Exhibiting Climate Change: an Examination of the Thresholds of Arts–Sciences Collaborations in the Context of Learning for a Sustainable Future

Andrew Bieler

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Abstract

This dissertation probes the cultural and political thresholds of arts–sciences collaborations in the context of the development of public pedagogy about a sustainable response to climate change. The dissertation is an in-depth case study of a civil society group called Cape Farewell that is organizing collaborations between contemporary artists and climate scientists. Since 2003, Cape Farewell has been leading expeditions to the Arctic, the Andes, and the Scottish Islands and Faroes that bring artists, scientists, educators, and other creative communicators together to innovate public pedagogy about a sustainable response to climate change. Drawing on sustainability theory, Jacques Rancière's theory of political aesthetics, Grant Kester's theory of artistic collaboration, phenomenological curriculum theory, and Tim Ingold's notion of wayfinding, the dissertation describes these expeditionary field studies as forms of ecological wayfinding. By following the wayfaring path of learners alongside materials and shared metaphors from field studies to cultural productions, I describe the multifaceted dimensions of ecological wayfinding in relation to arts-based research, curriculum, and pedagogy. Building on Elizabeth Ellsworth's theory of pedagogical pivot points, I describe the potential of the climate exhibitions, art works, films, websites, and concerts to produce visionary possibilities for a sustainable future on the planet. These public pedagogies variously negotiate the political thresholds of neoliberalism, the cultural thresholds of Romanticism, and disciplinary thresholds in higher education. Central to my argument is that we need to develop place-based and interdisciplinary sustainability curricula and pedagogy in postsecondary art education in order to foster more meaningful forms of collaboration across the arts and the sciences and alongside socioecological places. Finally, we need to envision an ethics of sustainability on the scale of the cosmos rather than the market via the intimate expenditure of bodies-in-motion and the generosity, empathy, and hospitality that can be inspired by emergent forms of relational and site-specific art practice.

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Introduction

The global infrastructure of climate research is dominated by the physical sciences and by economics (Urry 2011, 1–2), but the knowledge of energy consumption and empathy that we will need to create a systemic shift to a low carbon, sustainable future may be more easily interrogated through art-based research.[1] A number of civil society organizations in the UK and North America are producing art exhibitions and events that attempt to span the yawning gap between what we know about anthropogenic climate change and the everyday concerns of high carbon societies. I discuss these exhibitions and events as forms of 'public pedagogy' because they involve teaching and learning about climate change in the public sphere, often in public galleries or museums. These public pedagogies are informed by in depth research and collaboration between contemporary artists and scientists.

This dissertation inquires into the role of civil society groups in organizing arts–sciences collaborations and describes how these emergent ways of 'joining forces' across disciplines are informing processes of cultural production and public exhibition in university galleries, science museums, and other site-specific contexts. By 'collaboration', I mean the various ways in which people try to work together and

[1] Please refer to the IPCC definition of climate change: "Climate change refers to a change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcing such as modulations of the solar cycles, volcanic eruptions, and persistent anthropogenic changes in the composition of the atmosphere or in land use" (IPCC, 2014). For the purposes of this dissertation, I will mostly be addressing such 'anthropogenic changes in the composition of the atmosphere' and will refer to 'anthropogenic climate change'. I sometimes shorten this to simply 'climate change' or 'CC'.

cooperate across spheres of knowledge in the context of a shared project. I am fascinated by the experiential and organizational complexity of this kind of labor and also by the hopes and beliefs that are often invested in the idea of working together on a group project, especially where collective futures are at stake.

I ask, how do civil society groups organize collaboration between scientists and artists in the context of producing contemporary art exhibitions, and what characterizes these exhibitions as places of learning about a sustainable and cosmopolitan response to global climate change? In response, I show how civil society groups organize conversations between scientists, such as marine biologists, and artists, such as popular singers or conceptual artists, by innovating expeditionary practices that use shared metaphors and materials to catalyze boundary-crossing research, learning, and public exhibition. Pragmatically, this involves organizing group journeys with artists and climate scientists. Cape Farewell expeditions bring artists and scientists together on sailing trips to the Andes, High Arctic, and Scottish Isles. In *HighWaterLine,* artist Eve Mosher walked the high-water line in New York City in collaboration with urban CC researchers and the Canary Project. *Nowhereisland* artist Alex Hartley takes an Arctic island on a journey around the coast of the UK with resident scientists, educators, artists, and thinkers to foster participatory reimaginings of ecological citizenship. These expeditions are ways of probing global CC by following physical and conversational paths of movement. Anthropologist Tim Ingold says, “A way of knowing is itself a path of movement through the world: the wayfarer literally ‘knows as he goes’, along a line of travel” (2007, 89). By following the wayfaring path of learners, scientists, organizers, designers, and art student participants, I show how arts–sciences expeditions and

resulting exhibitions are deeply contradictory yet potentially transformative places of learning about how to live on a fragile and volatile earth.

The earth is not nearly as stable as critical social theory has assumed it to be, so there are significant limits to symmetrical social scientific accounts of nature–culture (N. Clark 2011). CC requires critical social theory to confront not only what novelist Ian McEwan calls the “hot breath of our civilization” as the source of anthropogenic CC but also the asymmetrical power of this complex nonlinear system as it responds to our fouling of the nest (McEwan 2006, 66; N. Clark 2011). So, while our knowledge of human-induced CC is the significant historical achievement of a global knowledge infrastructure, it would behoove us to remember that the habitual unworlding wielded by earth systems will far outlast even this tremendous scientific accomplishment (Yusoff 2009). Now that we know that the use of ancient fossil fuel energy is causing systemic shifts in the earth’s climate, we should not forget that the forces unleashed by this complex nonlinear system are far more powerful than the restricted economies of capital and steady-state notions of sustainability that currently frame our discussions of future sustainability (N. Clark 2011; Stoekl 2007; Yusoff 2009, 2010).

There is a growing appreciation that we will need wide-ranging and equitable forms of sustainability (Brady and Monani 2012; Bekerman and Kopelowitz 2008; Dillard, Dujon, and King 2009, 1; Reid 2008; Strife 2010; Urry 2010) to tackle global CC. The challenge is too immense for any one form of sustainability, whether cultural or environmental, and it calls for a renewed sensibility to the fragility and volatility of nonhuman nature across all spheres of life, work, and play. And while the discourse of sustainability remains timely and useful for moving forward on climate change, it carries

its own baggage of institutional meanings, such as the UN Decade of Education for Sustainable Development (see Wals 2012), and popular associations (see Parr 2009; Stoekl 2007). In fact, the notion of *sustainability* has become a kind of 'floating signifier' with diverse meanings that can be used towards markedly disparate social and political goals (Gonzales-Guadiano 2009), from neoliberal framings of exclusively economic sustainability that ignore environmental concerns altogether (Coffey and Marston 2013), or sustainability fixes that give the appearance of protecting the environment while actually prioritizing economic development (While et al. 2004), to forms of environmental sustainability that inadequately address questions of social justice (see Dobson 1998; Monani 2011). Given the disparate social and political meanings of *sustainability*, research should attend to the contextual framings and nuanced significations of the term in particular settings and institutional and cultural contexts. And as will be shown in this dissertation, arts-based research and education can play a central role in creatively unearthing the relational, contextual, and place-based meanings of *sustainability* while also opening up public debate about possible ways forward in a just and resilient response to global CC.

The discussion of environmental sustainability in the world of contemporary art is often in danger of being labeled hypocritical as the carbon footprint and other environmental impacts of cultural production come into focus. Online sustainability exhibitions might be criticized as complicit with digital waste (Grossman 2007; Polli 2011), whereas gallery exhibitions necessitate fossil-fuel-intensive transportation of artwork, repainting walls, printing catalogues, and maintaining climate-controlled exhibition spaces (Demos 2009; S. Smith 2007; see also Andrews 2006). Stephanie Smith

says, “If we are going to show art that addresses climate change or other topics related to sustainability, we should consider ourselves ethically bound to thoughtfully assess how we make use of resources” (2007, 14). On one level, sustainability can be understood as an ethical challenge for artists and curators to conserve energy and resources, but more broadly, it challenges us to confront the systemic unsustainability of the art world as a whole (Kagan 2011). Sustainability poses institutional, aesthetic, and ethical challenges for creative cultural production. At the same time, artistic intervention has much to offer in terms of teasing out and reimagining the shifting meanings of so-called sustainability in the present conjuncture of global climate crises.

The challenge of global climate change demands not only a just sustainability to work towards “a better quality of life for all, now and into the future” (Agyeman et all 2003, qtd in Monani 2011, 120), but also a deeper, more rooted sense of cosmopolitanism. We need to foster an expanded capacity for empathy and hospitality for those who are losing their world as a result of anthropogenic climate change (N. Clark 2011). As Nigel Clark argues, we need a cosmopolitan hospitality that is not only attuned to the horizontal migration of groups and the estrangement of the nation-state, but also to the vertical convulsions of the earth and the sure-footedness of nomads through the course of the habitual unworlding wielded by the earth (2011). “We are still a long way from the cosmopolitan thought we need, the kind that might point the way to forms of justice and hospitality fitting for a planet that rips away its support from time” (N. Clark 2011, 219).

I argue that the potential of the contemporary practice of expedition is defined by an aesthetic cosmopolitanism with the capacity to envision an ethics of sustainability on

the scale of the cosmos rather than the market via the intimate expenditure of bodies-in-motion and the generosity, empathy, and hospitality that can be engendered by mobile ways of producing site-specific art. By 'aesthetic cosmopolitanism', I mean the ways in which art and art exhibitions can open up new perspectives, ideas and ways of knowing what it means to be a human being on a planet experiencing climate change. For instance, collaborative and site-specific art practices may open up relational and insightful perspectives on matters of citizenship and cosmopolitanism in response to the movement of climate refugees across territories or in response to the dissappearance of places as a result of changing climates.

In dialogue with Bataillean approaches to energy and sustainability, Grant Kester's theory of the role of empathy in collaborative art practice, and Tim Ingold's theory of wayfinding, I theorize the energetic, epistemological and empathic dimensions of the practice of expedition with the notion of ecological wayfinding. Practices of ecological wayfinding catalyze conversational drift between contemporary artists and scientists by wayfaring alongside the complex meshwork of human and nonhuman nature, built infrastructure, and politics in particular places. Central to this theory of 'ecological wayfinding' is Tim Ingold's theory of the perceptual, spatial and epistemological dimensions of wayfinding and wayfaring and related conception of inhabitants of the planet as 'wayfarers' (See 2007; 2011a; 2013). In this context, 'wayfinding' describes the perceptual and embodied experience of movement and finding ones way from place to place in the world, which is set in opposition to notions of transport and navigation as movement from one location, or GIS position, to another. Whereas wayfinding involves embodied ways of moving alongside the nuanced

entanglements or meshworks of intersecting trails and lifeworlds in a place, transport simply moves across places, from one location to another, without paying any attention to these nuances and complexities of place. While often overlapping in application, the term 'wayfaring' is used to emphasize the ontological and epistemological dimensions of such movement, including in relation to mobile ways of knowing place. Finally, the term 'wayfarer' describes the subject position of such embodied, perceptual, creative and mobile epistemological practices.

There are also energetic and empathic dimensions of ecologicaly wayfinding. This involves the use of the journey as a form of intimate expenditure of heterogeneous energy or energy that cannot be reinvested in growth, and empathic dialogue between artists, scientists, participants, and places. Finally, I situate this theory of ecological wayfinding as a contribution to our understanding of arts-sciences collaborations (Gabrys and Yusoff 2012), aesthetic cosmopolitanism (Papastergiadis 2012), and the political aesthetics of CC.

The practice of ecological wayfinding has the epistemic potential to catalyze a cosmopolitan worldview of hospitality, generosity, and empathy for those who are losing their world in the face of abrupt CC. Furthermore, it has the potential to foster transformative forms of boundary learning across the arts and sciences in postsecondary sustainability education, from reflecting on the role of the artist in a time of global climate change to learning how to inhabit a shared discipline with other perspectives. These potentialities of arts–sciences collaboration should be understood as negotiated in relation to the complex thresholds of anthropogenic climate change, from a two-degree temperature rise to disappearing islands and the global flow of climate refugees. As

Jennifer Gabrys and Kathryn Yusoff (2012) argue, the ways in which arts–sciences collaborations negotiate these difficult thresholds of anthropogenic climate change should be understood not simply in relation to the horizontal relationships between art and science, but, rather, through the lens of their shared orientation to particular nonhuman natures and environmental politics. To understand these shared encounters with the politics of nonhuman nature, we will need to historicize the understandings of arts–sciences collaboration that are brought on board these expeditions.

If we begin to historicize these arts–sciences expeditions, we will soon run up against the split temporality of modernity that attributes historicity to society and atemporality to the sciences (Latour 1993) and encounter the history of attempts to move beyond modern disciplinary specialization, from architect Sigfried Gideon's early advocacy for multidisciplinary research and teaching beginning in the 1930s to current trends such as sustainability transdisciplinary education models (STEM) (Geiser 2010, 289; B. Clark and Button 2011). In the world of visual art, the postwar landscape of arts–sciences discourses has been significantly shaped by C. P. Snow's 1959 two cultures theory of a dangerous disjuncture between the arts and the sciences (1998), which opened up the space of this gap as a site for creative intervention (Gabrys and Yusoff 2012). Subsequently, in the late 1960s and early 1970s, the exhibitions of Jack Burnham, Radical Software, Experiments in Art and Technology, and other collectives synthesized and created new projects in this enterprising space (Gabrys and Yusoff 2012, 7).

The history of postwar arts–sciences collaborations runs alongside the emergence of modern Western environmentalism, which was signaled by the publication of Rachel Carson's *Silent Spring* ([1962] 2002) and the *Earthrise* photograph. In part, it was

sensitivity to the environmental distress of modernity that led Gregory Kepes to his holistic vision of arts–sciences integration at the Center for Advanced Visual Studies (CAVS) at MIT and in related exhibitions, from *The New Landscape in Art and Science* (1956) to *Arts of the Environment* (1972). The educational focus of Kepes's work at CAVS is a significant precedent for contemporary arts–sciences collaborations. "Artists' projects at CAVS, in their engagement with sciences, environment and politics, intended to go 'beyond producing isolated aesthetic objects to search for creative forms that can serve as programs to stimulate intellectual and emotional growth'" (Kepes quoted in Gabrys and Yusoff 2012, 8-9). Similarly, as shown in this study, contemporary artistic engagements with marine biology, oceanography, and other environmental sciences continue to aim beyond the production of aesthetic objects and towards wide-ranging forms of creative engagement that variously stimulate cognitive and emotive learning.

