

# WORLD OF MATTER

KRISTA GENEVIÈVE LYNES AND WORLD OF MATTER

## Introduction: Planetary Aesthetics<sup>[1]</sup>

KRISTA GENEVIÈVE LYNES

*‘The ‘planet’ is here, as always perhaps, a catachresis for inscribing collective responsibility as right. Its alterity, determining experience, is mysterious and discontinuous – an experience of the impossible.’<sup>[2]</sup>*

The world has been forcefully sculpted in the last several centuries by the twin projects of colonialism and capitalism. The very movement of human activity under modernity has rested on the modelling of a standing reserve of nature, a category whose flexibility has variously expanded and contracted to include both humans and non-human others as targets for exploitation and extractive energy. Carbon industries, forestry, mining, agri-business, construction, mega-farming and mega-fishing participate in worlding the world as mere matter, asserting deep and unforgiving property rights in dispersed territories around the globe. This expropriation of land and dispossession is not a remote imperial history, but an ongoing and everyday process,<sup>[3]</sup> one in which complex and multi-layered relations in a broad ecological and social context are transformed into a flattened playing field where micro-and macro-histories are collapsed.

In this context, where the globe is increasingly calculable and rendered as a resource, the World of Matter project has created a series of open platforms for

engaged public discourse. An international art and media project, it asks how contemporary art and media practices might provide alternatives to both the privatised and patented forms of knowledge gathering at play in extractive and agrarian industries and the anthropocentric focus of many debates around the earth's 'natural resources'. It does so through exhibitions, an online multi-media platform, conferences and critical writing. In this light, the project has sought both to make visible the devastating force of capitalist globalisation by tracing the red threads that connect extractive industries, research and development, and agri-business around the world, and to provide a platform for active critical and aesthetic engagement on questions of ecology, new materialism, and nature-cultures.



▲ World of Matter online platform – [www.worldofmatter.net](http://www.worldofmatter.net)

The text which follows by Paulo Tavares stresses that the environmental devastation characteristic of the period we have come to call the Anthropocene is no mere by-product or residue of an otherwise progressive, developmental or prosperous civilisational advance. Instead, his text and imaging practice trace the specificity of the shape of global capitalism, and thus the specificity of the political violence at play in the material forces and processes responsible for climate change. No accidental remnant of the system, climate change is re-centred as the very process in which imperial violence, capitalist exploitation and settler colonialism are effected.

World of Matter is global in its scope – with participating artists from multiple countries, as well as media works that connect local worlds across different continents. In tracing the specific local articulations of globalising dynamics, the art and media projects expose the manner in which globalisation functions as a scale-making activity, as a system and structure which can farm, harvest and circulate raw materials, mine ores in disparate countries through various speculative ventures, patent and collect seeds as part of new forms of intellectual property, and negotiate labouring communities in forests, underground mines, at sea and in fields.

The participants make use of the critical and aesthetic strategies that have historically shaped the world-making imaginaries of the globe, including a critical re-summoning and reframing of the tropes of landscape, map-making, taxonomic imaginaries and the privilege of mimetic representation. Thus, Elaine Gan's following text traces material infrastructures that encase the conversion of matter into data, examining the deep ossification of nature at play in the Svalbard Global Seed Vault. The work exposes the Linnean drive that informs even the imaginaries of conservation, and the industrial logic that freezes the world's agricultural knowledge in a single isolated structure.

While World of Matter borrows from multiple aesthetic heritages, their representational strategies are submitted to reflexive questions about the constitution of reality. The efforts to aesthetically render the dense ecologies of the contemporary world – and speak to phenomena such as extractive industries, data mining, rising sea levels, agriculture and fishing – engage visual and verbal languages that defy the tropes of naturalism, and thus the traditional capacity of the category nature to recede into landscape or ground. The concerns with enframing, with the constitution of authority elaborated within postcolonial and Science and Technology Studies' (STS) critiques of indexical media, inflect and inform the mediating strategies at play in and across the project: an attempt to make present the various constitution of subjects-in-process in thick overlapping histories, contradictory social contexts, and material processes.

To do so, World of Matter projects have sought to uncover other world-making potentials in an effort to imagine the globe differently, a project Gayatri Chakravorty Spivak has named ‘planetarity’. The planet, she argues, is ‘*the species of alterity*’; it belongs to another system, which we inhabit only ever on loan.<sup>[4]</sup> This is not simply an appeal to the conservation of nature, as ‘nature’ itself posits an undifferentiated space that might be inserted into capital’s mapping of the world. Planetarity, rather, summons an alterity not derived from the centring category of the human, not constituted through a negation of culture. It is both home and un-homey, a decentring relation to otherness prompted both by the pace of geological time and by processes that occur in a differentiated political space.

The method for imaging and imagining the alterity of planetarity, Spivak names ‘*open-plan fieldwork*’.<sup>[5]</sup> Whereas fieldwork is frequently bound both to the methodologies of anthropology and the social sciences, and to the institutional functioning of globalised NGOs and international civil society, open-plan fieldwork does not presume the field’s boundaries (its locations, actors or cohesion) in advance. If globalisation consists in the attempt to create generalisation, abstraction, and commensurability, open-plan fieldwork works to keep that generalisation under erasure, even as it excavates other pasts, other knowledge-formations, other social orders, and other sovereignties. Open-plan fieldwork is not about crossing into ‘other’ territories, but rather about identifying the shifting territories and borders that define a field within a play of forces. In open-plan fieldwork, the artist or researcher lets themselves be imagined ‘by and in another culture’ and, importantly, by the alterity of the planet itself. These are the radical tools of critical humanities, of postcolonial and anti-colonial theories, extended to the life-worlds of art and ecology in the contemporary moment.

