

THE DISTANCE PLAN # 4

IMAGES OF AN EVERYDAY PROBLEM – Michala Paludan

Lina Moe on THE CLOSURE OF NEW YORK'S L LINE

A YEAR, A PLACE, A SEASON, THE WEATHER – Louise Menzies

CLIMATE CHANGE & ART: A LEXICON

ATMOSPHERE AS 'AER NULLIUS' • BRUTE FORCE INFRASTRUCTURE
• CLIMATE DEBT • CLIMATE HOSTAGE • CLIMATE RESEARCH
SOLIDARITY • CITIZEN SCIENCE • DENIHILISM • THE DIRTY CLOUD
• EMPTY ANIMATION • ELONGATED GOVERNANCE •
ECOLOGY-AS-INTERSECTIONALITY • ECOCRITICISM • THE FUCK LYCRA
CONUNDRUM • FIRST PERSON CLIMATE KNOWLEDGE • GENDERED
CLIMATE IMPACT • HUMAN RAIN • HINKLEY FOLLY • INTIMATION OF
TRAUMA • INDOOR ATMOSPHERE • INNER TRANSFORMATION •
INSURRECTIONARY AGRICULTURAL MILIEUX • JUNKSPACE • KERMADECIAN
• LIVING BORDERS • MAPPING AS DIFFERENTIAL • MOUNDING • OCEAN
INFLAMMATION • ORDINARY KNOWLEDGE • PRECAUTIONARY
PRINCIPLE • PLANETARY SKIN • PROTEST AS CELEBRATION • SITES
OF SIGNIFICANCE • SOCIAL TIPPING POINTS • TRAGIC TRIUMPH •
TIME OF USEFUL CONSCIOUSNESS • VERY-LONG-BASELINE INTERFEROMETRY

Aslak Aamot Kjærulff • Laura Adler • Ralph Chapman •
Thomas Bruhn • James Dann • T.J. Demos • Elizabeth Ellwood
• Bianca Hester • Bernd Hezel • Philippa Howden-Chapman •
Michael Leung • Edward Morris • Gregory O'Brien
• Janine Randerson • The Research Center for Proxy Politics •
Susannah Saylor • Birgit Schneider • Manuel Schwab • Anna Taylor
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VOCABULARY & INFRASTRUCTURE IN THE PRESENT TENSE
AN EDITORIAL: Amy Howden-Chapman & Abby Cunnane

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VOCABULARY & INFRASTRUCTURE IN THE PRESENT TENSE

AN EDITORIAL IN 3 PARTS

Amy Howden-Chapman
& Abby Cunnane

PART 1

EVOLVING VOCABULARY
Amy Howden-Chapman

This issue surveys the language currently surrounding anthropogenic climate change. Cataloguing this cultural conversation, *The Distance Plan* positions the arts as having a critical role in responding to this issue. Through proposing neologisms and promoting less well-known terms, we wish to propel interdisciplinary discussion, and by extension accelerate the pace of action.

Art & Climate Change: A Lexicon also draws attention to the multifarious realms that climate change currently, and increasingly, affects. Discussions around the impact of new technologies, the refugee crisis, materialist feminisms, decolonisation, and the financialisation of lifestyle are already occurring within the arts. We assert that climate change is relevant to these exchanges, and seek to connect these by working with contributors from a range of fields. While our primary domain is the visual arts, this lexicon has been developed by other artists and curators, as well as by friends and colleagues who are earth scientists, physicists and conservation biologists, public policy experts working on transport and housing, writers, academics working in economics, sociology, public health, english literature, media studies, international relations, international aid and those working in grassroots political organisation.

Through this lexicon, we propose that the science around climate change is developing so rapidly that we need new language to articulate its processes and effects.¹ The lexicon is also based on the recognition that evolving science produces evolving policy, and politics must be commensurate with this. Writer Margaret Atwood has suggested that, given the scope of our new situation, *everything change* is perhaps a more appropriate term than *climate change*.

“The history of science is the history of progressive clarifications” writes physicist Carlo Rovelli.² Translating scientific knowledge into popular cultural understanding is always complex. As the science of anthropogenic global warming evolves, the ‘truths’ about climate change can never be more than

¹ The naming of our current era as the Anthropocene is the most prominent example of such recategorisation. This act, though scientifically descriptive is politically problematic. See: Capitalocene.

² ‘How should we perceive reality?: Host Tom Standage sits down with renowned physicist Carlo Rovelli,’ *The Economist*, 7 October 2016, www.economist.com.

temporary; as writer Margaret Boysen proposes: “Global warming is an open process which is co-determined each and every day by the behaviour of human[sic]kind.”³ The question becomes how to build political consensus on a shifting terrain.

The usual scientific process of developing hypotheses which are then tested cannot fully apply in the case of the climate system, as we are running out of time. Instead, scientists must model projections of the trajectories which this great collective ‘experiment’ might take. But the natural uncertainty that exists in any model cannot be an excuse for inaction. An analogy (only in the sense that both are complex models) can be seen in the global financial industry which is another inherently interconnected elaborate dynamic globalised system. Yet uncertainty within the financial industry is seldom met with stasis; rather, the drive for profits prompts continued action, often with dangerous speed – think flash crash. The discrepancy between these two complex systems has become the tension of our time, the disconnect between reality and the orthodoxy that ‘the market responds’. As far as the commons are concerned, the response from the market has been slow to the point of negligible. This is especially true for our treatment of the atmosphere, our most resplendent and precious common resource.

This tension is encapsulated in the research of Jonathan F. Donges, a physicist working at the Potsdam Institute for Climate Impact Research. In the past, Donges has modelled climate earth systems. Currently, he is working to model the effects of disinvestment⁴ as part of a broad project analysing the most critical social tipping points that need to be reached in order for our current society to transform to carbon neutrality.

In considering how vocabulary limits and motivates political action, we draw on George Lakoff’s ideas about framing,⁵ and feminist critiques locating language as a site of power – including the work of Robin Lakoff, who asserted that “hedges such as *sort of*, *kind of*, and *I guess*; intensifiers such as *so* and *very*; and hypercorrect, polite linguistic forms ...suggest[s] that the association of indirect speech with women’s language and direct speech with men’s language is the linguistic reflection of a larger cultural imbalance between the sexes.”⁶ Recent developments in gender studies illustrate how both categories and terminology shape cultural norms and personal behaviour.

The cultural mechanisms through which language exerts power are seen in the history of environmentalism which provides a salient example of a powerful term – ‘nuclear winter’ – which helped galvanise public opinion around nuclear disarmament.

3 Margaret Boysen, *Alice, the Zeta Cat and Climate Change* (Berlin: Edition Rugerup, 2016), 7.

4 Recent divestment action by groups such as 350.org and The Guardian Keep It In The Ground campaign called for pension funds and other organisations such as the Gates Foundation to divest from fossil fuels. In June 2015 Norway confirmed that it would divestment from coal in its \$900billion Sovereign Wealth Fund.

5 George Lakoff 2010, ‘Why it matters how we frame the environment’, *Environmental Communication*, vol. 4, no.1, (2010),70-81.

6 Hall has noted the contested nature of this analysis by feminist scholars, with some claiming that “Lakoff’s identification of women’s language as cultural subordinate serves to affirm sexist notions of women as deviant and deficient.” Kira Hall, ‘Lip Service on the Fantasy Lines’, Kira Hall and Mary Bucholtz (eds.), *Gender Articulated: Language and the Socially Constructed Self* (New York and London: Routledge, 1995), 183-216.

7 Naomi Oreskes and Erik M. Conway, *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming* (London: Bloomsbury Press, 2011), 48.

*Using publicly available information on the effects of nuclear weapons and computer models of nuclear warfare, the NASA-Ames group investigated how nuclear exchanges of one hundred to five thousand megatons might affect global temperatures. (For comparison, the Mt. St Helens eruption was equivalent to ten megatons.) Their model suggested that even the smallest nuclear exchange could send the Earth into a deep freeze: surface temperatures might fall below freezing even in summer. Larger exchanges could produce near-total darkness for many months. The winter hypothesis had been born, but it could equally well have been called nuclear night. After even a modest nuclear exchange, we would indeed freeze in the dark.*⁷

The phrase *nuclear winter* was fought for by environmentalists, whose models were challenged by a nuclear industry which claimed incorrectly that *nuclear spring* might be just as likely a scenario. The subsequent debate over the term *nuclear winter* foreshadowed continuing manoeuvres by industry to confuse public understanding of the environmental issues. Doubt rather than denial was seen as enough to forestall effective regulative action and maintain profits within the fossil fuel industry.

The terms in this latest lexicon fit into four broad themes: modes of researching and imagining; embodied and daily experience of climate change; social jurisdictions; and infrastructure and adaptation. Lexicon terms in the first category include *Ocean Inflammation*, *Human Rain*, *The Precautionary Principle*, *Climate Research Solidarity*, *Very-long-baseline Interferometry* and *Ecocriticism*.

The lexicon terms that fall into category of embodied and daily experience of climate change include *Protest as Celebration*, *Citizen Science*, *Gendered Climate Impact*, *The Fuck Lycra Conundrum*, *First Person Climate Knowledge* and *Ordinary Knowledge*. These ideas are extended through artists’ pages by Louise Menzies and Michala Paludan.

While an intention at the core of the lexicon is to expand the articulation of and precision of meaning around climate change, we acknowledge that language is only one of many tools available to artists. The Distance Plan also aims to contribute to the diversity of images used in discussing climate change.

Accordingly, photographs by Michala Paludan are interspersed throughout the lexicon. From a series titled *Kalliope*, *Kleio*, *Erato*, *Euterpe*, *Melpomene*, *Polyhymnia*, *Terpsichore*, *Thaleia* and *Urania* (2015 –), these images are part of a larger project about gender in the art world. As portraits of the hands of

artists who are both friends and colleagues of Paludan, the photographs initiate questions of intimacy and labour. In this context they become an invitation to consider climate change as within our everyday actions; not dislocated in space and time but embodied in our ordinary activities, exchanges and social relationships.⁸

In these images Paludan captures the range and forms of labour required of an artist, an occupation that has long been economically precarious and required entrepreneurial inclination. As employment becomes increasingly casualised and workers' protections are undermined, such strategic adaptability, including the trading of social capital (think Instagram followers and Airbnb and customer service ratings) is – regrettably – increasingly necessary for many contemporary workers within a capitalist infrastructure. Paludan presents us with hands engaged in the daily tasks of writing, recording, travelling and child care. As noted in our previous editorial, theorist Nancy Fraser has characterised reproduction, ecology and political power as the three necessary background conditions for “capitalism’s economic front-story, stressing their functionality for commodity production, labour exploitation and capital accumulation.”⁹

Louise Menzies' project in the journal is also an exercise in imagining climate change as a material thing. Her invitation for us to drink A Year, A Place, A Season, The Weather, is presented here alongside collected ephemera showing weather data and the harvesting of grapes. Menzies year of choice is 1960, and the place is West Auckland, New Zealand. Specifically, a bottle of Mazuran's vintage port becomes the object with which to literally imbibe history, through the distinct natural conditions of the sun, wind, rain and soil that the bottle's contents captures. The weather pages featured here forecasts the future, after the fact, and as we attempt to imagine the atmospheric conditions of previous time, the alcohol enters our bodies, already mingling past with present.

Menzies is interested in how weather is conceptualised and visualised, both in popular exchange and mass media. Weather is the part of climate that is embedded and personalised, and as extreme weather events become more frequent, so will the conversation around its place in our culture. In New Zealand the weather is discussed constantly, reflecting New Zealand's geographic situation as a small landmass amid a large ocean, with uncertain weather patterns. This obsession is also a vestige of New Zealand's agricultural past.

⁸ This process could be read as aligned with what art historian Carrie Lambert-Beatty has described as *parafiction*, defined as artistic reality experiments which encourage viewers to “practice a range of belief states the way musicians practice scales.” We see Paludan's images as a means to practise the linking of daily activities with the concept and actuality of climate change.

⁹ Nancy Fraser, ‘Behind Marx's Hidden Abode: For an Expanded Conception of Capitalism’, *New Left Review* 86, March/April 2014, 69.

PART 2

GOVERNANCE REFRAMED, INFRASTRUCTURE REPLANNED: A SHARED FUTURE OF ABUNDANCE?

Amy Howden-Chapman

A promotional video on the website of a food replacement product asks: “What is Soylent?” Peppy music plays and a friendly voice states: “Widespread use of Soylent could drastically reduce the ecological impact of food production and encourage a shared future of abundance.” The idea that food developed from algae in vats could be palatable, even desirable, was in the recent past a strange notion. At our current moment, we need to discover how quickly social norms can evolve, and whether it is still possible that we can develop a *shared future of abundance*.

It is clear that our shared future will have to be developed and promoted by more than a ‘disruptive’ tech company such as Soylent. It will require change in a broad range of social domains. Such change is captured in lexicon terms such as *Elongated Governance*, *Climate Hostage*, *Living Borders*, *Social Tipping Points*, *Climate Debt*, *Atmosphere as ‘Aer Nullius’*, *Time of Useful Consciousness* and *Denihilism*. These terms explore mechanisms that mobilise against climate change action, consider the very tight time-frame in which we have to enact change, and ask who has power within these processes.

A final category of lexicon terms related to infrastructure and adaptation includes concepts such as *Brute Force Infrastructure*, *The Dirty Cloud*, *Insurrectionary Agricultural Milieux*, *Indoor Atmosphere*, *Mounding*, and *Hinkley Folly*. These terms interrogate the major infrastructural forms of the present, from energy generation to digital frameworks. This category was also investigated in an exhibition in June 2016 at Human Resources Gallery in Los Angeles titled *Climate & Infrastructure*. This included an essay by Lina Moe which is reprinted in this issue. The essay gives historical context to the closure of New York City's L Train for post-Sandy repairs. The line's closure is an example of the increasing vulnerability of civic infrastructure, and Moe asks if retreat, rather than rebuilding, should be the goal, concluding that ‘rebuilding’ directly reflects the present state of denial about our growing environmental precarity.

Moe's essay is a timely case study of how the soft infrastructure of institutions responds to the effects of climate change on hard infrastructure. The L's closure raises question of how inclusion, equity, and efficiency play out within the community and civic institutions of New York City.

In the coming years, urban population growth will require cities to expand while at the same time they will have to be retro-fitted to reduce carbon emissions and rebuilt following the increase in extreme weather events and sea levels. During these processes, citizens will expect that quality of life is maintained, defined by notions such as “self-efficacy, identity, solidarity, a sense of belonging, trust and social networks.”¹⁰ It is vital we acknowledge who is part of the current conversation around climate change. Who is missing? Whose voices are being listened to, and who is being ignored? I will discuss these questions and how they intersect with the notion of infrastructure and adaptation in more detail below.

In his recent work *Decolonizing Nature*, T.J. Demos asserts:

*My analysis of art and environment extends from the view that climate change is first and foremost a political crisis, not one that poses insurmountable technological problems or natural barriers... we cannot address climate justice adequately without also targeting the corruption of democratic practice by corporate lobbying, or the underfunding and failure of public transport systems, or indigenous rights violations by industrial extractivism, or police violence and the militarization of borders. For these areas all link up in one way or another as interconnected strands of political ecology.*¹¹

Following Demos, forms of governance that privilege political inclusion become key. We must stop asking the question ‘How do we *make* people care about climate change?’ And start supporting processes which recognise a universality of ‘care’ already exists. Even ‘deniers’ care about the stability of their communities. Climate change is often talked about as a problem of educating people. Naomi Klein has however noted that “As a person who is very involved in the climate movement, [I notice] that the climate movement is not listening enough to the people who are most impacted by climate change and other ecological stresses.”¹²

As a climate justice movement, we need to pay closer attention to how diverse realities are represented in the social and physical infrastructure of our societies. We need to acknowledge that political agency cannot exist without economic inclusion.

The current American presidential election illustrates this point. Kenneth Bone, a mustached red-sweatshirt-wearing undecided voter asked in the second presidential debate: “What steps will your energy policy take to meet our energy needs while at the same time remaining environmentally friendly and minimizing job layoffs?”¹³ Coming from a 34-year-old operator at a coal plant in Illinois, Bone’s question was personal, but also acknowledged the collective. By thinking of what it takes

10 See WBGU (German Advisory Council on Global Change), report *Humanity on the move: Unlocking the transformative power of cities* (Berlin: 2016), 3.

11 T.J. Demos, *Decolonizing Nature: Contemporary Art and the Politics of Ecology* (Berlin: Sternberg Press, 2016), 12.

12 Klein’s comment during the Q&A segment of her lecture, ‘Let Them Drown: The Violence of Othering in a Warming World’, London, 4 May 2016. Audio available at www.lrb.co.uk/v38/n11/naomi-klein/let-them-drown.

13 The political polarisation flowing from the economic hardship caused by the contraction of the fossil fuel industry within certain states in the US – Illinois and West Virginia – has an analogy in the European context in the high level of climate denial and scepticism in Poland. Poland is home to the world’s second-largest coal-fired power station, and 52% of the country’s energy is generated by coal. The influence of the coal sector in the cultural conversation is substantial, in part due to the strong bargaining power of the coal sector’s trade unions, which is much stronger than industries with a comparable number of workers, such as the textile industry.

14 Hillary’s Clinton’s answer to this question included her acknowledgement that climate change was a “serious problem.” A welcome change from the previous debate in which Donald Trump repeatedly referred to Clinton and the Democrats’ “war on coal”. See Jonah Engel Bromwichot, ‘Ken Bone Is Closer to Deciding, After Debate,’ *The New York Times*, 10 October 2016, www.nytimes.com.

15 WBGU report, op.cit, 7.

16 Vaclav Smil, *Making the Modern World Materials and Dematerialization* (Chichester: Wiley, 2014).

17 How we travel means how we the move around the world, as well as how we commute daily. As companies like Uber accelerate investment in self-driving car technology, they are trying to move after not just the taxi industry, but the personal mobility industry. One potential advantage of this is to forestall private car ownership before it takes hold in the developing world. Car ownership is still relatively very low in China, so if Uber or their competitors can hook passengers early enough, they can potentially have customers for life.

18 Carolina Caycedo, in correspondence with the author, May 2016.

to be “environmentally friendly” he was inherently thinking beyond himself and his immediate Illinois community.¹⁴

Building consensus around what shape the future will take in a divided electorate is most effectively achieved through offering a model (a blueprint of process based inclusion) within a world of rapidly changing demographics.

*The global urban population could increase from just under 4 billion today to 6.5 billion people by 2050 – and urban infrastructures will grow with it. About two-thirds of humanity will then have their homes in cities. The force of the urbanization surge will primarily affect developing countries and emerging economies in Asia and Africa. Almost 90% of urban-population growth up to 2050 is expected on these two continents.*¹⁵

In China alone, more cement was used in the three years from 2008 to 2010 than in the entire twentieth century in the United States.¹⁶ Such facts make very clear very quickly that urban development globally will largely determine whether it is possible to prevent dangerous climate change. The physical forms contemporary cities take are reflect the decisions made by a powerful few; yet they host an increasingly diverse collective of people with correspondingly diverse needs. Alongside this is the growing awareness that the governing elite is not proving responsive enough to the stresses climate change is putting on a swelling urban population. Wide-scale infrastructural changes, from the way we move around our cities,¹⁷ to the resilience and energy efficiency of the building and housing stock in those cities, to how we generate our power, are required.

Future infrastructure depends on decisions made now. More often than not energy infrastructure is superimposed upon ecosystems and social landscape with brute force, rather than with any consensual processes that have regard for existing communities. Speaking of the damming of Colombia’s Magdalena River, artist Carolina Caycedo has written, “The technological accomplishment involved in the engineering and building of a dam functions as a taming process of a wild and remote nature, but also as an ideological tool that regulates our relationships to bodies of water, and to the landscape. Nation-states and corporations monopolize imagineries around dams.”¹⁸

The narratives of *Brute Force Infrastructure* [p.85] are considered in the Californian context by Susannah Saylor and Edward Morris’s 2016 project *The American River Archive (Water Gold Soil)*. This follows a single flow of water in California from origin to end-use, showing “the basic economic reality of water in California in counter distinction from its possible scenic representation.” Their investigation reveals that

California is both “a manufactured landscape, a vast terraforming project”¹⁹ in which, “water has a technological, not a natural reality.”²⁰ As the project reveals all water in California is managed, beginning with more than 1,400 dams and more than 1,300 reservoirs.

‘Path dependency’ describes an economic concept where the choices available to us in the present are contingent on knowledge and decisions made in the past, and that future capacity for change is substantially determined by our current planning and thus the path we decide to take. If the road is built, it is easy to keep driving down the road into the future. If there are no train tracks, it is unlikely there will be a train leaving the station, either today, or tomorrow. The German Advisory Council on Global Change suggests:

*It is not so important to look to the future from today's perspective, which usually makes the path already being followed look inevitable; rather, one should look back to the present from a desirable future: what paths should be followed and what dead-ends should be avoided today to make this sustainable future possible?*²¹

As noted in our lexicon, we are now in a *Time of Useful Consciousness* [p.106]. In this brief window we must acknowledge that what precipitates necessary paradigm shifts are likely to be processes or systems that facilitate rather than obstruct Social *Tipping Points* [p.30]. (see also *Elongated Governance*) [p.66].

Writer Nicholson Baker has asked:

How is it that whole cultures and civilizations can change their ‘minds’ in ways that seem so susceptible to synoptic explanation? From the distance of the historian of ideas, things blur nicely: one sees a dogma and its vocabulary seeping from discipline to discipline, from class to class; if you squint away specificity you can make out splinter groups, groundswells of opposition, rival and revival schools of thought. The smoothness and sweep is breathtaking; the metaphors are all ready-made.”²²

To unpack the sweeps and swells which Baker speaks about, it is important to note that different elements in society change at different paces. Informal institutions such as customs, religions and traditions are typically the longest elements to make transitions, often taking three generations or more. Formal institutions, such as laws, regulations and property rights have the ability to change more swiftly, within a matter of decades. Governance structures, which are sets of relationships, often between individuals, can also be relatively elastic and under the right conditions these can change over a period of years.²³ Within the arts, strategies such as institutional critique

19 Edward Morris and Susannah Saylor, ‘Water Gold Soil: project description including some notes on a politically engaged use of allegory in contemporary art,’ working paper (*Third Text*, thirdtext.org, forthcoming).