The genealogy of contemporary arts–sciences collaborations can also be traced in relation to the pervasive influence of postwar understandings of ecological systems on both environmental thought, such as the work of Gregory Bateson, and contemporary art (Demos 2009), such as Hans Haacke's *Rhinewater purification plant* (1972). Most significantly, the models of collaboration that helped popularize ecological systems theory within environmental and counterculture movements continue to deeply inform the ways in which arts and sciences join forces to address climate change today. Specifically, the articulation of peer-to-peer networks, horizontal knowledge sharing, and networked cultural entrepreneurship with visions of radical social transformation within Western environmentalism (Turner 2006) deeply inform contemporary understandings of horizontal knowledge sharing between artists and scientists as a potentially

transformative locus for climate politics. However, there is nothing inherently transformative about horizontal knowledge sharing between the arts and the sciences: collaborations may simply reenforce the autonomous spheres of artistic imagination and scientific observation inherent in the old two cultures debate (Gabrys and Yusoff 2012) by facilitating network forums that are relatively free from the everyday concerns of climate politics. “The assumed definitions of these categories can hold fast—what art can bring to science (in the form of representational capacities), what science enables (in the form of data or instrumentation), with imagination or observation standing in as the essential attributes” (Gabrys and Yusoff 2012, 16).

If network forums such as research expeditions allow members of multiple communities to join forces in order to imagine and perform a larger social project (Turner 2006), it behooves us to critically examine this larger shared concern: what shared problem spaces, material, and political engagements orient collaboration across the arts and sciences today? First, I have remained skeptical of the politics of collaboration, which we might define as to work together on an artwork or to join forces on a larger project. Indeed, with regard to this latter meaning, it is important to remember that the enterprise society of neoliberalism demands certain kinds of collaboration such as public–private partnerships and tends to mold civil society organizations into an enterprise form. So, as will be seen in chapter 3, the need for certain kinds of collaboration to get arts–sciences projects off the ground financially and the immense pressures that are placed on civil society within the current conjuncture of variegated neoliberalism (Peck 2013) can radically reshape potentially transformative arts–sciences exhibitions into sophisticated forms of greenwashing. Second, with regard to the meaning

of *collaboration* as working together on an artwork or exhibition, I focus on the immense significance of shared problem spaces that give socioecological and political focus to arts–sciences collaborations, from the politics of unrestrained economic growth and adaptation along the Thames in East London to the tipping point landscapes of the High Arctic.

To discern whether arts–sciences collaborations are simply reenforcing the modern autonomy of the arts and sciences from the political sphere or, alternately, are opening up new forms of material and sensible engagement with climate politics in neoliberal times, we will need to interrogate the ways in which they join forces and the character of their shared orientation to the political and physical thresholds of climate change (Gabrys and Yusoff 2012). Jennifer Gabrys and Kathryn Yusoff render the metaphorical, political, and material space of climate change thresholds (two-degree temperature rise, 350 ppm) with the figure of *zero degrees*, the temperature in Celsius at which ice melts into water, which attempts to figuratively capture the full complexity of these thresholds in a way that opens up rather than forecloses a transformative encounter with future scenarios. This language of thresholds is normally restricted to scientific and policy discourses regarding tipping points: the thresholds of greenhouse gas concentrations in the atmosphere or degrees of temperature rise beyond which earth systems shift in nonlinear, irreversible directions that have dire consequences for biodiversity and human life (see Schellnhuber et al. 2006). However, Gabrys and Yusoff point out that thresholds also "operate as a more-than-scientific reference, since they circulate as political and cultural metaphors describing speculative futures that may emerge through irrevocable changes of state (IPCC2007)" (2012, 6).

I show how arts–sciences expeditions negotiate the cultural and political thresholds of anthropogenic climate change. First, they negotiate the cultural threshold of anthropocentrism, which may open up transformational ways of joining forces with nonhuman nature in processes of making. This bright possibility is both material and dialogical since it involves potentially regenerative encounters with the limits of self/other in boundary-learning processes of identification, coordination, reflection, and transformation at the intersection of postsecondary art education and environmental research. More pessimistically, I show how these expeditions negotiate the threshold of Western globalism, wherein the globe-as-object continues to undergird artistic and scientific ways of knowing climate change, and the economic and political thresholds of neoliberalism, which demands consensual forms of collaboration and forecloses transformative relations to future sustainability. Finally, I show how the threshold of Romanticism, of rebelling against capitalist relations to the environment in order to 'sell out' in more or less nuanced ways, continues to undergird sites of encounter, learning, and dialogue in climate change exhibitions. Central to this constellation of climate change thresholds is the search for new metaphors that avoid reproducing stagnant frames or meanings and open up relational possibilities (Gabrys and Yusoff 2012).

The search for new metaphors for the complex scientific and policy thresholds of global climate change may seem daunting since so many of these metaphors simply re-entrench stagnant apocalyptic frames (see Fava 2013; Foust and Murphy 2009), but it is essential to overcoming the paralysis that currently grips the cultural politics of climate change. Civil society arts organizations are currently undertaking the difficult work of curating emergent metaphors for the thresholds, localized impacts, and social

complexities of anthropogenic climate change. This passionate labor involves curating generative metaphors that relate to the particular nonhuman natures and politics of a shared problem space, from climate research in the High Arctic to sea level rise along the coast of Cornwall and economic development along the Thames. And it is the translation of the sociomaterial complexity of these problem spaces into metaphorical form—edgelands, archipelagos, growth, flood, ice, tipping points—that allows for boundary-crossing research and education across the arts and sciences. These shared metaphors undergird contemporary practices of ecological wayfinding as they traverse challenges of empathy, hospitality, resilience, and cultural sustainability in our current conjuncture of climate politics. As such, this dissertation follows these shared metaphors alongside related materialities such as ice and copper, and research findings from arts–sciences expeditions to public exhibitions in the UK and North America. It analyzes these projects in relation to the complex realities of the current conjuncture of climate politics wherein global Conference of the Parties (COP) meetings make increasingly pathetic progress while scientific and policy knowledge continues to grow.

At a level of high confidence, the latest *IPCC Working Group II Summary for Policymakers* states, “Global climate change risks are high to very high with global mean temperature increase of 4°C or more above preindustrial levels in all reasons for concern” (IPCC 2014, 14). This includes “severe and widespread impacts on unique and threatened systems, substantial species extinction, large risks to global and regional food security, and the combination of high temperature and humidity compromising normal human activities, including growing food or working outdoors in some areas for parts of the year” (IPCC 2014, 14). And while the precise levels of anthropogenic climate change

necessary to push us over thresholds of abrupt and irreversible system change are still uncertain, it is clear that the multiple risks associated with crossing these tipping points "increases with rising temperature" (14). So, although there will be some risk from adverse impacts under all of the emissions scenarios addressed in this report, the overall impacts and scale of adaptation can still be reduced through mitigation (14). We can still come together to avoid dangerous climate change thresholds and thereby improve the livability and sustainability of our precarious inhabitation on this fragile, volatile earth.

Thresholds are often discussed in relation to policymaking and categorized in relation to natural or system thresholds, normative social thresholds, and legal thresholds (IPCC 2014, 16). "A systemic threshold is a point at which 'the relationship between one or more forcing variables and a valued system property becomes highly negative or nonlinear'" (IPCC 2005, quoted in Schneider and Lane 2006, 16). The role of normative and legal limits in avoiding dangerous climate change has received significant attention in climate policy (Schneider and Lane 2006), but the significance of broader cultural and political thresholds in shaping our collective ability to avoid dangerous climate change requires more concerted attention.

In addition to its scientific meaning, the term *threshold* has an architectural definition—the "strip of wood or stone forming the bottom of a doorway and crossed upon entering a house"—as well as an educational meaning—"the point just before a new situation, period of life, etc. begins" (*Canadian Oxford Dictionary*). We need to understand how various educational and cultural thresholds intersect with the scientific thresholds of our earth's complex, nonlinear dynamics. In this regard, Jennifer Gabrys and Kathryn Yusoff's work on the cultural thresholds of arts–sciences collaborations is

an extremely significant contribution (2012). It opens up the question of how the more-than-scientific thresholds of anthropogenic climate change are variously articulated to "sites of encounter, transformations, uncertainties, future scenarios, material conditions and political practices" (2012, 6).

Building on Gabrys and Yusoff's work and contemporary research into the political aesthetics of climate change, this dissertation moves through the six key more-than-scientific thresholds that variously structure the potentialities of these arts–sciences expeditions in response to the current climate crisis: (1) the dialogical and disciplinary boundaries between the arts and the environmental sciences, as discussed in chapters 4 and 5; (2) anthropocentrism, as discussed especially in chapter 5; (3) the geographic imaginary of modern Western environmentalism, as discussed in chapters 1 and 4; (4) the Romanticism of consumer culture and ways of spending energy therein, as discussed in chapters 1, 4, and 5; (5) cosmopolitanization and alternative ways of imagining hospitality in the face of extreme loss, as discussed in chapters 1, 2, and 3; and (6) the enterprise society of neoliberalism, as discussed throughout but especially in chapter 3. As will be seen by the end of this dissertation, these key thresholds variously shape the sites of encounter, learning, and dialogue in these contemporary climate change exhibitions. In particular, these thresholds shape the teaching and learning that unfolds in Cape Farewell's public exhibitions and programming for post-secondary art and design students. In this context, these various thresholds allow for a nuanced theoretical lens on the primary case study research undertaken for this dissertation.

The dissertation draws on a triangulation of qualitative methodologies in order to analyze the practice of embedding artists on scientific expeditions and to show how this

practice is currently informing environmental sustainability practice in post-secondary art and design education. This research focuses on a civil society organization called Cape Farewell, which has been embedding artists on scientific research expeditions to the Arctic, the Andes, and the Scottish Islands and Faroes in order to innovate public pedagogy about a sustainable response to climate change. I focus specifically on Cape Farewell's *New Generation* program, which extends this expeditionary practice of collaboration into the sphere of post-secondary art and design education via a series of field study courses in the UK, called Short Course UK, and via an internationally touring art exhibition designed for university galleries, called *U-n-f-o-l-d*. In this context, the dissertation inquires: a) How are *Cape Farewell's* arts-sciences expeditions informing understandings and approaches to sustainability in postsecondary art education? b) How does the pedagogical address of these contemporary art exhibitions engage public discourse and inquiry into empathetic and sustainable responses to global climate change? c) How are young artists probing social and ecological sustainability through diverse arts-based research practices, and, coming-together to produce group art exhibitions that imagine various site-specific, sustainable and cosmopolitan responses to global climate change? I ask these questions about young artists who have engaged with Cape Farewell education programming via the touring *U-n-f-o-l-d* exhibition or Short Course UK program.

In chapter 1, I offer a broad historical and theoretical context for studying the role of arts–sciences expeditions in a sustainable and cosmopolitan response to global climate change. I situate these practices in relation to the history of the journey in land and environmental art, and in relation to tactics of conversational drift and empathetic insight

that are currently being developed in the field of site-specific art. In this historical context, I theorize the expedition as a form of ecological wayfinding that negotiates the political aesthetics of CC by catalyzing conversational drift between climate science and contemporary art in response to the fluidities of place. Building on this theoretical framework, chapter 2 describes the triangulation of collaborative, mobile, and arts-based methodologies that have been drawn upon to conduct this case study of the Cape Farewell organization.

Chapter 3 interrogates the ways in which arts–sciences collaborations are currently negotiating the political and economic thresholds of neoliberalism, wherein raising awareness of a sustainable response to CC can easily melt into greenwashing for big energy. In chapter 4, I show how the pedagogical pivot point of the travelling *U-n-f-o-l-d* exhibition negotiates cultural thresholds of the sublime, Western globalism, and Romanticism in its attempt to foster a transitional space of learning that allows participants, visitors, and art students to both find and create their own understanding of sustainability. Finally, in chapter 5, I analyze disciplinary thresholds in the context of boundary-learning curricula of 'identification' and 'coordination' on Short Course UK. Whereas identification involves reflection on the role of the artist in a time of global climate change, coordination is an action-oriented process of learning how to inhabit a shared 'problem space' or thematic concern with other disciplines.

In this way, the substantive chapters in this dissertation illustrate the political, cultural, and educational thresholds of arts–sciences expeditions that respond to climate change. First, however, it is necessary to discuss the historical and theoretical contexts of these expeditions.

Collaborative Journeys

Introduction

This chapter situates arts–sciences expeditions in relation to the history of postwar land and environmental art, the history of arts–sciences intersections in collaborative art practice, and the journey form of contemporary art. Whereas the notion of 'expedition' tends to have a range of militaristic and scientific connotations, such as in relation to the natural history expeditions of the European enlightnment or in relation to colonization, the notion of the 'journey' tends to connote more Romantic images of travel and often functions as a metaphor for a range of difficult and noble pursuits, like sustainability. These discursive constructions of travel clearly also pertain to very real histories and experiences, yet it is pertinent to acknowledge the breadth of figurative meaning surrounding these prominent signifiers for travel. However, I tend to use the term 'journey' to distinguish the figurative or metaphorical dimension of the mobile practices under investigation. In turn, I use the terms 'expedition', 'expeditionary practices' and 'arts-sciences expeditions' to denote practices that use physical travel to catalyze collaboration at the intersection of the arts and the sciences. In this context, I theorize the role of physical travel, from walking to boating trips, in catalyzing collaboration at the intersection of the arts and the climate sciences.

In order to set the stage for this inquiry into Cape Farewell's expeditionary practice, the current chapter takes a step back to examine the historical context for this particular case and the larger ideas or beliefs that are at stake therein. I inquire, what is the role of arts–sciences expeditions in fostering a sustainable and cosmopolitan response to the thresholds of anthropogenic CC? By drawing on Helen and Newton Harrison's notion of *conversational drift*, Tim Ingold's theory of wayfinding, and Doreen Massey's

theory of place, I theorize the aesthetic, epistemic, and spatial dimensions of arts–sciences expeditions with the notion of ecological wayfinding. Practices of ecological wayfinding catalyze conversational drift amongst contemporary artists and scientists by wayfaring alongside the contrasting human and nonhuman temporalities of place. And building on Bataillean sustainability theory, I show how they traverse the thresholds of CC by exploring the potentialities of the journey as a form of intimate expenditure of heterogeneous energy, or energy that cannot be reinvested in growth. Finally, I foreground particular matters of concern in the analysis of wayfinding: energy expenditure, empathy, listening, cosmopolitanism, epistemology of place, and CC politics.

This chapter explores key ecological and cultural thresholds of CC, from energy expenditure to the geographic imaginary of modern Western environmentalism. Here, the dominant utilitarian relationship to energy, colonial ways of moving across space, and the spatial imaginary of the globe-as-object remain influential thresholds in our attempts to imagine a sustainable response to anthropogenic CC. In the face of these thresholds, we need art to catalyze a break with restricted economies of sustainability that subordinate our energetic connection to the cosmos to a narrow vision of growth, as well as to spark a general economy of creative gift-giving on the scale of the cosmos.

The first half of this chapter examines the journey form of contemporary art. Here, I draw on the work of Nikos Papastergiadis, Grant Kester, Suzi Gablik, Tim Ingold, Doreen Massey, and Georges Bataille to theorize contemporary expeditions. Then I bring together Jacques Rancière's theory of dissensus with Bataille's political ecology to inquire into how expeditions traverse the political aesthetics of CC. In the second half of

the chapter, I draw on McLuhan's theory of art and science as antienvironments, and on critical histories of land art to examine the thresholds of Western environmentalism. I begin by introducing the journey form of contemporary art.

