

1.

Curating connections in a climate changed world

Kirsten Wehner, Libby Robin and Jennifer Newell

This book springs from the conviction that climate change demands urgent changes to the ways we think about ourselves and our world, and that museums are effective places for supporting dialogue about this issue. Given the decades of critical re-evaluation of museums¹ and the rise of fast-paced online sourcing of information, as a first step it is important to recognize that museums are still regarded by a broad public as authoritative; they are valuable as places of congregation, fostering shared ideas, insights and learning. Museums take their brief in the broadest sense, with a responsibility for socially just and equitable events, exhibitions and educational outcomes.

The relational museum

The *relational* museum, a term adopted originally at the Pitt Rivers Museum in Oxford, has gathered pace since its inception in 2002, creating connections between the human and nonhuman, between people and artefacts, between people of varied cultures, between scales of local and global. As the Oxford project has argued:

Ethnographic museums used to be seen as 'us' studying 'them'. A more productive approach is to view museums as trans-cultural artefacts composed

¹ There has been much discussion of these points in literature surrounding the 'new museum'. See for instance, Elaine Gurian's "A Savings Bank for the Soul: About Institutions of Memory and Congregant Spaces", in *Civilizing the Museum: The Collected Writings of Elaine Heumann Gurian* (London and New York, Routledge, 2006), and her "Blurring of the Boundaries", *Curator*, 38 (1) (2005): 31-37. Also on museums being still regarded with 'trust and respect' by the public, see Robert Janes, *Museums in a Troubled World: Renewal, Irrelevance or Collapse?* (Taylor and Francis, Abingdon, Oxon. 2009), 22; Fiona Cameron et al, "Conclusion: Climate Change Engagement", in *Climate Change and Museum Futures*, edited by Fiona Cameron and Brett Nielson (New York: Routledge, 2015), 248.

of relations between the museum and its source communities.’²

This project considers not just former ‘ethnographic museums’, but also national museums, local museums, art museums and natural history museums that are sensitive to these principles. We do not define a ‘new museum’ as a mold, but rather see it as a curatorial practice that enables audiences and collections to be far more ‘ecological’ and interconnected than the old-style museum.³ A relational museum develops its authority through supporting and curating networks of related things and their significance, rather than delivering knowledge from a single vantage point.

Museums are increasingly open to a flow in and out of the museum’s structure, where audiences and collections, curators and designers are all in conversation in a mutually informing way, sharing authority. Museums are no longer restricted to western knowledge conventions, becoming increasingly informed by perspectives of the cultural ‘Other’. Part of this project has been to develop collaborative ways of interpreting and relating to collections, rather than simply putting objects on display. Objects and collections are not merely observed and displayed in the relational museum, but are rather the pathways through which stories can flow. In the 21st century museum, curation is not simply about working with repositories of inert curiosities, accumulations of the flotsam and jetsam of history and culture, but rather enabling the objects to live again and inform dialogues with peoples from many different backgrounds.

In the era of climate change, museums have been beginning to think about responsible and creative approaches to respond to the challenges of adapting to climate

² Pitt Rivers Museum, ‘The Relational Museum’, <http://www.prm.ox.ac.uk/RelationalMuseum.html>

³ See Kirsten Wehner, this volume. See also Fiona Cameron, ‘Ecologizing Experimentations: A Method and Manifesto for Composing a Post-humanist Museum’, in Cameron and Nielson, *Climate Change and Museum Futures*, (London: Routledge 2015): 16-33.

change. This book demonstrates that museums have been, and can be, effective in contributing to the ontological and social transformations that are urgently needed, around the world, now. It is an experimental book, suitable for a time that demands powerfully creative, lateral, experimental thinking. Its experimental method is 'curation' where that includes bringing peoples, objects and stories into conversation, and in promoting a safe place to listen to perspectives from the objects and the cultures they **subtend**.