Central to open-plan fieldwork is the question of collectivity – the question, *How many are we?* Collective identity can no longer be the presumptive base for the political: categories such as the human, women, nature, the third world, and indigenous peoples are not *a priori* foundations, but constituted through the work of summoning the contours of a field, examining its effects in the play of forces and positing a ‘we’ that does the work of prefiguring a tentative aspirational universal. It does so, in Spivak’s view, by supplementing data or knowledge with the poetic, the unverifiable and the prefigurative, rather than the predictive.<sup>[6]</sup> It is in this sense that World of Matter art and media works resist the evidentiary in favour of the unverifiable, of the poetics of traces where ‘*understanding follows no guarantee*’.<sup>[7]</sup> Here, the visual aesthetics of rendering contemporary ecologies evokes residues and

remnants, traces and spectres, in the interests of figuring a space both prior to and at a remove from the logic of globalisation.

Collectivity involves the task of imagining and constructing new gatherings, subterranean relations that were rendered illegible by globalising dynamics, and emergent groupings. Given the undecidability of the subject of humanism brought upon by the collapse of the Modernist distinctions between human and non-human, human and animal, and nature and culture, the urgent question for art’s engagement with ecological life is the very question of who and how many constitute a ‘we’. As a particular collaborative experiment in unpacking the world-making processes of contemporary life, World of Matter poses the question of both the hegemonic structures that have organised life into the categories of nation, globe, culture or race, as well as of the formation of undecidable and expansive collectivities ‘*without prefabricated contents*’.<sup>[8]</sup> This is a question that can be posed both to World of Matter, as a collaborative artistic endeavour, and of its subjects, of the entangled nature-cultures that form the objects of their aesthetic and critical inquiry.

Lonnie van Brummelen and Siebren de Haan’s following text exemplifies this search for collectivity without prefabricated contents. In *Episode of the Sea*, artists and fishermen, who live the unequal and differentiated realities of precarity and austerity in The Netherlands today, engage in a joint effort to make visible both the historical legacies of labour practices embedded in releasing nets and spooling film, and the modes of adaptation to the realities of multinational capital upon their crafts. Such collective endeavours are not built on a pre-existing unity, but draw connections across multiplicities.

In order that open-plan fieldwork not reaffirm a collectivity on the basis of the social – a collectivity that in its Marxian framework has moulded the radical imaginaries of the twentieth-century but has perpetuated the devastating pillaging of resources in the name of progress – it must not simply be continental or worldly, but *other-worldly*, and hence planetary. Ursula Biemann’s following text, intuits planetarity’s alterity in her grappling with the dimensions of geological time present in the phenomenon of climate change. She asks how, given the failures of (social) realism to present the epiphenomenological effects of carbon economies, the constructive work of montage and narration might figure (and indeed prefigure) the collectivities at stake in the environmental changes wrought in the epoch recently named the Anthropocene. *Deep Weather* provides an aesthetic experiment in drawing out connection at the limits of representation, in the material traces that indicate other processes of attachment and mutual interdependence.

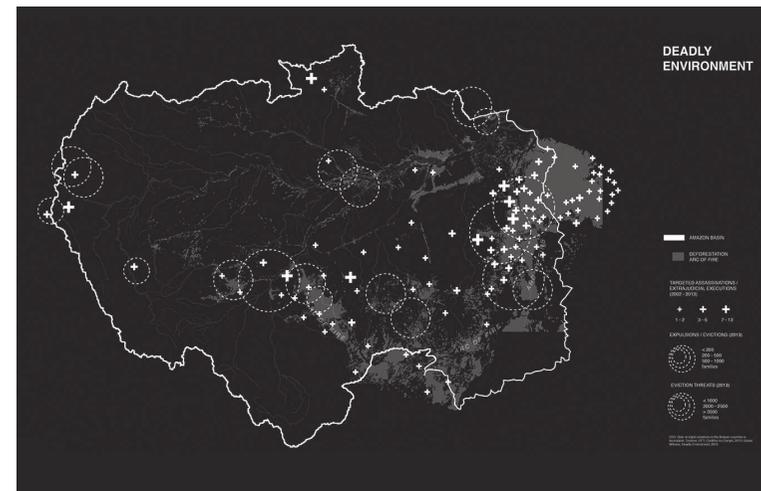
Planetarity is decidedly not evoked in pastoralism, in the temptation of the rural. Such temptations have only served the primitivist impulses of Euro-American imperialism. Planetarity may emerge in the alternate epistemologies of indigenous politics, in pre-capitalist and proto-socialist collectivities, in emergent prefigurative communities and in geological processes that resist our predictive capacities. Planetarity marks nature-cultural systems that may provide the source for a different political space and a different collective imagination. In Spivak's terms, planetarity is the source for 'an ethical instruction that may supplement socialism.'<sup>[9]</sup>

Mabe Bethônico's text demonstrates both the importance of tracing the processes of dispossession over time, and the sites for prefiguring alternative collectivities across historical and social boundaries. On the one hand, her work maps the pervasiveness of mining interests, in the appropriation of territory and – through legal sleights of hand – subsoil, its conjoining of the avarice of gold rushes with the dehumanising violence of the slave-trade and the imperialising actions of settler colonialism. On the other, the work imagines the assemblage of social and agricultural actors at stake in phytoremediation processes, in a reversal of the very extractive impulses of mining.