The Journey Form of Contemporary Art

Nicolas Bourriaud introduced the notion of the journey form of contemporary art in the introduction to the exhibition *Altermodern* (2009). He used the metaphors of the archipelago and the journey, which are drawn from the writing of W. G. Sebald, to describe the ways in which artists are inventing new ways of knowing that operate along multiple temporalities and function on a decentralized global scale that is reminiscent of the alterglobalization movement (Bourriaud 2009; see also 2002). Bourriaud describes the artists in the exhibition as 'cultural nomads' who are able to open up new perspectives by travelling across genres, timescales, and geographies in a contemporary art world that is defined by mobility. Bourriaud says, "Contemporary art gives the impression of being uplifted by an immense wave of displacements, voyages, translations, migrations of objects and beings" (2009, 13). This apt description of the mobility of contemporary art has been the basis for theorizing the role of the biennial exhibition form in globalization (Dimitrakaki 2012) and the role of peripatetic and collaborative art in fostering cosmopolitanism (Papastergiadis 2012). Here, the term 'mobility' is used to describe the movement of human and nonhuman actors and is understood in the broadest sense possible, including: a) the physical movement of artworks to biennial or other exhibitions; b) the travel of curators, artists, dealers and

visitors from one show to another; c) the role of artworks in opening up new perspectives on mobility or related phenomena.

The peripatetic and global orientation of contemporary art can be seen in the hundreds of art biennials that dot the surface of the globe and the transnational movement of curators, artists, and critics from one show to the next (see Dimitrakaki 2012). In *Cosmopolitanism and Culture*, Nikos Papastergiadis says, “There is now a clear recognition that contemporary art is increasingly engaged in a critique of globalization and the rearticulation of a Universalist vision” (2012, 112).

Papastergiadis situates the significance of these dimensions in relation to global migration politics by arguing that collaborative art practices are able to probe alterity and hospitality to produce a cosmopolitan worldview that runs against the grain of kinetophobia—motion fearfulness—and the dominant politics of fear. He describes this capacity of collaborative art as aesthetic cosmopolitanism, which “does not refer simply to the aesthetic representation of cosmopolitanism, but to a cosmopolitan worldview that is produced through aesthetics” (2012, 90). Drawing upon Castoriadis’s theory of the imagination, Rancière’s theory of political aesthetics, and Raunig’s work on the transversal, Papastergiadis (2012) interrogates the ways in which art collectives are cutting through the complexities of global migration and the extreme marginalization or ‘zombification’ of the other by working alongside various migrant groups and engaging participants in the process of envisioning the nuances of alterity, empathy, and hospitality that befit a cosmopolitan worldview.

Speculatively, this aesthetic cosmopolitanism becomes even more urgent in the face of the vertical eruptions of the earth and the mass displacement—beginning with

archipelagos—of climate refugees (N. Clark 2011). In the face of sinking archipelagos such as the Maldives, we need a cosmopolitanism attuned to the unworlding of the earth (N. Clark 2011). Nigel Clark explains that we need to think about hospitality not only for those "'others' who move 'horizontally' across our planet's uppermost strata, but all those who have had to ride out the mobilizations of the earth itself—without necessarily going any place else" (2011, 196).

The peripatetic global art world may not only have to adapt to the mobilizations of the earth itself but also to a less horizontally mobile future. Sociologist John Urry argues, "Planning for a less mobile future is a further challenge for a post-carbon sociology" (2011, 164). In the context of a less mobile future with likely exasperated inequities of mobility (Urry 2011) as opposed to the set of contradictions between kinetophobia and the speeding up of global mobilities that sets the background for aesthetic cosmopolitanism today (Papastergiadis 2012), how might collaborative art practice help us imagine empathy and hospitality for those who have lost their world as a result of the increase in extreme weather events that come with global CC? An attunement to the vertical convulsions of the earth, as well as inequities in access to mobility, arguably calls for an even more expansive, deeper sense of aesthetic cosmopolitanism (N. Clark 2011). And given the prominence of the earth and climate sciences in understanding these vertical convulsions (N. Clark 2011), we will arguably need to find new ways of joining forces across the arts and the sciences. On this note, it is helpful to look at the history of art/science permeability in collaborative practice.

The Permeability of Collaborative Art

There is a history of art/science permeability in collaborative art practice, from Helen and Newton Harrison's ecologically engaged interventions beginning in the late 1960s to Platform's *Delta* installation, which used a micro-hydro-turbine to mark the tidal movement of one of London's hidden rivers (Kester 2011b, 4). These collaborative ecological projects were deeply informed by shifts within conceptual art between the 1960s and 1970s, when the visual and object-based status of the artwork was put in question by new modes of participation, and are characterized by new modes of dialogical exchange (Kester 2004). "The 'de-materialization' of the art object described by critic Lucy Lippard must be understood not simply as a defensive tactic designed to forestall commodification but also as a positive or creative moment, marked by an increasing emphasis on art as a process of collaborative interaction" (Kester 2004, 53). In *Conversation Pieces*, Grant Kester analyzes this history of collaboration in order to theorize new forms of dialogical aesthetics that deploy aesthetics as an open space for initiating dialogue about pressing social and ecological issues in innovative ways that open up communication with diverse communities. The theory of dialogical aesthetics is developed as a way of moving beyond the postmodern sublime and the legacy of negative framings of communicability within modernist aesthetics, which Kester (2004, 82–123) attempts to surmount by bringing together Habermas's theory of communicative reason and Bakhtin's theory of the dialogical with feminist theories of empathic communication as involving moments of identification between interlocutors. In the context of understanding the openings of collaborative art practice to environmental science or environmental justice movements, this notion of 'dialogical aesthetics' can be used to

describe the use of aesthetic spaces like galleries, studios or site-specific art interventions to catalyze meaningful and empathic dialogue about eironmental issues.

While the recent proliferation of collaborative art includes longer duration, dialogically oriented practice, and artworks that continue to rely on a textual paradigm such as Francis Alys's *When Faith Moves Mountains* (see Kester 2011b, 67–76)*,* the dialogical dimensions of collaboration are especially noteworthy in the permeabilities of art and ecology (see Kester 2004; 2005; 2011a). Here, projects like Even Mosher's *HighWaterLine* (2007- Present) and Platform's *And While London Burns* (2007) use the aesthetic experience of walking tours, around New York City and London respectively, to initiate meaningful conversations and reflections on climate change. While these practices use face-to-face or audio media to spark conversations on climate change between performers and larger audiences, there is also an interdisciplinary aspect of such ecologically engaged examples of dialogical aesthetics. This is best exemplified in the practice of Helen Mayer Harrison and Newton Harrison.

Helen Mayer Harrison and Newton Harrison "speak of their working method in terms of what they call 'conversational drift,' the unanticipated new images and forms of knowledge generated by open-ended dialogue across disciplinary boundaries, focused on a given ecosystem" (Kester 2004, 64). For instance, through a series of lectures, seminars, performances, and maps in *Greenhouse Britain* (2007), the Harrisons inquire into the impact of sea level rise on the coastline of the United Kingdom: "The oceans will rise gracefully. Can we withdraw with equal grace?" (H. Harrison and N. Harrison 2007, 4). Through *conversational drift*, the Harrisons propose new maps and design strategies for adapting to sea level rise along the coastline of the UK, such as forests acting as

carbon sinks and "high density bio-diverse towers to be situated in the Lea River Valley" (Gabrys and Yusoff 2012, 15). Gabrys and Yusoff observe, "The oceans, in this proposal, become a principle actor informing cultural, economic and design strategies for alternative habitats" (2012, 14). In this way, conversational drift can be a way of reframing a problem space, such as the impact of sea level rise on the UK, to account for nonhuman nature and to generate new images, designs, and solutions.

This notion of conversational drift across disciplinary boundaries is a key dimension of dialogical aesthetics in the area of ecology. I will now draw on this notion of conversational drift, alongside Tim Ingold's theory of wayfinding, to analyze the potential of arts–sciences expeditions as unique forms of mobile epistemology.

Wayfinding: Tim Ingold's Phenomenology of Movement and Knowledge

Expeditionary practices use conversational drift across disciplinary boundaries in order to generate new ways of knowing socioecological places. These practices must inevitably confront the colonial history of research expeditions wherein, as Cape Farewell Associate Director Ruth Little observes, their aim was "to acquire new geographical or epistemological territory" and push "culturally specific ideas of human knowledge beyond their known edges" (2012, 15). These colonial connotations of the term *expedition* include the epistemologies of natural history and the embedding of natural history artists on voyages, such as painter William Hodges's participation in James Cook's trips to the South Seas (Little 2012, 15). The natural historian's urge to classify all living beings in the world is contemporaneous with both Cartesianism, as Foucault reminds us in *The Order of Things* (2002 [1966], 140), and the colonial drive of

Enlightenment epistemology as a whole. “In sum, European Enlightenment knowledge, natural history, conservation policy, and the language of nature—the very systems of logic that we draw from today to speak of conservation and sustainability—are derived from a long history of the colonial exploitation of nature, as well as the assimilation of natural epistemologies from all over the globe” (DeLoughrey and Handley 2011, 12). In this context, the question for contemporary expeditions becomes the following: how do they negotiate the colonial legacy of the notion of *expedition* while attempting to generate new images and forms of knowledge about socioecological places? By drawing on anthropologist Tim Ingold’s phenomenological critique of Cartesian dualism, I argue that we can study these expeditions as mobile ways of knowing place that negotiate the colonial legacy of the notion of expedition at least partly by virtue of how they move alongside or across places. To interrogate this query further, I turn to a discussion of Tim Ingold’s phenomenological explorations.

Tim Ingold’s phenomenological anthropology attempts to describe beings’ openness to the world that has been foreclosed by the dominant logic of inversion in the Western canon, wherein there is a tendency to convert an organism or person’s being-in-the-world into an interior schema of which their outward behavior is just a manifestation (Ingold 2011a, 68). Within this logic of inversion, Ingold says, “Beings originally open to the world are closed in upon themselves, sealed by an outer boundary or shell that protects their inner constitution from the traffic of interactions with their surroundings” (2011a, 68). The ontology of dwelling, wayfaring, life, meshwork, and place that Ingold develops in *The Perception of the Environment*, *Lines* and *Being Alive* is built on a fundamental rejection of the Cartesian separation of mind and world (Ross and Mannion

2012, 305), and the associated logic of inversion that understands a person's being-in-the-world through the narrow lens of "cognitive schemata installed inside his or her head" (Ingold 2011a, 68). For instance, Ingoldian approaches to creativity reject the Cartesian dualism that undergirds "the conventional view that creativity, improvisation and invention are primarily internal, mental processes that only secondarily find external expression through the body and out into the environment" (Knappett 2011, 45). The reverse engineering that this understanding of cognition and creativity entails is rejected by a growing body of scholarship that builds on Ingold's injunction to "follow the materials," which entails a fine-grained attention to temporalities and microscale processes of creative work (Ingold 2011c, 2; Knappett 2011; see Ingold ed. 2011b).

Ingold's phenomenology likewise rejects Cartesian-based understandings of nature as socially constructed and instead offers a relational description of the environment wherein, as Hamish Ross and Greg Mannion observe, "There is no environment separate from the folding and enmeshment that is the process of life—organisms are points of growth of the entanglement of material relationships" (2012, 305). To follow the flow of these material relationships, we need innovative epistemologies.

From an Ingoldian perspective, ways of knowing cannot be separated from their relational entanglement with particular ways of dwelling and moving in the world (Ingold 2011a, 153–55). "Inhabitants, then, know as they go, as they journey through the world along paths of travel" (Ingold 2011a, 154). Although such inhabitant knowledge is opposed to official accounts of scientific knowledge production wherein scientists travel from one fieldwork location to another without being influenced by the environments

encountered along the way, Ingold (2011a, 154) argues that both scientific and inhabitant knowledge are shaped by experiences of wayfinding. He says, "In both cases, knowledge is integrated not through fitting local particulars into global abstractions, but in the movement from place to place, in wayfaring" (2011a, 154).

Ingold (2011a, 145–55; 2007, 72–104) theorizes wayfinding and transportation as radically divergent ways of constructing knowledge of an ecosystem or place. He shows how these ways of knowing can either involve wayfinding alongside the meshwork of human and nonhuman lines that come together to create a place or, alternately, transporting across the fluidities of place in a colonizing movement that abstracts any relation to the animate lines that are always enmeshed in processes of place-making. Wayfinding integrates knowledge by moving *alongside* places and forming meshworks of inhabitant knowledge that are opposed to colonial knowledge systems that blithely pass across the contingencies of place (Ingold 2007, 72–104). For instance, drawing on Rudy Wiebe's writings on the Arctic, Ingold argues that whereas the colonial vessels of the Royal Navy can be understood as moving *across* the surface of the sea in search of the Northwest Passage to the Orient, the tracks of Inuit hunters can be seen as moving alongside the meshwork of human and animal hunting tracks (2011a, 149). In contrast to the connecting lines of a network, the lines of the meshwork are the paths along which life is lived; it is the binding of these paths in particular knots or places that constitutes the meshwork (Ingold 2011a, 151–52).

In contrast to the logic of inversion that permeates network theory, wherein understanding the relationships between actors in a network presupposes their independent existence as things turned in upon themselves, Ingold's theory of the

meshwork emphasizes the open and relational unfolding of the interwoven lines of human and nonhuman life. And the wayfaring path of inhabitants often comes together but is never contained in the entwining knots of particular places. On this note, Ingold (2007, 101) says, “Wayfaring, in short, is neither placeless nor place-bound but place-*making*. It could be described as a flowing line proceeding through a succession of places”. This is congruent with critical pedagogies of place-based environmental education, since the epistemological focus of wayfinding is upon decolonizing and reinhabiting places (Ingold 2007, 72–104; Gruenewald 2008).

From this wayfinding perspective, we might ask, do arts–sciences expeditions catalyze conversational drift by moving alongside the fluidities of place to foster processes of decolonization and reinhabitation, or do they blithely move across the nuances of site specificity? I would contend that these practices must inevitably negotiate the colonial legacy of the notion of expedition, which calls to mind everything from the search for the Northwest Passage to the Apollo space expeditions. However, their negotiation of this legacy can be analyzed from the perspective of their distinct mobile epistemology. Whereas reproducing the colonial legacy of expedition would involve moving across new territories to acquire geographical or epistemological gains in ways that abstract or ignore the environments encountered along the way, a decolonizing practice of wayfinding would involve moving alongside the meshwork of human and nonhuman lines that knot together in particular places. If they follow this latter path, they have the potential to catalyze conversational drift between artists and climate scientists while moving alongside the meshwork of places and ecosystems. However, the epistemic potential of arts–sciences expeditions to generate boundary-crossing research and

learning through what the Harrisons call conversational drift, and to work towards decolonizing and reinhabiting places through diverse practices of wayfinding demands a multidimensional analysis.

The analysis of wayfinding as it is manifested on arts–sciences expeditions and collaborations demands a nuanced attentiveness to the lifeworld of these journeys, in the broadest sense possible. This includes (1) how they move through the politics of CC (the transversal); (2) how they spend energy (usefully or intimately); (3) how they open up mobile ways of knowing place; and (4) how they catalyze conversational drift and empathic communication between collaborators, participants, and diverse publics. In order to set the stage for a discussion of art and CC politics (1), I will begin by sketching the dialogical dimensions of these expeditions in relation to WochenKlausur's "boat colloquies" (4). This will lead into a discussion of how conversational drift may be animated by wayfinding in the example of Eve Mosher's *HighWaterLine* (3). These examples set the stage for an analysis of the sustainability of these expeditions through the lens of Georges Bataille's political ecology (2). I will begin this analysis of ecological wayfinding by analyzing the intimate conversational drift of WochenKlausur's work.