20 Ibid.

21 WBGU report, op.cit, 9.

22 Nicholson Baker, ‘Changes of Mind,’ *The Size of Thoughts: Essays and Other Lumber* (New York: Random House, 1982/1996), 5-9.

23 Oliver E. Williamson, ‘The New Institutional Economics: Taking Stock, Looking Ahead’, *Journal of Economic Literature*, 38: 3 (2000), 595–613. See page 597.

24 Fiona Connor’s ongoing art work *A letter to the unwritten future* (<https://alettertotheunwrittenfuture.com>), presented as part of the *Climate & Infrastructure* exhibition, can be considered emblematic of such a process. Connor draws on the artistic tradition of institutional critique to advocate that institutions of all scales be cognisant of their energy use, and that actors across multiple levels of institutions must press for change.

25 The term ‘shovel-ready’ is a political neologism used to describe a construction project (usually larger-scale infrastructure) where project planning, engineering and funding have advanced to the stage where labourers may immediately be employed to begin work. ‘Shovel ready projects’ understand the moment before action begins but when the energy required for action is already present.

26 At the height of the energy crisis in 1979, President Jimmy Carter installed 32 solar panels on the roof of the White House, which were promptly removed by President Reagan. In 2010 President Barack Obama decided to reinstall the panels.

27 “[A]s it comes to encompass every aspect of the economy: data collection (radio-frequency identification, big data); new kinds of production (the flexible production of robots, additive manufacturing, automated fast food); services (AI customer assistance, care for the elderly); decision-making (computational models, software agents); financial allocation (algorithmic trading); and especially distribution (the logistics revolution, self-driving cars, drone container ships and automated warehouses). In every single function of the economy – from production to distribution to management to retail – we see large-scale tendencies towards automation as...a ‘second machine age’ that is transforming the range of tasks that machines can fulfil.” Nick Srnicek and Alex Williams, *Inventing the Future: Post capitalism and a world without work* (New York: Verso, 2015), 196.

consider how structural changes occur.²⁴ Infrastructure and technology can in theory rapidly change our society, for example if ‘shovel-ready projects’ are waiting in the wings.²⁵ But, as exemplified in the case of renewable energy neither infrastructure or its technological components can become ubiquitous without a supportive political and regulatory system (See *Hinkley Folly*, p.102).²⁶

Sarah Rara’s video work *Broken solar [Accumulator]* (2016–) comprises slow panning shots of the riparian hills of Ukiah California, and Arizona solar farms, the splendour of a flowering cactus and the reflecting black surface of solar panels. The camera studies photovoltaic surfaces and strategies for converting light into electricity and heat, traversing sites of production, from the skeleton of a blue whale to Biosphere 2. These panels were originally installed in the early 1990s, and by documenting corroding technology at the Biosphere 2 site, Rara tracks an already lengthy narrative of solar panel production, installation, maintenance and abandonment. The tone of the film is one of patient observation. It imparts a sense that reflection (including the study of natural processes, such as photosynthesis) is a necessary precursor to action.

Life lived against the backdrop of accelerated technological change is the subject of Steve Kado’s video work *AGPTL* (2016) (included in *Imagine the Present*, the 2016 Distance Plan exhibition at St PAUL St Gallery, Auckland, New Zealand). The film ends with a long sequence of appropriated footage that shows a robot trying to open a door. The robot’s efforts are both infuriating (just open the goddamn door) and touching (the poor creature can barely open the door) and these conflicting feelings bring a sense of sobriety to the pertinent question of when the future will arrive, and whose social worth will it most drastically challenge. As left-accelerationists Nick Srnicek and Alex Williams state, “The most recent wave of automation is poised to change this distribution of the labour market drastically. Rapid developments in robotics and exponential growth in computing power (the source of big data)... are coalescing into a ‘second machine age’ that is transforming the range of tasks that machines can fulfil.”²⁷

AGPTL is an acronym for a *good place to live*. Contemporary art sometimes seems to have adopted purely cynical answers to this question of where such a place might exist. Christopher Kulendran Thomas’s *New Eelam* (2016) appropriates advertising strategies nearly identical to the Soylent mode, but rather than a food substitute, the product on offer is a fantasy nationless state in which citizenship is as fluidly attainable as a room is through Airbnb. See *Climate Hostage* [p.62]; *Living Borders* [p.89].

AGPTL and *New Eelam* both survey the current era of global mobility experienced by the wealthy in the (pre-Brexit?)

developed world. The actors in *New Eelam* glide between cosmopolitan centers, flopping down on newly made beds in apartments with just the right mix of technology and mid-century modern. Kado presents this lifestyle tangibly, producing a small run of canvas bags, perfectly proportioned to maximise what can be *placed under the seat in front of you*. These objects are condensed narratives regarding the physicality of flight, of what one can fit in hand luggage, and of how lugging luggage around the world is part of the daily life, and daily waste, of our times.²⁸ Such global mobility seems increasingly tenuous, given both its contribution to climate change and the disruptions predicted by climate change. Climate scientist Anders Levermann notes: “It is the unanticipated impacts on fragile infrastructures and supply networks that constitute the largest threat of global warming. While climate change is often considered to be a problem for the global poor and for fragile ecosystems, the impact of extreme events on the global economic network will test the stability of America as much as that of Europe.”²⁹

The concept of the Carbon Staircase is a useful visualization of the ‘steps’ required to move down from our present peak carbon consumption towards a zero carbon economy by around 2050. The longer the time taken, the higher the risk of overshooting the steps as the global temperature level increases. The first step is the most time-critical. If we do not reduce emissions now, it will be very difficult to find a ‘staircase’ that is not precipitously steep, and to follow commitments already made internationally, including the removal of fossil fuel subsidies. Descending the Carbon Staircase requires the *controlled implosion* of the fossil fuel industry. It is clear that it will be necessary to phase out essentially all internal combustion engines, and – more widely – phase out all forms of energy production entailing carbon emission. The essential transition is to replace fossil fuels with renewable energy, in such a timeframe that the production of renewable energy systems does not create a problematic carbon overshoot. Meanwhile, future cities not only need to be low carbon but to lock carbon in.³⁰ We need to build with materials that store carbon, such as wood, and avoid creating sprawl in favour of “polycentric urban structures,”³¹ that “increase the absorptive capacity and resilience of urban societies.”³²

In this era of *Post-Truth Climate Politics* the continuing process of misinformation around both climate science and the necessary move towards a low carbon economy is being financed by those who have vested financial interests in ‘business as usual’. American billionaires the Koch brothers – whose fortune is based largely on oil and petroleum – have recently created a series of courses of the ‘Grassroots Leadership Academy’ to promote neoliberal ideas. One of the sessions, called the ‘Moral Case for Fossil Fuels,’ teaches

28 These bags were included in the Human Resources exhibition, one hanging on the wall next to another sculptural work of Kado’s, with all the debris from the production of the exhibition – wood, bags of trash – covered by the canvas skin of a billboard advertising an idyllic desert vista. Nature crumpled. Idealised nature printed at high resolution over our own waste. An image of our times.

29 Anders Levermann, ‘Heed the warnings in extreme weather – or risk losing Earth,’ *The Guardian*, 31 January 2014.

30 As a carbon sink, wood can lock up carbon from the atmosphere. This process may be made possible by the widespread adoption of wood as a building material; it does not have the high carbon footprint of steel and concrete.

31 WBGU report, op.cit, 10.

32 Ibid.

33 Ashley Parker and Maggie Haberman, ‘With Koch Brothers Academy, Conservatives Settle in for Long War’, *New York Times*, 6 September 2016.

34 T. J. Clark, *The Painting of Modern Life: Paris in the Art of Manet and his Followers* (Princeton: Princeton University Press, 1986/1999), 4.

35 Ibid.

attendees to argue that “a turn away from fossil fuel use would ultimately be disastrous to humanity – especially the poorest of the poor.”³³

We carry out everyday life within complex social, economic and cultural structures, dependent on a fragile environment. In *The Painting of Modern Life*, T.J. Clark begins his consideration of modernism by describing in detail a painting by Édouard Manet titled *Le Chemin de fer*. A train has just come into the station. “The steam and smoke from the railyard hang in the air for a few seconds before evaporating. For the little girl watching, time stands still. The woman who looks up at the viewer keeps her place in her book with one finger, expecting the moment to pass: our attention is banal and short-lived (we are male passers-by, dragging her out of her identity as governess and chaperone for an instant, but only as long as it takes her to stare us out of countenance).”³⁴

Clark lists both the infrastructure and the interactions present in the painting, the bars – belonging to the cities street, transport – the train, labour – the woman at work, class – her position as a governess, the book – a symbol of an imaginary. Clark considers the painting’s potential is as a site of change; what does “transposition into a form like this do to the meanings and appearance of the everyday world – especially a world rushing by, renewing its imagery week by week? Whirr, whirr, all on wheels! Wizz, wizz, all by steam!”³⁵ The steam train is driven by coal, it’s 1873, and we are witnessing the beginning of the ominous carbon curve.

The steam of the industrial revolution gave way to a second technological revolution of computing, the internet, and now advanced automation. How we transition to the third revolution – of a carbon free society – will depend as much on the vividness of our plans, and the fortitude of our communities and institutions as it will on hard infrastructure and technologies.

The Distance Plan calls for less *Empty Animation* [p.105], less of the inflammation and precarity brought on by ‘business-as-usual’, and more resistance to our current political systems “rhythm of entrenched cycles” (see *Elongated Governance*), [p.66]. Who benefits and who loses from decarbonising the economy is a question that through political agency returns us to the fundamental social justice questions at stake in discussions around climate change.

THE PRESENT TENSE
Abby Cunnane

PART 3

Today we went to Ihumātao. Ihumātao is in Māngere, half an hour's drive from Auckland city centre, then a 3.5 kilometre walk if you take the course we did: along the Renton Road foreshore, through a former forest of fossilised Kauri trees, into the Otuataua Stonefields Reserve and then to the mouth of the Oruarangi Awa, the river. Lava flows from Maungataketake's eruption 84,000 years ago cord the landscape with basalt; 500 metres from where we stopped to listen to archaeologist Ian Lawlor speak there is the raw red scraping sound of a scoria quarry on Maungataketake where mining continues.

As jets from the adjacent airport passed overhead the wind and everybody's hair and the Karaka leaves went mad for a short time. The existing runway is mostly made from the scoria quarried from these maunga (mountains); a proposed new runway will fill in the next gully along, likely closing off public access to Renton Road beach. A Special Housing Area (SHA) is also marked for development right beside the Otuataua Reserve, which holds urupā (Māori burial grounds) and other wahi tapu (sacred sites). Local iwi and activist group S.O.U.L are opposed to the development; the hīkoi (walk) today was in solidarity with that.¹ Roger drove us all on a bus back to the carpark at the start of the walk; as we passed the SHA Brendan Corbett told us that the development company includes HSBC, JP Morgan, Goldman & Sachs and other banks among its nine top shareholders.

Why am I recounting this just-finished walk, this very specific geography and a group of local people walking, vernacular politics, language for trees and river and graves that really make sense only here, where they are, in Aotearoa

New Zealand? It's to bring into focus a discussion about now, *now* – a moment when the 84,000-years-ago volcanic eruption, the 30-million-year-old limestone 'country rock' that the eruption threw up from deep beneath the greywacke bedrock, the multinational banks and the wet hair steaming in the pale sun conversations about the development that we had after the walk – are all caught up in a transitory-constant, that is, the present. Within this is the suggestion that our experience of the present is locally distinct, belonging just to this place.



Historian Dipesh Chakrabarty has commented that the timescale of climate change is such that it's hard to think politically about, that we habitually think politically only on a human timescale. His comment raises the possibility that thinking politically from within *this* present – a present where ecological change is happening at an unprecedented rate – requires more than conventional reason, that the politically astute approach for now may be in equal parts imagination, attentiveness, and remembrance. We may need to think about time altogether differently, looking closely at the places we inhabit and know. Working through what can seem an irresolvably difficult present set of political and ecological circumstances may require us thinking outside of linear and measurable timescales, that is, thinking within multiple presents.

Imagine the Present, the 2016 Distance Plan exhibition at ST PAUL St Gallery, Auckland, took such 'other' presents as starting point. The group of works differed vividly in their relationship to places, among them Walden's Pond, Massachusetts, USA; the Waiapu River in Gisborne on the East Coast of Aotearoa; Reykjavik, Iceland, and an unspecified site in a feral future. Climate change acted mostly as subtext rather than subject in these works. Common among them was the idea that locating an alternative view of the present is a political, spiritual, and ecological imperative.

The potential of the present as the time of change has frequently occupied feminist thinking. For Carla Lonzi, working in the 1970s, "feminism is the present."² Speaking of Lonzi's work, Giovanna Zapperi writes, "The present as the time of feminism is a powerful idea still, and perhaps especially today when the motor of our neoliberal society is 'promise': the promise of a career, a better future, money and so on. But it's just an empty promise. To think of a change in the present is also a way of fighting the idea of a future to come, the very idea of a promise, the patriarchal structure of history."³

¹ For a full account of S.O.U.L's work see <http://www.soulstopsha.org/>; for a recent summary of the Ihumātao campaign see <http://tvnz.co.nz/sunday-news/rock-and-hard-place-video-6493401>

² Giovanna Zapperi, 'Finding resonances with Carla Lonzi', *Makhzin* 2, 1 April 2016, <http://www.makhzin.org/issues/feminisms/finding-resonances-with-carla-lonzi>

³ Ibid.

Atmospherically the exhibition borrowed from author Ursula LeGuin's image of a Yin utopia – “dark, wet, obscure, weak, yielding, participatory, circular, cyclical, peaceful, nurturant, retreating, contracting, and cold”⁴ – as a place where forms, species, ideas other than those reliant on the Yang-dominant values of brightness, heat, progress might exist. LeGuin's is not a utopia set in the future.⁵ Rather, it's a circular or non-linear present, within which the deep past is also held, still happening.

Artist Natalie Robertson, whose installation *Nought of the portion for Tahoe* (2016) was included in the exhibition, wrote in an earlier essay about her broader ongoing project,

*There is a gap between what is real and what is imagined. If this gap could be measured, perhaps it would be similar to the distance between what is now, and what will be. If we measure in mass, our unit might be cubic meters or yards of earth stabilised. If we measure in volume, it could be the cubic feet of clear water free of suspended sediment... If we measure this gap in the current era of the Cenozoic geological timescale, it might be the wing-beat of a piwakawaka, a fantail.*⁶

The 'gap' is where Robertson's work sits, performing its own series of measures of the ongoing change that occurs in a familiar landscape over a lifetime, and the relationships held in that place. Her *Pohautea 1-4* (1996/2015) are large-scale photographs of the Waiapu Ngutu Awa (river mouth) on the East Coast, overlaid with the bones of trees after flooding caused by Cyclone Bola in 1988. This is part of a larger history of colonial deforestation since 1890. Printed for the first time nineteen years after they were taken, the photographs are also witness to that interval, the tons of silt that have washed out to sea, and the widening of the river mouth. The work was presented along with an audio component. Entering the gallery you heard the sound of a nineteenth century mōteatea (lament) by Hone Rongomaitu, *He Tangi Mo Pahoe*, re-interpreted, sung and recorded for the exhibition by Rhonda Tibble.

Shannon Te Ao's video *Untitled (epilogue)* (2015) is shot in darkness. The potted plants that move across its frame don't seem reliant on photosynthesis but are artificially lit, which makes them appear as if they are in deep space, or deep under the sea. The voice, reading a poem by Noeline Arnott, is that of a person dislocated by grief – it could be the end of the world or a bad day. As an epilogue, the work is a kind of ending, but its darkness is also a place of possibility. Te Ao refers to Te Kore as both void and potentiality, the nothingness from which everything else emerged; as scholar Moana Nepia has written: “Te Kore may articulate extreme states of emotion, and also the need for space or time to restore balance.”⁷

4 Further on in the same essay Le Guin writes, “If utopia is a place that does not exist, then surely (...) the way to get there is by the way that is not a way. And in the same vein, the nature of the utopia I am trying to describe is such that if it is to come it must exist already.” ‘A Non-Euclidean View of California as a Cold Place to Be’ [1982], *Dancing at the Edge of the World* (New York: Grove Press, 1989), 90, 93.

5 Ibid.

6 Natalie Robertson, *Te Ahikaroa: Home Fires Burning* (CA: C.N. Gorman Museum, University of California Davis, 2014), 11.

7 Moana Nepia, *Te Kore—Exploring the Māori concept of void* (thesis, Auckland University of Technology, 2012), 24. See also Shannon Te Ao, *Part Tree, Part Canoe* (thesis, Massey University of Wellington, 2015).

Bjarki Bragason's *Perhaps that in which it* (2013) is a series of photographic images of plaster moulds formed around a piece of shelf ice used by Reykjavik glaciologists in reconstruction modeling of historical climates. The artist found the ice discarded after a conference on his way home, and later made the moulds as a way of documenting its disappearance. This sat alongside a second work, *Ten thousand and one years (one year of emissions at 449,5 meters)* (2016) that looks at the Carb-Fix project, in which scientists are working with industry to mineralise CO² by pumping it into subterranean basaltic rock in Iceland, accelerating carbon fossilisation that would otherwise take thousands of years. Documents of the resulting core samples, these photographs could also be read as ambivalent monuments to the nightmarish speculative reach of the 'tech-fix'.

Nicholas Mangan's *Dowiyogo's ancient coral coffee table* (2010) is made of coral limestone, from a section of sculpture formerly installed in front of the high-rise Nauru House in Melbourne. Originally this coral came from Nauru Island in the 1970s, at that time wealthy as a result of local phosphate (in the form of guano, fossilised bird droppings) mining by New Zealand, Australian and British companies. By 2003, the phosphate nearly all gone, Nauru President Bernhard Dowiyogo told an American reporter his plan to save the country from bankruptcy by selling ancient coral coffee tables. Completing this likely tongue-in-cheek proposal, the artist made a lasting marker of the colonial exploitation that saw 80% of the island's topsoil removed, leaving an inhospitable moon-like landscape. The work also de-emphasises human-centric time – capital and industry shrinks to something absurd relative to the geological timespan over which fossils form. The limestone in this work will outlast today's conversations about the Anthropocene, likely by thousands of years.

Steve Kado's *AGPTL* (2016) video installation moves through a three-chapter observation of living spaces, leisure, travel, 'nature', and the development of symbiotic robotics. The voiceover provides a poetic pseudo-anthropological analysis of a contemporary class of globally mobile, identity-conscious consumers. For every image of pristine alpine landscape there is another of an air-conditioning unit, an iPhone, an electric jug; ubiquitous forms that tell the everyday story of aestheticised resource consumption. A second screen measures time passing as melting ice in a glass, and the pace of the tide; like the mountain-scene billboard draped behind the video in this installation, it can be hard to tell which is digital wallpaper or background, where real time experience begins.

George Watson's *The world continues to infect / there is no perfect form* (2016) is a garden, or a compost, of straw and salt, soapflakes and sago. Or a whole closed-system ecology which fuses the organic and inorganic – as her accompanying

piece of writing put it: 'it/me.' Originally made for an outdoor setting as part of *Autumn of Spit* at Canapé Canopy, the work for *Imagine the Present* was reconfigured for and by the indoor space, where it became an inhuman lifeform incubated under lights, even a whole new microcosmic planet, complete with its own artificial solar system.

Amy Howden-Chapman's film *What you are about to see* (2016) looks at how transcendentalist Henry David Thoreau's late nineteenth-century observations of Walden Pond in Concord, Massachusetts are today used by conservation biologist Richard Primark to track the local effects of climate warming. The narration is delivered as a sequence of lyrics or short statements, moving from one to the other of the two registers according to the urgency of the music track behind the voice. Read as a series of almost immediately fulfilled predictions, or a looser-form essay about observation and change, the work performs a convergence of literary, political and philosophical underpinnings of environmentalism with empirical scientific process around monitoring climate change. The film projection sat adjacent to a five metre long wall, a photographic object that replicates a wall from Elysian Park, Los Angeles, commemorating the benevolence of 'petroleum industry pioneer' Charles S. Jones for acts of community beautification.



In Tāmaki Makaurau Auckland, *Imagine the Present* could be read a measure of the distance between acutely different geographical and cultural contexts, each offering a different view of the present. Acknowledging this condition of pronounced difference, as well as the long arcs of time embedded in the geology, cultural narratives and scientific methods that each of the works referred to seems increasingly important in a present that might equally be defined by modes of global production and mobility, by undifferentiated consumers and substitutable labourers, by forced migration.

That is, in a present marked by processes of colonisation, and in which environmental movements frequently perpetuate systemic power imbalances. Ahilapalapa Rands frames it, "you want to affect change – it's a two-tiered thing. It's not just a climate change issue – it's also structural racism, it's also white supremacy...these kinds of [social justice and environmental movements] have to be decolonising, or they'll be nothing, right? Because we are at the front lines: it's our bodies that are on the line, it's our islands, it's our whenua."⁸ Simply put, the effects of climate change are racialised, gendered, and geographically defined, as are all socio-political crises.