The texts that follow exemplify the aesthetic and critical practice of several World of Matter members. In keeping with the collaborative nature of the project, the texts should be read together as constituting an assembled vision of the world of matter, rather than distinct artist statements regarding individual works. Doing so allows us to see in the project itself the modelling of a form of open-plan collectivity, and the poetic resonances across the social worlds disclosed there. Instead of the autonomous work of art, these works *work* on each other, encouraging us to think across seed banks and northern fishing communities, Canadian petro-state transformations and the shoring up of a coastal way of life in Bangladesh, the models of labour-time (and the dehumanising force of slavery) put to work in colonial outposts, and their living on in the uneven social texture of contemporary life. Taken collectively, the World of Matter project constitutes an effort to think and visualise across disciplines in the interests of building substantive discursive and figurative grounds for resisting incursions into sovereign land, denials of the rights of nature, and the persistence of dispossession locally and around the globe. World of Matter affirms the role contemporary art and media play in bringing into focus the globalising dynamics of extractive industries, as well as giving voice to a possible planetary politics.

## Colonial Violence and Climate Change

PAULO TAVARES



▲ *Deadly Environment*: Between 2002 and 2013, the decade of the so-called 'commodities super-cycle', at least 448 land rights and nature rights defenders were killed in politically motivated crimes in Brazil, making the giant South American nation the world's deadliest country for environmental activists. 50% of the cases of targeted assassinations and extrajudicial executions were located in Amazonia, and most of the victims were common people who live from the forest and its rivers, particularly indigenous peoples, who are being massacred because of their opposition to neo-colonial land and water grabs.

*As this cartography shows, plotted over a map of the Amazon basin, the geography of political violence overlaps with the region known as the Arc of Fire, where deforestation is massive and the forest environment is currently undergoing a process of 'savannization'. Hundreds of blood stains are marked at the edges between forests and logging areas, cattle farms and plantations, thereby indicating that, in the deep frontiers of Amazonia, human rights violations and ecological devastation are intimately, indeed structurally, articulated, consisting in entangled dimensions of a violent political order.*

*'It is not possible anymore to do politics without taking into consideration the ultimate realm in which every politics take place – the immanence of the earth.'*

EDUARDO VIVEIROS DE CASTRO

#### COLLATERAL MODERNITY

The Earth's geo-historical transition from the Holocene to the Anthropocene – and the production of the environmental conditions that led to this event – are generally attributed to, and analysed in relation with, a process in the history of humanity described as an evolutionary trajectory towards higher stages of civilisation, increasing technological progress, social development, economic growth and material well-being. Most often treated as a naturalised, universal and inherently positive movement, this world revolution is recorded in global statistics that show how the incremental development of human societies is imposing a heavy toll on planetary resources – exponential increase of levels of consumption; escalating demands for energy, food and services; expansion of international communications, mobility and trade etc. – while climate change tends to appear as the inadvertent, collateral by-product of modernisation, an accidental side effect of an inexorable path towards economic, social and cultural improvement pursued by humanity as a whole.

#### DIRECT COLONIALISM

But *'there is no document of civilisation which is not at the same time a document of barbarism'*<sup>[10]</sup> and the indexes that draw the charts of the Anthropocene / post-climate-change-condition of the Earth System must be historically contextualised and spatially situated, framed in relation to the uneven geographies of resource distribution and the architectures of power that have shaped this novel geophysical terrain in multiple and overlapping forms, both materially and ideologically, across the entire left-right political spectrum, and through various fields of knowledge, practices and institutions. For the other side of explosive growth and development – words that define less a natural process in human evolution than the most powerful ideological avatars of capitalism – has been the tremendous concentration of wealth and widening inequality, a pattern that economist Thomas Piketty has recently shown to be increasing, while the massive expansion of exploitation and degradation of the global environment is historically and structurally related to the violent colonial conquest of territories and populations. If the onset of the

Anthropocene occurred in the late eighteenth century, as Paul Crutzen and Eugene Stoermer have proposed, it was as much a product of fossil fuel-enhanced industrialisation and urbanisation in the centres of the Western world as it was the result of the destructive forces of colonialism in its peripheries, whether manifested in the great enclosure of the common lands of the European peasantry, or in the brutal territorial annexations that ravaged the life of indigenous populations throughout the third world.