Museums are well placed to reach out actively to the communities who visit them, and whose objects are in their care. The new focus on contemporary difficulties and future opportunities creates a very different sort of institution, one that is attuned to communities confronting climate change-induced environmental crises on a day-to-day basis. Museums in the developed world are placed in the middle of constituencies who are living in a state of disconnect with the climate crisis, with a persistent tendency to 'look away' from the problem and see it as either a long time off, only happening far away, or not happening at all.⁴

Engaging responsive communities

A key question for this book is: how can museums collaborate in building communities able to *engage with* and *respond to* climate change?' Some museums have embraced the importance of public debate in strengthening civil society, seeing their role as providing and developing forums for the coming together of people with different perspectives on a particular issue. For some, this role has been conceptualized in a combative manner, with museum programs envisaged in a similar mode to television question-and-answer shows

⁴ Naomi Klein, *This Changes Everything: Capitalism vs Climate*, (New York: Simon and Schuster, 2014); and results of surveys by the Yale Project on Climate Communication (<http://environment.yale.edu/climate-communication/>); and Tien Ming Lee, et al. "Predictors of public climate change awareness and risk perception around the world", *Nature Climate Change*, published online 27 July 2015.

that pit individuals from very different positions against each other. Such debates often result in a narrow scientific framing of the debate about climate change, and very little discussion of human responses to it: they degenerate into discussions of ‘causes’, rather than productive narratives for response.

The context of climate change discussions in the wider world is often the combative one between highly polarized positions, yet, as Mike Hulme has written, there are reasons *why* people disagree about climate change.⁵ Critically, the *social meanings of climate* are different in different cultural contexts. The science is technical and easily misunderstood, sometimes deliberately, by journalists and those working as ‘merchants of doubt’ on behalf of industry interests.⁶

An alternative approach is to focus on how museums can create new communities over time by enabling people from different cultural and social positions to come more gently into relationship with each other, perhaps through the co-curation of objects, or using objects to stimulate events. Some institutions have created spaces and processes to enable community access that invite the performance and strengthening of cultural practices, often serving to both connect present generations of communities with their ancestors and to celebrate and sustain subaltern and minority traditions within larger societies. The focus here is on the human response, putting the debate out of the hands of the polarizing forces of the blame game.⁷

⁵ Mike Hulme, *Why We Disagree about Climate Change: Understanding Controversy, Inaction and Opportunity* (Cambridge: Cambridge University Press, 2009).

⁶ Naomi Oreskes and Erik Conway, *Merchants of Doubt* (New York: Bloomsbury, 2010); Christensen and Wormbs, this volume

⁷ Museums themselves have to grapple with the question of sponsorship, and particularly where ‘big sponsors’ demand specific messages. This book begins from the premise that the communities need a safe place for discussion, and developing responses to something that is actually happening. There is no possibility for a community led adaptation if the focus is on promulgating doubt.

Places of stories and collections

Museums, as places of calm, of reflection, and of considered learning, hold considerable potential to open dialogues, where the focus is not on the causes, but the effects of climate change. There is power in a personal visit and in real collections to explore global scale changes at a human pace. Museums are places in which people can wander about at will without immediately being asked for their opinion on something. They are non-confrontational and allow time to absorb information in a way that allows responses to surface without being concerned about what others will think.⁸ They are institutions that can afford to step aside emotionally from convictions without compromising their identity. They are safe places that can help communities rethink and reinvent themselves better to meet the challenges of climate change.

Museums work through many modes: through the stories they tell, through the collections they mobilize and the exhibitions they launch. Stories are the means through which people make sense of themselves and the worlds they inhabit. Stories encode concepts about personhood, action and direction. They express ideas about value, authority and possibility, about the character of the past and its implications for the present and the future. To borrow a turn of phrase from Appadurai, stories express 'the specific gravity and traction of the imagination',⁹ as well as being deeply embodied in often-unconscious habits and practices. Consequently, they define how we act in the world.

Collections are valuable in many ways, as constructions of knowledge and experience, repositories of cultural memory, agents for cultural creativity, resources for scientific

⁸ Gurian, "Savings Bank for the Soul"; Gurian, "Blurring of the Boundaries".