8 Discussion with Pala Molisa, Teanau Tuiono, and Tina Ngata, 'Kava club: On climate change for beginners, decolonisation, and self-care', 15 May 2016, Wellington, <https://blackstone.net.nz/category/climate-change/>

So it's one thing to establish an understanding of the present as differentiated across contexts; the question then becomes about whose version of the present has precedence. In an academic and popular framework (including in this journal) the Anthropocene is widely and often unquestioningly upheld as designator of the present geological age. Métis Canadian scholar Zoe Todd, among others, has critiqued the category of the Anthropocene as a homogenising form of 'white public space', that inscribes a basic injustice: "[T]he current framing of the Anthropocene blunts the distinctions between the people, nations, and collectives who drive the fossil-fuel economy and those who do not. The complex and paradoxical experiences of diverse people as humans-in-the world, including the ongoing damage of colonial and imperialist agendas, can be lost when the narrative is collapsed to a universalising species paradigm."⁹

Another way of looking at this is asking in whose present harmful climate change impacts are actually occurring. In the Pacific these increasingly take the form of violent weather. Many Pacific island countries, including the Solomon Islands, Vanuatu, Fiji, Tonga and the Federated States of Micronesia, lie in the path of tropical cyclones. In February 2016, Cyclone Winston, the strongest ever recorded in the Southern Hemisphere, hit Fiji with damage and losses amounting to one fifth of the country's GDP.¹⁰ Later the same year, in September 2016, the *Crystal Serenity* cruise ship made its pioneering passage through the Arctic Northwest Passage, a route connecting the Atlantic to the Pacific, enabled by massive shelf melt due to global warming.¹¹

What does it mean if the colonialist project is taken seriously as implicated in the production of climate change? One thing it means is acknowledging that ecological discourses sit inside the same power dynamics. As First Nations Canadian artist Loretta Todd has said, "Our 'past' was once the preoccupation of the colonizers, and we developed codes to negotiate the performative nature of being the Aboriginal of an imagined past. Now our future is the growing preoccupation but the power dynamics seem to remain the same."¹²

This journal issue puts forward the modest proposition that a shift in attention to the present, and to language which can name and re-articulate that present, is a political shift that brings change with it. This is not intended as a negation of the past, as living temporality that informs the way we understand places and ourselves. Rather, we suggest that to focus on the present can be an act of critical resistance within discussions of contemporary art and climate change that typically look to the future rather than address the present at hand.

9 Zoe Todd, 'Indigenizing the Anthropocene', *Encounters Among Aesthetics, Politics, Environments and Epistemologies*, Heather Davis and Etienne Turpin (eds.), (London: Open Humanities Press, 2015), 244.

10 See *After Paris: Climate Finance in the Pacific Islands*, Oxfam Research Report September 2016, <https://www.oxfam.org.au/wp-content/uploads/2016/09/FULL-REPORT-After-Paris-Climate-Finance-in-the-Pacific-Islands.pdf>

11 Andrew C. Revkin, 'Where ice once crushed ships, open water beckons,' *The New York Times*, 24 September 2016. See also *Crystal Cruises Instagram*, https://www.instagram.com/p/BJ_nzJFgpEA/

12 Loretta Todd, *Close Encounters: The Next 500 Years*, curated by Candice Hopkins, Steve Loft, Lee-Ann Martin, Jenny Western (Plug In Institute of Contemporary Art, 2011).



I was told that lhumātao translates to 'cold nose', referring perhaps to the southerly that knifes along the coast as you come around the beach to the place where waka landed, near a spring that one could carry water inland from, or perhaps to the nose-shaped landform of the headland. At lhumātao there is a line of white flags bordering the site marked for development. At lhumātao there is a paddock of avocados; if you ask you can take five each before you go. At lhumātao, when the tide is out, you can hear the mud seeping and cracking, alive with microorganisms, active as enzymes in a giant gut.

October 2016

CLIMATE CHANGE & ART: A LEXICON

Climate Change & Art: A Lexicon is an ongoing project. The first set of terms, listed below, were collected in the *Reading Room* journal in 2014 and can be found at: TheDistancePlan.Org

WICKED PROBLEMS
INTERGENERATIONAL JUSTICE
ANNUAL EXCEEDANCE PROBABILITY
THE GREAT TRANSITION
SCIENTIFIC RISK BIAS
RESILIENCE RHETORIC
HYPEROBJECTS
VITAL MATERIALISM
RE-COMMUNILISATION
THE CULTURAL COST OF CARBON
HEALTH GOTH
ENERGY SOVEREIGNTY
CAPITLOCENE
HABITAT NOSTALGIA
SMALL AGENCIES
GREEN FASCISM

These terms had existing cultural circulation but were suggested and defined by: Amy Balkin, Katie Bachler, Scott Berzofsky, Jym Clark, Fiona Connor, Harry Chapman, Abby Cunnane, Amy Howden-Chapman, Steve Kado & Bidy Livesey.

The terms in the following pages have been developed and defined by the credited authors, as well as by The Distance Plan while in residence at The Potsdam Institute of Climate Impact Research (PIK). We would like to thank Margret Boysen, Dim Coumou, Jonathan F. Donges, Kai Kornhuber, Jascha Lehmann, Anders Levermann, Ilona Otto and Hans Joachim Schellnhuber from PIK for their time in discussing these terms, as well as Ralph Chapman, Carolina Caycedo, Daisy Hoyt and Dylan Taylor for their input. The accompanying images were selected by The Distance Plan unless otherwise stated.

Also included throughout this lexicon are images by Michala Paludan. These photos are part of the larger project *Kalliope, Kleio, Erato, Euterpe, Melpomene, Polyhymnia, Terpsichore, Thaleia and Urania* (2015).

OCEAN INFLAMMATION

In 1833 American writer Nathaniel Hawthorne wrote:

*The Ocean has its silent caves,
Deep, quiet, and alone;
Though there be fury on the waves,
Beneath them there is none...
The earth has guilt, the earth has care,
Unquiet are its graves;
But peaceful sleep is ever there,
Beneath the dark blue waves.¹*

This sombre sleep of the ocean is passing with the arrival of an era of hot disturbance. The ocean is inflaming. The vast liquid is slowly but perceptibly puffing – enlargement on a planetary scale. A rising, a liquid blistering.

Ocean Inflammation is a recognition of the fact that sea level rise due to climate change is primarily caused by two distinct physical phenomena. The first and more widely understood of these is the melting of land ice; the second is the expansion of seawater as it warms. This expansion can be considered a kind of global ocean inflammation, with associations of higher-than-normal temperature and swelling.

This term can help clarify what happens to water as it heats up. Water is a unique substance, it contracts when it is heated from ice's melting point up to 4 degrees Celsius. (The water molecules get closer together and the water occupies less volume.) However, like most other liquids and gases, water expands as it is heated further above 4 degrees. Surface ocean temperatures are typically significantly above this 4 degrees mark.

1. Nathaniel Hawthorne, 'The ocean' (1825), *The Mariner's Library or Voyager's Companion* (Boston: Lilly, Wait, Colman and Holden, 1833).

Heute ist Warmbadetag!
0,50 EURO Aufschlag

SOCIAL TIPPING POINTS

Social Tipping Points describes the phenomenon of a large number of people rapidly and dramatically changing their behaviour by adopting a previously rare practice. This draws on the concept of tipping points in the natural sciences; examples in the climate change context include the point at which melting of an ice sheet becomes irreversible, or a disruption of the Gulf Stream (which currently keeps much of Europe habitable). The 'social' interpretation is very broad and includes changes in people's values and behaviours, social institutions, economic activities, or political mechanisms, such as the broad and swift adoption of new technologies.

Social Tipping Points are those at which change is triggered. Such triggering can occur either at thresholds in large-scale processes or through microscopic interventions having domino effects and causing macroscopic changes. Social tipping *elements* are sensitive parts (or subsystems) relevant to the dynamics of the larger socio-economic system, which are susceptible to small changes that have the potential to tip the larger system into a qualitatively different state.¹ Once a social tipping element has been identified, closer investigation may reveal incipient changes in that element.

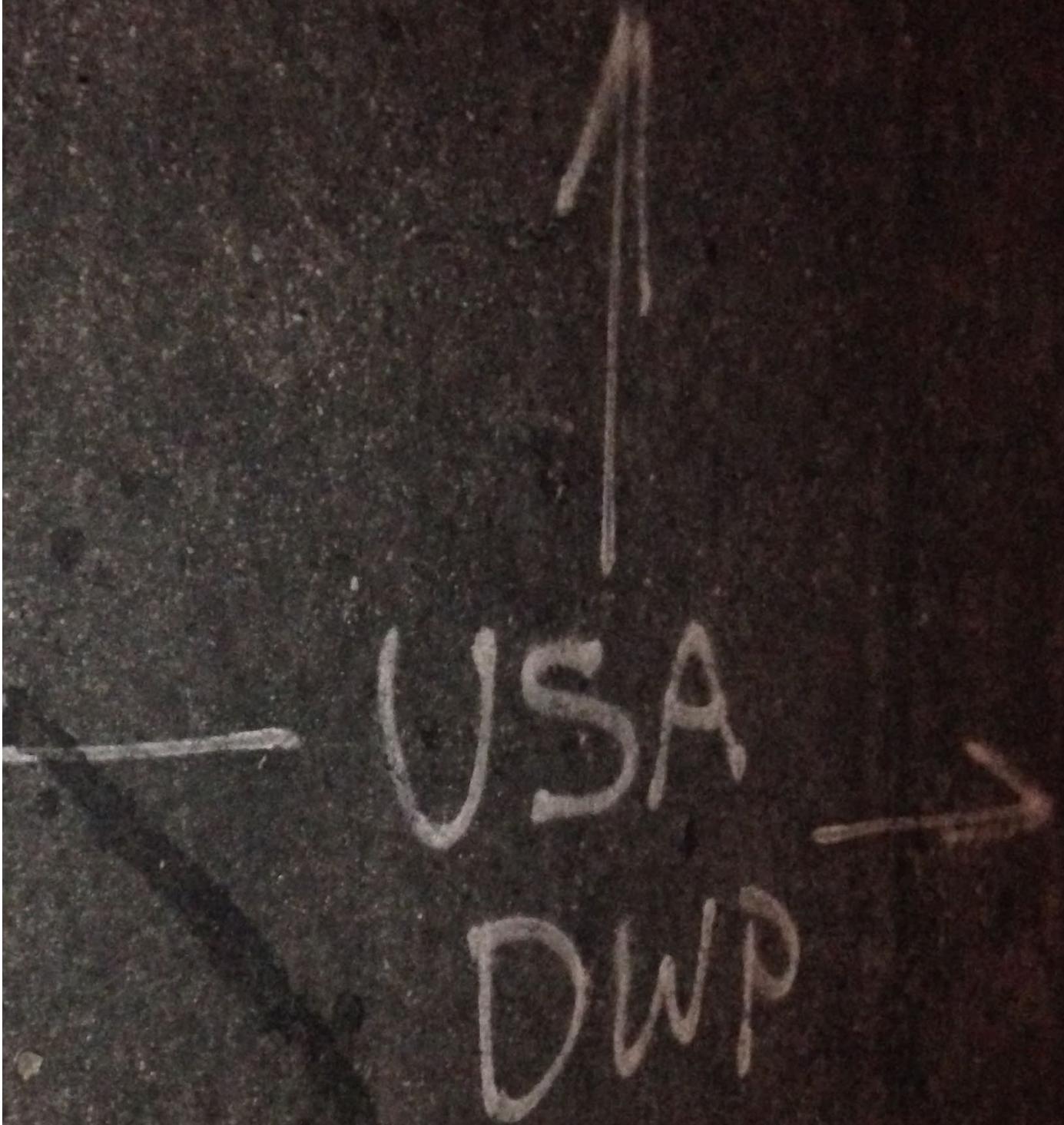
"Concrete examples of social tipping elements could include policies shutting down coal power plants, abandoning industrial agriculture, or a social value shift that would lead to a rapid decarbonization. In the socio-economic realm, there are documented instances of technology and business solutions showing that 17-18% market share is sufficient to tip the scales and become the dominant pattern."² The way in which such elements tip may be positive – such as constructive responses agreed upon through cultural consensus (for example divestment movements) – or negative – such as when stresses on communities in the form of extreme weather events cannot be adequately coped with and reactions are divisive.

SEE ALSO: Climate Chaos / Planet Panic.

1. B. S. Fisher, N. Nakicenovic, K. Alfsen et al., 'Issues related to mitigation in the long term context', *Climate Change: Mitigation, Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change* (Cambridge: Cambridge University Press, 2007).

T. M. Lenton et al., *Tipping elements in the Earth's climate system*, PNAS, 2008, 105(6): 1786-1793.

2. J. Rockström and H.J. Schellnhuber, 'Paris, Potlatch and Pareto: What would render COP21 a success?', *The Earth League*, 2015, <http://www.the-earth-league.org/paris-potlatch-and-pareto.html>





ATMOSPHERE AS 'AER NULLIUS'

The idea of the atmosphere (and hence the climate) as an empty territory, belonging to no-one and exempt from existing power structures. This positions the climate as a psycho-symbolic space to be freely conceptualised by predominantly Euro-American theories of resilience and ecological governance which often pay little attention to longstanding indigenous knowledge and political stakes. Anthropologist Zoe Todd uses the term *aer nullius* in her recent essay 'An Indigenous feminist's take on the Ontological Turn: Ontology is just another term for colonisation.'¹ Building on the work of Glen Coulthard (Yellowknives Dene) she argues that thinkers framing the atmosphere as a form of 'commons' can be guilty of presenting it as a power-neutral blank slate up for the taking. Perhaps a conceptual parallel to the colonial project of declaring land *terra nullius* or 'nobody's land', *aer nullius* translates as 'air belonging to no-one.'¹

SEE ALSO: Greenwash, Eco-colonialism, Terraforming.

1. Zoe Todd, 'An Indigenous feminist's take on the Ontological Turn', *Journal of Historical Sociology*, March 2016, 29:1, <http://onlinelibrary.wiley.com/doi/10.1111/johs.12124/full>



INDOOR ATMOSPHERE

We spend most of our time indoors, inside our houses, in cities. Already unfair inequalities such as how well our houses are built to protect us from cold and heat, how secure our tenure rights are to stay put, how much space we have, how polluted the air we breathe is, how close the nearest green space is, how safe it is to walk or ride bikes, significantly affect our health.¹ Moreover, the neighbourhoods we live in and pollution of the air by minuscule black carbon particles from diesel vehicles, coal-fired power stations and home fires (which enter our blood and then our lungs, heart, brain and the placenta) add further to the health effects of our housing, as well as carbon emissions. Of the four billion people who already live in cities, close to one billion live in slums or informal dwellings. Slum dwellers, while facing the common problems just noted, also face greater insecurity from the high risks of forced evictions and the lack of essential infrastructure such as clean water supply and sewerage.

The rising risks of extreme weather events – storm surges, cloud-bursts, floods, high winds and wild fires – make people who live in informal housing or slums on unstable, deforested mountain sides, or flood plains, even more vulnerable to the effects of climate change. Upgrading housing, using simple but effective energy efficiency measures like roof insulation, solar lighting and heating, can go some way to improve living standards and reduce the health impacts of heatwaves. Women's community groups, like the Federation of Slum Dwellers International, have found that by collecting and counting data about local conditions, they can not only create and learn new forms of governance together, but in alliance with their local municipalities, can ensure a fairer share of resources and begin to see an improvement in their health and their children's health.

Compact urban living generates fewer carbon emissions. The New Urban Agenda² launched at Habitat III in Quito, Ecuador emphasises this, and highlights that by framing the health of the urban human population and planet as indivisible, central and local governments, and those people living in formal and informal housing, can work together for greater fairness in allocating resources, while increasing local and wider urban sustainability.

Defined by Philippa Howden-Chapman

1. Yvonne Rydin et al. 'Shaping cities for health: complexity and the planning of urban environments in the 21st century', *The Lancet*, 2012, 379,9831,2079-108.

2. 'Health as the pulse of the new urban agenda': United Nations Conference on Housing and Sustainable Urban Development (World Health Organization), Quito, Ecuador, October 2016.

CLIMATE DEBT

Climate Debt is a concept that was submitted to the United Nations Framework Convention on Climate Change by over 50 of the world's most economically and ecologically vulnerable countries, led by Bolivia, in 2009.¹ To recognise this debt requires compensation from developed nations to address legacies of resource plunder and atmospheric harm. In the middle of last century Hannah Arendt recalled poet Rene Char's words; "our inheritance was left to us by no testament" (1946).² Arendt was writing in the aftermath of World War II, while with the present rise of new weather, we are also 'without testament', or, as Arendt resolved the metaphor, without tradition or continuity. Yet developed countries are in debt, for a more-than-fair share of carbon consumption.³

Oral testimony about the exhaustion of resources, extinction events, air pollution and 'extractivism' lives in indigenous knowledge-systems, as well as within two hundred years of European environmentalism, but a failure of political memory allows neglect of the fate of the human and non-human inheritors of the biosphere. Arendt's recognition that we "act into nature as we used to act into history," was never more prescient. On the one hand neo-liberal economies toy with *intended* decarbonisation to mitigate climate change while maintaining freedom to profit from the earth's resources through quasi-decisions.⁴ On the other, in the 'tropic of chaos'⁵ drought and storms rage in convergence with poverty and struggles over resources. During COP 21, Bangladesh, alongside other countries which under-contribute to global warming, called for deep emission reductions from developed nations to address an out-of-balance historical climate debt and high per-capita emissions. This call went largely ignored. The dominant political regimes are still in a state where, in Arendt's words, [...] "there is no mind to inherit and to question, to think about and to remember."⁶

Defined by Janine Randerson

1. As a concept, ecological debt was first discussed by Fidel Castro during the 1992 Rio Earth Summit. Castro superposed the external financial debt against the ecological depredation of southern countries to the benefit of northern consumption.

2. See Hannah Arendt, *Between Past and Future* (New York: Viking, 1961).

3. Bishop Theotonius Gomes, 'Time for Rich Countries to Pay Their Ecological Debt,' *The Diplomat*, 9 October 2015.

4. Bruno Latour, *On Sensitivity Arts, Science and Politics in the New Climatic Regime* (lecture, Melbourne University, 2016).

5. See Christian Parenti, *Tropic of Chaos* (New York: Nation Books, 2011).

6. Arendt, 1961.

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ECOCRITICISM

A field of cultural criticism which seeks to interpret texts in terms of the ways in which humans and human actions affect the natural world. The articulation of personal human relationships with nature has a long association with poetry in particular – British Romanticism might be the most obvious example – and for this reason ecocriticism is often concerned mainly, although not exclusively, with poetics. However, Ecocriticism does not simply describe how nature and the natural world have served as creative inspiration for poets or prose writers. Its purpose is to uncover the ways in which ‘nature’ has been culturally constructed, and to what ends. Simultaneously, it shows how texts consider the impact of human activity and existence on an environment which really exists, and imagine less harmful modes of living, as individuals and as communities. In Wordsworth’s ‘Nutting’, for example, he recalls an afternoon’s nut-gathering as a child, and the “sense of pain” he felt once his “merciless ravage” was complete and the hazels stripped bare. Wordsworth asks that the future visitor

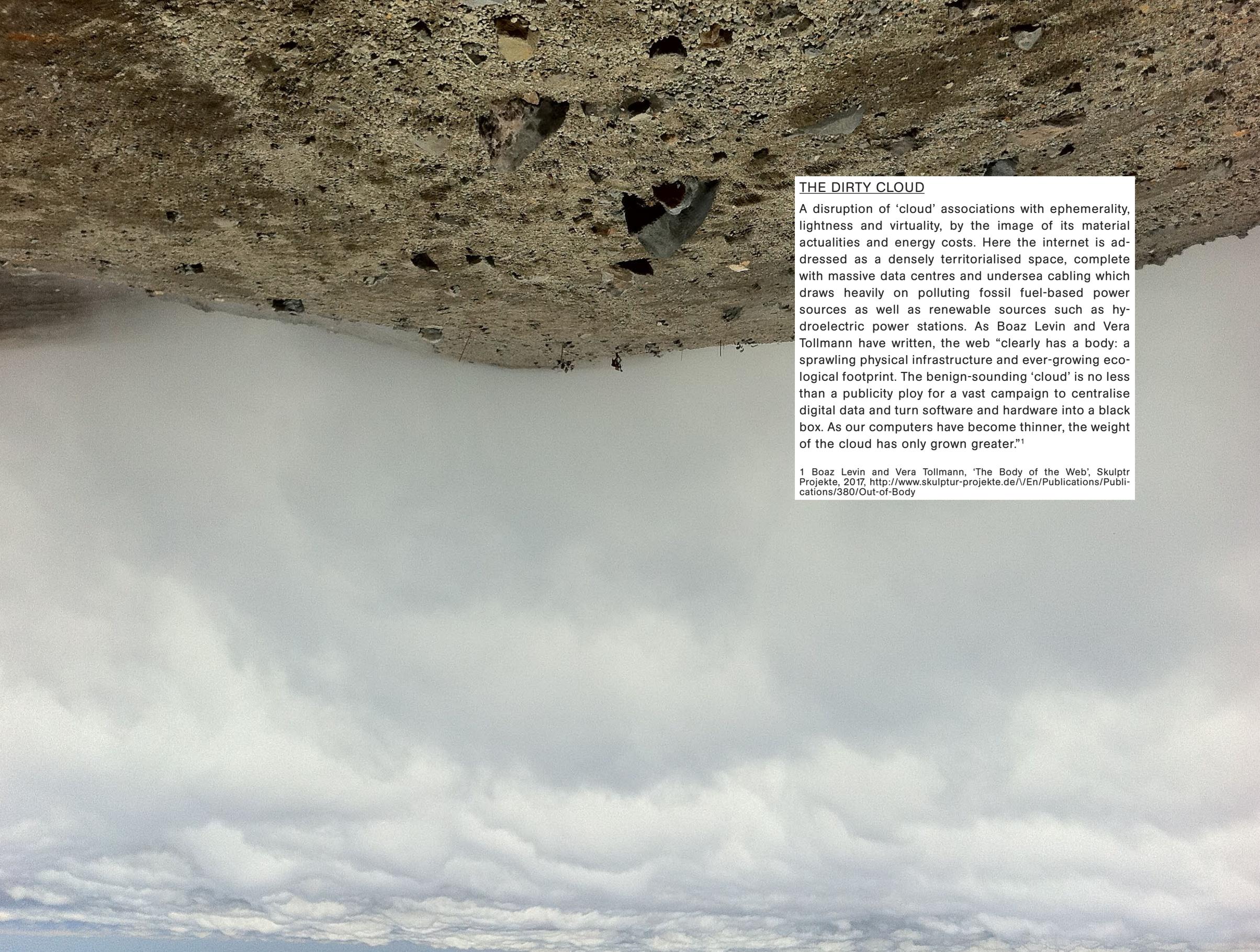
*Move along these shades\
In gentleness of heart; with gentle hand
Touch, for there is a spirit in the woods.*

The poem acknowledges the inevitability of an ongoing relationship between woods and humans, but asks that such interactions be conducted with empathy and care.

