William Paulson (Ann Arbor: University of Michigan Press, 1995), 32–34.
- 2 Ibid.
- 3 Frederic Jameson writes that "multinational or consumer capitalism, far from being consistent with Marx's great nineteenth-century analysis, constitutes, on the contrary, the purest form of capital yet to have emerged, a prodigious expansion of capital into hitherto uncommodified areas. This pure capitalism of our own time thus eliminates the enclaves of precapitalist organization it had hitherto tolerated and exploited in a tributary way. One is tempted to speak in this connection of a new and historically original penetration and colonization of Nature . . ." "Postmodernism, or The Cultural Logic of Late Capitalism," *New Left Review* 1/146 (July–August 1984), 78. On Marxism and nature, more broadly, see John Bellamy Foster, *Marx's Ecology: Materialism and Nature* (New York: Monthly Review Press, 2000). For indigenous critiques of this episteme, see the latter part of this essay.
- 4 Mabe Bethônico et al., "From Supply Lines to a World That Matters," in *Provisões: Uma Conferência Visual* [World of Matter], ed. Mabe Bethônico (Belo Horizonte: Instituto Cidades Criativas, 2013), 11. See also the special issue of *Third Text* 120 (January 2013), which I guest-edited on the subject of "Contemporary Art and the Politics of Ecology," and to which World of Matter contributed a portfolio of essays.
- 5 These new proposals include recent eco-socialist ones, such as Chris Williams, *Ecology and Socialism: Solutions to Capitalist Ecological Crisis* (London: Haymarket, 2010); Richard Smith, "Green Capitalism: The God That Failed," *Truthout* (January 9, 2014), <http://www.truth-out.org/news/item/21060-green-capitalism-the-god-that-failed>; and Naomi Klein, "Capitalism vs. the Climate," *The Nation*, (November 28, 2011) <http://www.thenation.com/article/164497/capitalism-vs-climate>.
- 6 Aimé Césaire, *Discourse on Colonialism* [1955], trans. Joan Pinkham (New York: Monthly Review Press, 2000), 42.
- 7 Achille Mbembe, *On the Postcolony* (Berkeley: University of California Press, 2001), 25.
- 8 See Paulo Tavares, "Field: Amazonia," in *Provisões*, 72–97.
- 9 See for instance Vandana Shiva, *Water Wars: Privatization, Pollution, and Profit* (London: South End Press, 2002).
- 10 On Biemann's use of the video essay, see T.J. Demos, "Video's Migrant Geography: Ursula Biemann's *Sakara Chronicle*," in *The Migrant Image* (Durham, NC: Duke University Press, 2013), 201–20.
- 11 For a recent contribution to the discourse around art and ethnography, see Okwui Enwezor, ed., *Intense Proximity: An Anthology of the Near and the Far: La Triennale 2012* (Paris: Centre national des arts plastiques, 2012).
- 12 For more on the emerging field of the environmental humanities, see the Transatlantic Research Network in Environmental Humanities (<http://environmental-humanities-network.org>) and the recently inaugurated journal *Environmental Humanities* (<http://environmentalhumanities.org>), which released its first issue in 2012.
- 13 See Forensic Architecture, ed., *Forensic: The Architecture of Public Truth* (Berlin: Sternberg Press, 2014) and <http://www.forensic-architecture.org>.
- 14 See Donella H. Meadows et al., *The Limits to Growth: A Report for the Club of Rome's Project on the Predicament of Mankind* (New York: Universe Books, 1972).
- 15 Smith, "Green Capitalism."
- 16 See T.J. Demos, "The Politics of Sustainability: Art and Ecology," in *Radical Nature: Art and Architecture for a Changing Planet, 1969–2009*, ed. Francesco Manacorda and Anella Yedgar (London: Barbican Art Gallery, 2009), 17–30.
- 17 See for instance The Natural Capital Project (a new ten-year partnership between The Nature Conservancy, WWF, and Stanford University), <http://www.naturalcapitalproject.org>; Paul Hawken, Amory Lovins, and L. Hunter Lovins, *Natural Capitalism: Creating the Next Industrial Revolution* (Boston: Little, Brown and Company, 1999); Lester R. Brown, *Eco-Economy: Building an Economy for the Earth* (New York: Norton, 2001); Jonathan Porritt, *Capitalism as if the World Matters* (London: Earthscan, 2005); Frances Cairncross, *Costing the Earth: The Challenge for Governments, the Opportunities for Business* (Boston: Harvard Business School Press, 1992); and Nicholas Stern, *The Economics of Climate Change: The Stern Review* (Cambridge: Cambridge University Press, 2007).