Wayfinding by Boat: WochenKlausur's Boat Colloquies

The notion of the journey has a played a significant role in fostering empathic communication in collaborative art. For the sake of brevity, let us briefly consider Austrian art collective WochenKlausur's *Intervention to Aid Drug-Addicted Women* (1994) in Zurich, Switzerland. This artwork probed Zurich drug policy by bringing together politicians, journalists, sex workers, and activists on intimate "floating

dialogues" that used small boat cruises on Lake Zurich to spark conversational drift with regard to ways of helping drug addicts who have turned to prostitution and are experiencing homelessness (Kester 2004, 1–3).

These floating dialogues, or boat colloquies, used the space of an art event and the intimacy of conversing on a boat in order to move past the usual rhetoric and invective that would have animated conversation between participants in regular public forums (Kester 2004, 1–3). They were able to spark enough empathy and dialogue to create a consensus for the construction of a pension for drug addicts and prostitutes in the city of Zurich that continues to function to this day (Kester 2004, 1–3). How can we understand the potential for empathic communication generated by WochenKlausur's dialogical practice of wayfinding? Grant Kester argues, "Dialogical works can challenge dominant representations of a given community and create a more complex understanding of, and empathy for, that community among a broader public" (2004, 115).

The potential for collaborative artworks to foster empathic communication can be analyzed along three axes: (1) the rapport between artists and their collaborators and its negotiation of racial, gender, or other boundaries; (2) the solidarity generated amongst collaborators via the mediation of the artist or just by virtue of the space of conversation generated by the artwork or event; and (3) the relationship generated between collaborators and broader publics (Kester 2004, 115–16). From this perspective, an analysis of the empathetic potential of expeditions should pay close attention to the ways in which empathy moves or stagnates in relation to these three axes in order to generate particular kinds of identification or understanding of CC and its impact on particular communities. This analysis will help us understand the ways in which expeditions

respond to the need for a more far-reaching aesthetic cosmopolitanism that is attuned to the vertical convulsions of the earth. Finally, as WochenKlausur's boat colloquies illustrate, there is a way in which the intimate conversations generated by some forms of wayfinding depend on a kind of removal or distance from everyday public forums. Whereas the intimacy of the boat journey allows WochenKlausur to create a safe space for conversational drift away from public scrutiny, the example of Eve Mosher's *HighWaterLine* shows how wayfinding can also involve extending conversational drift amongst climate scientists, artist collectives, and pedestrians.

Wayfinding on Foot: *HighWaterLine* and Conversive Wayfinding

In *HighWaterLine,* artist Eve Mosher walked the current 100-year flood height in New York City, which is 9.7 feet above sea level, in order to listen to citizens' concerns about vulnerability and to inspire action.[2] Mosher's artwork can be described as a kind of wayfinding alongside urban climate vulnerabilities that uses conversational drift to generate new ways of knowing places at risk. The project started in New York City in 2007 and has since grown into a larger collaboration between Eve Mosher and communicator Heidi Quante, who joined the project in 2012, who have projects under way in Miami (2013), Bristol, and Philadelphia (2014). For the sake of brevity, I will focus on Mosher's New York City intervention. Here, Mosher joined forces with the Canary Project, which is devoted to producing "art and media that deepen public understanding of human-induced CC" and has existing relationships with a wide network

[2] *Vulnerability* in this context refers to the exposure of people or places to risk as a result of urban climate change.

of scientists, including Cynthia Rozenswag from the NASA Goddard Institute for Space Studies (Morris and Sayler pers. comm. November 2011).[3] Drawing on the Metro East Coast Assessment, Mosher drew lines of vulnerability to increased flooding and storm events with a blue chalk line, illuminated beacons, and footsteps along seventy miles of coastline.

HighWaterLine is very much rooted in the British tradition of walking art, and the ephemeral imprint of Mosher's dusty chalk footsteps can be traced back to the spirit of Richard Long's *A Line Made by Walking*. In this work, Long drew upon the dematerialization of the art object in the rise of conceptual art, amateur photography, and the values of the emerging environmental movement of the late 1960s (Roelstraete 2010). The call to arms of global ecological awareness in response to the shipwreck of the *Torrey Canyon* supertanker off the coast of Cornwall and artistic discourses of dematerialization were definitely in the air during the summer of 1967 when Richard Long photographed the imprint of his footsteps along a straight line of grass in a field outside London (Roelstraete 2010). Dieter Roelstraete situates *A Line Made by Walking* as a key moment in the anticommodity critique of twentieth-century art, wherein the desire for a "programmatic dissolution" of *aesthetics* into *ethics* was almost achieved by turning the practice of walking itself into "an originary art form" (2010, 42).

A Line Made by Walking illustrates the historical divergence between the British and American traditions of land art in the 1960s and 1970s wherein the canonical works of American land art tended towards monumentalism and explorations of entropy whereas the British tradition was deeply characterized by ephemerality and humility in

[3] They facilitated Mosher's use of current research, and played a key role in coordinating press releases and inquiries, which helped garner significant media attention (Morris and Sayler personal communication 2011).

the face of the natural world (Roerstraete 2010).[4] Whereas *A Line Made By Walking* drew upon strands of conceptual art, land art, performance art, and amateur photography to show the ephemeral imprint of walking across a landscape (Roelstraete 2010), American artist Robert Smithson's *Floating Island to Travel Around Manhattan Island* (1970, 2005) envisioned the monumental journey of an archipelago long before Bourriaud's use of the metaphors 'journey' and 'archipelago' to describe artistic contemporaneity (2009). In today's global art world, these divergences are blurring; Smithson's artwork is a clear influence on British artist Alex Hartley's *Nowhereisland*, and Long's ephemeral sense of landscape is a strong reference point in American artist Eve Mosher's *HighWaterLine*.

HighWaterLine is an ephemeral gesture of wayfinding alongside the public and private spaces of vulnerability that opens up empathy and dialogue through a listener-centered approach. This listener-centered approach is continuous with Suzi Gablik's (1996) notion of 'connective aesthetics', which involves a fundamental shift beyond the individualism and alienation of modernist aesthetics and towards a participatory model of socially and ecologically engaged art practice. She says, "Art that is rooted in a 'listening' self, that cultivates the intertwining of self and Other, suggests a flow-through experience which is not delimited by the self but extends into the community through modes of reciprocal empathy" (Gablik 1996, 82). Similarly, Mosher's artwork is grounded in a sense of bearing witness to the high waterline, to the buildings and homes in its sway, and involves an empathetic listening to the communities encountered along the path of the blue chalk line.

Mosher based her blue chalk line on the current 100-year flood line for New York City in order to draw attention to the projected increasing frequency of 100-year floods

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[4] For more on British land art, please see William Malpas *Land Art in the U.K (2007).*

over the course of the twenty-first century, as outlined in the Metro East Coast Assessment (Mosher 2007). On this topic, scientists Cynthia Rosenzweig and William Solecki observe, “Although no single weather-related event can be attributed to climate change, New York City has experienced climate extremes in its recent history that have brought attention to the potential risks posed by climate change to the city’s critical infrastructure” (2010, 20).[5] Rozenswag and Solecki underline the significance of a knowledge network of scientists, risk managers, and public and private sector stakeholders in responding to these risks at the level of planning, such as within the city’s sustainability plan, but fail to emphasize the significance of community-based efforts. In contrast to work of this expert network, Mosher’s line engages with the meshwork of inhabitant knowledge. “The inhabitant is rather one who participates from within in the very process of the world’s continual coming into being and who, in laying a trail of life, contributes to its weave and texture” (Ingold 2007, 81).

The significance of the blue chalk line has less to do with compelling data visualization and more to do with reimagining the implications of climate data through conversational engagement with meshworks of inhabitant knowledge about vulnerability. Ingold reflects, “The inhabited world is a reticulate meshwork of such trails (of wayfinding), which is continually being woven as life goes on along them” (Ingold 2007, 81-2). So, alongside the drawing of the blue chalk line, Mosher engaged in conversations with citizens and pedestrians about vulnerabilities. She explains, “I decided to undertake the conversational approach because I believed there were enough people out in the world lecturing us about climate change, telling us what to do and where to live, but how

[5] In response, the city’s sustainability plan, called PlaNYC, includes mitigation and adaptation as central goals and, crucially, includes an interagency task force to protect city infrastructure from CC (Rosenzweig and Solecki 2010).

many people take the time to get a little feedback – to hear our own experiences and stories?" (Mosher 2007, 21). Mosher's artwork is also a good example of the empathic potential of the journey form because it engages with a wide range of participants in a listener-centered aesthetic.

The chalk footsteps of *HighWaterLine* draw not only on Long's ephemeral sensibility to landscape aesthetics but also on a broader structure of feeling around walking practices in art, ethnography, and visual studies (Pink et al., 2010), such as recent innovations of conversive wayfinding. In a related discussion of audio walks by *Platform* and other artists, Misha Myers (2010) has drawn upon Tim Ingold's theory of wayfinding (2007; 2011), Grant Kester's theory of dialogical aesthetics (2004), and Edward Casey's phenomenology of place (1998; 2009; see also 2005) to describe audio and performance walks as forms of conversive wayfinding. She describes conversive wayfinding as "a spatial practice that conducts percipients' [participants'] attention to landscapes through mediated/live aural performance; perceptual and dialogic strategies of interacting and knowing place" (2010, 67). Building on Myers's description of conversive wayfinding, I hypothesize that arts–sciences expeditions such as *HighWaterLine* can be understood as forms of ecological wayfinding that reveal topographies of abrupt CC by catalyzing conversational drift amongst artists, scientists, and diverse participants in response to the fluidities of place. In this context, we need to understand how expeditions open up new ways of knowing the discordant temporalities of landscape that abrupt CC entails. To undertake an in-depth analysis of such discordant temporalities, we might turn to Doreen Massey's theory of place.

Doreen Massey's (2005) *For Space* puts forward a notion of place as the coming together of multiple trajectories of humans and nonhumans in a temporary weaving together of stories and ongoing geographical movements that necessitate negotiation, on personal and political levels, in ways that remain open to the simultaneous and coeval paths that come together therein. In response to the criticism that her theory of place lacks any sense of a ground as might be found in certain phenomenologies of place (see Casey 2010), Massey (2006) has innovated an understanding of the eventfulness of physical landscapes that shows how any notion of a *natural ground* needs to account for the movement of mountains, continents, and earth systems. This is an especially significant theoretical contribution for our understanding of place in the context of global CC (N. Clark 2011, 200–03). The movement of geological landscapes can take anywhere from eons to seconds to unfold and has, time and again, caught us unaware in the kind of natural disasters that will become more frequent with global CC (N. Clark 2011, 200–03).

In addition to teasing out these contrasting temporalities of urban vulnerability, arts–sciences expeditions can be analyzed from the perspective of energy expenditure. I now turn to a discussion of this topic in relation to Georges Bataille's political ecology.

Bataille, Intimate Expenditure, and Sustainability

The analysis of the sustainability of expeditionary practices demands a nuanced attentiveness to the expenditure of energy on these journeys and the ways of knowing energy and sustainability that they open up. On this note, we now turn to the political ecology of Georges Bataille's *The Accursed Share* (N. Clark 2011; Stoekl 2007; Yusoff 2009, 2010).

Bataille understands nature and society as manifestations of the circulation of solar energy (Stoekl 2007, 32). He places the use of excess solar energy at the center of a comparative cultural analysis of Western, Aztec, Tibetan, and other societies to show how ethical consumption has nothing to do with the conservation of energy and everything to do with our awareness of the excess solar energy that cannot be reinvested in the growth of a society, and how we choose to spend it in luxurious consumption or sacrifice, or catastrophically (Bataille 1988). He claims, "If the system can no longer grow, or if the excess cannot be completely absorbed in its growth, it must necessarily be lost without profit; it must be spent, willingly or not, gloriously or catastrophically" (Bataille 1988, 21). We are defined by how we spend, by self-conscious and glorious expenditures of excess or narrow-minded attempts to utilize excess energy for growth (Bataille 1988; Stoekl 2007).

The dualism of good expenditure is the anguished recognition of ecological limits and a consequent spending without regard for profit or utility, whereas bad expenditure is basically useful spending that ignores ecological limits by reinvesting all surplus energy in the pursuit of growth (Stoekl 2007, 32–59). In the context of the scientific, policy, and cultural thresholds of CC, we need to understand the good duality of recognizing climate thresholds and spending the heterogeneous or sacred energy that cannot be reinvested in growth, perhaps by wasting bodily energy in a walk around the ten-foot-above-sea-level line in New York City versus the bad duality of ignoring thresholds by reinvesting excess energy in growth. An example of bad expenditure would be current sustainability fixes that pretend to address environmental concerns in order to pursue further urban development or growth (While et al. 2004).

Bataille was a keen reader of Vernadsky's theories on the biosphere, which anticipated many contemporary turns in the earth sciences (N. Clark 2011, 21). Bataille's theory that all of our restricted economies, such as the global market, are fundamentally open to the general economy of a solar-charged biosphere was crucially influenced by "Vernadsky's insistence that '(t)he biosphere is at least as much a *creation of the sun* as a result of terrestrial processes' (Vernadsky, 1998 [1926]: 44, author's italics)" (N. Clark 2011, 21). Bataille's theory of general economy, or the way in which all of our restricted economies have to ultimately "measure up to the universe," has left a trace of Vernadsky's theory of the biosphere at the heart of the poststructuralist tradition (Bataille 1988, 11; N. Clark 2011, 21–22). Alan Stoekl argues that Bataille's *The Accursed Share* was wrong in its geopolitical analysis of the Marshall Plan, and his analysis is hardly the last word on anything (Stoekl 2007), but it nonetheless offers a significant reorientation for sustainability theory. Specifically, his conceptualization of an ethical relation to energy expenditure offers a way of reimagining what a sustainable use of energy might look like.

Bataille's theory of heterogeneous, excess energy and ecological limits offers a valuable framework for theorizing the intersections of art and sustainability. For Bataille, an ethical use of energy involves a personal and societal self-consciousness of the limit (C02 emissions, peak oil) and an anguished awareness of encountering the limit by, paradoxically, spending the heterogeneous energy that cannot be reinvested in the growth of the economy (Stoekl 2007, 32–59). In *Bataille's Peak*, Alan Stoekl offers a hermeneutic of Bataille to theorize an ethics of sustainability as the aftereffect of a politics of expending heterogeneous energy on the scale of the cosmos. "Just as in *The*

Accursed Share, where the survival of the planet will be the unforeseen, unintended consequence of gift-giving…so too in the future we can posit sustainability as an unintended aftereffect of a politics of giving" (Stoekl 2007, 142). Similarly, aesthetic sustainability would be the unintended aftereffect of a group or society's anguished encounter with ecological thresholds and self-conscious expenditure of heterogeneous energy, which cannot be reinvested in growth, through a politics of giving art objects and intimate performances. Heterogeneous energy is qualitatively different from energy slaves (oil) and other energy sources that we put to work. "Heterogeneous energy is *insubordinate*, not only as that which is 'left over' and 'unemployed' after the job is done, but above all as that which is a priori unemployable, always situated just beyond the limits of sense and growth" (2007, 200).