Defined by Beatrice Turner







THE DIRTY CLOUD

A disruption of 'cloud' associations with ephemerality, lightness and virtuality, by the image of its material actualities and energy costs. Here the internet is addressed as a densely territorialised space, complete with massive data centres and undersea cabling which draws heavily on polluting fossil fuel-based power sources as well as renewable sources such as hydroelectric power stations. As Boaz Levin and Vera Tollmann have written, the web "clearly has a body: a sprawling physical infrastructure and ever-growing ecological footprint. The benign-sounding 'cloud' is no less than a publicity ploy for a vast campaign to centralise digital data and turn software and hardware into a black box. As our computers have become thinner, the weight of the cloud has only grown greater."¹

¹ Boaz Levin and Vera Tollmann, 'The Body of the Web', Skulptur Projekte, 2017, <http://www.skulptur-projekte.de/V/En/Publications/Publications/380/Out-of-Body>



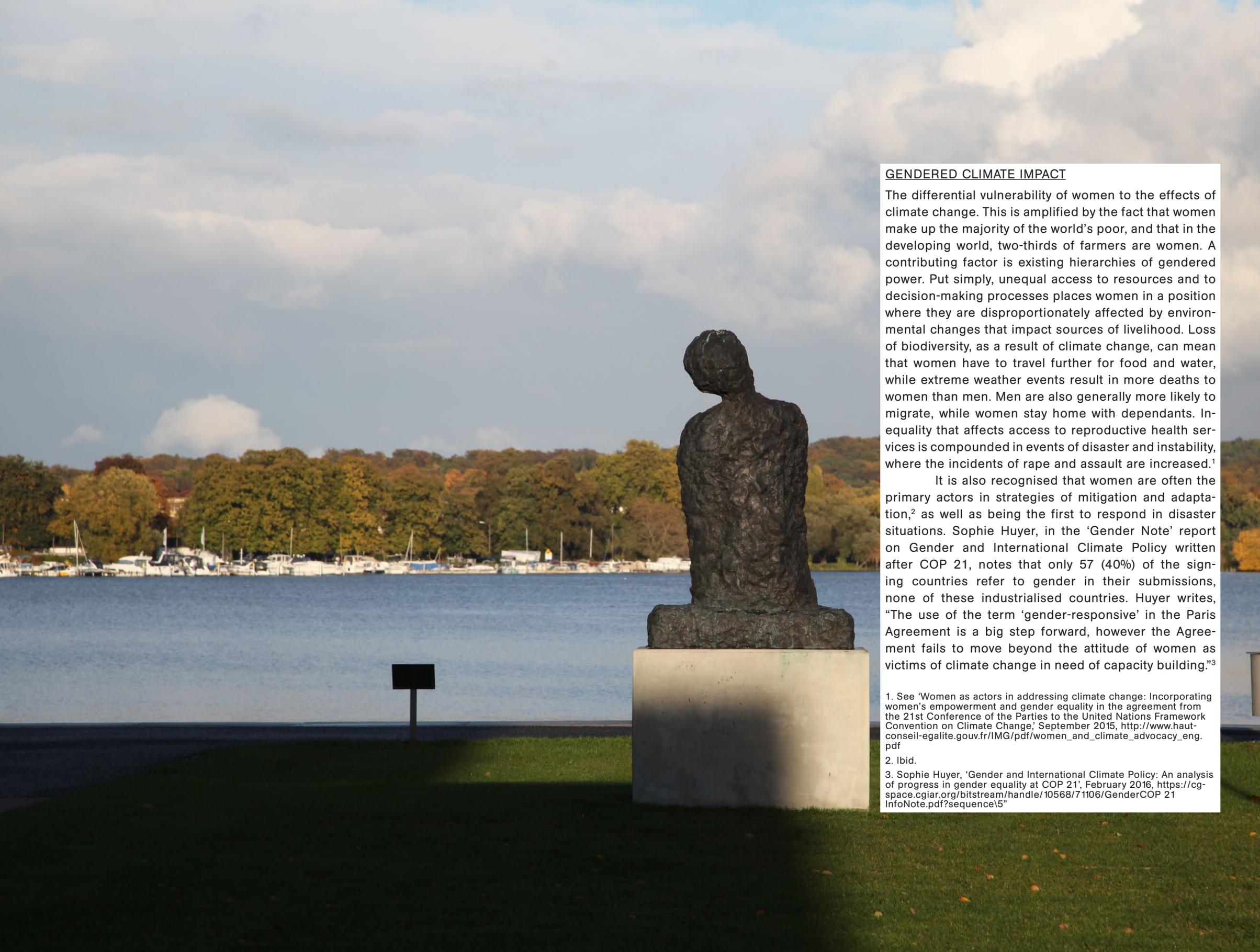
INTIMATION OF TRAUMA

Plenty of people know about climate change, or accept that it is a valid proposition, but few really believe it. There is a circularity here: you have to believe your way into the trauma that is necessary to truly believe. In this sense, the subject of much art about climate change is not a clinical, lived trauma, or even a vicarious trauma. It is more the intimation of trauma and can never be wholly grasped. To become receptive to this intimation of trauma (literally 'wound' in the original Greek), we need an opening, a piercing. This certainly can come from art, and yet no art can guarantee it, for it also depends on the viewer. When it comes, therefore, to the question of representation, which in some sense remains the mandate of all art, no matter how 'abstract' or ostensibly detached, we must ask with respect to climate change: what exactly is being represented? Is it the 'facts'? Well, what are those? How do you represent a hyperobject, a statistically created research object? As artist and theorist Emily Eliza Scott has pointed out, there is no one way. It is a mosaic and a group effort, but the most accurate representation will include some picture of this non-visceral, imagined, but nonetheless actual, trauma.

Defined by Edward Morris and Susannah Saylor

Image: Johan Huibers *Ark, The Netherlands*, 2010, archival inkjet print.
Saylor / Morris for The Canary Project.





GENDERED CLIMATE IMPACT

The differential vulnerability of women to the effects of climate change. This is amplified by the fact that women make up the majority of the world's poor, and that in the developing world, two-thirds of farmers are women. A contributing factor is existing hierarchies of gendered power. Put simply, unequal access to resources and to decision-making processes places women in a position where they are disproportionately affected by environmental changes that impact sources of livelihood. Loss of biodiversity, as a result of climate change, can mean that women have to travel further for food and water, while extreme weather events result in more deaths to women than men. Men are also generally more likely to migrate, while women stay home with dependants. Inequality that affects access to reproductive health services is compounded in events of disaster and instability, where the incidents of rape and assault are increased.¹

It is also recognised that women are often the primary actors in strategies of mitigation and adaptation,² as well as being the first to respond in disaster situations. Sophie Huyer, in the 'Gender Note' report on Gender and International Climate Policy written after COP 21, notes that only 57 (40%) of the signing countries refer to gender in their submissions, none of these industrialised countries. Huyer writes, "The use of the term 'gender-responsive' in the Paris Agreement is a big step forward, however the Agreement fails to move beyond the attitude of women as victims of climate change in need of capacity building."³

1. See 'Women as actors in addressing climate change: Incorporating women's empowerment and gender equality in the agreement from the 21st Conference of the Parties to the United Nations Framework Convention on Climate Change,' September 2015, http://www.haut-conseil-egalite.gouv.fr/IMG/pdf/women_and_climate_advocacy_eng.pdf

2. Ibid.

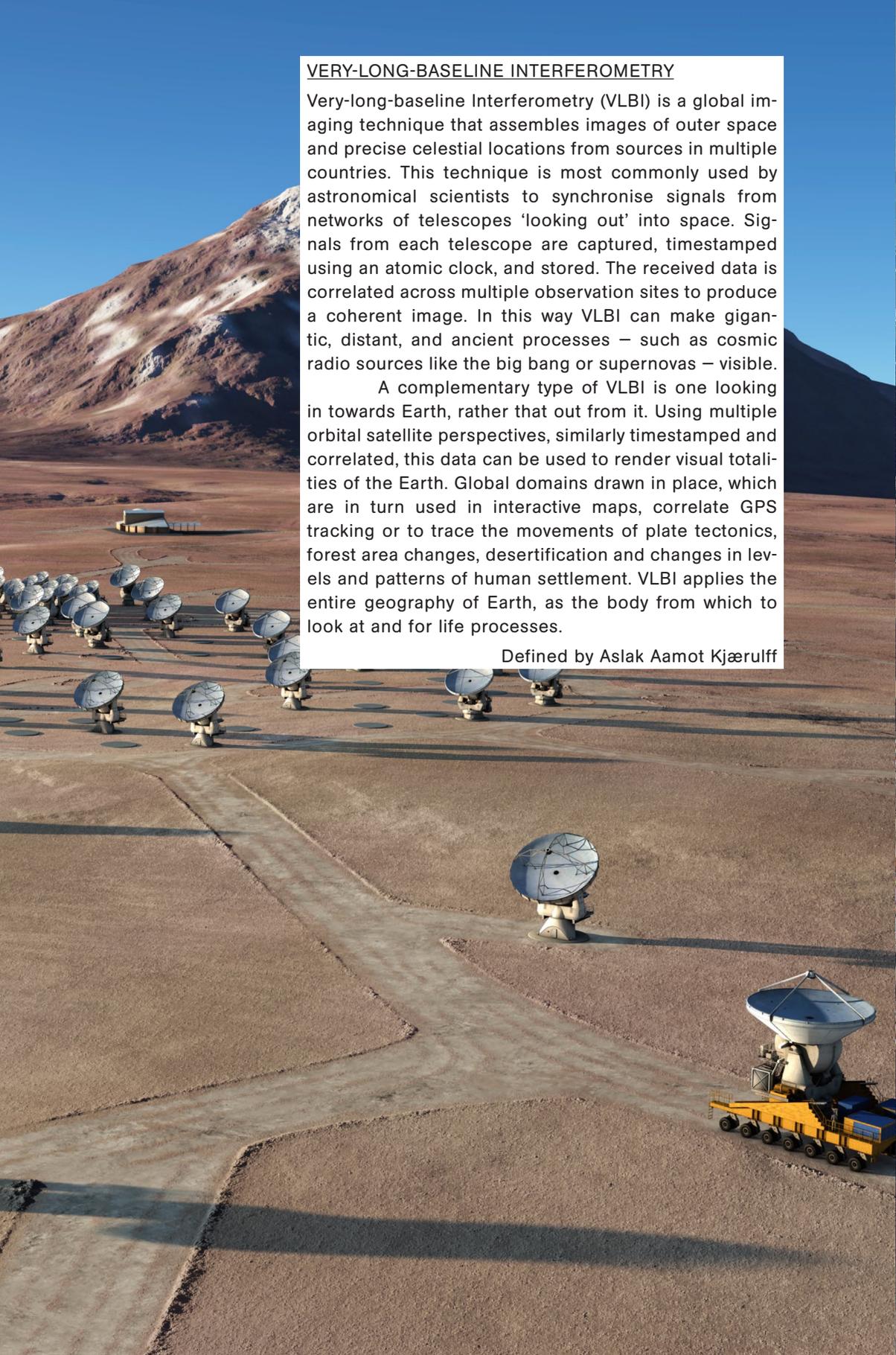
3. Sophie Huyer, 'Gender and International Climate Policy: An analysis of progress in gender equality at COP 21', February 2016, https://cg-space.cgiar.org/bitstream/handle/10568/71106/GenderCOP_21_InfoNote.pdf?sequence=5

VERY-LONG-BASELINE INTERFEROMETRY

Very-long-baseline Interferometry (VLBI) is a global imaging technique that assembles images of outer space and precise celestial locations from sources in multiple countries. This technique is most commonly used by astronomical scientists to synchronise signals from networks of telescopes 'looking out' into space. Signals from each telescope are captured, timestamped using an atomic clock, and stored. The received data is correlated across multiple observation sites to produce a coherent image. In this way VLBI can make gigantic, distant, and ancient processes – such as cosmic radio sources like the big bang or supernovas – visible.

A complementary type of VLBI is one looking in towards Earth, rather than out from it. Using multiple orbital satellite perspectives, similarly timestamped and correlated, this data can be used to render visual totalities of the Earth. Global domains drawn in place, which are in turn used in interactive maps, correlate GPS tracking or to trace the movements of plate tectonics, forest area changes, desertification and changes in levels and patterns of human settlement. VLBI applies the entire geography of Earth, as the body from which to look at and for life processes.

Defined by Aslak Aamot Kjærulff



PLANETARY SKIN

Planetary Skin describes quantitative renderings of earthly sensory processes. It constitutes layered and interlinked geographies of biological and ecological processes. The skin is an artificial reproduction of planetary 'nervous systems' with potentially endless layers, each consisting of molecular cycles involved in oceanic, atmospheric or biospheric metabolisms. Planetary skins are stitched together using embedded electronic measuring devices such as thermostats, pressure gauges, cameras, microphones, glucose sensors or electroencephalographs, carried by satellites, balloons, aeroplanes, ships, bodies, plants or dug into the Earth itself.

In concert the data provides a bio-informational matrix, probing and monitoring ongoing earthly processes. Cities can be watched over, endangered species can be monitored, oceanic carbon cycles can be mimicked and fleets of trucks or the heart rates of their drivers can be audited. Combinations of such remote sensing and authentication of data are the most ambitious attempts at monitoring and administrating ecological-biological systems at scale. So far the control of such systems looks to be in the hands of multinational media companies and governmental research bodies, and has not been equipped with sanctioning or regulating mechanisms. In most likely scenarios of technological futures, apparatuses like Planetary Skin are the medium of governance, and individual citizens are its informant, stakeholder and subject.

Defined by Aslak Aamot Kjærulff



JUNKSPACE

"Continuity is the essence of Junkspace; it exploits any invention that enables expansion, deploys the infrastructure of seamlessness: escalator, air-conditioning... Gravity has remained constant, resisted by the same arsenal since the beginning of time; but air-conditioning invisible medium, therefore unnoticed has truly revolutionized architecture. Air-conditioning has launched the endless building. If architecture separates buildings, air-conditioning unites them. Air-conditioning has dictated mutant regimes of organization and coexistence that leave architecture behind. A single shopping center is now the work of generations of space planners, repairmen, and fixers, like in the Middle Ages; air-conditioning sustains our cathedrals. Traffic is Junkspace, from airspace to the subway; the entire highway system is Junkspace, a vast potential utopia clogged by its users, as you notice when they've finally disappeared on vacation...Like radioactive waste, Junkspace has an insidious half-life. Can the bland be amplified? The featureless be exaggerated? Through height? Depth? Length? Variation? Repetition? Sometimes not overload but its opposite, an absolute absence of detail, generates Junkspace. A voided condition of frightening sparseness, shocking proof that so much can be organized by so little".¹

Stolen from Rem Koolhaas

1. Rem Koolhaas, *October* 100, Spring 2002, 175-190.
lensbased.net/files/Reader2012/rem\koolhaas\junkspace.pdf





INSURRECTIONARY AGRICULTURAL MILIEUX

Insurrectionary Agricultural Milieux are rhizomatic forms of agriculture that exist in local response to global conditions of biopolitics and neoliberalism. Government-supported development projects on agricultural land have compelled farmers and supporters to turn to direct action in resistance to land commodification and the excavation of its resources. As in the cases of Grow Heathrow (London), Mondeggi Bene Comune (Florence) and Ma Shi Po Village (Hong Kong), these indefinite sites of resistance become rhizomatically forming heteropias that gather people from multidisciplinary backgrounds and different communities.

In these instances, participation creates an insurrectionary experience – a self-transforming project towards full autonomy, or what Max Stirner refers to as ‘ownness’. Stirner mentions that ‘insurrection leads us no longer to let ourselves be arranged, but to arrange ourselves’.¹ This can radicalise and politicise individuals in unpredictable ways, including empowering them with skills in self-sufficient farming.

The Diggers (1964), Agrarian Socialism and the Guerrilla Gardening movement (made popular by Richard Reynolds) served as the fertile top soil in a pre-Occupy milieu. During Occupy, insurrectionary agricultural projects were widespread, from the planters in Zuccotti Park (Occupy Wall Street) to Farms for Democracy in Hong Kong – an agricultural platform that existed in all three occupations sites (2014–2015).² Contemporary Insurrectionary Agricultural Milieux can also be seen in refugee camps all across Europe and in Chiapas by the revolutionary Zapatistas.

Local resistances such as this year’s occupation in Ma Shi Po Village have a tendency to stay local and untranslated. When comparing emancipatory strategies on a global platform, such local resistances and their communities can meet, share tactics and learn from one another. For example, designing fortresses and blockades as architectural structures, anonymity in the form of humorous masks of oligarchs, befriending structural forces so that they are less violent during evictions, and even introducing friendly green giant-like mascots such as Spinach Man (see photograph) can all play a role in supporting agriculture in today’s world.³

Defined by 梁志剛 Michael Leung

Image: 文 Wen, Spinach Man and fortress, 2016.

1. Max Stirner, *The Ego and its Own* (Cambridge: Cambridge University Press, 1995), 279–80.

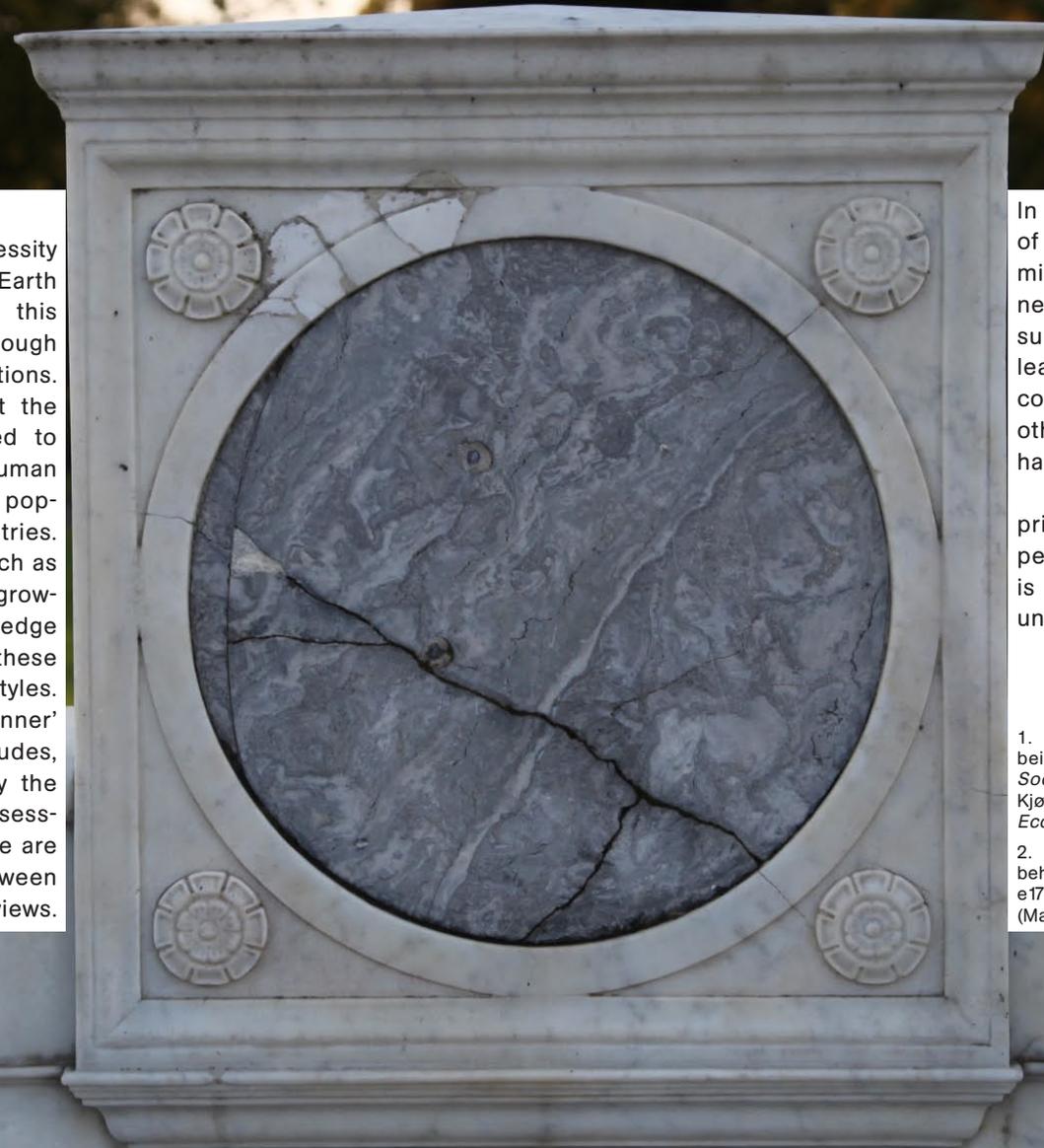
2. Admiralty Demonstration Farm Report, *The HK FARMers’ Almanac 2014-2015* (Hong Kong: Spring Workshop, 2015).

3. *North East New Territories*, www.dungbak.tumblr.com (accessed 17 October 2016).

INNER TRANSFORMATION

While there is broad consensus about the necessity to reduce humanity's adverse impacts on the Earth system, it is becoming increasingly clear that this transformation cannot solely be achieved through technological advances and political regulations. More and more stakeholders acknowledge that the 'great transformation to sustainability' will need to involve substantial changes in lifestyles and human behavior patterns for large parts of the world's population, particularly in the industrialised countries.

Based on the insights from disciplines such as neuroscience and social psychology there is a growing understanding that merely increased knowledge and cognitive insights are not sufficient to drive these required changes in behavior patterns and lifestyles. Rather these changes seem to require deeper 'inner' changes in the human mind and core values, attitudes, culture and belief systems. Stimulated partly by the Pope's latest encyclical 'Laudato Si' and similar assessments on the part of other religious leaders, there are growing discussions about the connection between climate change and spiritual questions and worldviews.



In this context it is being explored how the cultivation of specific human qualities, ethical values, virtues and mindsets such as empathy, mindfulness, connectedness and altruism, can facilitate transformations towards sustainability. For example, mindfulness practices could lead to more frugal consumption patterns through more conscious choice-making. Compassion practices on the other hand are considered as drivers of pro-social behavior, eg. in prisoner's dilemma or conflict situations.

While such practices used to be fostered primarily in the context of individual well-being and personal development, their collective cultivation is now considered increasingly to be an important underpinning of social change towards sustainability.