- 18 Bill McKibben, *Earth: Making a Life on a Tough New Planet* (New York: Henry Holt, 2010), 29 (my emphasis). On biodiversity loss, see Elizabeth Kolbert, *The Sixth Extinction: An Unnatural History* (New York: Henry Holt, 2014); Thom van Dooren, *Flight Ways: Life and Loss at the Edge of Extinction* (New York: Columbia University Press, 2014); and the website of the Extinction Studies Working Group, <http://extinctionstudies.org>.
- 19 Smith, "Green Capitalism."
- 20 On the potential future of ecocatastrophe, systems collapse, societal breakdown, and rampant militarism, see Michael Parenti, *Tropics of Chaos: Climate Change and the New Geography of Violence* (New York: Nation Books, 2011).
- 21 See Peter Mörtenböck and Helge Mooshammer, "Of Multi-Directional Forces: Interdependencies between Material, Social, and Other Resources," in *Provisões*, 99–125.
- 22 During the developmental phase of World of Matter, between 2011 and 2013, the core group included Mabe Bethônico, Ursula Biemann, Uwe H. Martin, Peter Mörtenböck and Helge Mooshammer, Emily Eliza Scott, Paulo Tavares, Lonnie van Brummelen & Sabine de Haan. Thereafter, World of Matter considers itself to be a collaborative platform and temporary constellation of diverse practices addressing the subject of ecologic-political matters in the global field and operating between institutions, academic disciplines, and non-academic fields, as well as between art, architectural research, and visual culture.
- 23 See Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 2004), 18. For Latour, by replacing "matters of fact" with "matters of concern," certainty with contingency, and well-defined essences with entangled hybrids, scientific discourse is opened to a newly inclusive community of participants and stakeholders that proposes a new ecology of politics, which, for him, holds unprecedented democratic potential (see *Politics of Nature*, esp. 24–25).
- 24 See Emily Eliza Scott, "Relational Research: On Building Ecological Knowledge Commons," in *Provisões*, 258–83, although my analysis draws some differences between World of Matter and the collectives she identifies as important precursors.
- 25 See Ramachandra Guha and Joan Martinez Alier, *Varieties of Environmentalism: Essays North and South* (London: Routledge, 1997), et.
- 26 On globalization and uneven development, see David Harvey, *Spaces of Global Capitalism: Toward a Theory of Uneven Geographical Development* (London: Verso, 2000) and Neil Smith, *Uneven Development: Nature, Capital, and the Production of Space* (Oxford: Blackwell, 1990).
- 27 See Vandana Shiva, *Earth Democracy: Justice, Sustainability, and Peace* (London: South End Press, 2005) and <http://www.navdanya.org>.
- 28 See Rob Nixon, *Slow Violence and the Environmentalism of the Poor* (Cambridge, MA: Harvard University Press, 2011).
- 29 See Murray Bookchin, "What Is Social Ecology?," *Environmental Philosophy: From Animal Rights to Radical Ecology*, ed. Michael E. Zimmerman (Englewood Cliffs: Prentice Hall, 1993).
- 30 For a critique of deep ecology, see Murray Bookchin, "Social Ecology versus Deep Ecology: A Challenge for the Ecology Movement," *Green Perspectives: Newsletter of the Green Program Project*, 4–5 (Summer 1987).
- 31 See Latour, *Politics of Nature*.
- 32 See Bethônico et al., "From Supply Lines to a World That Matters," 11.
- 33 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010), 115.
- 34 Ursula Biemann, "Egyptian Chemistry," in *Provisões*, 31–35. There is also a connection here to "hybrids" (the construction of systems that mix politics, science, technology, and nature) as theorized in Latour, *We Have Never Been Modern*, trans. Catherine Porter (New York: Harvester Wheatsheaf, 1993) and Timothy Morton's discussion of "hypercritics" in *Hypocritics: Philosophy and Ecology after the End of the World* (Minneapolis: University of Minnesota Press, 2013).