Stoekl highlights gleaning, which is the practice of collecting the remains of the harvest as well as creatively reusing the detritus of consumer culture, art, walking, and cycling as examples of sustainable energy consumption (2007, 115–49). Reflecting on Agnes Varda's *The Gleaners and I* as an intimation of future sustainability or 'postsustaniability', Stoekl says, "This will be a moment in which the aesthetic—many of Varda's gleaners are artists—intersects with the religious (the orgiastic, the sacred) and the practical (the only stuff available is what can be recycled)" (2007, 148). In direct contrast to the framing of aesthetic sustainability in relation to conservation of energy, this notion of sustainability points to the significance of artistic production as a spending of the sacred energy that cannot be reinvested in growth and, thereby, articulates the aesthetic to the sacred and the practical. It is a political aesthetics of self-consciously spending heterogeneous energy in creative gifts that connect us to the generosity of the

cosmos—light art on a different scale—and that points to a completely different way of thinking about energy consumption and sustainability. In this context, aesthetic sustainability would certainly not be tantamount to the conservation of energy via online exhibitions, installing 'green' lightbulbs, low-carbon digital networks that monitor global art flows or other forms of traditional energy conservation. Rather, while these are certainly significant matters of concern, this Bataillean understanding of aesthetic sustainability entails recognition of thresholds through good expenditure.

An example of Bataillean good expenditure is Eve Mosher's wasting of bodily energy in a walk around New York City's *HighWaterLine*. The intimate expenditure of walking art offers a good lens for considering the qualitative dimensions of good expenditure, although other embodied forms of alternative transportation might also be considered in this light. Alan Stoekl (2007, 180–205) has drawn upon George's Bataille's theory of expenditure and DeCerteau's notion of tactics to argue that alternative modes of transportation such as walking and cycling are characterized by an intimate expenditure of bodily energy that connects us more deeply to the vibrancy of useless or heterogeneous energy than to fossil-fuel-based modes of transportation. Whereas fossil fuel is constitutive of a utilitarian relationship to energy, such heterogeneous energy is constitutive of humanity's intimate relationship to the flows of energy and matter in the biosphere (Stoekl 2007). And in the experience of walking, "the world is full of base matter, matter coursing with uncontrollable energy: you are needlessly spending bodily energy, and time, perilously in contact with matter that could just as easily be entirely separated from the movement of pure awareness, a pure present [in a car]" (Stoekl 2007, 187). In consonance with Tim Ingold's theory of wayfinding as a more intimate way of

knowing place than can be broached via transportation, Stoekl theorizes alternative transportation as an intimate expenditure of bodies-in-motion that is radically opposed to the modernist dream of self-directed movement that peak oil tears asunder (2007, 180–205).

In the face of fossil fuel depletion and abrupt CC, we need to understand the role of bodily expenditure and intimacy in mobile ways of knowing place such as walking, sailing, or gleaning. Drawing on Tim Ingold's theory of wayfinding and Allan Stoekl's Bataillean theory of alternative transportation, we can focus our analysis on how expeditions move alongside (wayfinding) or across (transport) places and expend bodily energy and time in the process. Building on this understanding of the mobile and energetic dimensions of expeditions, we should also attend to the ways in which they negotiate questions of social sustainability and justice. This brings us to the question of how arts–sciences expeditions traverse the politics of climate thresholds and justice.

Traversing Climate Thresholds and Justice

There is a need for sustainability discourse in contemporary art to engage more deeply with questions of social justice (Demos 2009), which would contribute to the emerging intersection of *ecosee*, which is short for environmental visual culture, and just sustainability paradigms in the field of environmental communication (Monani 2011; Agyeman 2007; see also Dawkins 2009; Doyle 2009; Von Mossner 2011; Welling 2009). The influential just sustainability paradigm highlights social justice as an integral component of sustainability: "the need to ensure a better quality of life for all, now and

into the future, in a just and equitable manner, whilst living within the limits of supporting ecosystems" (Agyeman et all 2003, qtd in Monani 2011, 120).

How do we balance recognizing climate thresholds and social justice? The need to mediate between social justice and CC mitigation has led to a generalizing of carbon as a universal equivalent, despite the fact that the last tonne of carbon emitted to tip the balance to a new climate regime is obviously not equivalent to a tonne emitted in the 1950s (N. Clark 2011, 111–16). There is a basic incommensurability between seeing carbon as a universal equivalent signifier of value, which is obviously the basis for carbon trading schemes that attempt to mediate between social justice and mitigation, and the asymmetry between cause and effect that defines the complex nonlinear dynamics of abrupt CC (N. Clark 2011, 107–36). "One small change in the climate triggers microcosmic and macrocosmic chain reactions" (Lippard 2007, 4).

Kathryn Yusoff and Nigel Clark both offer Bataillean critiques of the restricted economy of carbon trading that fails to account for anything outside of the market, such as a solar-charged biosphere, except by making it useful to a closed economic system (Yusoff 2009, 2010; N. Clark 2010, 2011). We are reminded of Bataille's prescient remark, "Woe to those who, to the very end, insist on regulating the movement that exceeds them with the narrow mind of the mechanic who changes a tire" (1991, 1993, 26). Yusoff (2009) shows how the paradigmatic normalization of IPCC climate models manages to split the uncertainties of abrupt CC from the certainties of anthropogenic change in a way that is conducive to the absurdity of this restricted economy of carbon trading. Nigel Clark sketches a response to Spivak's call for an ecologically just world in *A Critique of Postcolonial Reason* by drawing upon Bataille's theory of expenditure and

the gift as well as Yusoff's work to put forward the idea that climate justice cannot simply be an accounting but rather has to engage with the abyss opened up by abrupt shifts and might look more like a radical generosity (2011, 107–36; Spivak 1999).

There is an incalculability to climate justice wherein accepting the enormity of anthropogenic CC "does not equate in any straightforward way with the attribution of values to these inputs or outputs—at least not values that meet the requirements of universal recognition and exchangeability" (N. Clark 2011, 121). Rather, climate justice might look more like a radical generosity in the face of extreme loss, such as the Island Kiribati's generous gift of the largest protected maritime area at the 2006 UN biodiversity conference in the face of its own climate precarity (N. Clark 2011, 135–36). On this note, we might focus on how art interventions mediate cosmic generosity in the face of precipitous loss, work alongside climate justice groups, traverse the politics of carbon trading, and articulate with Spivak's impossible vision of an ecologically just world (see Spivak 1999).

Climate justice calls for a generous and imaginative response. Kathryn Yusoff argues, "The intimate space of the imagination is a vision of the world that breaks through the narrow limits of data to scream forth that we must be changed by this knowledge" (2009, 1026–27). Instead of trying to stay the same in the face of abrupt CC by attempting to recuperate the excess of loss, of biodiversity (Yusoff 2010), by pursuing restricted economies of emissions trading, perhaps we should open up the intimate spaces of the imagination to the charge of heterogeneous energy and the obsolescence of consumer culture. Art is needed to foment a rupture or dissensus with restricted

economies of carbon trading and catalyze a general economy of creative gift-giving on the scale of the cosmos.

How can we analyze the potential for artworks to foment a rupture with the dominant climate politics? Jacques Ranciére's concept of dissensus (2010) is a useful concept in aesthetic theory, political ecology (Bennett 2010), and CC politics (Yusoff 2010) that may also help us analyze how art may (or may not) reconfigure the distribution of the visible and the sayable within restricted economies of climate justice and sustainability. Ranciére says, "Dissensus brings back into play both the obviousness of what can be perceived, thought and done, and the distribution of those who are capable of perceiving, thinking and altering the coordinates of the shared world" (2009, 49). The unfolding of dissensus as a rupture with the police ordering of the visible and the invisible, such as consensual forms of global climate governance (Swyngedouw 2010), can be considered from the viewpoint of politics or aesthetics (Ranciére 2010, 134–52; see also 2007; 2009). It involves a reconfiguration of capabilities, such as who is able to enjoy or create art, and of what is visible, expressible, and thinkable in the public realm, such as public discourse on CC.

The synthesis of Ranciére's theory of dissensus with Bataille's political ecology in this perspective on artistic sustainability points to the significance of how we use energy, i.e. intimately or usefully, and how makers, creative producers, and arts–sciences expeditions respond, i.e. consensually or via dissensus, to questions of justice, hospitality, place attachment, and energy in the political aesthetics of CC. For instance, in relation to the cosmopolitics of hospitality, the peripatetic global art world has a responsibility to not only help mediate the findings of climate science but, more significantly, to interrogate

how we might adapt to the vertical convulsions of the earth. In a time frame of sinking archipelagos, the journey form of contemporary art will have to expand its focus from horizontal movement across borders to the vertical eruptions and nonlinear movement of earth systems.

The journey form will also have to address the continuing significance of place attachment and identity in relation to what Doreen Massey calls the "unfinished business" of an open sense of place (2005, 131). In this context, a new body of literature is emerging that recognizes that "climate change will alter not just the physical character of places, but also related meanings, identities and emotional bonds" (Devine-Wright, 2013). Here, wayfinding practices may play a role in teasing out the meshwork of meanings and bonds in places of vulnerability. However, as Devine-Wright argues, we need to critically analyze the discourses of spatial scale that are mobilized in conversations about place attachment. On this note, I now turn to an analysis of the discourses of Western globalism that continue to deeply inform both the journey form and climate science research.

The Expedition and Western Globalism

There are some unusual connections between environmental art and Western globalism. Analyzing an earlier era of environmental art, Georges Bataille interpreted the cave drawings of Lascaux as artistic rituals in preparation for hunting expeditions. "It is much less improbable to suppose that drawing them was for the hunters a ritual preparation for big expeditions, upon which the fate of the entire society depended" (2005, 49–50). There are similarly unusual connections among the rituals of walking,

collecting, and mirror positioning in postwar land and environmental art and the Apollo space expeditions.

Joy Sleeman (2009) shows how NASA's Apollo Project and land art share a historical moment between January 1967 and December 1972 when most of the key works of land art were constructed and, significantly, when key events in the history of both land art and the space race were broadcast on television. "The first exhibition with the title 'land art' was broadcast on German television (SFB 1st Programme) on 15 April 1969; the first manned moon landing took place on 20/21 July 1969" (Sleeman 2009, 300–01). Crucially, both the broadcast of the first manned moon landing and the Gerry Schum land art exhibition utilized a combination of colour and black and white at an historical conjuncture that saw the emergence of colour television as a major factor in environmental communications (Sleeman 2009). Sleeman argues that the connection between land art and the space race is largely anticipatory in the sense that land artworks have been subsequently interpreted as anticipations of the moon landing but also technological—televisual—and speak to something deep in our imaginary of the planet and our place within it.

We can identify some obvious connections between the activities of environmental artists and astronauts: "journeying to distant and inhospitable terrain; collecting rocks, planting mirrors, marking the landscape with footsteps and recording those journeys in photographs, maps, words and the moving image" (Sleeman 2009, 302). This journey and its documentation mark a crucial connection between early environmental art and the space race, especially since we engage with both histories primarily via photographic documentation (Sleeman 2009).

There is a tendency within art criticism to repeat the homeward-bound arc of both the space race and Latham's *Erth* film whereby our most audacious trip to space renewed fascination with our home planet (Sleeman 2009). Michael Light of NASA observed, "'Apollo's path is circular. Humanity's boldest and most audacious movement outward from its home found itself relentlessly looking in the opposite direction—back toward Earth—from the moment it began" (quoted in Sleeman 2009, 322). This backward gaze can be seen in the enduring legacy of the Apollo expedition photographs called *Earthrise* and *22727.* Denis Cosgrove (1994) has shown how the reception of these images has transformed the Western geographic imagination in a way that aligns with two dominant readings, including the one world understanding of the unitary mission of the American postwar project and the whole-earth interpretation of the fragility of our habitus in the nascent environmental movement. The whole-earth reading of *22727* and *Earthrise* has certainly played a significant role in the history of visual communication in environmental campaigning, from the cover of *The Whole Earth Catalogue* to the reproduction of *Earthrise* on the cover of James Lovelock's influential text *Gaia* (1978) and the use of *22727* as a logo for BBC's broadcasting of the Rio Earth Summit in 1992 (Cosgrove 1994, 276). In fact, discussions of the visual culture of environmentalism almost always start with a discussion of these whole-earth images (Yusoff 2009).

At the dawn of the American back-to-the-land movement, Stewart Brand's *Whole Earth Catalogue* articulated this globalism to the slogan 'access to tools' and a vision of peer-to-peer information-sharing that successfully brought together the ecological thinking of Gregory Bateson and postwar systems theory with the environmental ideals of the counterculture (Turner 2006). In the *Catalog*, "'information' linked and facilitated the

communal work of saving the planet; and the information technology of the *Catalog* itself, as a network forum, made visible the underlying structure of the New Communalists social world" (Turner 2006, 245–46). For instance, if we peruse the last *Catalog* (1971), we might read a story about the media event *Liferaft Earth* that drew inspiration from Paul Ehrlich's *Population Bomb* to raise awareness of world hunger, and then, deeper into the catalog, learn some hydroponic growing techniques before finally encountering a summary of Marshall McLuhan's *Understanding Media*. This influential articulation of environmental globalism and peer-to-peer information-sharing among systems theorists, scientists, scholars, artists, and communalists introduced its purpose by saying, "We are as gods and might as well get good at it." We were supposed to 'get good at it' by realizing the potential of small-scale, personalized, decentralized technologies for 'saving the planet', but somewhat ironically as Turner points out, this notion of the emancipatory trajectory of personalized technology has bequeathed us a planet of e-waste.

McLuhan described this whole-earth globalism in relation to the Sputnik satellite as the transformation of the earth from a temporal environment to a "probe in space" that opened up new ways of seeing the man-made environment (Cavell 203, 2002, 176). "'Ecological' thinking became inevitable as soon as the planet moved up into the status of a work of art" (McLuhan 1974, 49). So the *Earthrise* photograph on the inside cover of the *Catalog* might be described as an influential but officially underrecognized work of earth art, especially considering the fact that the largest earth artworks were constructed after this photograph was taken (Sleeman 2009). However, what is perhaps more significant is how this whole-earth globalism was articulated to a vision of the

emancipatory potential of peer-to-peer information-sharing. Fred Turner (2006) has shown how this vision of saving the planet by peer-to-peer information-sharing has moulded popular understandings of the emancipatory potential of information technologies, from the *Catalog* to the Internet, while simultaneously obscuring the social and material relations that undergird information technology. "Behind the fantasy of unimpeded information flow lies the reality of millions of plastic keyboards, silicon wafers, glass-faced monitors, and endless miles of cable" (Turner 2006, 260). Similarly, we might look at the global infrastructure of digital technology and remote sensing that undergirds the global environmentalism of climate modeling through the metaphorical lens of the digital earth (Yusoff 2009).