Defined by Thomas Bruhn

1. K. W. Brown and T. Kasser, 'Are Psychological and Ecological Well-being Compatible? The Role of Values, Mindfulness, and Lifestyle,' *Social Indicators Research*, 74:2 (2005), 349-368. T. Ericson, B.G. Kjøenstad and A. Barstad, 'Mindfulness and sustainability,' *Ecological Economics* 104 (2014), 73-79.

2. S. Leiberger et al., 'Short-term compassion training increases prosocial behavior in a newly developed prosocial game,' *PLoS ONE* 6:3 (2011): e17798. T. Singer and M. Bolz, *Compassion: Bridging practice and science* (Max Planck Institute for Human Cognitive and Brain Sciences, 2013).

PRECAUTIONARY PRINCIPLE

The principle that, where an activity raises threats of harm to human health or the environment, precautionary measures should be taken – even if some cause and effect relationships are not fully established scientifically at that point.

Unlike in the United States, where regulation is only justified when potential damage or harm is unequivocally proven by scientific studies, the Precautionary Principle shifts the burden of proof onto the agent creating the risk. The Precautionary Principle is a general principle of European Union environmental and health policy and ensures that the lack of full scientific certainty cannot be used as a reason for postponing measures to prevent environmental degradation.

While the Precautionary Principle may be used to justify over-zealous regulation, the United States approach may lead to irreversible harm. Neither approach is 'right' or 'wrong' – they simply reflect different approaches to risk management. The highly non-linear climatic system is likely to hold nasty surprises as it is forced out of current equilibrium by untamed greenhouse gas emissions.

The discussion on reducing such emissions, hence, seems to beautifully exemplify the nature of the two risk management approaches. However, even if we could presume that nasty surprises would not occur, the rapidly growing scientific certainty that unabated emissions will result in irreversible large-scale adverse effects makes both approaches to risk management converge on the same conclusion: the need for regulating greenhouse gas emissions.

Defined by Bernd Hezel

FRAGILE
PLEASE
HANDLE WITH CARE

This Carlini globe with a diameter of 125 cm is a Russian special edition. It was thought by the emperor of the dying the year "World Day" - Projects at the interface between science and art" in the year 1902. Only a piece of the globe has been crafted and sent given to Boris Yeltsin and some high-ranking Russian generals. Two of them are currently located outside of Russia, one at the State Library in Berlin and another at the...

Due to the intense use of the globe several damages of its cover occurred. The necessary method took place in 2012. The larger missing parts were replaced by white paper. We warned by experience that it is better to reduce missing the globe. Otherwise the problem might recur.



CLIMATE HOSTAGE

A person or people subject to overwhelming forces of human-made climate change, the solutions for which lie elsewhere in a dispersed field of actors who must participate differently for the crisis to end. In a sense we are all climate hostages, held subject to the violent eruptions of environmental changes of our own making. As with all hostage crises, force directed towards a person or people will only end if actions are taken elsewhere by others. There is a triangulated contract between captor, hostage, and the ultimate target of the action.

This complex negotiation is all the more difficult in the case of climate hostages. Nature may 'speak', but it does not speak human. The timescales on which geological responses are deciphered and reacted to by humans are deeply out of sync. Thus, bracketing the problem that climate may lack intentions and interests, this is a hostage crisis unfolding on terms we do not understand, with woe-fully long delays between demands and resolutions.

Willing to go great lengths to gain the advantage in this prisoner's dilemma, we betray our solidarities. Thus, ultimately, it is nonsense to claim that we are all climate hostages. Political agreements, national borders, global distribution of environmental threat, and the very infrastructures of our daily lives are retooled to distribute risk and depredation unevenly. As some parts of the world (the Sahel, the Fertile Crescent, for example) begin to live through 'anthropocenic conflicts', conflicts the contours of which could not be imagined without the background pressures of climate change, other parts of the world shore up their borders to make certain the damage stays localised.

SEE ALSO: Elongated Governance; Climate Debt.

Defined by Manuel Schwab

FIRST PERSON CLIMATE KNOWLEDGE

An extension of the logic that acknowledges climate injustice – that those most vulnerable to climate changes typically have less culpability in its production – suggests that those most affected should have the greatest representation in decision-making forums, and in educative initiatives. For example, Pacific Island countries, heavily impacted by rising sea levels already, contribute just 0.03% of global carbon emissions, despite having 0.12% of the world's population.¹ This means, in the Pacific, that there are disproportionate numbers of world experts not only in the environmental, social and economic stresses caused by sea-level rise, but also in practices of minimal carbon consumption.

We often talk about this as a problem of educating people, but I say this as a person who is very involved in the climate movement... that the climate movement is not listening enough to the people that are most impacted by climate change and other ecological stresses. And lifting up those voices. Because I think part of the reason that people have this perception that this is all far away and abstract is that they are always hearing about it from intermediaries. How often do we hear directly from people whose countries are disappearing? So I don't think this is about us enlighten[ing] the poor about this problem, we have to be enlightened.²

1. According to the IPCC Report: 'Working Group II: Impacts, Adaptation and Vulnerability', <http://www.ipcc.ch/ipccreports/tar/wg2/index.php?idp1637>

2. Naomi Klein's comment during the Q&A segment of her lecture, 'Let Them Drown: the violence of othering in a warming world,' London, 4 May 2016. Full text at: <http://www.lrb.co.uk/v38/n11/naomi-klein/let-them-drown>

WHAT'S ON

TONIGHT

CLIMATE

MEETING

UPSTAIRS

Waitemata
Local Board

ELONGATED GOVERNANCE

Elongated Governance is a turn towards long-term strategic action on climate change that unfolds simultaneously along structural and temporal lines. Change is needed to address the discrepancy between short election cycles, with their inherent bias towards short termism, and the far-reaching political vision needed for action on climate change.

Elongated Governance is a strategy to counteract the political “rhythm of entrenched cycles”¹ which has thus far shown itself to be incapable of the rapid restructuring of the global economy required for consequential political and economic change. Strategies include a call for reform of the prevalent first past the post system in the electoral process of the United Kingdom and United States, where it is difficult for alternative, smaller parties to emerge, and in the United States through campaign finance reform to unlink government policy from corporate interests. It is key to integrate vertical and horizontal governance structures. Vertical governance structures being hierarchical arrangements in which a higher level (eg. the nation state) is authorised to issue instructions to a subordinate level (eg. cities) and make decisions that are binding for it. An alternative – horizontal governance structures would allow for a voluntary association of actors on one level, eg. cities in city networks.²

DO YOU THINK
WE SHOULD DO
SOMETHING ABOUT
GLOBAL WARMING?

VOTE 4 BERNIE! 4/26/16

#FEELTHEBERN

Elongated Governance actions are increasingly coming from diverse jurisdictions including non-state actors promoting regulation at a community or regional rather than state or federal level, commitments by cities to CO₂ reduction and legal actions led by citizen groups. Examples of such dispersal of action include divestment from fossil fuels, and the recent Dutch court ruling in the world’s first successful climate liability suit that the Dutch government must reduce emissions by 25% within five years to protect its citizens from climate change. This trend to alter the short-term cycles of government can also be seen in the re-organisation of a range of current political movements, for example in the United Kingdom, the claim by Jeremy Corbyn that he is concentrating on a “social movement” with broad social support for a range of progressive issues being a goal equal to that of electability. Elongated Governance is a strategy to be pursued alongside electoral work, seeing social movement action as a way of expanding possibilities therein.

1 Dylan Taylor, ‘The Esra Think Tank’ (interview), *Saturday Morning*, Radio New Zealand, 17 September 2016.

2. ‘Humanity on the Move: Unlocking the Transformative Power of Cities’, German Advisory Council on Global Change (WGBU) Report, Berlin 2016, 510.

3. See Arthur Nelson, ‘Dutch Government Ordered to Cut Greenhouse Emissions in Landmark Ruling’, *The Guardian*, 24 June 2016; and 350.org <https://breakfree2016.org/>.



SITES OF SIGNIFICANCE

In 1840, New Zealand's founding document and first resource management legislation was formed, the Treaty of Waitangi (the Treaty). In 1975, the Treaty was given statutory status and has since been the main driver of Māori values recognition in national policy. Expectations of Māori iwi through this process have centred on establishing the legitimacy of iwi, creating policy equity and the ownership of resources and management rights.

A considerable amount of research contributing towards Treaty Claims is funded through the Crown Forestry Rental Trust (CFRT), with one of the primary mechanisms in establishing claimant group rights to natural resources being the identification of Sites of Significance (SOS). CFRT define SOS as:

...places within the rohe which are particularly important to the claimant group. They may include pā sites [historical fortified villages], awa [rivers, streams], maunga [mountains or significant outcrops of land], wāhi tapu [sacred place, sacred site], or other places of particular cultural or spiritual significance... Sometimes sites will not be a mere single point on the landscape, but will include a number of interrelated areas covering a wider area. Kāinga [homes – contemporary and ancestral], pa sites, urupā [burial grounds], mahinga kai [food-gathering place], trails, cultivations and natural resource areas may form a complex of occupation and use, covering a significant area.¹

SOS mapping therefore records patterns of long-term occupation and intimate knowledge of place; an understanding which could be termed 'eco-philosophical.' Hīkoi – the process of walking the land with tangata whenua (people of the land) – can be walks that follow ancestral pathways, or visits to SOS for the purposes of sharing cultural knowledge. More than this, however, experiencing SOS through hīkoi produces something tangible and connective, a personal, intimate view of people being no more or less than elements of the environment.

For tangata whenua the land, waterways, ocean and air are understood as living entities with which there is a respectful and reciprocal relationship established. This relational approach progresses environmental management towards considering ways to improve mutual health, rather than only the mitigation of negative effects – or – the distinct separation of an SOS for the purposes of preservation.

Defined by Desna Whaanga-Schollum.

Iwi affiliations: Rongomaiwahine, Kahungunu, Pahauwera.
Image: Desna Whaanga-Schollum, Whakaki-nui-a-Rua, Waiatai Valley, New Zealand, 2016.

1. Crown Forestry Rental Trust, 2007.

MOUNDING

An increasing tendency in urban design and landscape architecture to build defensive urban terrain that will protect communities from sea level rise and storm surges. An example can be seen in the proposed re-design of Stuyvesant Cove Park in New York City which was badly flooded during Superstorm Sandy. A new plan for the park will incorporate elevated areas – a mounded park – and floodgates. The mounded park on the river's edge will attempt to protect the high density housing area of Stuyvesant town behind it.¹

The Mounding tendency can be witnessed on a larger scale in the larger 'BIG U' protective system planned for lower Manhattan, in which ten continuous miles of low-lying geography will be redesigned in order to address structural and environmental vulnerabilities exposed by Hurricane Sandy.²

Mounding could be read as a contemporary globalisation of the dike systems long practised in the Netherlands – where about a quarter of the land is below sea level. Given that many of the world's major cities (and financial capitals) are susceptible to sea-level rise, including New York, London, Hamburg and Shanghai, the strategy of Mounding will be one of many necessary adaptation responses to sea level rise that will be necessary in the short to medium term. In the longer term, such tactics may well be inadequate, especially if the optimistic target of holding warming below 2 degrees Celsius is exceeded.

1. Maria Rocha Buschel, 'East River flood protection plan extended to 25th St', *Town & Village*, 22 September 2016, <https://town-village.com/2016/09/22/east-river-flood-protection-plan-extended-to-25th-st/more-13361>

2. See http://big.dk/press/hud_224





ECOLOGY-AS-INTERSECTIONALITY

Ecology, positioned within critical thought, defines a mode of intersectionality, insisting on thinking, being and becoming at the cross section of multiple fields of social, political, economic, technological, and material determinations. Emerging from black feminist legal theory, intersectionality refuses to separate overlapping systems of oppression – including those of race, class, gender, and sexuality – in the figuration of social identity, and thereby prevents the essentialisation of one or other term in isolation. The methodology was first articulated by Kimberlé Crenshaw (in her essay ‘Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminist Theory and Antiracist Politics,’ University of Chicago Legal Forum 140 (1 January 1989): 139–67), though it has a longer conceptual genealogy in African American thought and in many other histories of decolonial struggle, even if the term intersectionality is not used.

I develop the term as a methodology of political ecology in my recent book *Decolonizing Nature: Contemporary Art and the Politics of Ecology* (2016), examining such artistic research as Ursula Biemann and Paulo Tavares’ *Forest law* (2014), a multimedia installation that maps a network of Global South environmentalism, Indigenous activism, and practices of Earth jurisprudence in the Ecuadorian Amazon, all working to extend the rights of nature and contest the petro-corporate and state destruction of Amerindian forest culture. The intersectionality at stake here resonates within and beyond Latin America, touching on the rural US anti-fracking movement and the International Criminal Court’s environmental cases in The Hague, sub-Saharan Africa’s struggles to protect biodiversity and Indian subsistence farmers’ rights to livelihood, and Native American and First Nations attempts to stop the expansion of fossil fuel infrastructure. In these various struggles, ecological politics joins Indigenous rights activism, contesting police brutality, media censorship, and capitalist growth. This revolutionary Earth-centred legal shift, including its cultural manifestations, represents one forefront of the decolonisation of nature. The methodology helps us to avoid essentialising terms like wilderness, nature, or indigeneity, as if they exist in isolation, permanence, and purity.¹

Defined by T.J. Demos

1. See T.J. Demos, *Decolonizing Nature: Contemporary Art and the Politics of Ecology* (Berlin: Sternberg Press, 2016); and T.J. Demos, ‘Rights of Nature: The Art and Politics of Earth Jurisprudence,’ *Rights of Nature: Art and Ecology of the Americas* (Nottingham: Nottingham Contemporary, 2015), <http://www.nottinghamcontemporary.org>. See also: Resistance Ecology’s Facebook page, https://www.facebook.com/Resistanceecologyconference/info/?tab=page_info (accessed 15 December 2015); and Anna Kaijser and Annica Kronsell, ‘Climate Change through the Lens of Intersectionality,’ *Environmental Politics* 23:3 (October 2014), 417–33.

CITIZEN SCIENCE

Citizen Science is the completion of scientific tasks by individuals who are not professionally trained scientists. Citizen scientists work closely with research scientists on such tasks as monitoring environmental conditions, recording the occurrence of species and biological events, transcribing biodiversity information, deciphering research photographs, and processing data. The tasks themselves require minimal training yet through involving citizen scientists, researchers can expand their work across broad geographies and ecosystems.

Many of today's wicked problems are occurring at a global scale and can therefore only be addressed with large-scale monitoring and observations. By involving citizen scientists, researchers can vastly increase the amount of data collected for a project and can carry out numerous simultaneous data collection events that would be impossible with only a single researcher. One of the most impressive examples of this is Cornell Lab of Ornithology's eBird. Through eBird, tens of thousands of citizen scientists around the world have contributed freely accessible bird observations that have enabled researchers to analyse migration patterns over time and relative to weather variables, to help conservation efforts, and to build beautiful, dynamic visualisations. Through participation in eBird and other Citizen Science projects, individuals have improved their understanding of the natural world and have been able to observe natural phenomena in their own backyards.

As the field of Citizen Science grows, citizen scientists are increasingly gaining experiences that enable them to take on organisational roles in research and to have a voice in co-creating scientific research projects. Equally important is the role that Citizen Science has in improving scientific literacy among participants, building support and community around timely scientific research.

Defined by Elizabeth Ellwood





PROTEST AS CELEBRATION

It starts with a no. No more Christmas presents. But you're still stuck with the term Christmas. Then Erin says – all this grief about the planet, but where is the celebration? Where is our *gratitude*? And just like that, Christmas becomes Earthmas. Instead of Father Christmas, Rod says, do you celebrate Mother Earth? You clap your hands. *Exactly*.

All of you spend Earthmas Eve cutting tangerine and lemon coloured suns from cardboard, hanging them from threads from the living room ceiling. A banquet table, made from three dining tables, pushed together. Flowers, everywhere, that you and Loren collect from crumbling roadside banks.

You all want more than that, though. You want rituals. Can we make them up? you ask each other. And you sort of do. In the morning, you take turns cooking, then googling pagan solstice celebrations, without a great deal of success. You decide to do something with fire – when in doubt, always do something with fire.

After the feast, all nineteen of you put flowers behind your ears and dance around in a circle, whooping and clacking and beating your feet against the heat of the sandy soil. What are you doing? one of the kids says. He squints his eye up, and his shoulders look utterly defeated. Earthmas is not Christmas – and in all the wrong ways, if you ask him. What are you *doing*? And that's the thing. The chant is made up; nonsensical. You're banging stainless steel pots and lids together for percussion. You're chanting and cantering in a circle because deep in your cells – in the tiny cells that cluster together to make up your bones – something says, *This is the way back*. But you don't even have a meaningful chant anymore: you don't even know how to fall to your knees and say, thank you, in a language that the Earth will, possibly, understand. Is this the way back? you ask each other. But the question really is: How did we ever get so far away from where we actually are?

Defined by Anna Taylor





TRAGIC TRIUMPH

The term Tragic Triumph was brought up by climatologist Hans Joachim Schellnhuber after COP 15 in Copenhagen in 2009: science diagnosed human-induced global warming and the urgency to act, but was ignored or disbelieved by politics; no consequential decisions were made.

Tragedy is a poetic form that evolved in Greek theatre. Tragedies stage human sufferings. The audience feels a certain pleasure in watching the tragedy evolving, but also has the possibility of catharsis leading to fundamental change and action. If this poetic pattern is transferred to reality, there is however a striking contrast. The tragedy results from the fact that catharsis is not taking place. Climate change scientists find themselves playing the role of Cassandra, who knew the devastating future nobody believed in.

Year after year climate science presents the narrative of earthly and human future sufferings as a tragic reality. Today, some years after COP 15, the Tragic Triumph has an additional meaning: science found out about climate change when it was almost too late to act. Seven years later, COP 22 held in Paris in 2016 showed more promise but even today when most decision-makers believe what climate science report, consequential actions remain weak.

Reality is like a viscous gel, flowing in one direction; an abrupt detour seems impossible, fundamental changes are just not 'feasible.' Does the audience of this play feel any pleasure? In the traditional setting of drama, catharsis is caused through fear and pity, by means of art. As a consequence there can be a change in emotion (consciousness, perception) that creates renewal – but maybe on an individual level only.

Defined by Birgit Schneider

Image: *Rising Sea Level XV: San Michele Cemetery, Venice, Italy, 2007*, archival ink jet print. Saylor / Morris for The Canary Project.



BRUTE FORCE INFRASTRUCTURE

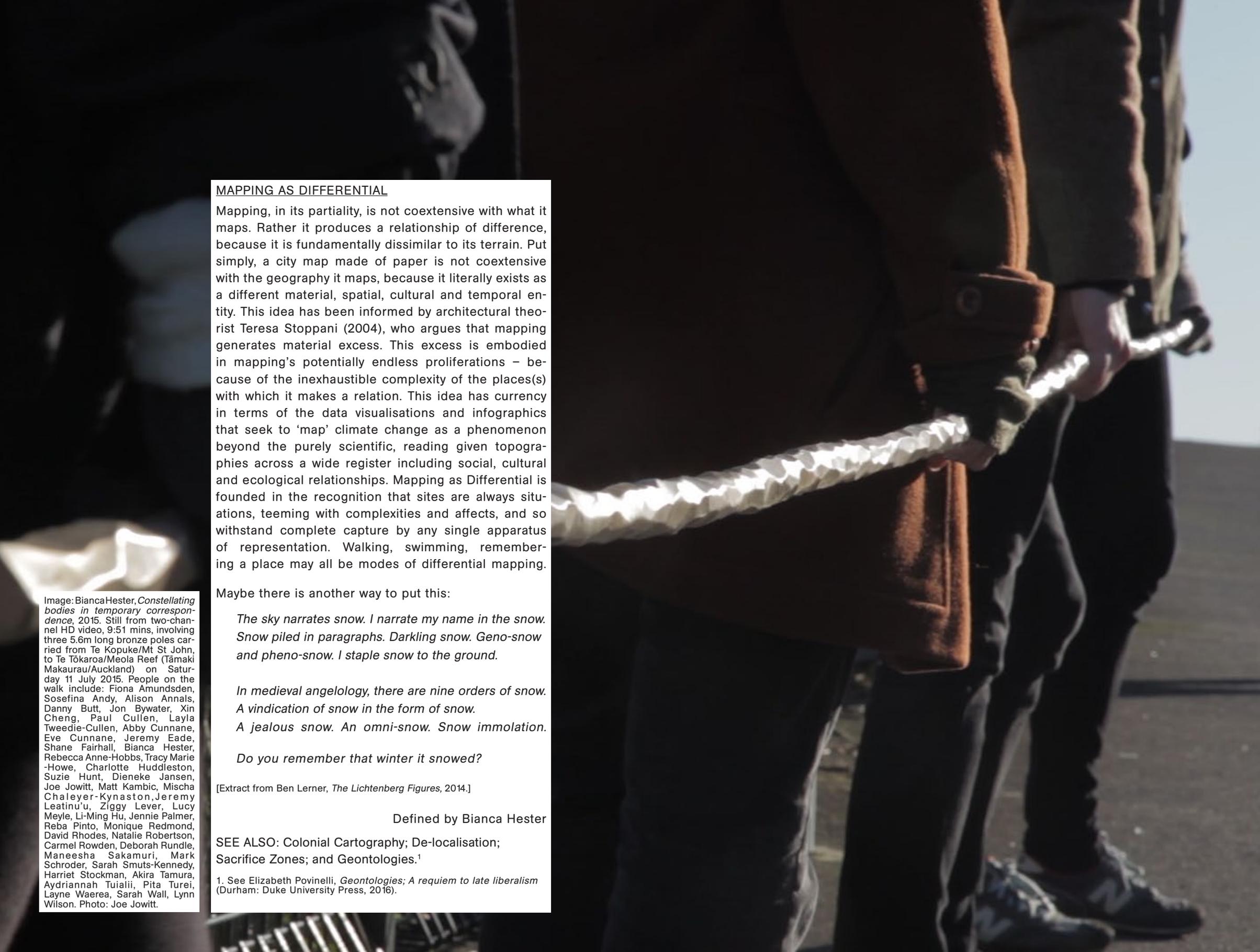
Large scale infrastructure, like big dams, provide power and flood control, but end up having a lot of negative impacts: altering water distribution, hindering fish migrations and altering ecologies for entire regions, often destroying the livelihoods of those living around them. Brute Force Infrastructure undermines bio-cultural diversity.