#### THE GEOLOGICAL RECORD OF COLONIAL VIOLENCE

Recent scientific studies have proposed to set the 'golden spike' of the Anthropocene in early modernity-colonialism, identifying in the collision between the Old and the New World the decisive event that prepared the stage for the Earth's transition to a new geological epoch. The invasion of Amerindia by European settlers led to unprecedented transfers of human populations across the continents, while the formation of a globalised system of trade resulted in the rapid migration and mixing of biota, completely reconfiguring the distribution of species around the world and dramatically altering the dietary balance of large parts of humanity. In parallel, colonial warfare, enslavement, the spreading of diseases and the degradation of habitats caused the mass death of nearly fifty million native Amerindians, and this violent process of extermination, according to the ecologist Simon Lewis and the climate scientist Mark Maslin, is one of the most distinguished anthropogenic signatures on the geological record. As indigenous populations were annihilated, vast tracts of farmlands were retaken by forests, greatly increasing the level of carbon absorbed by vegetation and leading to a sharp drop in greenhouse gases concentration, thus cooling the planet's temperature to a benchmark low-level from which global warming steadily increased during the following 500 years of colonisation. Colonialism thus engendered a *'swift, ongoing, radical reorganisation of life on Earth without geological precedent'* that set the planet onto the path of the Anthropocene and global climate change.<sup>[11]</sup>

## VIOLENCE AS CLIMATE CHANGE

Other studies have proposed to situate the boundary between the Holocene and the Anthropocene in relation to the first nuclear bomb explosions in the mid-1940s and the subsequent increase in the concentration of radioactive elements in the global atmosphere, another event without precedent in the history of human-environment relationships. Within the sciences of the Earth's deep-time, periodisation is a complex and vexed practice, and the precise location of the 'geological threshold' has been the object of contentious and ongoing debates. Nonetheless, rather than search for a single and definitive turning point, arguably the most fundamental aspect revealed by this incipient archaeology of the Anthropocene is the existence of a structural bond between colonisation, the global expansion of capitalism and the making of a new geological order. As a consequence, even if not explicitly visible, these excavations of the Earth's deep history also show that the extreme violence involved in that process, perpetrated in multiple and interrelated forms, has been one of the main human drivers of contemporary climate change. Insofar as humanity has turned into a force of nature, power is one of the most effective vectors by which this force is manifested and deployed, with the conspicuous difference that, as ecologist Simon Lewis argues, *'power is unlike any other force of nature in that it is reflexive, and can be used, withdrawn or modified.'*<sup>[12]</sup>

## Seed Vault: Freezing Life for Doomsday

ELAINE GAN



▲ Right outside the airport in Longyearbyen, we are greeted by a signpost reminding us that we are standing in the northernmost part of the world populated by humans – as well as polar bears. Each sign points out the distance to a major city: Paris 3326 km, Tokyo 6830 km, Oslo 2046 km, London 3043 km, Moscow 2611 km. Photograph – Filippo Bertoni (2015).

In 2006, construction of the Svalbard Global Seed Vault (SGSV) began on Spitsbergen, an island in the arctic archipelago of Norway, about 1300 kilometers from the North Pole. Today, three agencies – Global Crop Diversity Trust (Crop Trust), the Nordic Genetic Resource Centre (NordGen), and the Norwegian government – fund and manage the vault, with a mandate to provide a secure backup for much of the world's plant life by storing its seeds. Built deep into a sandstone mountain, the vault is an arctic haven for genetic resources, currently housing over 860,000 seed accessions and able to contain up to four million. It is a curated modern-day Noah's ark: agricultural research institutes in various places around the world are slowly selecting the most valuable food crops, drying the seeds, sealing them in pocket-sized foil packets, packing them into plastic bins and cardboard boxes, for air shipments addressed to SGSV. Upon arrival at the airport in Longyearbyen, Svalbard's main settlement, these containers are screened for foreign matter, logged into databases, loaded onto vans, and then unloaded and delivered by hand. Inside the vault, they are stacked on metal shelves that are arranged in rows, indexed alphanumerically.

There the seeds wait, induced into a state of incapacity and invisibility, until human error or environmental catastrophe somehow call for their return. This promise of being able to revert over and over again to some level of crop diversity, like programming an ‘undo’ command for the world, seems to spark many passions and critiques around the process. After all, timelines suggest that there is no such thing as being able to ‘undo’.

Now called the Doomsday Seed Vault, SGSV is a curious place – banal and extraordinary at once – an infrastructure of enclosure that freezes change, an icy dead-end that locks out landscape and history in order to rework their future iterations. During a brief visit in March 2015,<sup>[13]</sup> upon which this short essay is based, I wondered how to make sense of the natures and cultures that assemble around the seed vault. How do lively seeds mixed up in dynamic ecologies and co-evolutionary trails come to serve as solitary and remote backups in a race to protect biodiversity against changing climates?

Temperature and heroism are interesting keys to think with.

#### TEMPERATURE

SGSV does not own the seeds it stores and the facility is left unmanned most of the time. It invites institutes to send those deemed most valuable, then stores those selections for free. Institutes with gene banks (such as IRRI Philippines<sup>[14]</sup> and CIMMYT Mexico)<sup>[15]</sup> ship selections taken from existing seed files. Others, particularly smaller ones with limited storage capacities, are planting anew in order to harvest the best grains for safekeeping at the vault. One exception, ICARDA Syria, has been loading plastic bins filled with seeds, presumably the only set, onto outbound planes while war escalates.<sup>[16]</sup>

Dried to 5% of their moisture content, then sealed into packets to keep moisture and air out, the seeds are preserved at a temperature of  $-18^{\circ}\text{C}$ . This reduces the possibility of contamination or adaptation as unruly activities of bacteria and fungi are shut out, and the metabolic, physiological, and behavioural workings of plants are drastically slowed down. Thermometers, sensors, vents, and alarm systems stand as wired sentinels for a ‘frozen Garden of Eden’.<sup>[17]</sup> Housed at  $-18^{\circ}\text{C}$ , the genetic resources contained in seeds may remain useful for crop breeding and production for a few hundred years. And should the human-made freezing and monitoring technologies fail, the permafrost or cryotic soil of Svalbard itself provides the next

layer of backup. Thus, by tinkering with temperature, by keeping it constant every minute of every day, the seed vault creates an artificial time lag, an extended delay through which modern science and industry might learn to catch up with the speed of environmental changes that they had previously, perhaps inadvertently, triggered. But, can the world be programmed for ‘undo’?