The Digital Earth

Kathryn Yusoff uses the metaphor of the 'digital earth' to describe the accumulation of data from remote sensing and GIS technology in general circulation models (GCMs) and situates the globalism of these climate models as continuous with the objectification of the planet made possible by the Apollo space expedition photographs of the 'whole earth' (2009, 1015–20). GCMs are a crucial tool in the production of climate science knowledge (P. Edwards 2010), but on an aesthetic level can also function as a continuation of the imperial ocularity of the whole-earth images and the self-denying centre of Western globalism (Yusoff 2009, 1015–20). Furthermore, Yusoff argues that an aesthetic experience of the transformation of the accumulation of data into images in the GCMs is productive of an experience of the mathematical sublime. In the

Kantian critique of the mathematical sublime, there is a movement from form to formlessness to form. "If we transpose this ordering onto atmospheric climate models, we can begin to see how atmospheres are atomized through their encoding as data, accumulated, then mobilized as an aesthetic experience, then rearticulated as data again (carbon credits)" (Yusoff 2009, 1021). Yusoff argues that the aesthetic experience of these models is productive of excess, i.e. the formless or fluvial moment of the sublime, and a sense of unfathomable global loss that cannot simply be recuperated through the further reification of the atmosphere in the restricted economies of carbon trading. "When we see a model of future desertification or sea ice melting and connect this with species loss—irredeemable extinction, drought, famine, displacement, war—the consequences begin to accelerate; irreversible loss, on a global scale" (1021). This disaster writing is a liminal experience that calls for an ethical relation to the knowledge of global CC such as an ethics of good expenditure rather than the recuperation of this 'wild data' within limited economies of knowledge production and carbon trading (Yusoff 2009).

We can understand this desire to reaffirm the faculty of reason in the face of such excessive loss (Yusoff 2009; see also 2010) as a reverberation of the originary precariousness of the critical rationality of the modern subject, since Kant's vision of the freedom of the rational subject can be read as an elaborate retort to the sense of powerlessness that the Lisbon earthquake (1755) imposed on Europe early in his career (N. Clark 2010). In a lifelong philosophical response to the threat of earthly rupture that Kant encountered in the Lisbon earthquake, "one of the aims of his major works may have been to elevate the human subject to a position where it is safe from being crushed and buried by the earth's upheavals" (N. Clark 2011, 87). The Kantian elevation of the

rational subject is not only apparent in his own recuperation of freedom and form in response to the mathematical sublime, but it echoes in our desire to recuperate the excessive loss of abrupt CC via free market solutions and the geoengineering of the planet (Yusoff 2009, 1021). In this sense, CC paradoxically negates and intensifies the experience of the sublime. It negates our capacity to experience the sublime power of natural landscapes since our anthropogenic experiment belittles their previously overwhelming scale while incurring an unresolvable guilt (see Latour 2011), but it simultaneously multiplies and intensifies short-sighted attempts to utilize the infinity of loss that we have wrought upon ourselves.

The sublime experience of GCMs is productive of an excessive loss that calls for an ethical, poetic, and imaginative response. Yusoff's (2009) critique of the excess produced by GCMs raises the question, how might contemporary environmental art offer another response to the excess that is already produced by the scientific visualization of global CC? McLuhan argues, "One of the peculiarities of art is to serve as an anti-environment, a probe that makes the environment visible" (1997, 119). So how might environmental art probe the globalism of climate science and the enduring legacy of the Kantian response to the formless in questions concerning the ruptures of the earth and disaster? The sense of excessive loss that Yusoff reads in the scientific visualization of CC (2009) arguably demands an aesthetic cosmopolitanism that is attuned to the vertical mobilizations of the earth and, on a political level, to the persistent desire to recuperate the wild data of excessive loss within restricted economies of carbon trading. It challenges us to move beyond both the sovereignty of the rational subject, whose precarity was always founded on a limited response to disaster (N. Clark 2011), and the

subordination of hospitality in modern Kantian cosmopolitanism to the sovereignty of the nation state (Papastergiadis 2012, 83). We need to open up a cosmopolitan “world picture making process” that regrounds empathy and hospitality for those who are losing their world (Papastergiadis 2012, 90). “The most vivid signs of the aesthetic dimension of the cosmopolitan imaginary can be found in the world-making processes of contemporary art” (Papastergiadis 2012, 90).

The imaginings of collaborative art are needed to probe colonial images of the earth and related attempts to save it. The political aesthetics of CC globalism hark back to visions of saving the planet by decentralized peer-to-peer information-sharing among scientists, artists, and environmentalists, whereby the Apollo expedition photographs of the whole-earth articulate the globalism of the new communalists with the globalism of climate science. Saving the earth is somehow wrapped up in this moment in the journey when we slacken our focus on colonizing new territory in order to gaze backwards at our origins, at ‘home,’ or the fragility of our small planet—vulnerable against the void.

A significant opening for environmental art to interrogate global climate science is globalism itself and the notion of the expedition as a way of producing images of the earth. The historical role of the journey in land and environmental art hints at some of the ways that art can probe Western globalism.

The Journey in Environmental Art: The Work of David Lamelas

David Lamelas’s *A Study of the Relationships Between Inner and Outer Space* (1969) probed what McLuhan liked to call the transformation of the planet into an

artwork by documenting a journey from the interior of the Camden Arts Center outward into the streets of London, its transportation and communication networks, climatic regions, population, and, via newspapers and interviews about the planned moon landing, outer space. By conducting interviews with passersby about the news headlines on the day of the Apollo moon landing rehearsals, Lamelas's film probed the homeward-bound gaze and the transformation of the Western geographic imagination in the characteristically anticipatory fashion of early land and environmental art (Sleeman 2009). This anti-environment was shown at the *Environments Reversal* show at the Camden Arts Center between June 26 and July 27, 1969, so that its original audience had the opportunity to experience an anticipated reality—the moon landing—at the exact moment that it became part of reality (Sleeman 2009). We might speculate that some similarly strange conjunctures could unfold with respect to artistic probes of our shifting global climate since art could function as a distant early warning system of the cultural shifts that we will have to make in response to CC (Buckland 2012). Marshall McLuhan argued that both art and science function as anti-environments that disclose our sociotechnical environment in ways that might help us anticipate and prepare for possible futures. "The models of perception provided in the arts and sciences alike can serve as indispensable means of orientation to future problems well before they become troublesome" (McLuhan 1997, 113). We need both scientific and artistic visualizations of the earth to help orient ourselves to abrupt, irreversible CC.

We have seen how the political aesthetics of CC partly involve a sublime loss on a global scale of species and places alike, and thereby demand an aesthetic cosmopolitanism of empathy, hospitality, and radical generosity for those nomads who

are losing their worlds because of rising sea levels or drought. We have also seen how this political aesthetics manifests a Western colonial imaging of the earth that is not only part and parcel of the Western locus of global climate research infrastructures (P. Edwards 2010) but more broadly articulates with a vision of saving the planet via decentralized peer-to-peer information-sharing amongst scientists, environmentalists, artists, and others. The notion of saving the planet via peer-to-peer information-sharing is at least partly a legacy of Stewart Brand's networked entrepreneurialism and the *Whole Earth Catalog*, which has deeply influenced contemporary ideological articulations of individualism and information technology while obscuring the material conditions of network society and a planet of e-waste (Turner 2006). These conditions place unsustainable burdens on the meshwork of interwoven human and nonhuman paths that make up our lifeworld.

The 'think globally, act locally' mantra of modern environmentalism seems to be inextricably intertwined with the homeward-bound gaze of a colonizing journey. Paradoxically, as we have seen, saving the planet may require us to stop looking backwards at the globe-as-object in order to appreciate the atmosphere, the solar-charged biosphere, and the cosmos, i.e. the general economy of the universe that our restricted economies fail to notice. "If we remember the first human words in space: 'I see clouds!' (preceded only by Leica's howls and monkey noises), we remember that the initial response to orbiting the globe was not to see it as artifact, but to see it as an atmosphere" (Yusoff 2009, 1017).

Conclusion

There is something deeply archaic about the notion of the arts–sciences expedition as a way of interrogating possibilities for adapting to global CC. We seem to be performing an ancient ritual as preparation for the radical changes we will have to make in ourselves if we are to survive as a species. If this ritual is to avoid the colonial legacy of the notion of expedition, it will have to make a break with colonizing ways of moving across geographical and epistemological territory and search out emergent ways of knowing alongside the meshwork of human and nonhuman lines that make up our lifeworld.

On an aesthetic level, we have seen how global knowledge infrastructures shimmer in a mathematical sublime of historical climate data analysis. This mathematical sublime contains a moment of fluvial excess wherein the unfathomable loss of species and places resulting from the high-carbon societies of the twentieth century is experienced as irrecuperable and noncoincident with the faculty of reason. How can expeditionary practices respond to this sublime moment? I have argued that we need to understand how they traverse the political aesthetics of CC by paying close attention to whether they articulate a dissensus with restricted economies of climate justice and carbon trading and, more broadly, by analyzing how they spend energy. I have also argued that we need to understand how these practices draw from both the history of the journey in land and environmental art and from strategies of conversational drift and empathetic insight that are currently being developed in the field of site-specific collaborative art practice. In this context, I have theorized the expedition as a form of

ecological wayfinding that negotiates the political aesthetics of CC by catalyzing conversational drift between climate science and contemporary art in response to the fluidities of place. This theory can help us analyze the ways in which these practices might generate empathy and hospitality for those nomads who are forced to confront the discordant temporalities of place. It should help us understand their role in generating aesthetic cosmopolitanism.

Doreen Massey claims, “There is material loss…and there will be a sense of loss on occasions also. Moreover it is important to recognize such losses; they cannot be eradicated with the wave of a conceptual argument” (2006, 13). The persistent desire to recuperate loss through a rational accounting of natural disasters or through novel carbon trading schemes is understandable but, in the end, can never eradicate the excessive loss that is revealed to us by the shimmering of climate data. This excessive loss demands an imaginative and generous response. We need to connect site-specific collaborative art practice to sacred, heterogeneous energy and practical knowledge in a global politics of gift-giving without any expectation of a direct return on this investment in future planetary health.

Methodology: Following Collaborations

Introduction

The purpose of this case study research is to understand the role of civil society organizations in mediating practices of collaboration between contemporary art and climate science and, more specifically, to describe the pedagogical potential of these collaborations in learning about sustainability and imagining a cosmopolitan response to global climate change. I will offer an in-depth analysis of Cape Farewell's approach to art and science collaboration in the context of their artists' residency program, curatorial process, and sustainability education programming for postsecondary art students, called Short Course UK. Their approach to collaboration is based on expeditions that embed artists on climate science research trips, from sailing to the Arctic to trekking in the Amazonian basin.

There is a history of embedding artists on modern scientific expeditions, such as artist August Earle's role on Darwin's HMS *Beagle* expedition, a practice that is currently in the midst of a renaissance with the proliferation of artists' residencies on scientific research trips to the poles. For instance, the National Science Foundation's Artists and Writers Program supports creative projects that require journeys to the Antarctic and which are designed to increase understanding of that continent (National Science Foundation), and the UK-based organization Cape Farewell places artists on sailing trips to the Arctic and elsewhere (Cape Farewell 2014a).

Cape Farewell was initiated by British artist David Buckland in response to his fascination with the predictive power of mathematical climate change models and the need to communicate climate science to a broader public in an emotionally engaging way

(Buckland and Lertzman, 2008). The foundation of the project is annual expeditions that bring artists, scientists, educators, and other creative communicators together to research the impacts of climate change in the Arctic (2003–2005, 2007–08, 2010), the Andes (2009), and the Scottish Islands and Faroes (2011) (Cape Farewell 2014c). "Over 140 arts-based practitioners have taken part in these voyages, openly engaging with more than 45 scientists, creating artworks, exhibitions, books and films that have toured worldwide" (Buckland 2012). The Cape Farewell residency program is completely open-ended, so artists have no obligation to produce work in response to their participation on a voyage, but numerous artworks, novels, poems, plays, popular songs, and contemporary art exhibitions have been inspired by these climate research voyages. Cape Farewell Director and Curator David Buckland works with artists and scientists who have participated in the residency program to produce contemporary art and ecology exhibitions, such as the *Carbon 12, 13* & *14* shows in Paris, Marfa, and Toronto (Buckland 2012). In this way, the organization brings together the following strategic objectives: a) 'exploration', which includes "research, development, scientific and artistic exchange and exposure" on the expeditions; b) 'creation', which focuses on the creative process; c) 'engagement', which includes audience engagement at exhibitions, and "multimedia dissemination," such as websites and social media (Cape Farewell 2008, 10-13). The organization is based in London, UK, but has recently started a North American outpost with the Cape Farewell Foundation in Toronto, Ontario.

In chapter 1, I theorized contemporary expeditionary practices as forms of ecological wayfinding that catalyze conversational drift between artists and scientists in response to site-specific challenges of social and ecological sustainability. In this chapter,

I will present my methodology for carrying out this in-depth case study of Cape Farewell's expeditionary practices. I begin with a discussion of case study research strategies and sources, move into a discussion of the particular triangulation of methods used in this study, and conclude with a reflection on the role of arts-based methods in environmental education research.

Case Study Strategy and Sources

Strategy

I am motivated by a combination of intrinsic and theory-building interests in conducting this case study research. The 'Noah's ark' ambition of inviting artists, scientists, educators, and other creative communicators onto a sailing boat to creatively tackle the global climate crisis is intriguing in its own right and, as this analogy highlights, offers a complex layering of themes for hermeneutic reflection. On a theory-building level, the Cape Farewell project offers a fertile and complex ground for thinking about how collaborative art practices generate ways of knowing cosmopolitanism, which Nikos Papastergiadis calls "aesthetic cosmopolitanism," in the face of the immense challenge that global climate change poses, from our understanding of the earth as a ground to ways of welcoming the other (Papastergiadis 2012, 90; N. Clark 2011). By articulating Nikos Papastergiadis's theory of aesthetic cosmopolitanism with an overarching perspective of methodological cosmopolitanism, which highlights the both/and contradictions of social life and politics in a cosmopolitan outlook (Beck 2006),

I use this case study to theorize the broader role of civil society arts organizations in fomenting a cosmopolitan response to global climate change.

From the perspective of this methodological cosmopolitanism (Beck 2006; Papastergiadis 2012), I analyze the role of civil society arts organizations in fostering new forms of aesthetic cosmopolitanism that respond to the distinctive contours of the political aesthetics of climate change and, second, how these civil society arts organizations are situated in relation to actually existing processes of cosmopolitanization. "Cosmopolitanization is a non-linear, dialectical process in which the universal and the particular, the similar and the dissimilar, the global and the local are to be conceived, not as cultural polarities, but as interconnected and reciprocally interpenetrating principles" (Beck 2006, 73). In *The Cosmopolitan Vision*, sociologist Ulrich Beck (2006) argues for a reorientation of the social sciences towards such processes of cosmopolitanization, which are distinguished from the enlightenment legacy of cosmopolitanism as an ethical choice by their contradictory and coerced effects on everyday life, and he puts forward a methodological strategy for the analysis of cosmopolitanization. Specifically, Beck argues for a move away from methodological nationalism, which fails to comprehend the unfolding contradictions of cosmopolitan phenomenon, and towards a methodological cosmopolitanism that encompasses national and international phenomena and highlights the contradictions and dialectics of world risk society. "Methodological nationalism theorizes and researches social, cultural and political reality in either/or categories, whereas methodological cosmopolitanism theorizes and researches the social and the political in both/and categories" (Beck 2006, 31). For instance, methodological cosmopolitanism would theorize Cape Farewell as

operating within both particular national contexts (England and Canada) of art and science research funding and, simultaneously, within ongoing processes of cosmopolitanization, from the banal to the institutionalized, in the arena of civil society responses to global climate change. In this sense, the perspective of methodological cosmopolitanism allows us to inquire into how civil society climate change actors are both shaped by actually existing processes of cosmopolitanization, which include both risks and potentialities (Beck 2006), and shape the more idealistic forms of aesthetic cosmopolitanism and empathy that artistic collaborations are beginning to envision (Papastergiadis 2012; Kester 2011).