In her ongoing project *Be Dammed*, artist Carolina Caycedo has documented how the construction of large hydroelectric dams and water reservoirs require mechanisms of social control. El Quimbo Hydroelectric Project, an example of Brute Force Infrastructure on the Magdalena River in Huila, Colombia, “is turning a public body of water into a privatized resource; a process of rural, geographical, and ecological corporatization.”¹

Brute Force Infrastructure also cannot adapt to the changing weather distribution patterns being caused by climate change. The huge sums of money required to build such infrastructure mean developing nations are often locked into global sources of capital, which undermine local self sufficiency and community sovereignty. For example in Zambia “The power generated from the Kariba – one of the world’s largest hydroelectric dams, in one of the world’s largest artificial lakes – contributed to Zambia’s political stability and helped turn its economy into one of the fastest growing on the continent. But today, as a severe drought magnified by climate change has cut water levels to record lows, the Kariba is generating so little juice that blackouts have crippled the nation’s already hurting businesses. After a decade of being heralded as a vanguard of African growth, Zambia, in a quick, mortifying letdown, is now struggling to pay its own civil servants and has reached out to the International Monetary Fund for help.”²

1. See Carolina Caycedo, *BE DAMMED: A Thesis Presented to the Faculty of the USC Graduate School*, University of Southern California, August 2014.

2. Norimitsu Onishi, ‘Climate Change Hits Hard in Zambia, an African Success Story’, *The New York Times*, 12 April 2016.



MAPPING AS DIFFERENTIAL

Mapping, in its partiality, is not coextensive with what it maps. Rather it produces a relationship of difference, because it is fundamentally dissimilar to its terrain. Put simply, a city map made of paper is not coextensive with the geography it maps, because it literally exists as a different material, spatial, cultural and temporal entity. This idea has been informed by architectural theorist Teresa Stoppani (2004), who argues that mapping generates material excess. This excess is embodied in mapping's potentially endless proliferations – because of the inexhaustible complexity of the places(s) with which it makes a relation. This idea has currency in terms of the data visualisations and infographics that seek to 'map' climate change as a phenomenon beyond the purely scientific, reading given topographies across a wide register including social, cultural and ecological relationships. Mapping as Differential is founded in the recognition that sites are always situations, teeming with complexities and affects, and so withstand complete capture by any single apparatus of representation. Walking, swimming, remembering a place may all be modes of differential mapping.

Maybe there is another way to put this:

*The sky narrates snow. I narrate my name in the snow.
Snow piled in paragraphs. Darkling snow. Geno-snow
and pheno-snow. I staple snow to the ground.*

*In medieval angelology, there are nine orders of snow.
A vindication of snow in the form of snow.
A jealous snow. An omni-snow. Snow immolation.*

Do you remember that winter it snowed?

[Extract from Ben Lerner, *The Lichtenberg Figures*, 2014.]

Defined by Bianca Hester

SEE ALSO: Colonial Cartography; De-localisation;
Sacrifice Zones; and Geontologies.¹

1. See Elizabeth Povinelli, *Geontologies: A requiem to late liberalism* (Durham: Duke University Press, 2016).

Image: Bianca Hester, *Constellating bodies in temporary correspondence*, 2015. Still from two-channel HD video, 9:51 mins, involving three 5.6m long bronze poles carried from Te Kopuke/Mt St John, to Te Tōkaroa/Meola Reef (Tāmaki Makaurau/Auckland) on Saturday 11 July 2015. People on the walk include: Fiona Amundsden, Sosefina Andy, Alison Annals, Danny Butt, Jon Bywater, Xin Cheng, Paul Cullen, Layla Tweedie-Cullen, Abby Cunnane, Eve Cunnane, Jeremy Eade, Shane Fairhall, Bianca Hester, Rebecca Anne-Hobbs, Tracy Marie-Howe, Charlotte Huddleston, Suzie Hunt, Dieneke Jansen, Joe Jowitt, Matt Kambic, Mischa Chaleyey-Kynaston, Jeremy Leatinu'u, Ziggy Lever, Lucy Meyle, Li-Ming Hu, Jennie Palmer, Reba Pinto, Monique Redmond, David Rhodes, Natalie Robertson, Carmel Rowden, Deborah Rundle, Maneesha Sakamuri, Mark Schroder, Sarah Smuts-Kennedy, Harriet Stockman, Akira Tamura, Aydrannah Tuialii, Pita Turei, Layne Waerea, Sarah Wall, Lynn Wilson. Photo: Joe Jowitt.



LIVING BORDERS

Infrastructure inscribes political power, often circumventing legislative processes and exploiting the murky waters of international jurisdiction. “In a site of multiple, overlapping, or nested forms of sovereignty, where domestic and transnational jurisdictions collide, infrastructure space becomes a medium of what might be called *extrastatecraft* – a portmanteau describing the often undisclosed activities outside of, in addition to, and sometimes even in partnership with *statecraft*.” (Keller Easterling). A recent example is Eurosur, the European Agency for the Management of Operational Co-operation at the External Borders’ (aka Frontex) massive surveillance system that is designed to become a platform for “the frictionless circulation of identity data within a single globalised market of information”.

Yet, digital security infrastructure is often far more visceral than we imagine: in a desperate bid to escape the dragnet of this ‘frictionless’ circulation of biometric identity data, migrants have been driven not only to burn their passports, but to also erase any physical biometric markers by mutilating their fingertips by burning them, using acid or cutting them with a razor, giving a dreadful final twist to the Latin etymology of ‘digital’ in *digitus* – finger.¹

This is symptomatic of the rise of what geographer Louise Amoore has named the ‘Biometric border’. Biometric borders are interfaces between digital technologies and databases, and managerial expertise in risk management. Within this new paradigm, Amoore writes, “identity is assumed to be anchored as a source of prediction and prevention”.² The body becomes the border.

Defined by The Research Center for Proxy Politics
(Boaz Levin and Vera Tollmann)

1. Boris Buden, Maria Hlavajova, Simon Sheikh (eds.), ‘A single swing of the shovel’, *Former West: Art and the Contemporary After 1989* (Massachusetts: MIT Press, forthcoming March 2017).

2. Louise Amoore, ‘Biometric borders: Governing mobilities in the war on terror’, *Political Geography*, 2006; 25:336-351.

ORDINARY KNOWLEDGE

How do individual perceptions and ideas become institutionalised as scientific knowledge? Once institutionalised, such knowledge is immensely powerful: widely shared, perceived as objective, and used as the foundation for further science and policymaking. The production of scientific knowledge, however, is not a straightforward process of unleashing the truth. Science involves extensive entanglements with the state, through funding,¹ and in support of policy,² while dissemination is the result of unpredictable, socially embedded processes.³

Scientific knowledge itself is far from a simple articulation of the truth. In order to make complex, contextualised facts into useful, transposable concepts, science reduces particularities: the specific must be suppressed in order for the generalisable to be identified.⁴ These abstractions, having sloughed off subjective meanings, are intelligible to distant entities and useful for decision making. The production of scientific knowledge thus frequently subordinates other types of knowing: those that are perceptual, embodied, and grounded in daily experience.

Ordinary Knowledge is awareness rooted in lived experience, which gives rise to practices, institutions, and social norms in local communities. Scientific and Ordinary Knowledge conflict, as universal imperatives override local habits. In the context of the environment, abstracted concepts about nature and its changes, or 'climate facts,' ask people to "let go of their familiar, comfortable modes of living with nature"⁵ – modes that often support responsible stewardship of the environment.

These forms of knowledge, however, are also deeply entwined. Scientific knowledge relies on subjective, embedded, local insights for any successful operationalisation.⁶ But Ordinary Knowledge must also reckon with advances in science, if local practices are going to adjust to new information about climate change. Climate facts are articulated beyond the human scale: planetary rather than local, on the order of centuries rather than seasons. For these abstractions to inform individual and community practices, they must be rearticulated in conjunction with the Ordinary Knowledge of daily life.

Defined by Laura Adler

1. Chandra Mukerji, *A Fragile Power: Scientists and the State* (Princeton: Princeton University Press, 1990).

2. Sheila Jasanoff, 'The Practices of Objectivity in Regulatory Science,' *Social Knowledge in the Making*, Charles Camic, Neil Gross, and Michèle Lamont (eds.), (Chicago, London: University Of Chicago Press, 2011).

3. Bruno Latour, *The Pasteurization of France*, trans. Alan Sheridan and John Law (Cambridge: Harvard University Press, 1993).

4. Jasanoff, 'A New Climate for Society', *Theory, Culture & Society* 27, 2010, (2–3): 233–53. doi:10.1177/0263276409361497.

5. Jasanoff, 2011, 236.

6. Professor James C. Scott, *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed* (New Haven: Yale University Press, 1998).

Image: Justin Guariglia, documentation of *Welcome to the Anthropocene (GISTEMP Index 1880-2016)*, 2016 until deceased. Black carbon tattoo pigment, skin.

On August 29th 2016, the day the International Geological Congress voted 30 to 3 in favor of formally designating the Anthropocene, the artist had NASA's GISTEMP (global temperature anomalies 5-year mean) index tattooed onto his arm. The index tracks, from left to right, global temperature rise from 1880 through 2016, as compiled by NASA's Goddard Institute for Space Studies (GISS) at Columbia University.

HUMAN RAIN

From Romanian ceremonies known as *paparuda* and *caloian*, to practices of the native American tribe the Zuni, based in western New Mexico, indigenous cultures worldwide have ritualised practices to create rainfall. With increasing dominance of scientific understandings of climate systems, such traditions were disregarded, culminating in the twentieth century dismissal of those promising the ability to bring rain to the dust bowl drought of the American West and Midwest in the 1930s as preying on 'superstition'.

The belief that social forces such as ritual rain dances can affect the severity and frequency of rainfall has, in the Anthropocene, collided with the new knowledge that widespread anthropogenic global warming is now known to be redistributing and intensifying rain by the collective human action of warming the atmosphere; "Warmer air can...be expected to enhance precipitation extremes as it can hold more moisture."¹ However, as with all extreme weather events, rain-making in any particular instance cannot be conclusively attributed but rather deemed to be of increased statistical likelihood, for example: the number of record-breaking rainfall events has increased since the 1980s. In 2010 one in five new rainfall records would not have happened without long-term climate change. Regionally there are higher probabilities, for example in Southeast Asia the risk to observe a new record rainfall has doubled.²

1. Dim Coumou and Stefan Rahmstorf, 'A decade of weather extremes', *Nature Climate Change* 2, 2012, 491-496, doi:10.1038/nclimate1452

2. Jascha Lehmann, Dim Coumou and Katja Frieler, 'Increased record-breaking precipitation events under global warming', *Climatic Change*, 2015, 132:4, 501-515, doi:10.1007/s10584-015-1434-y



KERMADECIAN

Kermadecian, aka – ‘Raoulie’ – an ‘inhabitant’ of an uninhabited island, specifically Raoul Island, in the Kermadec group, 1000km north of mainland New Zealand. On account of incessant seismic and volcanic activity, the islands were never settled for any length of time by Polynesian peoples – although a settler family, the Bells, lived on Raoul for some 35 years until they were forcibly removed by the New Zealand government at the outbreak of World War One. Since then, the subtropical islands, with neither airstrips nor harbours, have claimed only a sporadic population of wash-ins or and passers-by – meteorologists, conservation workers, scientists and, in 2011, a group of nine artists.

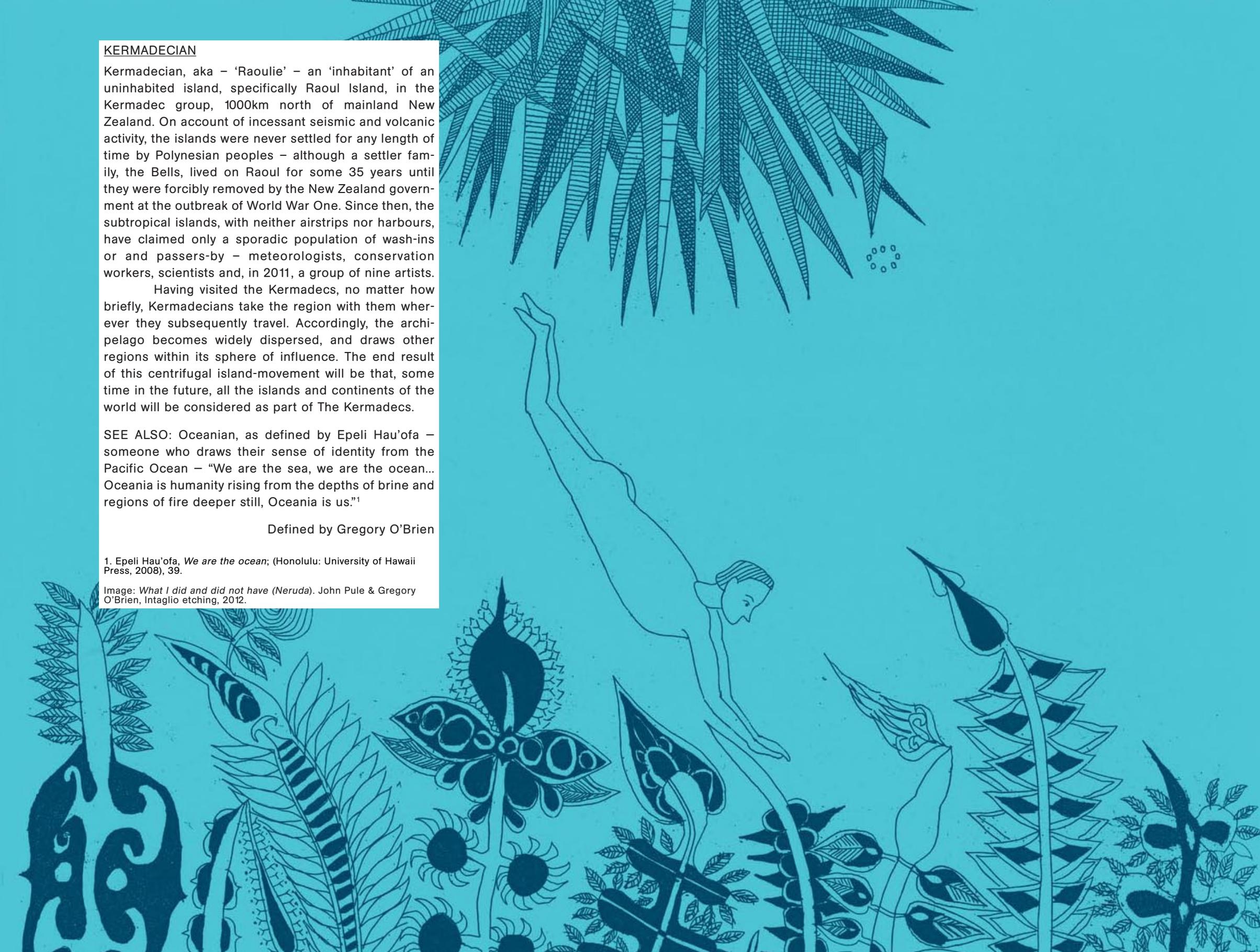
Having visited the Kermadecs, no matter how briefly, Kermadecians take the region with them wherever they subsequently travel. Accordingly, the archipelago becomes widely dispersed, and draws other regions within its sphere of influence. The end result of this centrifugal island-movement will be that, some time in the future, all the islands and continents of the world will be considered as part of The Kermadecs.

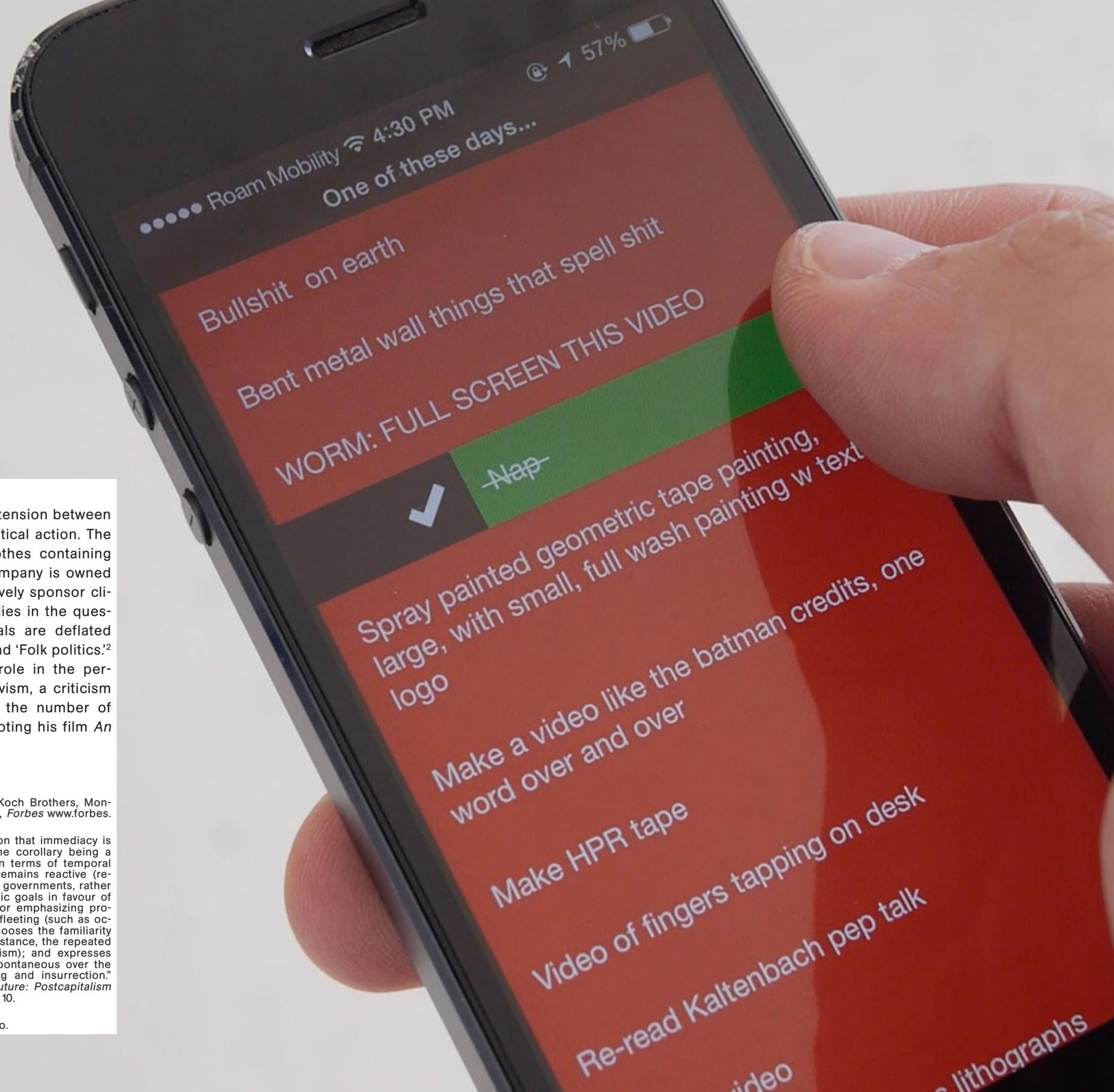
SEE ALSO: Oceanian, as defined by Epele Hau’ofa – someone who draws their sense of identity from the Pacific Ocean – “We are the sea, we are the ocean... Oceania is humanity rising from the depths of brine and regions of fire deeper still, Oceania is us.”¹

Defined by Gregory O’Brien

1. Epele Hau’ofa, *We are the ocean*; (Honolulu: University of Hawaii Press, 2008), 39.

Image: *What I did and did not have (Neruda)*. John Pule & Gregory O’Brien, Intaglio etching, 2012.





THE FUCK LYCRA CONUNDRUM

The Fuck Lycra Conundrum labels the tension between conscious consumption, and 'real' political action. The impulse to not purchase or wear clothes containing Lycra is based on the fact that the company is owned by Koch industries, whose owners actively sponsor climate change denial.¹ The conundrum lies in the question of whether broader political goals are deflated through mere consumption activism, and 'Folk politics.'² The Fuck Lycra Conundrum plays a role in the perceived hypocrisy of much climate activism, a criticism perhaps most famously discussed in the number of air miles Al Gore accrued whilst promoting his film *An Inconvenient Truth*.

SEE ALSO: Post-Truth Climate Politics.

1. Clare O'Connor, 'New App Lets You Boycott Koch Brothers, Monsanto and More by Scanning Your Shopping Cart', *Forbes* www.forbes.com, 14 May, 2013.

2. "At its heart, folk politics is the guiding intuition that immediacy is always better and often more authentic, with the corollary being a deep suspicion of abstraction and meditation. In terms of temporal immediacy, contemporary folk politics typically remains reactive (responding to actions initiated by corporations and governments, rather than initiating actions); ignores long-term strategic goals in favour of tactics (mobilising around single-issues politics or emphasizing process); prefers practices that are often inherently fleeting (such as occupations and temporary autonomous zones); chooses the familiarity of the past over the unknown of the future (for instance, the repeated dreams of a return to 'good' Keynesian capitalism); and expresses itself as a predilection for the voluntarist and spontaneous over the institutional (as in the romanticisation of rioting and insurrection." Nick Srnicek and Alex Williams, *Inventing the Future: Postcapitalism and a World Without Work* (London: Verso, 2015), 10.



DENIHILISM

The refusal to acknowledge both empirical fact and forensic evidence in defense of ideology. This expresses itself primarily in American politics and culture, where cell phone videos posted on social media and body-cam recordings fail to result in police convictions. Denihilism is clearly exemplified by Donald Trump's outright denial of Tweets and statements that have been published in public record (see: Donald Trump repudiating his previous statement that "the concept of global warming was created by and for the Chinese in order to make US manufacturing non-competitive.").

Denihilism, in contrast to denial, is ideologically driven, where the evidence being denied poses a fundamental threat to the logic of a system of belief, or conflicts with an individual or institution's objectives. Common historical denihillist groups have been Holocaust denialists, AIDS denialists, animal pain denialists and more recently climate change denialists and Flat Earth believers. Culturally, Denihilism is closely related to the 'Reality Distortion Field' (or RDF). The ability to create and enforce an RDF is a celebrated quality amongst technological innovators, and is a term that was used in relation to Steve Job's ability to create a new reality through mental force.