#### HEROISM

The homepage for the website of Global Crop Diversity Trust describes it as ‘an international organisation working to safeguard crop diversity, forever’.<sup>[18]</sup> Indeed, there are many figures inside the stories of SGSV that become heroic because they are warriors fighting against environmental crisis, or guardians protecting peace and plenty. There are the states and trans-governmental agencies made visible through money or branding or international treaty (e.g., Norway, NordGen, Crop Trust); the less visible yet powerful postcolonial institutions (e.g., IRRI and CIMMYT); the individuals with self-sacrificing dreams and missionary quests (e.g., Cary Fowler, the American administrator and spokesperson for Crop Trust, or Nikolai Vavilov, the Soviet botanist who embarked on large-scale collecting expeditions in the early 20th century); the seeds of plants like *Oryza sativa*, or rice varieties whose genes might help feed growing populations at risk; and most recently, the seeds of trees like *Picea abies*, or Norway spruce whose genes might help monitor long-term changes to forest composition. What is at stake is the ability to reproduce food supply and sustain economic growth indefinitely. Heroic acts are those that conjure ‘forever’, those that might access and database future sources of wealth.

But what of other acts that are harder to figure out because they make worlds differently? For example, those that work the fields and select the best grains after harvest (mostly done by women); those that enrich nutrient cycles and enact co-ordinations (e.g., fungi, algae); those that carry and pollinate others without prescribing subordination or delineating property (e.g., rain, wind, soil, insects); perhaps those that simply choose *not* to reproduce more babies (e.g., *Oryza rufipogon*, Donna Haraway) or those that insist on *not* freezing seeds in this vault at all (e.g., Navdanya). These heroisms are far from ordinary and do not depend on promises of salvation or conquest, promises that often depend on first, freezing life and alienating seeds.

Here, outside the vault, there is neither ‘undo’ nor ‘forever’.

## Episode of the Sea

LONNIE VAN BRUMMELEN AND SIEBREN DE HAAN

When a regional art museum invited us to engage in an artistic inquiry among the fishing community of Urk, we seized upon the opportunity to find out more about the agency of non-human actors. After all, who could be more accustomed to instability and things that retreat in their own world than fishermen who, generation upon generation, confidently let their nets down from the sea's restless surface into unknown depths? We visited Urk for the first time in spring 2011. The Dutch government had just announced a stiff package of budget cuts for cultural spending, and cultural producers were cast as scroungers for relying on subsidies. When we introduced ourselves as artists to a group of fishermen, we therefore discreetly added that the reputation of our sector had recently suffered some damage. The fishermen nodded that for them too the days when they were 'heroes of the sea' were long gone; nowadays, they were seen as pirates fishing the world's oceans dry. This is how our collaboration began.

From media accounts, we knew the fishing village as a deeply religious community, where the order of things from the 1950s had been faithfully conserved. Yet during our fieldwork, we encountered a more ambivalent Urk. Certainly, on Sundays the churches were filled and the ring of the Old Testament language suggested that indeed we were in a town where time had stood still. But the Urkers were also an entrepreneurial lot, worldly and inventive. When the European Community introduced fishing rights to protect local fish stocks, the commission also used the new system to redistribute fisheries. The Urkers received only a small proportion of fishing rights, forcing them to decrease their catch by half. To extend their share, they purchased Danish, Belgian, German and English fishing ships, because buying a foreign ship included the fishing quota allotted to it. Local family firms had thus become multinational businesses, and their catch was distributed to the furthest reaches of the world. The fishing community was also ahead of the curve in experimenting with novel techniques that do less damage to the sea soils, bring down fuel usage and decrease toxic exhaust fumes. They were even testing out on-board anaesthesia to reduce unnecessary suffering of the fish when they gutted them alive.

Having experienced in the past how their words had been cut loose and rearranged by reporters to illustrate preconceived ideas, the Urkers were suspicious of regular media. We therefore looked for image-making methods in which the inhabitants could participate. We proposed that the fishermen present their concerns

in dialogues that were scripted in advance. We drafted a first script, which was then re-appropriated by the inhabitants. On Saturdays, we filmed their recitations, performed on the ships, the quays and the former sea soil; during the week we visited the fish factories, the auction house, the wharfs and the docks, both when work was being carried out and when they were deserted.



▲  
*Episode of the Sea* – Van Brummelen and de Haan in collaboration with the inhabitants of Urk, film still (2014).