From this methodological orientation, I inquire, how do civil society groups organize collaboration between scientists and artists in the context of producing contemporary art exhibitions, and what characterizes these exhibitions as places of learning about sustainability and a cosmopolitan response to the political aesthetics of climate change? I direct this question towards Cape Farewell's use of expeditionary practices as a context for art and science collaboration on the basis that studying this organization in depth offers a complex and exemplary view of the broader role that civil society arts organizations are beginning to play in progressive climate change communication and education. I am curious as to why expeditionary practices are used as a platform for art and science collaboration and what their significance is as a form of public pedagogy about a just and sustainable response to global climate change. Second, I am curious about how this distinctive public pedagogy not only attempts to build publics for alternative climate change media and art, but also works towards shaping the front

line of sustainable and ecological art practice through educational intervention at the postsecondary level.

The research questions are articulated to Cape Farewell's interventions in the university sector via the touring *U-n-f-o-l-d* exhibition and the Short Course UK program, which have both generated insightful student-produced art and ecology exhibitions for university galleries in the UK and USA. I interrogate Cape Farewell's collaborative approach to progressive climate change campaigning in the context of these educational interventions that attempt to integrate ecological thinking and sustainability in postsecondary art education at the undergraduate and graduate levels. In this context, I inquire into how young artists are probing social and ecological sustainability through diverse arts-based research practices and how they are coming together to produce group art exhibitions that imagine various site-specific, sustainable, and cosmopolitan responses to global CC.

This inquiry is directed towards young artists who have engaged with Cape Farewell education programming via the New Generation program, which attempts to raise questions about "what it is to be an artist in a world of fast-evolving social and cultural change" (Cape Farewell 2014a). This program includes the touring *U-n-f-o-l-d* exhibition and Short Course UK program. In this context, I inquire into the following student-produced art and ecology exhibitions: (1) *Without Boats, Dreams Dry Up* at Triangle Gallery, London, UK; (2) *HEVVA! HEVVA!* at Eden Project, Cornwall, UK; (3) *Fieldnotes from the Gowanus* at Parsons The New School, USA. The first two exhibitions were produced by Cape Farewell's Short Course UK program in close partnership with University of the Arts London and Falmouth University. The latter was

produced as part of the Sheila C. Johnson Design Center's (Parsons The New School) educational programming of Cape Farewell's touring *U-n-f-o-l-d* exhibition in New York City via a workshop led by an American art and climate change group called the Canary Project. The arm's-length programming of this exhibition via Parsons in conjunction with Edward Morris and Susannah Sayler's Canary Project is just one example of the way in which Cape Farewell programming is facilitated as well as molded by diverse institutional and community partnerships. In chapters 4 and 5, I interrogate these interventions in postsecondary art education in relation to the institutional contexts of education for sustainable development and recent shifts in art education. Chapter 4 focuses on *U-n-f-o-l-d* and *Fieldnotes from the Gowanus*, whereas chapter 5 focuses on the Short Course UK exhibitions and focuses especially on *Without Boats, Dreams Dry Up*. In chapter 3, I situate these interventions in relation to the institutional ecology of the Cape Farewell enterprise and the overarching public pedagogy of their climate change exhibitions. In this way, I have maintained a broad scope of analysis in order to situate this organization in relation to other civil society groups in this community of practice and, second, in order to analyze their overall climate change campaigning through the lens of cosmopolitan approaches to critical CC theory. To start off, Cape Farewell's expeditions should be understood in relation to the broader field of practices of art and ecology collectives and organizations in the UK, as well as the turn to collaboration in contemporary art practice.

Artistic collaboration challenges conventional poststructuralist methods of art criticism and interpretation (Kester 2011) but, at the same time, is productive of novel ways of knowing that might help us interrogate questions of hospitality, migration,

cosmopolitanism (Papastergiadis 2012), and pedagogy (Ellsworth 2005; O'Niell eds 2010, 2011). Nikos Papastergiadis says, "Art begins in curiosity, the sensuous attraction towards difference and connection, and proceeds through a relational mode of thinking that serves simultaneously as an instrument for suspending the existing order of things and as a platform for imagining alternatives" (2012, 13). In following lines of curiosity from art and science expeditions to art exhibitions, I understand that artworks in this case study research are ways of knowing that might help us imagine an empathetic and sustainable response to global climate change.

I also understand the art practices and artworks in this case study as being embedded in particular organizational and institutional commitments to the role of art in research, which adds a level of complexity to this discussion of case study methodology. Cape Farewell Director David Buckland theorizes the role of art in climate change research as a pragmatic and creative method of action research on possible futures, which is continuous with the way scientists use mathematical modelling to analyze climate change but operates on a cultural level (2012, 4). On another level, Cape Farewell's partners in the university sector, arts and science research sectors, and community groups have a variety of understandings of the role of art in research and education that add further levels of complexity to understanding these practices.

How do we conduct lucid case study research on cases with their own methodological commitments to the role of art in the research process? In a highly relevant discussion of case study methodology in *Locating the Producers*, which was a case study of five long-duration approaches to place-based art commissioning in Europe, Mick Wilson (2011) points to the reorientation of cultural production in relation to

creative research and paraeducational practices. “This use of research as a project framework is consistent with a larger re-orientation within contemporary cultural production whereby arts practices are deployed as research actions, and research paradigms and structures are deployed as platforms for cultural production” (Wilson 2011, 301). In the case of the art projects under consideration in this dissertation, this reorientation of cultural production includes both the use of arts practices as climate change research actions and climate research structures as starting points for art exhibitions, comedy, popular music, etc. It is in the context of this more extensive realignment of contemporary cultural production that many art and climate change actors ground their practice. I have deployed the case study methodology as a comprehensive research strategy that accommodates a wide variety of understandings of the role of art in the research process and avoids unnecessary dichotomies between art and science, which Mick Wilson (2011) highlights as a significant dimension of case study research on long-duration art projects. He says, “By avoiding the blunt dichotomies of art and science, of affect and knowledge, of fact and value…these enquiries manage to construct a way of working that employs multiple perspectives within a unified and thematically coherent, but nonetheless dialogically complex, study” (2011, 303). Similarly, I see the case study as a comprehensive research strategy that can accommodate a variety of perspectives on the relationship between art practice and climate change research and education by opening up dialogical complexity while also building a theoretically coherent interrogation of the political aesthetics of climate change.

The case study methodology is both a highly popular and contested research practice in the social sciences and humanities (Wilson 2011, 298). In the field of

environmental education (EE) and education for sustainable development (EsD), there has been insufficient explanation of guiding theoretical propositions and documentation of methods in case study research (Corcoran and Wals 2004). However, if we turn to Robert K. Yin's (1994) classic analysis of case study research, we can see how putting forward theoretical propositions and documenting methods are an inescapable challenge of this strategy. Yin defines the case study as an empirical inquiry that meets the following conditions: (1) "investigates a contemporary phenomenon within its real-life context, especially when", and (2) "the boundaries between the phenomenon and context are not clearly evident" (1994, 13). This is certainly the case with regards to the figure and ground relationship between the Cape Farewell enterprise and civil society climate change campaigning, as well as between Short Course UK and the broader reorientation of cultural production in relation to institutional research structures. The phenomenon of arts sector organizations involved in CC campaigning is inseparable from transformations in the relationship between cultural production and research and, in a broader context, from the complex and precarious positioning of civil society in climate change politics (see Urry 2011; Swyngedouw 2010).

The case study is a comprehensive research strategy that "copes with the technically distinctive situation in which there will be many more variables of interest than data points" (Yin 1994, 13). As a result, case studies rely upon a wide variety of sources of evidence that will need to be strategically triangulated and, second, greatly benefit from the conceptualization of "theoretical propositions to guide data collection and analysis" (Yin 1994, 13). Similarly, I have drawn upon a wide variety of sources, from qualitative interviews with art students to participating in expeditions while

conducting research, in order to document expeditionary practices and related art exhibitions. Following Elizabeth Ellsworth's (2005) approach to case study research on the pedagogical address of art exhibitions, I have documented Cape Farewell exhibitions via a wide variety of primary and secondary sources and have staged a series of conversations between these experientially rich places of learning and theoretical interrogations of a just, sustainable, and cosmopolitan response to global climate change.

Sources

I have utilized a comprehensive approach to data collection, which is largely informed by the specific challenges of studying expeditionary practices. We can study these expeditionary practices by following patterns of movement online, via art and science expedition blogs, by directly observing or participating in the research and educative trajectory of an expedition and, finally, by viewing art objects that have been informed or shaped by expeditionary practices. First, by participating in patterns of movement and thereby observing these expeditionary practices, we can study how they attempt to mediate collaboration between artists and scientists while moving alongside various places and, significantly, how they attempt to inspire creative and site-specific research for public exhibition in galleries or other venues. Second, by viewing art objects, we can study how the expedition can be used as a formal or thematic orientation in contemporary environmental and land art and how this journey form articulates with the political aesthetics of climate change. Finally, by reading and viewing expedition films, blogs, videos, and news stories, we can study how the expedition functions as an

environmental campaigning tactic, i.e. as a particular kind of story about CC. These collaborative, aesthetic, and communicative dimensions of expeditionary practice demand a comprehensive approach to qualitative research.

I have drawn upon a wide range of sources to document these highly complex processes of collaborative knowledge production from expedition to exhibition. The sources used in this case study include (1) artworks and representations of artworks in photographs, exhibition catalogs, curatorial sketches, and websites; (2) critical gallery education programming documents, (3) photographic and video documentation of expeditions; (4) field research writings and observations of expeditionary practice; (5) interview transcripts with education programming participants; (6) interview transcripts of conversations with Cape Farewell collaborators, staff, and Director David Buckland; (7) Cape Farewell reports, documents, and correspondence; and (8) secondary literature such as policy documents, fiction, art student writings, expeditionary blogs, and news stories pertaining to particular art exhibitions.

The array of sources used to conduct this case study have been strategically brought together to situate Cape Farewell in relation to the broader community of practice of civil society arts organizations involved in CC campaigning and, more specifically, to document specific exhibitions in order to analyze how the pedagogical address of these projects meets the unfolding creative practices of postsecondary undergraduate and graduate art and design students. I have triangulated a critical ethnography of art/science collaboration with mobile methods that aim to "capture, track, simulate, mimic, parallel and 'go along with' the kinds of moving systems and experiences that seem to characterize the contemporary world" (Büscher, Urry and

Witchger 2011, 7). By mobile methods, I mean travelling with particular arts-sciences expeditions to observe the patterns of perception and observation that take place in the context of these expeditions and which inform subsequent processes of arts-based inquiry. By using mobile methods, which allow one to go along with the experience of an expedition, alongside collaborative and arts-based methods, I describe the potential of these forms of research and public pedagogy. More broadly, this inquiry is grounded in an understanding of the unique epistemic potential of arts-based inquiry. As Deborah Barndt reflects, "The arts are powerful catalysts for unearthing different kinds of knowledge and moving people to participate more fully in the knowledge production process" (2008, 354). On this note, I will now turn to a description of the triangulation of methods that have been drawn upon to analyze the distinct potential of this style of arts-based inquiry.

Triangulation of Collaborative, Visual, and Mobile Methods

This case study triangulates collaborative, mobile and arts-based methods. This triangulation of methods is put to work within the overarching framework of a methodological cosmopolitanism that analyzes CF as a whole enterprise by mapping its distinctive institutional ecology and thereby situating its attempts to catalyze a cultural response to climate change in relation to both the empirical and philosophical imperatives of a cosmopolitan response to global climate change (Cape Farewell).

In a reflection on arts-based methods, Patricia Leavy (2009) argues that such research needs greater institutional recognition and stronger links to contemporary cultural

production in order to facilitate holistic and integrated research across the arts and sciences. "The story of arts-based research practices is one about fusion, affinity, resonance, and above all holistic approaches to research from the point of view of the knowledge-building process and the researcher who is able to merge an artist–scientist identity" (Leavy 2009, 253). In this case, the challenge of "holistic approaches to research" was met by bringing together an ethnography of art/science collaboration with visual analysis of artworks and exhibitions, including my own arts-based research, and mobile methods of observing patterns of movement from expedition to exhibition (Leavy 2009, 253). This triangulation of methods is designed to capture the dynamics of conversation and translation that unfold between specific art and science research trips and associated forms of aesthetic cosmopolitanism and exhibitionary practice. In this dissertation, I conduct an in-depth ethnography of this style of expeditionary field research and its role in the development of climate change exhibitions. And in the following discussion, I explain the theoretical ideas behind this particular triangulation of methods. I begin with a discussion of ethnography and collaborative art practice, move into a discussion of the emergence of mobile methods that variously track and capture experiences of movement, and finally end with a discussion of arts-based methods.

Collaboration

Cape Farewell's expeditions emerge in the context of a broader structure of feeling around collaboration today that is evident in everything from the thematics of major biennials to increasing critical attention to this topic, as is evident in recent

publications such as Tom Finkerpearl's *What We Made* (2013) and Grant Kester's *The One and the Many* (2011).

The most direct meaning of *collaboration* is "to work together" (Kester 2011, 1). And if we interpret *working together* as including both cooperative and unintentional forms of shared labor, we could even consider the solitary labor of a painter in a secluded mountain retreat as a form of artistic collaboration since even this stereotypical figure would rely on the labor of many others for the production of the artwork. In *Art Worlds*, sociologist Howard Becker (1982) debunked traditional understandings of Romantic or individual authorship by defining the work of art as the product of a group effort of coordinated, networked participants from craftsmen to the individual consecrated with the status of artist who share a set of conventions with the audience for whom the work is composed, i.e. an art world. However, while we may wish to describe the larger social coordination involved in the production of any work, it is useful to distinguish between a number of more recent forms of creative collaboration in the contemporary art world. These include everything from artworks that are designed by artists and then opened up to relatively prescriptive forms of participation with a particular audience, to works that are created entirely through dialogue with participants in a workshop (Finkerpearl 2013, 4).

Contemporary manifestations of collaboration are quite diverse, from mural projects to art collectives to workshop-based projects that often have a stronger educational focus. An instructive example of the latter is Mark Dion's Chicago Urban Ecology Action Group, which was a series of cooperative art and science workshops with youth participants that took place during Culture in Action (1992–93) in Chicago. Naomi

Beckwith, a former participant in the project who is now a curator at the Museum of Contemporary Art, Chicago, reflects back on the success of the project not in terms of participant outcomes, such as her own career, but in terms of "shifting perspectives" on ecology and knowledge production. "I always thought of the success in terms of having the participants be able to replicate Mark's system of archaic science as art practice, and with that comes a different understanding of knowledge production" (Beckwith quoted in Finkerpearl 2013, 89). Beckwith's reflection raises the larger methodological concern of how to evaluate participant learning about the often subtle and unique forms of arts-based research introduced in these workshop-based projects. How can we evaluate the unfolding of perspectival shifts that often take years to unfold? In response, there is certainly no consensus with regard to what might constitute an adequate framework, whether particular learning outcomes or larger life changes, for evaluating participation in such long-duration projects (Finkerpearl 2013, 76–77, 1–50). This space of disagreement around evaluating participation gestures to the larger set of methodological challenges provoked by the study of artistic collaboration.