⁹ Arjun Appadurai, *The Future as a Cultural Fact: Essays on the Global Condition*, (London: Verso 2013) 286.

inquiry and records of ecologies. They have the capacity to create unique visual, kinaesthetic and affective modes of perceiving and understanding the world. In other words, they create unique forms of *material storytelling*. And in a time where something seems to have gone awry in our human relationships with the world, the materiality of objects and collections seems particularly promising, replete with the capacity to reshape and recreate our place in the physical universe.

Collections, of course, occupy actual locations, they are in and of the world in no uncertain terms. This means that museums are as much about spaces as they are about collections themselves; whether these spaces are collection storage areas dominated by steel shelving and Solander boxes, exhibitions carefully crafted to contextualize and interpret objects in particular ways, entrance halls dignified by a single, keynote display or online environments enabling virtual visitors to find and explore digitized collections.

Exhibitions

Exhibitions remain the most significant and distinctive environments in museums of all sorts. They are, as the American performance studies scholar Barbara Kirschenblatt-Gimblet once wrote, the way in which ‘museums perform the knowledge they create’.¹⁰ Exhibitions are unique, three-dimensional places in which meaning is made as visitors move about within them, encountering and responding to various kinds of carefully positioned and inter-related things, such as artifacts, images, texts, sounds, footage, interactives, pools of light, display cases, walls, seats, windows, exits and other visitors. They are places that enable embodied learning, key to helping audiences develop their sense of how they are inter-connected with physical environments.

¹⁰ Barbara Kirschenblatt-Gimblet, *Destination Culture: Tourism, Museums, and Heritage*, Oakland: University of California Press, 1998.

Exhibitions are the most distinctive way museums can engage with climate change. Exhibitions bring together people and objects in ways that collapse past and present, near and far, eliding the linear chronologies of modernist progress. They invite understanding of how localized particularities become interwoven with broader geographies and trajectories. Exhibitions also promote new modes of thinking and understanding, emphasizing associational and synthetic approaches that build abilities to consider how our choices, actions and lives are entangled with the other species and forces of the planet.¹¹

Although it is difficult to find single objects that carry ideas on the scale of 'climate change', it is worth reflecting on the power of the object and the context of a visit. These are a form of 'slow media' – by analogy with the slow food movement. Given the volatility of the other media and its patchy coverage of climate change, appreciating change at a slower pace might be an important alternative way to cope with it. When important long-term discussions dip below sight, there might be a different role for a museum. For example, the media coverage of climate change was strong throughout the first decade of the 21st century, spurred on by events such as the sea ice minimum in the polar north in 2007. Suddenly in 2010, after the COP15 talks, media ceased. Coverage in 2010 was down 70% from that in 2009. 'Merchants of doubt', funded by fossil fuel lobbyists, succeeded in silencing the issue for several years. The implications of this for the Arctic are explored in detail later in this book.¹²

Media outlets shout catastrophe: they are not so able to report on violence that unfolds over longer times, as Rob Nixon reminds us.¹⁶ While the media has plenty of images

¹¹ Deborah Bird Rose, *Reports from a Wild Country: Ethics for Decolonisation* (Sydney: UNSW Press, 2004); Jessica Weir, "Connectivity," *Australian Humanities Review* 45, November (2008)

¹² Miyase Christensen and Nina Wormbs, 'When the Ice Breaks', this volume.

of New York under water from the Hurricane Sandy deluge, we see few pictures of the victims of the 10-year famine in the horn of Africa, despite the fact that both are climate-change related. Such events will increase with anthropogenic global warming, but slow tragedies such as the African famine, which claimed orders of magnitude more lives than Hurricane Sandy, failed to be 'noticed'. 'Slow violence' to people, as Rob Nixon calls it, is a function of the global media cycle, and we need different sorts of media to balance it.¹³

Museum exhibitions are good for the long term, but less good in the short term. In the immediate context, they can sponsor dialogue and host controversial forums, but their galleries, exhibitions and collections are long-term investments. Museum displays cannot afford to be 'sensational' in any instant ways. They must stimulate the imagination of visitors in ways that survive the first moment, in ways that invite repeat visits, and encourage participation in discussion sessions, workshops, conferences, and other modes of sustained, shared reflection.