Occasionally we were invited, with our instruments, to join the fishermen at sea. Then, we adopted their rhythm of two hours of work followed by a short nap, and witnessed the endless flow of struggling fish gasping for water, gutted one by one with the flick of a knife. When we asked the fishermen about this cruel aspect of their practice, they explained that this was what they had been taught by their fathers, who had in turn been taught by their fathers. In return, they asked us why we were so attached to our obsolete 35mm camera, which had to be reloaded every four minutes. And just like them, we invoked our forefathers to explain ourselves and told them about Robert Flaherty's *ethnofiction*, Luchino Visconti's *neorealism*, Jean Rouch's *participatory cinema*, and Danièle Huillet and Jean-Marie Straub's *materialist cinema*.<sup>[19]</sup>

To allow the fishermen to tell their own story, we had entered into a co-authorship with them; somehow throughout this process other authors also silently slipped in. The work programme of the fishermen was largely determined by the migration of the fish, the direction and force of the wind, the customs passed on by ancestors, and their faith. In addition to these forces, other dominant players had entered into the field, such as the massive imports of fish farmed in Asia, the hike in oil prices and the filling up of warehouses. The film *Episode of the Sea* attempts to put into images this paradoxical world that draws its rhythm from ancestors, religion and the cycles of nature, but is equally overwhelmed by a market pragmatics. Throughout, parallels emerge between the practices of fishing and filming.

### Deep Weather: The Audiovisual Text in Times of Global Warming

URSULA BIEMANN

As we scoop out fossil and mineral matters from deep geological strata into the daylight and out into the atmosphere, climate change makes us think in deep time. In this short text about the shortest of my video essays, I will address the long temporalities of the planetary scale that *Deep Weather* (2013) evokes. The video does this by depicting two remote sceneries: first, the aerial images of the extraction sites of heavy tar sands in Northern Canada and second, a delta community in Bangladesh stemming the rising sea levels.

The contradiction inherent in tackling dimensions of geological time by means of a medium universally used for instant video messages and breaking news clips is one of the troubling conditions of our contemporary moment. The short-paced social and journalistic video practices engulf us in an image world that is instantly in the making. Slow and subtle processes do not register. Yet climate change has evolved in a creeping temporality. Timothy Morton defines global warming as a ‘hyperobject’,<sup>[20]</sup> imperceptible as a whole yet legible through the many imprints it leaves behind. In phasing in and out of human timeframes, global warming appears eclipsed from our field of visibility. The claim for authenticity is challenged by the difficulty of precisely localising causal effects. In the absence of mental tools that would truly make us comprehend these invisible forces and extra large timeframes, global warming is commonly rendered by scientists in time-lapse sequences, a mode of imaging that translates slow and hardly noticeable processes for reception by the metropolitan mind always pressed for time. The advantage of this technical type of

image encoding is that it makes a threatening reality look technically containable. In their bewildering beauty, the fast motion visualisations of gathering storms or melting ice keep us at a safe distance from any visceral and bodily experience of climate impacts. At the other aesthetic extreme we encounter the sad lingering images of destroyed landscapes and flushed away neighbourhoods of a bad social realist variety.

This made me think about how realism would have to be redefined in times of global warming: the shift from modern to postmodern – and Fordist to post-Fordist – capitalism has transformed the central realist figure of the worker’s body into that of the migrant’s body. One could conceivably turn now to the citizen confronting natural disasters, like the Bangladeshi communities in *Deep Weather* who are building mud embankments in large-scale social actions. To be sure, this new figure effectively embodies the uneven geographies of global warming as a subject of climate justice; but this shift in focus cannot respond fully to the issue at hand, for it would remain firmly within human-centric regimes of representation. A more fundamental question needs to be asked, namely – what realism do we want to construct now that the human is decentred from its privileged position and the social no longer the prime subject of reference? In this post-humanist realism, what relationship do we want to build between the audiovisual text and the transforming physical world?

Unlike a natural realism that wants to be a direct imprint of the world, this realism entails a process of construction. Neither a utopia nor a simple projection into the future, this constructive endeavour articulates localised realities with the Earth system in a cosmopolitical motivation to build a common sphere. I’m with Isabelle Stengers and Bruno Latour here who assert that this cosmos, this common world, is not already existing but in need of being fabricated.<sup>[21]</sup> Beyond the complexity of a global social and economic reorganisation, this realist project attends to the scale of intra-biospheric dynamics. In many cases, this process moves along the outer rim of representability.

Resource extraction generates a two-directional movement. Fossil and mineral materials, in order that they be converted into exchangeable commodities, are stripped of the context within which they occur both in terms of their social histories of labour and displacement, and their natural histories of local ecologies and consumed landscapes. They experience the homogenising time of commodity exchange. Hence, to tie the materials back to their multiple histories and reveal the intractable character of raw materials is an effective aesthetic intervention in these trends. Moreover, *Deep Weather* turns to a second dynamic that is playing out not at

the extractive but the exhaustive end of fossil fuel production, that part which goes up into air at the short moment of consumption and that creates a lasting if undesirable future on its own. The view abruptly jumps from the tar sands to Bangladesh. There, the rising sea level and progressively violent cyclones demand of delta communities the hard manual labour of building protective infrastructures.



▲ Flying over the Canadian tar sands and Suncor processing plant near Fort McMurray, Alberta, video still from *Deep Weather* (2013).