SEE ALSO: Post-Truth Climate Politics

Defined by Dena Yago

CLIMATE RESEARCH SOLIDARITY

The recognition of the common agreement amongst climate researchers that urgent action is needed on climate change, expressed as mutual support and information sharing across a global and interdisciplinary sector. The process of sharing research has been underpinned by the setting up in 1988 of the Intergovernmental Panel on Climate Change – which, contrary to popular understanding, covers policy responses to climate change as well as the physical processes of climate, and impacts of climate change. The IPCC has been important in strengthening global scientific research and interchange among not only physical scientists but also social scientists. Climate researchers are highly motivated, given the diminishing 'time of useful consciousness' remaining, and there is a widespread sense of urgency and solidarity among them.

SEE ALSO: Tragic Triumph, Time of Useful Consciousness.



HINKLEY FOLLY

The misconception that nuclear power is necessary for the transition away from fossil fuels. Hinkley Folly takes its name from the proposed Hinkley Point C plant in the United Kingdom, recently given the go-ahead by Theresa May, in part due to a post Brexit political and economic commitments to France (a signal that the United Kingdom is still 'open for business').

An act of sheer folly is one that lacks good sense, and Hinkley Folly stands in this tradition by ignoring the massive renewable wind potential available in the United Kingdom (and offshore). The Hinkley nuclear power plant would be constructed in the mould of the follies of 18th and 19th century British gardens - symbolic buildings with little practical purpose (often towers or mock-Gothic ruins). In the case of Hinkley, enormously costly also, with a long tail (many thousands of years of costs associated with toxic waste management).

If it is ever built (the technology is still not proven to work in a similar projects in Finland) Hinkley Folly will not only lock the British taxpayer into a contract for expensive power for decades to come, but undermine the possibility for greater subsidies for renewable energy technology in the United Kingdom given that, as Peter Wynn Kirby has noted, Hinkley Point C "skews energy policy itself" by hiding investment - in part through merging the research and development and skills training of those in the military and civilian nuclear sectors. He writes, "If Britain's energy policy were solely about energy, rather than also about defense, the nuclear sector would be forced to stand on its own two feet. And the government would have to acknowledge the growing benefits of renewable energy and make hard-nosed comparisons about cost, implementation, environmental benefits and safety. Britain's defense policy should not be allowed to undermine the country's energy policy: That, too, is about national security."¹

1. Peter Wynn Kirby, 'Britain's Nuclear Cover-Up,' *The New York Times*, 10 October 2016.





EMPTY ANIMATION

Christchurch, New Zealand suffered a series of serious earthquakes in 2010 and 2011. People died. People were relocated. Buildings were knocked over. We've been rebuilding since then, and in a way that demonstrates how modern right-wing governments often work. Post-quake, the governing National Party had the political mandate to do pretty much anything. They said they'd help and we believed them. More than five years on, they've yet to build a single house in the city's central business district, in favour of a plan which has instead prioritised 'anchor projects' a series of grandiose schemes of dehumanising scale. A convention centre built to serve an international stateless corporate class, a justice and emergency services precinct designed to contain and process the undesirable sectors of twenty-first century society.

A number of projects – including the Performing Arts Precinct, a cultural centre for the Ngāi Tahu people, and a residential demonstration project, which was meant to showcase our ability to build sustainable, future-proofed housing – that were announced in a blaze of digital animation have slowly dropped out of the discussion. The real travesty of this is the way in which the government – aided by a complicit and under-resourced media – can promise so much, and yet deliver so little.

Defined by James Dann

TIME OF USEFUL CONSCIOUSNESS

This is a phrase the poet Lawrence Ferlinghetti used to describe the preciousness of our current moment. Originally an aeronautical term, the time of useful consciousness is those few moments between being deprived of oxygen and passing out, moments in which the full extent of the danger is known, but it is still possible to act. We are in the Time of Useful Consciousness, the brief period where we still have an opportunity to save the delicate balance of the atmosphere and the civilisation that depends on it.¹

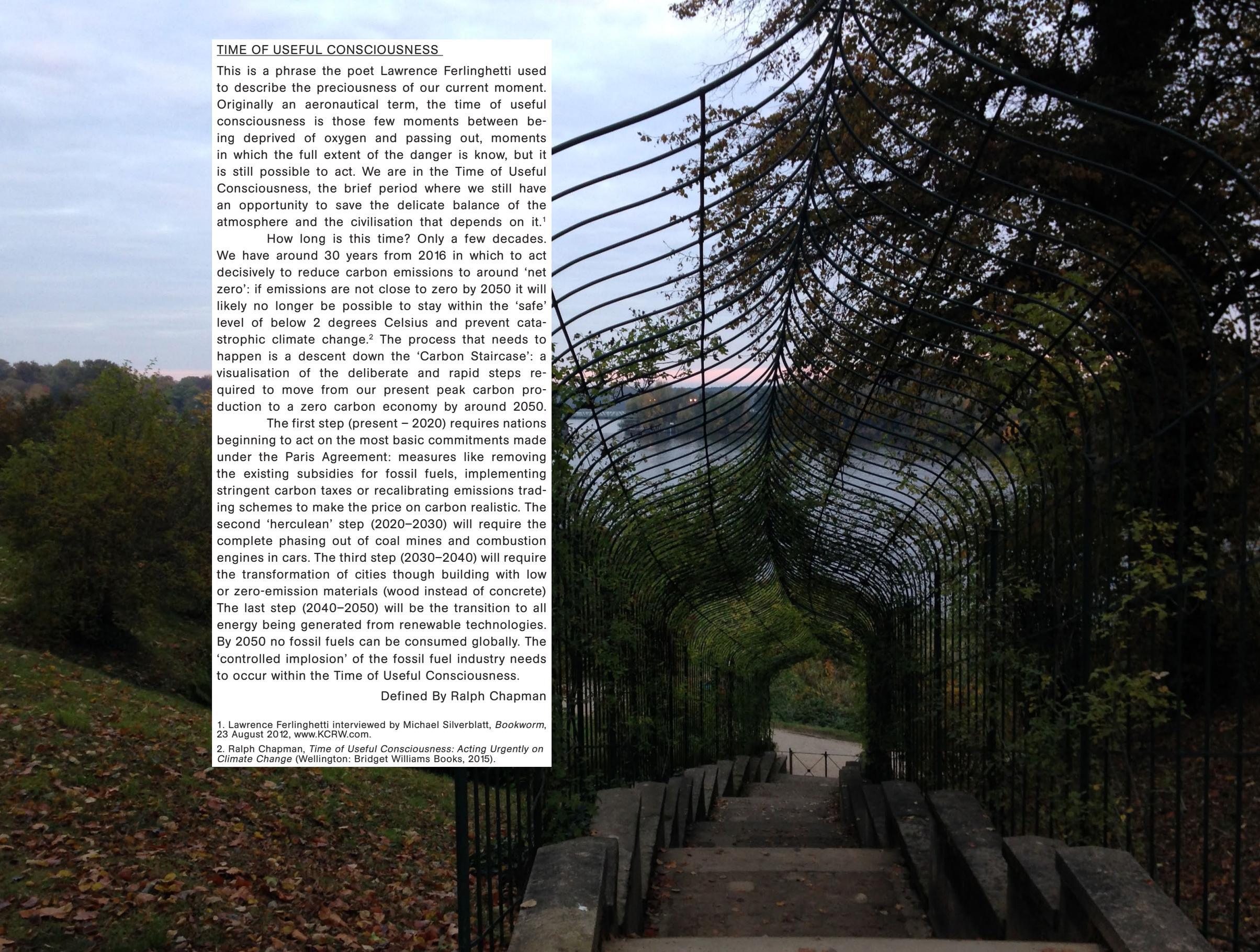
How long is this time? Only a few decades. We have around 30 years from 2016 in which to act decisively to reduce carbon emissions to around 'net zero': if emissions are not close to zero by 2050 it will likely no longer be possible to stay within the 'safe' level of below 2 degrees Celsius and prevent catastrophic climate change.² The process that needs to happen is a descent down the 'Carbon Staircase': a visualisation of the deliberate and rapid steps required to move from our present peak carbon production to a zero carbon economy by around 2050.

The first step (present – 2020) requires nations beginning to act on the most basic commitments made under the Paris Agreement: measures like removing the existing subsidies for fossil fuels, implementing stringent carbon taxes or recalibrating emissions trading schemes to make the price on carbon realistic. The second 'herculean' step (2020–2030) will require the complete phasing out of coal mines and combustion engines in cars. The third step (2030–2040) will require the transformation of cities through building with low or zero-emission materials (wood instead of concrete). The last step (2040–2050) will be the transition to all energy being generated from renewable technologies. By 2050 no fossil fuels can be consumed globally. The 'controlled implosion' of the fossil fuel industry needs to occur within the Time of Useful Consciousness.

Defined By Ralph Chapman

1. Lawrence Ferlinghetti interviewed by Michael Silverblatt, *Bookworm*, 23 August 2012, www.KCRW.com.

2. Ralph Chapman, *Time of Useful Consciousness: Acting Urgently on Climate Change* (Wellington: Bridget Williams Books, 2015).





THE L TRAIN

Lina Moe

“We are building tunnels back smarter and more resilient,” Ronnie Hakim, MTA New York City Transit President, told a crowd of Brooklyn residents who gathered to hear about the MTA’s plans to repair the Canarsie tunnel, which connects Fourteenth Street in Manhattan to Williamsburg, Brooklyn. News of possible closures to this line had leaked last January, but two community meetings in May were the start, officials said, of efforts to include community voices in plans to repair the 1924 tunnel that had been heavily damaged by Hurricane Sandy in 2012.

This essay considers a problem of civil society and urban planning that was catalysed by a naturally occurring disaster, Hurricane Sandy. I investigate how the causes and effects of this situation, insofar as they relate to climate change, have not been accounted for in various groups’ attempts to argue about the stakes of shutting down the L line and reconstructing its physical and social infrastructures. I suggest that by beginning with the shared assumption of ‘building it back,’ we preclude the possibility of discussing the L Train in environmental terms.



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The L Train is so predictably crushed that if a person should wish to experience New York rush-hour congestion, she can visit the L line at nearly any moment – day or night – throughout the weekend. After snapping a picture of a packed L platform at 1:30am, Carson Qing, a researcher at New York University’s Rudin Center for Transportation, felt compelled to find out just how crowded Brooklyn’s tunnels had become. His analysis of turnstile data showed that since 2005, ridership on the L Train has skyrocketed, doubling at nearly every platform on the average weekday and tripling or even quadrupling on the weekend. The L Train, Qing concluded, does not have ‘peak hours,’ but instead ‘extended rush hours’ that can last for days.¹

¹ Carson Qing, ‘Rush Hour in Williamsburg—at 1 AM,’ NYU Rudin Center blog, 29 January 2013.

The L Train runs from Eighth Avenue in Chelsea, Manhattan, to Rockaway Parkway in Canarsie, Brooklyn and carries about a quarter of a million passengers daily. Usage of this line, especially the part that runs through Williamsburg, Brooklyn, has increased so dramatically in the past ten years that the Bedford and Lorimer L stations are among the most crowded in the New York City subway system. The Bedford L is now also the name of a television show representing and parodying the lifestyle habits and real estate prices around this stop. The L Train runs under the East River through the Canarsie tunnel, a 1.4-mile-long tunnel that was dug by hand in 1924.

Though the New York City subway system is overall experiencing record-breaking levels of ridership, the L Train is so crowded partly because of what MTA officials call a “low level of infrastructural redundancy.” Running through the formerly industrial – and now tremendously popular – areas of Williamsburg and Bushwick, the L Train is a lone spar in North Brooklyn. Disconnected from the trio of lines that run across the Williamsburg Bridge to south Williamsburg, it serves neighbourhoods that are even further from the cluster of lines that connect Midtown to Long Island City, or that dip south from lower Manhattan through a network of connections branching off from Borough Hall, Jay St Metro, and Atlantic Avenue. Its relative geographical isolation helps explain why its residents are among a minority in New York who will describe themselves as living “off the L Train,” rather than in a neighbourhood. Try, for example to find a resident of Tribeca or Park Slope who will describe themselves as “living off the 2.” This infrastructural identity, though, recently took on new weight when the MTA announced that the L Train is about to close for up to three years.



In 2012, Hurricane Sandy made devastating landfall in Jamaica and Cuba before retreating briefly to the open water of the Caribbean Sea, strengthening again, and running through the Bahamas and up the Eastern seaboard of the United States, making its mark on twenty-four states from Florida to Wisconsin. Superstorm Sandy, as it was unofficially called, left 70% of Jamaica without power, caused billions of dollars of damage, and was linked to hundreds of casualties. A Category 1 hurricane at the time it hit New York City, Sandy flooded subway tunnels and streets with 400 million gallons of seawater and knocked out the electricity below Fortieth street.² Photos from the night of October 29 show an eerily dark lower Manhattan, save for the golden glow of the generator-powered Goldman Sachs building.

2 *The New York Times* wrote about the “two cities” left in Sandy’s wake, divided by access to hot food and warm water (Sharon Otterman, ‘Above 40th Street, the Powerless Go to Recharge,’ *The New York Times*, 1 November 2012).

3 MTA Official Website, ‘Restoring South Ferry Station,’ <http://web.mta.info/nyct/service/RestoringSouthFerryStation.htm>.

4 Spencer Ackerman, ‘Here’s How Army Engineers Are ‘Unwatering’ NYC’s Tunnels,’ *Wired*, 1 November 2012.

5 Sewall Chan, ‘Why the Subways Flood,’ *The New York Times*, 8 August 2007.

Electrical wiring in the subway that comes into contact with saltwater has to be replaced because dried salt conducts electricity. Saltwater running over the third rail in the subway system can even light floating trash on fire. During Sandy, the subway took on millions of gallons of saltwater and the tunnels, as the lowest parts of the system, were at points flooded from floor to ceiling. South Ferry Station became a swirling repository for water that raced downhill beneath Wall Street and Battery Park to inundate one of the system’s most up-to-date electrical rooms, reconstructed with post-9/11 funds to handle twenty trains an hour. In the days before the storm’s landfall, MTA officials knew the low-lying South Ferry would be a problem, but outside of barricading subway entrances with boards and sandbags, had no systemic plan for holding back the chest-high water rushing into the station.³

Immediately after the storm, the U.S. Army Corps of Engineers began the process of ‘unwatering’ the tunnels. The Corps, along with the Navy, which contributed submersible and centrifugal pumps, focused on tunnels leading in and out of the city, leaving subway tubes to the Federal Emergency Management Agency (FEMA) and the City of New York. Collecting generators and water pumps from around the country, the US Army Corps of Engineers started with the Brooklyn Battery Tunnel, a major artery connecting Brooklyn and Manhattan near South Ferry station. They placed high-head submersible pumps deep below the water’s surface and used centrifugal pumps to suck water from the surface in a huge, straw-like hose.⁴ Some of these pumps arrived from the last American city deluged by a major storm: New Orleans.

The task facing the MTA in the days following Sandy was both unprecedented and extremely familiar. The MTA is “in the business of moving water,” Michael A. Lombardi, then senior vice president for subways at New York City Transit, said after a 2007 inundation. “We move 13 million gallons of water a day when it’s not raining,” Lombardi said; it’s only when water “comes down like a river and goes into our vents” that business as usual comes to a halt.⁵ The problem is that many scientists predict that such situations will soon become the new normal. Coastal cities like New York are particularly susceptible to sea level-rise and increasingly violent storms, but the full extent of New York’s vulnerability in a climate that makes hurricanes the strength of Sandy on the Atlantic coast less of a rarity lies deep under the water’s surface. The particular environmental situation of the island of Manhattan means that the movement of water will likely become more and more central to the MTA’s job.



The surveyor Egbert L. Viele was commissioned in the 1860s to make several detailed maps of New York City topography, some of which are still consulted by structural engineers and city planners to see if they are planning a new skyscraper over a buried pond or stream. Today Viele may be visited entombed with his wife in a pyramidal mausoleum guarded by two stone sphinxes in West Point, New York. A civil engineer, US Representative and Captain of the Engineer Corps during the Civil War, Viele is perhaps best remembered for surveying the land that would become Central Park, just prior to the approval of Olmsted & Vaux's 'Greensward Plan.' Viele himself became engineer-in-chief of Central Park and, later, also associated with Prospect Park. But it is his detailed survey of the hidden waterways of New York – showing its original shoreline, marshes, and streams – that has become critical to engineers and academics assessing ways of making the city more resilient to a new era of building and environmental stresses. 'The Sanitary and Topographical Map of the City and Island of New York,' now known as Viele's map, superimposes the city's 1865 grid system over the natural topography of Manhattan, from Minetta Brook, which continues to flood basements in the West Village, to Collect Pond, a critical source of fresh water for the Lenape people and colonial settlers that is today commemorated in miniature as a reflecting pool on the grounds of Federal Plaza. Viele's map also reveals how the shorelines have changed in correlation with the changing grid structure of the city, which extended Avenues A, B, and C through a swamp and built out Tenth and Eleventh Avenues, not to mention the piers, all of Battery Park, and much of the Financial District, over what was formerly open water.

Shorelines have changed dramatically – geologically speaking – in the past 10,000 years. Today, when we talk about sea level rise, it is often in terms of the steady increase of inches in response to climbing temperature. But the geological past of New York City and its surrounding bay suggests that the rapid melting of glacial sheets have raised sea levels as rapidly as a foot a decade in what are called "meltwater pulses."⁶ Today, the Intergovernmental Panel on Climate Change predictions and NASA's monitoring project, Ocean Melting Greenland, suggest that we are experiencing a similarly dramatic level of glacial change. If IPCC predictions about ice sheet melting are right, then not just New York, but many of the world's major coastal cities – Miami, Guangzhou, Mumbai, Shanghai – will be in trouble.

New York City is vulnerably perched at the apex of a major submarine geological feature. Carved out by the Gulf Stream, the New York Bight is an underwater canyon running up the Atlantic coast and along the south of Long Island. The New York Bight makes the city especially vulnerable to storm surges by funneling water up through a massive underwater valley between New Jersey and New York called the Hudson

Canyon. The north-south Atlantic coast and east-west axis of Long Island meet at nearly a right angle, which is also the location of the mouth of the Hudson River. If a storm moves north along the Jersey coast, easterly cyclonic winds might push a strong surge west, straight into the Lower New York Bay and one of the largest metropolitan areas in the country. The particularly vulnerable geological position of New York City has long been noticed by meteorologists, who also point out that a storm surge might do even more damage if it is funneled up the Hudson Canyon, a deep submarine trench below the Hudson River, formed during the Pleistocene era when the river was much lower. Both geological particularities of the bay mean that storm surges have little opportunity to dissipate, except over the surface of lower Manhattan and Staten Island. An 1893 storm followed this blueprint for inundation and produced surges of 30 feet in lower Manhattan; in 2012, Hurricane Sandy followed the same path.



After Sandy, New York dubbed its homeowner fund for repair and reconstruction after the storm the 'Build it Back Program.'⁷ Though the city also backed six urban and environmental design projects focusing on how to make the city more resilient to future storms, the public and municipal conversations about hurricane damage, especially in relation to the city's transportation systems, remain dominated by the effort to 'build it back,' and fast.⁸ News of possible closures to L Train service, first leaked in January was greeted by irate riders, one of whom publicised his feelings in a video for *The Gothamist*, saying, "To the MTA: you're the worst, but maybe I'll be in LA soon."⁹

On two recent spring evenings, the MTA hosted community meetings to discuss options for repairing the Canarsie tunnel. At the first meeting – notably held in Brooklyn a week before its Manhattan counterpart – residents filed past news vans and police officers into the vast Marcy Avenue Armory to see exhibits of corroded subway parts, large-format photographs of Sandy's aftermath, and poster boards detailing repair proposals. MTA and New York Subway and Train employees were on hand to answer questions about proposed repair plans – a year and a half total shutdown or three years of partial service that could accommodate perhaps 20% of normal ridership – and alternate routes – ferries, express bus lanes, more robust J, M and G lines. (Entrepreneur Daniel Levy allowed that the looming L Train shutdown has given new life to his proposed East River Skyway, a gondola that if built would connect Williamsburg to Delancey Street.)¹⁰ MTA representatives and elected officials stuck to a politic stance that emphasised

6 Andrew Weaver, et al., 'Meltwater Pulse from Antarctica as a Trigger of the Bølling-Allerød Warm Interval,' *Science*, 290: 5613 (2003), 1709-1713.

7 'NYC Build it Back Program: Stronger and Safer,' <http://www.nyc.gov/html/recovery/html/homeowners/rebuild.shtml>

8 Renee Cho, 'Rebuilding After Hurricane Sandy,' *State of the Planet*, Earth Institute Blog, Columbia University, 21 January, 2015.

9 Roxie Pell, 'Video: L Train Riders at Bedford Ave React to Multi-Year Shutdown News,' *The Gothamist*, 14 January 2015.

10 The East River Skyway is a private venture proposed by Daniel Levy, the president of a real estate site, and it is unclear how or whether the city of New York would participate financially in the project (<http://www.eastriverskyway.com>).

the necessity of repairing the tunnel as soon as possible and improving the tube's safety right now. "We walk the entire length of the tunnel twice a week," MTA Chairman Thomas Prendergast said.