Climate and Culture

If the future is a 'cultural fact' as Arjun Appadurai describes it, cultural institutions are part of imagining what a climate changed world is going to mean.¹⁴ As Susan Crate and Mark Nuttall phrase it, 'climate change is ultimately about culture', pointing to the 'intimate human-environment relations', integral to cultural diversity, that lose place in its wake.¹⁵ Global warming was set in motion by the culture of progressivism that brought us the industrial revolution and continues to drive the capitalist culture of consumption. Cape Farewell artists articulate this relationship explicitly: 'What does Culture have to do with

¹³ Rob Nixon, *Slow Violence: The Environmentalism of the Poor*. (Harvard: Harvard University Press, 2013)

¹⁴ Appadurai, *The Future as a Cultural Fact*.

¹⁵ Susan Crate and Mark Nuttall, *Anthropology and Climate Change* (Walnut Creek, CA: Left Coast Press, 2009)

Climate Change? Everything.’¹⁶

There has been a tendency for museums, especially natural history museums and science centers, to focus on explaining the science of climate change. ‘Scientists’ are the main actors employed in the narratives of these exhibitions. There is a need for a greater public awareness that climate change is ‘not all about the science’; the leaps of imagination that are enabled through museums and their exhibitions are crucial. Those researching effective public communication of climate change underline the need for many, varied, modes of presentation for a crisis that has many, varied impacts and requirements of activism. Visual arts, performing arts, mass media, social media, exhibition media: all are needed.¹⁷

Museums have been creating, mounting and touring exhibitions about climate change for some time. An early exhibition, *Global warming: Understanding the Forecast* opened at the American Museum of Natural History (AMNH) in 1992, just four years after the establishment of the Intergovernmental Panel on Climate Change (IPCC). It ran for five years. The exhibition toured and was well attended and highly regarded, winning an American Association of Museums curatorial award.¹⁸ Curators Eva Zelig and Stephanie L. Pfirman wrote afterwards about the difficulty of displaying the impacts of ‘colorless gases’ and abstract concepts through the exhibition medium.¹⁹

¹⁶ Cape Farewell website www.capefarewell.com and *Carbon14: Climate is Culture*, the catalogue of the exhibition at the Royal Ontario Museum (2013-14); see also Tim Sherratt, Tom Griffiths and Libby Robin (eds.) *A change in the weather: Climate and culture in Australia*, (Canberra: National Museum of Australia, 2005).

¹⁷ ‘How Green is my Valley? The Art of Getting People in Wales to Care about Climate Change’

¹⁸ Zelig ref

¹⁹ Eva Zelig and Stephanie L. Pfirman, ‘Handling a Hot Topic: Global Warming: Understanding the Forecast’, *Curator: The Museum Journal*, 36 (4): 256-271.

The pace of exhibiting climate change picked up, as discussions did too, from the early 2000s.²⁰ Many of these exhibitions were within science museums and museums of natural history, and were primarily directed to explaining the science of climate change. More recently, as museums have started to work from the assumption that their audiences are familiar with the basics of climate change science, exhibitions have broadened their reach, becoming more willing to explore the current and future implications of climate change for human societies. Exhibitions are now being staged in a wider range of museums – national museums, museums of art, history, and museums centered on a wide range of specialist subjects. They are reflecting on the implications of climate change on human societies, being more willing to admit and explore the more affective aspects of the issues through artworks, personal stories, and asking local audiences questions such as ‘what will you miss most in your changing environment?’²¹