We cannot represent climate change, but we can read it videographically through such sceneries. The crucial gesture here is to link the two remote sites through the atmosphere that is driving greenhouse gases around the planet. The disaster is in the sky, dwelling in the copper clouds before dissipating into invisibility. Along with Elisabeth Grosz, I would ask: *'How does the work of art bring about sensations, not sensations of what we know and recognise, but of what is unknown, unexperienced, traces not of the past but of the future, not of the human and its recognised features, but of the inhuman?'*<sup>221</sup> In *Deep Weather*, it is the voice-over that draws the otherwise invisible causal connection between the sites of extraction and the effects of exhaustion; a whispered voice breathing the narrative scraps into the air, intimate and visceral, diffusing with the atmospheric chemistry. The open questions documentary viewers might have about labour conditions or social realities of First Nation communities in Alberta, or populations in the Ganges delta remain unanswered. The vistas on these vast construction scenes are just that, sites of global warming at the far ends

of a planetary relation. *Deep Weather* aspires to the recalibration of our sense of cause and temporalities in view of attuning to such remote causalities. For what becomes increasingly evident is that the passage from a diffuse soft cause to hard consequences is what defines the contemporary planetary condition.

### Closer than Cafundó

MABE BETHÔNICO

Until the seventeenth century, Tupi was the most commonly spoken language in Brazil. Itabira, Sabará, Itabirito, Itaúna, Caeté, Itatiaiuçu are Tupi-derived names of mining cities in the state of Minas Gerais. *Itabira* means shining stone. *Itaúna* stands for dark stone. *Sabará* means large shining rock, denoting a mythical mountain of emeralds that led many to leave the coast and venture into Brazil's interior.

The exploration of the Brazilian inland in the sixteenth century was driven by a quest for gold, precious stones and indigenous slaves. Lands were soon occupied. While indigenous rights were later established by the administration, they were never respected, and entire indigenous communities were decimated. Indigenous peoples did not follow the logic of private ownership. For them, land was fundamental; it was perceived as an extension of the body, rather than a neutral, disconnected or exchangeable element. Their relation to land was defined by a sense of communal property, rather than individual possession. Land is a trace belonging to an ancestral history, which is constantly re-appropriated – a past that is fundamental to the meaning of life.

Today, the occupation of indigenous lands for the illegal exploitation of natural resources affects almost every indigenous community in the country. The Brazilian Federal Constitution guarantees indigenous peoples permanent ownership of the lands they have traditionally occupied and the right to exclusive usage of their resources, but these rights are in conflict with other laws that regulate ownership of the subsoil. All mineral ore contained in the subsoil is federal property, considered strategic to national development.

According to current legislation, mining ventures involve three protagonists, each with distinct interests: the government, the legal landowner, and the land use concession holder, for instance a multinational mining company. In this configuration, the government represents the people, while at the same time taking a position in favour of its own economic development. Landowners are thus not allowed to

obstruct operations carried out on their property. For the purpose of mining, they can even be expropriated. Mining interests also potentially threaten zones protected by the government. This is the case for areas that benefitted from agrarian reform: traditional populations such as indigenous communities, *quilombolas* (lands which were handed down by former slaves) and areas of environmental conservation.

During the gold rush, large numbers of African slaves were brought in while the indigenous population was decimated. The gold rush in fact represented the first mass migration in Brazilian demographic history. Between 1700 and 1760, nearly one million African slaves were shipped to Brazil, mostly destined for the gold mines. The majority of the migrants to Minas Gerais originated from the Slave Coast in West Africa. A large number of them were experienced miners, with knowledge of gold and silver; they were the *negros mina*. They helped to locate deposits and develop mining in Brazil. But as the death rate among slaves was high, the European population predominated for some time. The life expectancy of a slave working in a mine was seven years. It thus became necessary to continuously import more slaves, who eventually constituted the majority in Minas Gerais in the eighteenth century.

Hunger, abuse, and horrible working conditions caused uprisings and escapes. Slaves tried to carve out spaces of autonomy through negotiation or rebellion, individually or collectively. Among various forms of resistance were runaway slave communities known as *quilombos*. They formed alternative societies in the forests and mountains in the heartland. With the end of slavery, these groups dispersed throughout the state and advanced to remote places where they invented ways of survival. There were over one hundred such communities spread across Minas Gerais.

It wasn't until 1988, after the end of the military dictatorship, that the Brazilian Constitution recognised the rights of the *quilombolas* over their lands. Yet many *quilombos* in the country today still await recognition of their property rights. They live in insecurity as their traditional lands are disappearing under the combined pressure of mineral exploitation, agri-business, and urban expansion. Mining compromises their survival, either directly through land usage rights, or indirectly by compromising food and water sources.

In an effort to decrease the environmental effects of mining, recent research has pointed to the alternatives of phytomining and phytoremediation, methods that use plants to extract, absorb or recompose minerals. Certain plants have the capacity to absorb large quantities of certain minerals that make them economically and environmentally valuable. With phytomining, the plants are harvested and burnt in order to extract their metal elements. This practice is much less damaging than

traditional mining, but it is not widely used in Brazil. Phytoremediation, on the other hand, implies the use of bio-accumulating plants to restore degraded areas by re-vegetating the topsoil.

So far, the use of plants in association with mining lies in the extraction of minerals and the recuperation of land in a post-mining phase. But phytomining could be used for human food production. Plants could be grown in areas of former iron ore mining, where metallic residues would potentially enrich and mineralise human alimentation.