- 35 On the logic of corporate neoliberalism, see John Cavanagh et al., eds., *Alternatives to Economic Globalization: A Better World is Possible: A Report of the International Forum on Globalization* (San Francisco: Berrett-Koehler, 2002).
- 36 On "intra-acting agencies," where the being and meaning of things is contingent upon their relation to other things, see Karen Barad, *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (Durham, NC: Duke University Press, 2007).
- 37 As Bennett notes, "The tendency to define social problems as moral failures, exclusively the doing of individual or collective human agents (and the implicit assumption that we are in charge of nature) prevented us from discerning the real locus of agency—the assemblage of actors and nonhuman actants—and attempting to alter the configuration of that human-nonhuman assemblage." See Klaus K. Loehart, "Vibrant Matter, Zero Landscape: An Interview with Jane Bennett," *GAM 7* (2011), <http://www.zooneconomics.com/articles/2011-10-19-loehart-en.html>.
- 38 Biemann, "Egyptian Chemistry," 49.
- 39 Egyptian Chemistry also includes one intriguing passage, titled "Speculative realism, object-oriented ontology: Tahrir Square," where she interviews the theorist Graham Harman, who discusses his critique of the privileging of human access to the world, rather than considering the world itself. During a tense moment when the Egyptian military is putting down a demonstration with tear gas in Tahrir Square, just outside the walls of the American University in Cairo, Harman explains his resistance to grounding philosophy in politics, as it might reinforce precisely the "correlationalist" thinking that reaffirms human-centric knowledge; yet one might wonder if this position directs speculative realism toward a problematic depoliticization of philosophy, losing sight of the connections between political analysis, object-oriented ontology, and postanthropocentric philosophy, which Biemann so innovatively develops.
- 40 Serres, *The Natural Contract*, 4.
- 41 The quotes are from Tavares, *Nonhuman Rights*. See also Serres, *The Natural Contract*, 37. "Objects themselves are legal subjects and no longer mere material for appropriation, even collective appropriation. Law tries to limit abusive parasitism among men but does not speak of this same action on things. If objects themselves become legal subjects, then all scales tend toward equilibrium," cited in Tavares, "On the Earth-Object," in *Savage Objects*, ed. Godofredo Pereira (Lisbon: INCM, 2012), 228.
- 42 On the case of the Sarayaku, see Tavares's project, *Against the State* (2012–14), <http://www.pulsotavares.net/NHR/IAS.html>.
- 43 See the work of the UK-based environmental lawyer Polly Higgins, who argues that creating a law against ecocide is the necessary complement to natural rights legislation, as it extends the force of governance to Earth law and the rights of nature (i.e. making ecocide an international crime), <http://www.ecodingecocide.com>.
- 44 See Eduardo Viveiros de Castro, "Perspectivism and Multinaturalism in Indigenous America," in *The Land Within: Indigenous Territory and the Perception of Environment*, ed. Alexandre Surrallès and Pedro Garcia Hierro (Copenhagen: International Work Group for Indigenous Affairs, 2005). De Castro argues that the anthropomorphic projection of legal subjectivity onto nonhumans is far from a reassertion of an anthropocentric logic, and that the former can actually contest the latter.
- 45 See <http://climateandcapitalism.com/2012/06/19/kari-occ-2-declaration>.
- 46 In this sense, Morton's emphasis on "ecology without nature" could, in my view, be reconciled with indigenous, Pachamama discourse that extends rights to nature, as both usages of the term nature reject the Western conventional understanding of an isolated realm apart from human activities. See Morton, *Ecology Without Nature: Relinquishing Environmental Aesthetics* (Cambridge, MA: Harvard University Press, 2007). On Amerindian approaches to nature and culture fundamentally different from European colonial models, see De Castro, "Perspectivism and Multinaturalism in Indigenous America."
- 47 See Cormac Cullinan, *Wild Law: A Manifesto for Earth Justice* (White River Junction: Chelsea Green Publishing, 2011) and Peter Burdon, ed., *Exploring Wild Law: The Philosophy of Earth Jurisprudence* (Kent Town: Wakefield Press, 2011).
- 48 Emily Eliza Scott, *Audra Tour*, audio guide for the exhibition *World of Matter: On the Global Ecologies of Raw Material*.