The first dedicated museums about climate change are now emerging. The Jockey Club Museum of Climate Change, housed at The Chinese University of Hong Kong, opened in December 2013. It is funded by the Jockey Club Charitable Trust’s ‘Initiative Gaia’, and is a place that promotes talks and discussions as well as explaining environmental change through exhibitions and interactives. In New York, The Climate Museum is under development as we write in 2015, with a stated aim of moving ‘climate awareness to the center of public life’. Director Miranda Massie is shaping the museum as an institution that will ‘catalyze public discourse’, and will not present a narrative of ‘doom and gloom’ but will convey the positive achievements of recent years as well; the mission is to ‘spark the optimism, ambition, and teamwork needed to ensure, in the decades to come, leadership in

²⁰ See The Museums and Climate Change Network (hosted on the AMNH website) for an annotated list of exhibitions. S. Daniels and G. H. Endfield, ‘Narratives of Climate Change’, *Journal of Historical Geography*, Vol. 35, no 2 (April 2009): 215-404.

²¹ ‘Seasons of Change’[exhibition ref] New England

a climate-safe, vibrant world'.²²

Ethics for museums exhibiting climate change

Canadian Robert Janes lamented in his 2009 book, *Museums in a Troubled World* that museums have largely failed to engage with climate change, and have sidestepped questions of assisting communities to adapt to a changing world, including associated issues such as environmental degradation, fossil fuel depletion and the social well-being of displaced communities.²³ Certainly museums have hardly been universal or consistent in taking up climate change and its associated cultural-environmental effects. The result, Janes argues, is that museums as social institutions risk becoming irrelevant, or indeed may already be. The contributors to this book, many of whom assembled in New York for a workshop at the American Museum of Natural History in October 2013, suggest Janes' observation is already being superseded. Museums are changing. This book explores museums and their increasingly fluid practices which bring new people into traditional and non-traditional museum galleries.

Kylie Message, in *Museums and Social Activism*, traces curatorial efforts at the Smithsonian Institution to engage with and represent social protest movements from the 1960s, efforts that have continued to grow.²⁴ She points to museum practitioners and researchers in recent decades showing 'museums to exist as sites of public consciousness that are part of the dynamics of cultural change that intersect with both formal and informal spheres of political action'. Museums are leaders in debates about the ethical obligations of museums to contribute to discussions of social justice, protests against human rights abuses

²² www.climatemuseum.org; Lisa Foderaro, 'A lawyer quit her job to start a Climate Museum in New York', *New York Times*, 21 August 2015; Brian Kahn, 'Climate Change is Getting its own Museum', *Climate Central*, August 14, 2015 (www.climatecentral.org/news/climate-change-museum-19341).

²³ Robert Janes, *Museums in a Troubled World: Renewal, Irrelevance or Collapse?*, (London: Routledge, 2009).

²⁴ Kylie Message, *Museums and Social Activism: Engaged Protest*. (Hoboken: Taylor and Francis: 2013).

and pressure to extend 'government policy priorities'.²⁵ Curators in the sector have similarly engaged actively, with varying degrees of success, in issues of environmental justice and environmental change. A handbook for approaching and exhibiting environmental issues was published in the USA in the 1980s,²⁶ and exhibitions on environmental degradation and change have at times been willing to be explicit about industrial, corporate and political culprits. Janes's critique of persistent partnerships between museums and sponsors with compromising agendas, however, remains valid. In recent years protests against fossil fuel industry funding of museums ranging from the British Museum, Science Museum (London), the Smithsonian's National Museum of Natural History, and the AMNH has gained momentum, with the recent divestment movement adding impetus.²⁷ Apparent censorship of climate change content has drawn angry public commentary; some of the more well-known instances have included the human contribution to the causes of climate change being side-stepped, watered down or edited out;²⁸ panels discussing climate change not making it to the final exhibition;²⁹ giving the impression that the evidence for climate change is uncertain,³⁰ or presenting the long-term

²⁵ Message, *Museums and Social Activism*, p.22.