Some iron ore pits are surrounded by water sprinklers that keep the dust clouds from flying to the city. This water could be used to irrigate the plantation, turning the borders of the mines into veritable fields of experimentation. The focus here is not on the experiment with iron extraction, but rather, on the enrichment of one of the most important food components for Brazilians; the bean. This speculative project considers how bean cultures could bring agriculture back to former mining areas, gleaming the subsoil for iron residues. For this to happen, mining companies would have to re-convert their idle industrial sites into community space.



▲ Bank of soils from Minas Gerais in the Federal University of Viçosa. Samples extracted from many regions form a map of the state.

The first part of the project *Boca da Mina (Mine Mouth)* consists of tracing the history of the interrelation between mining, populations, and the culture of plants and foods. The second part will engage with phytoremediation studies, proposing food types to be used along other more traditional species for reconditioning the soils in post iron mining areas. A team from the Federal University of Viçosa, Minas Gerais is engaging with this experiment. We realise the companies prefer to close down and isolate the sites after exploration, denying any further use after the re-vegetation imposed by law, but part of the project is to present different alternatives to this confinement.

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- 1 / I became involved in World of Matter through a collaborative exhibition and symposium, held at Concordia University in Montreal, Canada from February through April 2015. The exhibition, *World of Matter: Exposing Resource Ecologies*, and a two-day symposium entitled *World of Matter: Extractive Ecologies and Unceded Terrains* brought the World of Matter practice and concerns into conversation with a range of artists, activists and scholars working largely in the North American context, extending and refracting World of Matter in different context and with new interlocutors – <http://events.worldofmatter.net>
  - 2 / Spivak, Gayatri Chakravorty. *Death of a Discipline* (New York: Columbia University Press, 2003), p. 102.
  - 3 / Coulthard, Glen. *Red Skin, White Masks: Rejecting the Colonial Politics of Recognition* (Minneapolis: University of Minnesota Press, 2014), p. 37 – 38.
  - 4 / Ibid. Spivak (2003), p. 72.
  - 5 / Ibid. Spivak (2003), p. 36.
  - 6 / Ibid. Spivak (2003), p. 44.
  - 7 / Spivak, Gayatri Chakravorty. *An Aesthetic Education in the Era of Globalization* (Cambridge: Harvard University Press, 2012), p. 493.
  - 8 / Ibid. Spivak (2003), p. 26.
  - 9 / Ibid. Spivak (2003), p. 93.
  - 10 / From part VII of, Benjamin, Walter. *Theses on the Philosophy of History*, 1940.
  - 11 / Lewis, Simon L. and Mark A. Maslin. 'Defining the Anthropocene', in *Nature* 519, p. 171 – 180 (12 March 2015).
  - 12 / Biello, David. 'Mass Deaths in Americas Start New CO2 Epoch', in *Scientific American* (11 March 2015) – <http://www.scientificamerican.com/article/mass-deaths-in-americas-start-new-co2-epoch>

- 13 / Acknowledgements: My thanks to Aarhus University Research on the Anthropocene (AURA) who funded my visit to the seed vault, to Filippo Bertoni and Pierre du Plessis, with whom I embarked on collaborative field research in Svalbard, and to Tahani Nadim and Åsa Sonjasdotter, who assembled an arts and science studies workshop at the Museum für Naturkunde in Berlin, for which I first drafted these ideas in March 2015.
- 14 / The process at IRRRI Philippines is shown here – <https://www.youtube.com/watch?v=icjptLjIKx8> (accessed 29 March 2015).
- 15 / The process at CIMMYT Mexico is described here – <http://blog.cimmyt.org/cimmyt-seed-heads-to-the-frozen-north> (accessed 29 March 2015).
- 16 / The ICARDA seeds are not backups; they may very well be what remains of centuries of agriculture. ICARDA online press release describes 'cereals, legumes, and forages collected from regions in the world where the earliest known crop domestication practices were recorded in civilisation, such as the Fertile Crescent in Western Asia, the Abyssinian highlands in Ethiopia and the Nile Valley, and the Central Asia and Caucasus region.' – <http://www.icarda.org/press-release-world-heritage-seed-collection-makes-its-way-syria-svalbard> (accessed 1 April 2015).
- 17 / There are many biblical references in discourses around environmental change and particularly around SGSV. This one is from a documentary titled *Seeds of Time* directed by Sandy McLeod, released in May 2015 – <http://www.seedsoftimemovie.com> (accessed 1 April 2015).
- 18 / <https://www.croptrust.org> (accessed 30 March 2015).
- 19 / We gave a film workshop in Urk during which we showed film fragments of *Man of Aran* (1934) and *Nanook of the North* (1922) by Robert Flaherty; Luchino Visconti's *La Terra Trema* (1948); Jean Rouch and Edgar Morin's *Chronique d'un été* (1960); and of Danièle Huillet and Jean-Marie Straub's *Klassenverhältnisse* (1984).
- 20 / Morton, Timothy. *Hyperobjects: Philosophy and Ecology after the End of the World* (Minnesota: University of Minnesota Press, 2013), p. 3.
- 21 / Stengers, Isabelle. 'The Cosmopolitical Proposal', in Latour, Bruno and Peter Weibel eds. *Making Things Public: Atmospheres of Democracy* (Cambridge: MIT Press, 2005).
- 22 / Grosz, Elisabeth. *Chaos, Territory, Art: Deleuze and the Framing of the Earth* (New York: Columbia University Press, 2008), p. 60.