Tacitly, the MTA has taken off the table the primary demand of the recently formed 'L Train Coalition whose entrepreneur and community organiser members suggested delaying tunnel repairs until a new, third tunnel could be constructed (the cost of such a project could total \$4.5 billion dollars).¹¹ The legacy of Brooklyn organising around transportation issues, especially the possibility of being cut off from Manhattan, has an important history. Only in the 2000s was reconstruction of the Williamsburg Bridge finally completed, a project that owes its origins (and some would add, duration) to strong late-1980s community organising against the proposed plan of replacing the dilapidated Williamsburg Bridge, during the reconstruction of which North Brooklynites would have faced a formidable commute to Manhattan. But under strong community pressure – L Train Coalition leader Felicia Kirby said they had marched to protect their link to Manhattan in 1987 and they would do so again – the MTA devised a plan to fix the cracked foundation, significant rusting, and notoriously unstable Cable G (which had an estimated 5% chance of total failure) while keeping the bridge open. The difference is that far from a marginalised neighbourhood fighting to maintain its economic relevance, Williamsburg today is an economic powerhouse, with real estate prices among the highest in the city. Concern over keeping Manhattan connected to Williamsburg, both as a destination for tourism and nightlife, but also as a residential home to an increasingly high-income workforce, is shared across the East River.¹²

The new organising challenge is not, therefore, to fight against a marginalised Brooklyn, but to attend to the growing disparity of power within Brooklyn. Congresswoman Nydia Velázquez, longtime representative of North Brooklyn, attended the recent MTA meetings to voice her demands that the city "engage stakeholders from Williamsburg, Bushwick, and East New York" and "grant a just distribution of opportunities to those who will be impacted in those neighbourhoods." What Velázquez has in mind is "small business participation," and "making sure that local businesses will be part of the construction." In her view, which was echoed by Brooklyn Community Board member Anthony Drummond and NYC Comptroller Scott Stringer, the L Train closure and reconstruction gave the MTA the clear prerogative and opportunity to exemplify a new kind of municipal relationship that was "nothing less than open, inclusive and transparent with the community" from Williamsburg all the way to Canarsie.¹³

So far, this has been the dominant discourse of concern and critique: how can the MTA act as an agency, a corporation,

11 See the L Train Coalition's website: <http://ltraincoalition.com> and Benjamin Kabak's historical analysis of why the L line is so isolated ('History Smiles as L Train Coalition discusses a new Williamsburg Tunnel,' *Second Ave. Sagas*, 26 February 2016).

12 As Representative Carolyn Maloney remarked in the 5 May 2016 meeting, during the Sandy subway shutdown, "my staff couldn't get from Brooklyn to the office in Manhattan." The problem of getting from Brooklyn to Manhattan may continue to shift as employers also shift away from traditional Manhattan neighbourhoods.

13 Nydia Velázquez speech at 5 May 2016 MTA Community meeting, Marcy Avenue Armory, Brooklyn NY.

and a social institution, fulfilling contemporary demands for a more inclusive New York? The shutdown will be universally frustrating, but will fall hardest on those least able to allot extra time for commuting, least able to comfortably pay for convenient alternatives, and most likely to feel that their preferences were not considered in the reconstruction plans. The 5 May community meeting, entailed a deliberate consideration of logistics, strategies, and fine-grained details of the construction plans. L Train reconstruction will be protracted and incredibly inconvenient, but in being so, the project has the potential to make clear some of the conditions of social inequality that exist from one end of a subway line to the other. Not only this, but crises of urban transportation on the scale of post-Sandy recovery set into motion monumental infrastructural and social projects that can also mitigate these inequalities.

The problem with settling into a deep examination of proposed rebuilding, even with the potential social benefits that might attend such a fine-grained discussion, is that the long-term feasibility of the Canarsie tunnel remains unquestioned. After nearly three hours and when only a few dozen of the audience remained at the recent community meeting, I was able to ask Tom Prendergast the last question: "What if there is another Sandy?" He responded:

What happens if there is another Sandy?

We are in a better position today and better prepared. The best solution is that Sandy never happens again, but it probably will. You can argue about global warming, but you can't argue with the fact that the frequency and intensity of storms are increasing.

We've got projects underway to harden the system. If you remember, we put down plywood and sandbags to cover up the 540 subway openings in lower Manhattan alone. Now, we are putting in stainless steel and steel devices to secure the openings. It takes a long time to install these and we are racing. Come October it is four years since Sandy and these are the types of things we are putting in to be prepared.

The newly repaired L Tunnel will have fast-closing steel shutters that recall the blast doors in Star Wars. Some metal parts that were most easily corroded will be replaced with more resistant metals. In places where rigid steel doors are impractical, the MTA is experimenting with giant inflatable plugs. These look like huge tampons. And yet, the effectiveness of these measures against another storm surge equivalent to that of Sandy's remains an open question. The MTA continues to pump out thousands of gallons of water from the subway as a matter of daily practice. Facing an increasing frequency and intensity of storms, how the MTA will keep additional water

out of these tunnels, which at the lowest point of the subway act like a gutter for the city's extra runoff, Prendergast admitted, will be a challenge. Privately, Jeremy, an engineer with over a decade's experience at the MTA, told me that if NYC experienced another Sandy, even with the steel doors and the tampons, what we would need is good luck and probably another round of repairs.



Engineers in West Virginia, financed by the Department of Homeland Security, test an inflatable plug to block flooding in transit tunnels. Photo: *The New York Times*, 21 November 2012.

Sandy left New York with thousands of miles of damaged track, some that were submerged in saltwater for days. The L Train repair project arrives at a particular moment in the post-Bloomberg era marked by municipal and infrastructure improvement and by Mayor Bill de Blasio's commitment to widening the group of who participates in community decision-making. Thus far, the primary discussion has been how to best include the community in post-Sandy repairs, embodying a better version of New York that is both efficient and inclusive. The difficulty with the project as it has unfolded so far is that, like at the community meeting, a reckoning with the environmental conditions within which this T narrative is proceeding has not occurred. We are racing to build it back, Prendergast admitted, because we might have to do so again sooner than we'd like. Even if we do finish, as Jeremy pointed out, there is no way to keep water out of the system if another storm like Sandy hits. The discussion that is not being had, or rather that is being squeezed into the margins, is whether contemporary climatological predictions about sea levels and storm occurrences might change what 'building it back' means today.

A year,
a place,
a season,
the weather

ARTSPACE
opposite the Mazuran's Building
300 Karangahape Rd
Auckland

8pm, November 19th

Today's Forecast

MODERATE WINDS, FAIR AND MILD

Official forecast until midnight:

All Districts (Northland, Auckland, Waikato, Bay of Plenty, Rotorua-Taupo): Light or moderate south-westerly winds predominating. Weather fair and mild.

Outlook for Thursday: Easterlies with cloudy skies and showers predominating in Northland, otherwise mainly fair.

Mechanics Bay Reading

The following 24-hour statistics were prepared by the Auckland weather office, Mechanics Bay, last night:—

	Mon.	Tues.
Rain (inches)	Nil	Nil
Sunshine (hours) . . .	12.1	11.8
Temp. (deg): Max. . . .	73.8	76.2
Min.	59.9	54.1
Humid'y, highest (%) . .	84	94
Barometer (inches) . . .	30.09	30.09
Millibars	1019	1019

TOTAL AND AVERAGES		
Total for	Rain	Sun
March	Nil	*11.8hrs
Year	7.48in	*434.2hrs
Average for:		
March	*3.37in	192.9hrs
Year	*45.23in	2059.8hrs
Days with rain this month . . .	Nil	
*Herald record for 104 years.		
*Provisional.		

SUN, MOON AND TIDES

Sun.—Rises, 6.6 a.m.; sets, 7 p.m.
Moon.—Rises, 10.13 a.m.; sets, 9.33 p.m. First quarter, Saturday, 11.6 p.m.; full, March 13, 8.26 p.m.; last quarter, March 20, 6.41 p.m.; new, March 27, 7.38 p.m.

	Today		Tomorrow	
High Water—	a.m.	p.m.	a.m.	p.m.
Auckland	10.57	11.17	11.39	11.57
Manukau Hds	1.3	1.18	1.40	1.56
Onehunga	1.23	1.58	2.00	2.16

Auckland Tidal Predictions.—High water: Morning, 10.9ft; evening, 10.5ft. Low water: 4.20 a.m., 1.4ft; 4.45 p.m., 1.4ft.

Paul's Book Arcade

THE MEMOIRS OF
SIR ANTHONY EDEN
THE YEARS 1873-1957.
FULL CIRCLE.
35/-.

For the first time the political story of this period by a man who was always a figure of world importance in it. A detailed exposition

The New Zealand Herald

AUCKLAND, WEDNESDAY, MARCH 2, 1960

MR NASH EXPECTS NELSON TO DO ITS DUTY

The sudden decision to establish a cotton mill in Nelson deepens the atmosphere of unreality which surrounds the proposal to spend £10.5 million drilling a railway through the Marlborough hills. Just what is the Government up to in Nelson?

The political motive for such abrupt activity is obvious enough. But the deeper implication is that the Government has embarked on a determined attempt to direct industry and population to Nelson.

Properly planned and motivated, decentralisation of industry has much to commend it. But if the Government is pursuing such a policy it is going about it in a curiously oblique way. The economic repercussions are wide and should be openly debated.

New Zealand must obviously expand its industries if it is to maintain living standards. The establishment of economic new industries anywhere in the country is to be welcomed, subject, of course, to such considerations as labour potential and distribution costs. Attention must also be paid to the prospects of a particular industry in the light of technological advances elsewhere.

Why has Nelson been chosen for a cotton mill and why are its merits as a site not announced? Unlike recent development in the Bay of Plenty or in Southland, industrial growth in Nelson can hardly spring from natural resources. Nor is there any threat of local

unemployment or regression such as might justify new industries in Dunedin or on the West Coast.

Is the mill merely an attempt to justify the railway and, if so, how much freight can it contribute to diminish the annual loss on such a bird-brained line?

The Prime Minister's speech at Nelson sets off an immediate train of questions.

Have the nameless overseas cotton interests chosen the Nelson site freely or has the Government offered other incentives?

What degree of protection is envisaged?

Has Nelson adequate labour resources to staff the mill on a shiftwork basis?

What will be the effect of the site on distribution costs when two-thirds of the cotton products will go to the North Island, presumably by road and sea until the railway is finished?

How real are the export possibilities when long-established mills overseas are already closing down as a result of competition from synthetics and when more and more countries are supplying their own needs for cotton goods?

So long as these and other questions remain unanswered the flurry of development in Nelson can be interpreted only as an attempt to justify a staggering political gamble with public funds.

Approach to the American Market

The postponement of the proposed trade mission to the United States and Canada need not necessarily prove a bad thing. Much depends on timing, and at the moment the contemplated approach might well prove unsuitable for North American markets.

In some countries a concentrated assault represents an excellent way of making an impact on a potential market and bringing to the attention

others adopt similar tactics. An increase in competitive imports is liable to bring powerful defensive moves into play.

By long experience the major New Zealand producer boards have attained much skill in interesting North American importers in their goods without unduly disturbing domestic suppliers. To preserve such a delicate balance demands considerable tact.

A recommendation by a United States Congressional

to pump on shore, and this, coupled with the shortage of berths at Tauranga, would mean the ship would probably not sail until tomorrow.

The Belstar is a fast modern Norwegian tanker of 10,190 tons. She was built in 1958 at Fredrikstad and is under charter on her present voyage.

MINIMUM OF UPSET

Queen Street Work

Before the work of resurfacing Queen Street from Customs to Wellesley Streets is started, the method to be employed will be discussed with the Queen Street Business Association by Auckland City Council engineers.

The council's chief general engineer, Mr A. T. Simmons, said yesterday that details for this work were almost completed and a start would be made soon.

"It will be done in sections," he said. "Inconvenience to traffic will be kept to a minimum."

FEWER POLICE IN SEARCH FOR ESCAPERS

Own Corres. Taupo
The Rotorua, Hamilton and Taupo police have now been recalled from the search for the escaped prisoners, John Hemi, aged 24, and Leonard Edwin Evans, aged 18, in the Turangi district.

A Wanganui sergeant, four constables and two police dogs are remaining at the scene.

It seems likely, in view of lack of success in the search, that the two men have either not reached Turangi or left before a roadblock was set up in the district.

Hospitality That Rebounded

Own Corres. Te Kuiti
Members of the Waitomo Tourist League who entertained a party of British tourists at Waitomo Cave Hotel and took them into their homes were pleasantly rewarded when they were in turn invited to a cocktail party at the hotel.

The visitors said that the friendly contact with New Zealanders would, with a similar gesture at Feilding, be a highlight of their New Zealand visit.

EARTHQUAKE FELT

An earthquake lasting about 10 seconds was felt in the Kawerau district soon after 10 o'clock last night. No damage was done.

the shark was caught in about six feet of water. He estimated its weight at 400 pounds. The liver weighed 50 pounds.

Mr R. Williams, in identifying the fish, said tiger sharks were not common at Napier.

DUST CLOUDS BROUGHT OUT FIREMEN

Clouds of dust floating out through windows of the Great Northern Hotel, Queen Street, Auckland, drew two fire engines and a policeman to the building yesterday.

Many in the lunch-hour crowd thought the dust was smoke and called the brigade.

The dust came from above the ceiling of the eastern wing of the hotel and was the accumulation of years. The wing is now being renovated and the dust fell when the ceiling was being pulled down.

MOTORCYCLIST DIES

A motorcyclist died after he hit the back of a parked truck in Grey Street, Kawerau, at 8.15 last night. He was

Mr Onul Kohl, aged 34, mill employee, of Kawerau.

has been approved. Announcing this yesterday, the Minister of Railways, Mr Moohan, said the new waggons were required to meet the increasing demand for express transit of a wide range of goods, including products of paper mills, fruit, vegetables, furniture and general merchandise.

The Z Class waggons are 50 feet long and have three doors on each side for rapid loading and unloading. Many of the additional waggons are expected to be ready this year.

QUEEN SENDS THANKS FOR MESSAGE

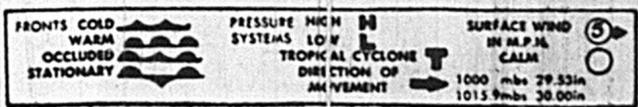
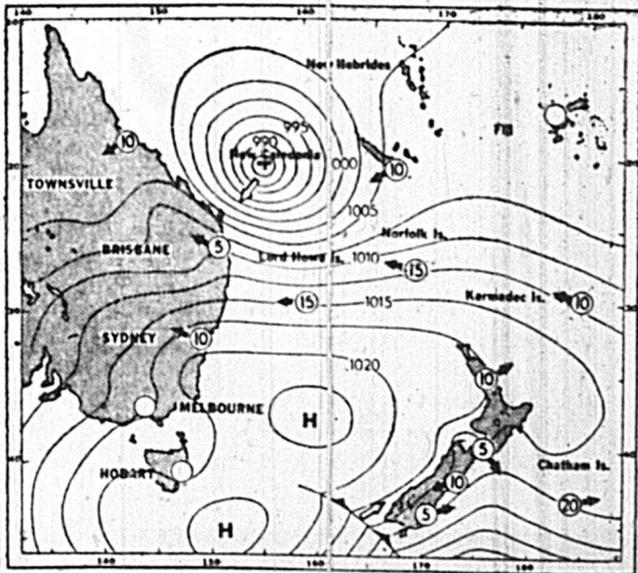
The Governor-General, Lord Cobham, has received from the Queen the following telegram in reply to the message sent on the occasion of the betrothal of Princess Margaret:—

"Please convey my sincere thanks to the Government and people of New Zealand for their kind message of congratulations and good wishes to my sister, Princess Margaret, on her engagement to Mr Antony Armstrong-Jones. (Sgd) ELIZABETH R."

SOUTH PACIFIC WEATHER MAP

(6 p.m. yesterday)

An anticyclone over the Tasman Sea extends on to New Zealand.



ASLAK AAMOT KJÆRULFF is a social scientist based in Copenhagen. He is a co-founder of the transdisciplinary research institution Diakron, focusing on emerging technologies, artistic and curatorial practices and the mobility of ideas across fields of practice. Academically he is affiliated with the Cosmobilities Research Network and teaches at the Department of Technology and People at Roskilde University on topics of climate change, commoning and organisational formats.

LAURA ADLER is a PhD candidate in sociology at Harvard University where her research focuses on urban planning, regulation, and the changing nature of work.

THOMAS BRUHN is a physicist working as a postdoctoral researcher at the IASS Potsdam. After working transdisciplinarily on climate engineering he is now conducting the project AMA – A Mindset for the Anthropocene. Bruhn is a member of the Think Tank 30, the Club of Rome.

RALPH CHAPMAN is Associate Professor at Victoria University of Wellington, New Zealand, Director Graduate Programme, Environmental Studies and a member of the New Zealand Centre for Sustainable Cities. Key areas of research include climate change policy; sustainable transport and urban form.

ABBY CUNNANE is a curator, currently working at ST PAUL St Gallery, AUT University in Tāmaki Makaurau Auckland. She is a co-founder and editor of The Distance Plan.

JAMES DANN is a writer, broadcaster and failed politician from Christchurch, New Zealand, although he's trying to change the 'failed' bit.

T.J. DEMOS is Professor of History of Art and Visual Culture, at UC Santa Cruz, where he directs the Center for Creative Ecologies. He is author most recently of *Decolonizing Nature: Contemporary Art and the Politics of Ecology*, (Sternberg Press, 2016), and is currently finishing a new book: *Against the Anthropocene: Visual Culture and Environment Today* (forthcoming from Sternberg Press, in 2016).

ELIZABETH ELLWOOD is a postdoctoral researcher with iDigBio, the United States' resource for Advancing Digitization of Biodiversity Collections (ADBC), and with Florida State University, Florida, US. She is based in Los Angeles, California, where her research focuses on the ways citizen scientists can contribute to international efforts to mobilise biodiversity information.

JUSTIN GUARIGLIA is a multi-disciplinary artist exploring the emergent landscape of the Anthropocene. His work lies at the nexus of photography, painting, printmaking and sculpture. In September 2016 Guariglia became the first artist in history to join be embedded into a NASA science mission, and for the next 5 years, will be part of / involved with embedded in NASA's Oceans Melting Greenland (OMG) mission. He is based in New York City.

BIANCA HESTER is an artist currently based in Sydney. Her projects have involved sculptural interventions into public sites to heighten awareness of social contexts and architectural spaces, addressing the ways these are constructed and regulated. More recently Hester has been developing work that engages directly with the fabric of the city, attempting to bring about an expanded form of public sculpture where multiple relations converge.

BERND HEZEL is a quantum mechanic decoding climate science results and designing suitable media formats at Climate Media Factory. At the Potsdam Institute for Climate Impact Research he investigates climate change adaptation support and audio-visual climate change communication formats.

PHILIPPA HOWDEN-CHAPMAN is a Professor of Public Health at the University of Otago, Wellington, New Zealand, where she teaches public policy. She is director of He Kainga Oranga/ Housing and Health Research Programme and the New Zealand Centre for Sustainable Cities. She is currently chair of the World Health Organisation Housing and Health Guideline Development Group.

AMY HOWDEN-CHAPMAN is an artist and writer, originally from New Zealand, currently based in the USA. In 2016 she was the artist in residence at The Potsdam Institute for Climate Impact Research. She is a co-founder and editor of The Distance Plan.

STEVE KADO was born in North York, Ontario, Canada.

MICHAEL LEUNG is a designer, urban farmer and visiting lecturer. He was born in London and moved to Hong Kong in 2009. His activities range from working as a street market stall seller to urban agriculture projects such as HK Honey, HK Farm and HK Salt.

LOUISE MENZIES is an artist based in Auckland, New Zealand, whose work typically offers objects, images and situations that explore past and present through attention to the way they are already represented.

LINA MOE teaches and writes about British literature and the environmental humanities. She received her PhD from Yale University and is a fellow at the Huntington Library for 2016-17.

EDWARD MORRIS & SUSANNAH SAYLER (Sayler / Morris) work with photography, video, writing, installation and open source projects. Of primary concern are contemporary efforts to develop ecological consciousness and the possibilities for art in support of social movements. In 2006 they co-founded The Canary Project – a studio that produces visual media and artworks that deepen public understanding of climate change and other ecological issues. They teach at Syracuse University, where they run The Canary Lab.

GREGORY O'BRIEN is currently a Stout Memorial Fellow at Victoria University, Wellington, where he is completing a book which explores the relationship between environment and imagination. O'Brien got lucky in 2011 and was one of the artistic group who visited the Kermadec region. (Far more people have stood on the top of Mount Everest than have set foot on Raoul Island.)

MICHALA PALUDAN is an artist based in Askeby, Denmark, and elsewhere. Through installations and photography she explores questions of agency, representation and intimacy. She is currently on maternity leave.

JOHN PULE is a Niuean-born painter and writer, who in May 2011 travelled to Raoul Island on the HMNZS Otago. After spending most of his life in Auckland, Pule returned to live in the village of his birth, Liku, early in 2015.

JANINE RANDERSON is a New Zealand-based media artist, writer and curator. One strand in Janine's research is the technological mediation in ecological systems, with a particular focus on the atmospheric sciences.

THE RESEARCH CENTER FOR PROXY POLITICS (RCP) is run by Boaz Levin and Vera Tollmann, under the auspices of Hito Steyerl's lensbased class at the Universität der Künste Berlin. Vera Tollmann is a writer. Since 2015, Tollmann is a PhD candidate in the graduate program 'Aesthetics of the Virtual' in Hamburg. Boaz Levin is an artist, writer, and occasional curator. Levin is a member of the curatorial team of the 7th edition of the FOTO-FESTIVAL Mannheim-Ludwigshafen-Heidelberg, which will open in September 2017.

BIRGIT SCHNEIDER is professor of media ecology in Potsdam. Since 2008, she has been Dilthey Fellow of the Fritz Thyssen Foundation at the Institute for Arts and Media, University of Potsdam. Her current research focus is media ecology, the visualisation of climate since 1800 and a genealogy of climate change visualisation in between science, aesthetics and politics.

MANUEL SCHWAB is a writer and anthropologist, preoccupied with questions of the value of human lives in international regimes of protection and political economy. He teaches at a University in Cairo. When he's not writing on value and circulation, he's working on his manuscript about a manuscript seeking asylum in the world.

ANNA TAYLOR'S collection of stories, *Relief*, won Best First Book of Fiction at the 2010 New Zealand Book Awards. She teaches on the Whitireia Creative Writing Programme in Wellington, New Zealand.

BEATRICE TURNER teaches English Literature at Newcastle University, UK. She works primarily on British Romantic literature and its nineteenth-century afterlives.

DESNA WHAANGA-SCHOLLUM (Ngāti Rongomaiwahine, Ngāti Kahungunu, Ngāti Pahauwera and Ngāi Tahu iwi) work is connected through exploration and articulation of te ao Māori kaupapa. She is actively involved in Māori cultural discourse via research, exhibitions, wānanga, hui and speaking engagements.

DENA YAGO Dena Yago is an artist and writer based in Los Angeles.

The Distance Plan
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