²⁶ handbook ref; The Piggott report for a Museum of Australia in 1975, recommended a gallery of "people and the environment" and commented that 'to divorce man from nature in the new museum would be to perpetuate a schism' of the nineteenth century, in Libby Robin, 'Collections and the nation: Science, history and the National Museum of Australia', *Historical Records of Australian Science* 14(3), June (2003): 278

²⁷ Terry Macalister, 'Shell sought to influence direction of Science Museum climate programme', *The Guardian*, May 31, 2015. <http://www.theguardian.com/business/2015/may/31/shell-sought-influence-direction-science-museum-climate-programme>

²⁸ refs

²⁹ Anna Kuchment, 'Museums tiptoe around Climate Change', *Dallas Morning News*, June 15, 2014: 'Visitors to the Perot Museum of Nature and Science can stand beside an enormous rotating drill bit, take a virtual ride down a fracking well...' but see no clear references to the human contribution to global warming. A panel referring to this was left out of a recent redevelopment of the climate and weather exhibit. This was apparently an oversight. The Director has stated that board members and funders (who include gas industry representatives and ExxonMobil) have no say in content.

³⁰ Jonathan Jones, 'Science Museum: Close Your Climate Change Show', *The Guardian*, Nov 18, 2009: on 'Prove it!' at the Science Museum in London.

impacts of climate change light-heartedly through games that suggest that all humans need do is evolve more sweat glands or gills.³¹

Taking up the challenge of climate change depends upon museums not simply moving to encompass a new theme or topic within existing galleries, but rather developing significant, multi-pronged modes of museological practice, and doing so with creativity and courage. Collections, spaces, communities, institutions and audiences are all implicated in these efforts, and differently.

³¹ Joe Romm, 'Smithsonian stands by wildly erroneous climate change exhibition paid for by the Kochs', March 23, 2015, climateprogress.org

Four trajectories

Recent innovations in museum practice have motivated and given structure to new practices responsive to the challenges of climate change. This book is structured in four parts, using trajectories that reflect the new relationality that museum practice needs for a climate-changed world. Rather than looking back at what museums have done (or not done) so far, this book aims to stimulate new directions and reflections on museum projects, considering a range of museums and museum-like institutions that bring communities and climate change together in innovative ways. This is not a 'how to do climate change in museums' book. This book instead presents conjunctions, resonances and contradictions between perspectives that might stimulate the museum field in its broadest sense, as each local place, each community comes to terms with an uncertain future. The process of bringing the book together reveals that different voices and experiences might, paradoxically, share future trajectories. Comparisons and contradictions can be creative for those planning new initiatives.

The approach of this book can best be described as *curatorial*. We have curated a series of reflections and representations into thoughtful assemblage, in order to provoke new discoveries of inter-connections, resonances and meanings. Curatorial approaches have value that have generally been overlooked. Ross Gibson wrote of the value of curation as follows: 'What might happen if we stopped *developing* Sydney and commenced curating the place instead, caring for it and encouraging transformations in the city?'³² The assemblages of reflections and representations here may suggest new ideas and opportunities for discussion, rather than reducing possibilities into defined principles and instructions.

³² Question posed on the back cover, Jill Bennett and Saskia Beudel, *Curating Sydney: Imagining the City's Future* (Sydney: University of New South Wales Press, 2015).

In the curatorial spirit, this book is punctuated with a series of *object essays*, intended to enable artefacts – the core of museum business – to carry stories and provoke imaginings that expand our sense of how we relate to the world. Objects are agents of meaning (not just items to caption). They are observed and the observation process itself is part of the multiplicity of museum experiences. Multiple stories coalesce around and explode out of artefacts, opening out possibilities for shared, production of new narratives of community.

This approach resonates with the current interest in interdisciplinary environmental studies, and we are fortunate in this book to be able to bring together biologists who center key parts of their research on museum collections, environmental historians, a philosopher of extinction, and curators who are conservation biologists, anthropologists and artists who have placed relationships with environment at the core of their work and their exhibitions.

The four trajectories of museums' engagement with climate change structure the parts of this book.

Trajectory 1: WELCOMING NEW VOICES: OPENING MUSEUMS

Museums have a history as former participants in colonial practices, disempowering subaltern subjects, collecting and displaying the other, presenting knowledge in a single, authoritative voice. Decolonised museums include multiple viewpoints. They authorize and bring into relationship multiple, diverse forms of knowledge and experience, particularly in terms of valuing subaltern communities, and empowering the voices of those who have suffered injustice. In the case of climate justice, museums have an opportunity to provide leadership and space for the voices of those already contending with changes that are the result of actions they have had no say in. As Rob Nixon reminds us in his contribution to this

book, climate change is deeply implicated in social injustice. Can museums offer a bridge to better build climate justice?

Lumepa Apelu's story is about a connection to a particular place that is changing rapidly, reminding us of the importance of local expertise, as well as western, scientific knowledge in understanding the changing world.

Jennifer Newell explores how, in opening up a museum, people can come together around objects to help expand each other's horizons –powerfully enriching each other's concepts of what is possible, and Kristina Stege's 'object in view' demonstrates just how powerful this can be through her *jaki-ed* mat. The *jaki-ed* mat sparks memories that enable new connections between people and communities.

Jacklyn Lacey writes of the responsibility of the worker, the person who lives with the objects that are not on display; who at times welcomes communities behind the scenes at the museum. Historian, Tom Griffiths tells the story of an object from the past that became important in the future: Connie Hart had not had the opportunity to learn weaving from her grandmother, but when she found an eel trap in the Museum of Victoria, she learned again a lost cultural skill, to teach to her grandchildren.

Anthropologist Peter Rudiak-Gould, considers climate change in the Marshall Islands, and argues that islanders on low-lying atolls deserve to live well - to thrive, not just survive – on their islands. He takes the example of the Melbourne Immigration Museum's exhibition on Tuvalu to demonstrate how museums can help those leave a homeland behind to create new places for themselves, create new

places of significance through connecting in to objects, representations of selves and communities in exhibitions. Also considering atoll life, Joshua Drew's Object in View is a shark-tooth sword from Kiribati. The teeth on this sword disclose past species distributions, revealing lost species that were once part of the i-Kiribati world.

Trajectory 2: INTERWEAVING NATURE AND CULTURE

Kirsten Wehner urges a turn in museums 'Towards an ecological museology', a way of thinking with nature and culture together that celebrates connections. Climate change affects all living creatures on Earth, creating change across the planet's biosystems. As such, it demands we re-consider deeply held convictions about human exceptionalism, about the division of 'Culture', the realm of people, from 'Nature', the world of everything else, and develop new understandings of the inter-weaving and inter-reliance of human and non-human worlds. Wehner's ecological museum develops new forms of knowledge, exhibitions and interpretive practice that together foster embodied, empathetic and imaginative, as well as analytical, engagements between peoples and non-human species and forces.

These embodied practices are explored by Daniel Oakman, whose object in view, 'Harry Clarke's high wheeler bicycle', exemplifies an extraordinary moment in mobility history which resonates for a world beyond fossil fuels.

The body theme continues with Eleanor Sterling and Erin Betley's, 'Food and Water Exhibitions: a Lens on Climate Change'. Questions of clean water and food security are closely linked with climate change: they are also at the heart of community and cultural life all over the world.

The question of growing food in new environments is explored by George Main, whose 'Stump Jump Plough' is a technology designed to enable wheat to be planted in places where

formerly forests grew. It is a historical object from a settler society that battled the land to grow food from a different climate.

With Leah Lui-Chivazhe's 'Telling Torres Strait History through Turtle' we return to the sea, and its stories. So often the stories of 'environment' are about land, but climate change is about the planet's global systems, the sea and the atmosphere in particular. Lui-Chivazhe tells of the sea, through the lens of Turtle. It is the wonderful Turtle masks that have survived in museums that allow her to re-tell Torres Strait history afresh.

Kirstie Ross takes us to the Land of the Long White Cloud, New Zealand, where weather is culture. She discusses the principles behind talking about 'weather' in an exhibition in New Zealand's National Museum, Te Papa.

Martha Sear brings us a dog collar as her object in view, a material object that evokes an extreme weather event from long ago. Through his collar, we meet Nelson, who rescued people from sudden, swirling floodwaters in downtown Melbourne city.

What are the ethical responsibilities to individuals of passing species? Thom van Dooren explores the last snail of its species, and the science and moral dilemmas of extinction. Of all the threats from climate change, the greatest is that extinctions will ultimately destroy the integrity of the life-support systems of Earth.

But very occasionally, extinction is not forever, as Nancy Simmons' object in view – the long-lost Olinguito – reveals. The Olinguito also suggests a special role for museums: for it is through museum practice that it is found again.

Trajectory III: FOCUSING ON THE FUTURE

If we are seriously to consider the future in museums, we must also imagine the collections that will be important to future museum visitors, and start collecting now. Charlie Veron realized this some decades ago, and as Iain McCalman relates, his coral collection is now extraordinarily important as the oceans acidify, and the worlds' reefs change beyond recognition.

Future food is another big question, here tackled by George Main. Agriculture connects everyone in the most vital, constant, and concrete way to the natural world, he notes, and yet as the global climate warms and shifts, extreme weather events undermine the viability of agricultural systems that emerged over the last 10,000 years, the relatively stable climatic regime of the Holocene.

Trajectory IV: REPRESENTING CHANGE AND UNCERTAINTY

Creators of museum exhibitions and programming have been engaging in the dynamics of change within human societies and in our wider ecologies, moving away from asserting static absolutes and universal truths.

The entry-point to this, the book's fourth trajectory, considering change, is framed by two objects. One is a protective, delicate Inuit anorak of seal gut held in the Hood Museum, the other an artwork by Sverker Sörlin and colleagues, also of animal gut, stretched over the frame of a symbol of the fossil fuel-driven inequalities of global exchange: a Volvo.³³

Climate change insists that we rethink our sense of the relationships between past, present and future, developing new understanding of how the ways in which we live today have profound implications for generations to come. It also requires us to develop new capacities to apprehend and respond to changes that unfold over long periods. We do not just live in the here and now but are looking at ways to imagine "now" as encompassing seven generations. The "Clock of the Long Now" *that ticks only once a millennium* is a device for

thinking in longer time frames beyond human life spans. It is an important object in the *Welcome to the Anthropocene* Gallery at the Deutsches Museum, Munich (2014-2016). This gallery, along with a poster exhibition and a disused industrial site-turned-open air museum, are the subject of the book's final chapter. Libby Robin, Dag Avango, Luke Keogh, Nina Möllers, Bernd Scherer and Helmuth Trischler investigate the ways the materiality of museums allows the abstractions of the Anthropocene to be made concrete for audiences. 'An usworld approach blends nature, culture, technology and society into single hybridized perspective, an Anthropocene imaginary, As can be seen in these three sites, museums are already playing with imaginative ways about how to link past experience with future possibilities, without becoming polemical or judgmental about historical actions.

In conclusion

In many ways, it is the *change* in climate change that most deserves our attention, and the dynamism and uncertainty are the challenge to a museum. To ensure that humanity, and non-humans, can flourish there, we need new stories to make sense of how our world is changing and to imagine possible new ways of living in and shaping it.³⁴ Moreover, these narratives need to move beyond simply expressing measurements of conditions like atmospheric carbon dioxide and more variable weather patterns, to grappling with what these might mean for communities, physically, but also culturally and affectively. The narratives we share need to help people cope with the experience of climate change, and its associated emotions of loss, grief, disorientation, confusion, resolution, opportunity, hope and care.

Our hope is that the conversation here will help develop a global network of museum professionals and other scholars addressing climate change within their communities. We

³⁴ Arjun Appadurai, *The Future as a Cultural Fact: Essays on the Global Condition*, Verso, London, 2013, 287.

also hope that it will support the development of new conceptual frameworks and discursive directions for museums to use in engaging the challenges of climate change in all its scientific, cultural, physical and emotional dimensions.