Collaborative art practices pose a tremendous challenge to poststructuralist methods of art theory and criticism that attend primarily to the mediation of an artwork or text and its potential for disruption in relation to an overarching theoretical or political context such as international development or modernity (Kester 2011). In *The One and the Many*, Grant Kester (2011) shows how long-duration collaborative art practices necessitate a kind of methodological shift from focusing on the culmination of a creative process in a particular artwork, as in the textualist paradigm and poststructuralist art criticism, to examining how artists work alongside community groups, civil society

organizations, and other political actors in ways that utilize the potentialities of the aesthetic but are irreducible to any single interventionist text or creative endpoint. “One of the salient features of contemporary collaborative art practice is an increasing permeability between art production and other cultural practices and organizational forms” (Kester 2011, 116). The methodological challenge of how to go about studying this permeability without reducing the labor of collaboration or reifying some aspect of an aesthetic process is truly daunting but certainly involves being there to witness a collaborative process as opposed to just showing up for a final exhibition (Gerald Raunig quoted in Papastergiadis 2012, 191).

An intriguing ethnography of the collaborative process is Nikos Papastergiadis’s (2004) *Metaphor and Tension: On Collaboration and Its Discontent*. Papastergiadis reflects on the challenges of collaboration from the perspective of his own experience as a participant, largely as a writer, in an exhibition project that attempted to move beyond traditional curatorial models by sharing responsibility for critical contextualization between writers and artists. Reflecting on a series of failed and ambivalently realized attempts to realize this new model for curating cultural difference in response to the complete failure modern art institutions to do so, Papastergiadis offers a nuanced set of insights into the immense structural barrier posed by the dominant individualism of the contemporary art world and the need for a stronger ethics of collaboration. Flipping the question of collaboration on its head, he asks, “Can collaboration commence without an analysis of the centrality of individualism?” (2004, 46). Papastergiadis offers a nuanced analysis of the “excessive individualism of the artworld” and reflects on the ethics of collaboration as involving, crucially, the work of translating the languages of one’s

collaborators and recognizing the unique needs of each participant in a project (2004, 63). In this context, Papastergiadis says, "Collaboration only exists in the willingness to acknowledge each other's needs and in the open expression of a desire to find new beginnings in every encounter" (2004, 46).

Papastergiadis's personal reflection on failed and ambivalent experiences of artistic collaboration offers a fascinating insider's view of some of the ethical and aesthetic struggles that emerge with the attempt to move beyond the individualism of art institutions and curatorial models, and it certainly gestures to the methodological significance of being there to follow the social and emotional dynamics of a project from beginning to end. This in-depth ethnography of collaboration would obviously be impossible from the standpoint of more conventional poststructuralist methods of art criticism and interpretation, wherein the focus always comes back to the text (Papastergiadis 2004; Kester 2011). On this note, Papastergiadis argues that the tendency of art criticism to ascribe collaborative practices to either the realm of social work or fieldwork in preparation for subsequent creative processes has left a dearth of methodological resources for understanding longer-duration art practices without any circumscribable time frame (Papastergiadis 2012, 180).

The temporal dimension of collaboration between artists and scientists in this case study is shaped by both the urgency of climate crisis and the unpredictable intensities of the creative process through contrasting and overlapping time lines of arts-based and scientific fieldwork, publication, and exhibition. These collaborations are also shaped by the broader shift away from the polarity of art as poesis and science as theory, and toward highly overlapping fields of experimental engagement with climate change and our

mediated environment (Cimerman 2011). “The ecological crisis is neither conceptually nor politically separable from that of humankind as a whole and cannot be solved in isolation” (Cimerman 2011, 25). Given the turn to collaboration in response to ecological crisis, alongside increasingly overlapping fields of experimentation across the arts and sciences more generally, how do we go about studying the distinct and overlapping contexts of ecologically engaged art practice and climate science? This question of context is a complex methodological challenge.

The art practices in this study have all been somehow shaped by an engagement with the predicament of global climate change and have probed a wide range of social and ecological questions in quite disparate contexts, from university galleries to biomes and science museums. The ways in which the established and emerging artists in this study have engaged with these widely varying contexts should be understood in relation to art histories of ambivalence and critiques of institutional and spatial contexts. We can understand what Nikos Papastergiadis (2012) has described as the ambivalence of contemporary art toward rigidities of context by looking at histories of institutional critique in contemporary art and various forms of resistance to the alienation of the art object in the museum (cemetery) or gallery (boutique).

Nikos Papastergiadis argues, “The concept of context is more meaningful if it includes a multitemporal engagement with the past and the present, a cosmopolitan vision of the cultural horizon, and a specific engagement with social realities” (2012, 185). Furthermore, for the art practices under investigation in this study, the notion of context is meaningful only if we take into consideration the complex intertwining of human and nonhuman temporalities in global climate change and the aporia posed by our current

predicament to ways of thinking about the future. “One task for cultural work in this area is to open up thinking about what it means to construct imagined futures, and the intellectual and creative work it might require” (J. Smith 2011, 21). So, building upon Papastergiadis’s notion of “multitemporal engagement” (2012, 185), collaborative art practices in this field of practice may be called upon to imagine alternative futures in response to the temporalities of climate change, which geographer Joe Smith has identified as one of the distinctive features of the cultural politics of climate change (2011, 22). In sum, we need to analyze contexts of artistic collaboration on a number of distinct and overlapping levels: cosmopolitan visions, the temporalities of climate change and imagined ecological futures, spatial and institutional contexts, ambivalence and institutional critique in the arts, and the specific institutional ecologies within which Cape Farewell operates.

The institutional ecology of the Cape Farewell enterprise is broadly situated at the intersection of the heterogeneous social worlds of collaborative knowledge production represented by contemporary art on the one hand and climate science—which is one of the most ambitious, interdisciplinary, and collaborative areas of scientific knowledge production—on the other (P. Edwards 2010; Smith 2011, 21). In relation to this unique institutional ecology, it is especially important to understand how various roles and responsibilities are ascribed to scientific, artistic, and political actors. “Scientists seek sustainable solutions, climate researchers collect data and construct models, environmental politicians push through measures to protect the planet, whilst artists are eager to express political and scientific issues in the language of art” (Cimerman 2011, 24). We need to understand how these various actors understand their roles and

responsibilities, and how they are situated in the specific institutional ecologies within which Cape Farewell operates.

In their seminal institutional ecology that examines the role of science research museums in mediating heterogeneous social worlds of scientific knowledge production, Star and Griesemer claim, “The ecological viewpoint is anti-reductionist in that the unit of analysis is the whole enterprise” (1989, 389). This institutional ecology perspective focuses on the movement of objects and concepts through research networks and maps multiple points of translation in the production of scientific knowledge and consensus. “That is, there is an indefinite number of ways entrepreneurs from each cooperating social world may make their own work an obligatory point of passage for the whole network of participants” (Star and Griesemer 1989, 390). From this institutional ecologies perspective, Cape Farewell is studied as a whole enterprise with multiple points of translation in both scientific and artistic communities wherein objects and concepts may pass or stagnate during processes of climate science research and communication. I have followed a centrifugal path in researching the institutional ecology of Cape Farewell. By establishing a positive working relationship with Cape Farewell Director David Buckland, I was able to access relevant institutional and arts partners for semistructured qualitative interviews as well as more informal conversations, and by reviewing internal documents, I was able to form a holistic understanding of institutional relationships between CF, Arts Council England, and various universities, galleries, and other sustainable arts practice groups in the UK, USA, and Canada. CF has established relationships with climate change research infrastructures, such as the University of Southampton and the Urban Climate Change Research Network (UCCRN), that

undergird the enterprise as a whole and its orientation to the field of art and sustainability. In discussing context, I have focused on analyzing how these broader institutional ecologies operate and make room for artists to undertake transversal collaborations with environmental and climate science communities in a range of more localized institutional and educational contexts, such as the space of the university gallery.

In this study, I used a combination of qualitative interviewing, informal conversation, and discourse analysis to understand Cape Farewell's approach to collaboration. Semistructured qualitative interviews were conducted with Cape Farewell Director David Buckland; Sheila C. Johnson Design Center Curator Radhika Subramaniam; *ARTPORT_making waves* curator Corinne Erni; Canary Project artists; *Down the Gowanus* teachers Edward Morris and Susannah Sayler; and Universities Program curator and Short Course UK Director Siôn Parkinson. These semistructured qualitative interviews with directors, curators, and teachers were focused on understanding their various organizational and directorial roles in the context of specific exhibitions and education programs. The interviews were all recorded on a digital audio recorder and transcribed in Microsoft Word. In addition to these interviews, I conducted more informal, focused conversations with Cape Farewell collaborators such as lead oceanographer Dr. Simon Boxall, geographer Joe Smith, and Professor Daro Montag. While I have sought to represent a diversity of actors in this institutional ecology, there is certainly a bias towards understanding the roles and responsibilities of arts sector collaborators. This focus on arts sector partners allows for a sustained interrogation of Cape Farewell's use of various art exhibition and education spaces to reshape public pedagogy on global climate change mitigation and adaptation. Finally, this analysis of the

institutional ecology of Cape Farewell is informed by my reading of internal Cape Farewell documents and published sources on the organization.

On the more granular level of understanding how the expedition functions as a platform for art and science collaboration, I have utilized mobile methods that, like the analysis of institutional ecologies of collaboration, are deeply informed by an overarching focus on methodological cosmopolitanism.

Mobile Methodology

The temporalities and contexts of art and science collaboration examined in this case study are distinctively shaped by the use of expeditions as platforms for conversation and interaction among participants from disparate fields of inquiry. Hypothetically, I understand the art and science expedition as a form of ecological wayfinding that negotiates the political aesthetics of climate change by catalyzing conversational drift between climate science and contemporary art in response to the fluidities of place. Concretely, I approach Cape Farewell's art and science expeditions by drawing upon the mobility turn in the social sciences, which reorients social research away from static paradigms and toward theoretical orientations that emphasize the primacy of movement and methodological orientations that are able to follow objects, things, and ideas across territories, contexts, and places. "The term 'mobilities' refers not just to movement but to this broader project of establishing a 'movement-driven' social science in which movement…as well as voluntary/temporary immobilities, practices of dwelling and 'nomadic' place-making are all viewed as constitutive of economic, social

and political relations" (Büscher, Urry, and Witchger 2011, 4). This mobilities turn in the social sciences includes extensive analysis of cosmopolitan practices, from physical and imaginative travel to "curiosity about many places" and "openness to other peoples and cultures" (Urry quoted in Beck 2006, 42–43).

Art and design research is beginning to play a significant role in the theoretical and applied development of mobile methodology (Büscher, Urry, and Witchger 2011), from Nikos Papastergiadis' exploration of aesthetic cosmopolitanism as a way of knowing migration/hospitality to Misha Myers's analysis of locative media and walking art as distinctive ways of knowing place via conversive wayfinding (Papastergiadis 2012; Myers 2010, 2011). Myers draws primarily upon Tim Ingold's theory of wayfinding to describe *conversive wayfinding* as a way of generating "knowledge of places through a conversational and convivial activity of wayfinding, where a percipient becomes more a wayfarer than a map reader, a mode of travel that encourages convivial and social interaction with inhabitants of places" (2010, 67). Building on this turn toward creative mobile methodology, I seek to understand the art and science expedition as a method of ecological wayfinding that is broadly similar to the forms of conversive wayfinding discussed by Myers but is distinctively shaped by the movement of ideas, objects, and things back and forth between science and art communities and the socialities that emerge therein, en route via sailing boat or on foot. While Myers uses Ingold's concept of wayfinding to theorize the distinctiveness of locative media art practices as ways of knowing place, she stops short of elaborating upon how other Ingoldian frameworks might be used to understand creative mobile methods. In response to Myers's (2010) call for analysis of other modes of wayfinding, I aim to extend this conversation by utilizing

family concepts to wayfinding such as meshwork and thing, as they stand opposed to network and object, in Ingold's materialist anthropology of creativity (Knappett 2011).

The concepts of meshwork and thing can help us trace the movement of ideas and objects/things back and forth between scientists and artists and in relation to the particular meshworks, or networks, that are interrogated on a group journey, such as the meshwork of streams and communities that form around the Gowanus Canal in Brooklyn, New York City. I aim to understand how boundary objects and things (carbon, toxicities, etc.) are encountered and negotiated during field research and subsequently transformed in the creative process. In order to understand these movements of objects and things in relation to networks and meshworks, I utilize both Star and Griesemer's seminal science studies research on boundary objects and Tim Ingold's materialist anthropology research. In short, I aim to follow the materials from expedition to exhibition.

The tendency in material culture research has been to choose either the topological framework of meshworks and things, especially as developed in the work of Tim Ingold, or networks and objects (Knappett 2011). Following Carl Knappett's innovative research on archaeological case studies in the Aegean Bronze Age, I have chosen to work with the tensions between thing/object and meshwork/network (Knappett 2011). "It is in the articulation of these different ontologies and topologies that we can find many of the more telling dynamics of material culture and how it is caught up in our everyday lives" (Knappett 2011, 45).

Whereas an object is a named and transparent artifact, a thing is opaque and resistant to categorization, and whereas an object is located within the topography of a

network, a thing is located within the topography of a meshwork (Knappett 2011, 45). "A network is a series of identifiable nodes with connections between them, while a meshwork is a maze of overlapping and intersecting lines" (Knappett 2011, 45). In Ingold's (2007) theory of wayfinding, the network corresponds to transportation across places and the meshwork corresponds to wayfinding alongside places. "Every place, then, is a knot in the meshwork, and the threads from which it is traced are lines of wayfaring" (Ingold 2007, 100). In this topographical and ontological orientation, wayfinding is a privileged way of knowing place because it follows alongside rather than across the meshwork of intersecting and immanent lines that knot together to create a qualitatively distinctive place (Ingold 2007, 2011, 154). "Thus instead of the complementarity of a vertically integrated science of nature and a laterally integrated geography of location, wayfaring yields an alongly integrated, practical understanding of the lifeworld" (Ingold 2011, 154).

Art and science can both be forms of wayfinding, or ways of knowing the meshwork of intersecting lines in a place, but understandings of official science commonly emphasize data collection at specific nodes in a global network (Ingold 2011, 154). However, the conduct of scientific field research is less about fitting local data into global abstractions and more about wayfaring from place to place while sending observations to the laboratory (Ingold 2011) at each stop along the way. So, like artists and inhabitants, scientists are also wayfarers (Ingold 2011, 154). Ingold's (2011) theory is directed against bifurcations of science and culture, space and place, and directs analytic attention to how mobile practices work toward constructing both inhabitant and

scientific knowledge in ways that cannot be understood through the lens of localized/inhabitant vs. global/scientific knowledge systems.

I have built upon this theorization of mobile ways of knowing but have also avoided the prioritization of one topological and ontological schema (meshwork/network) over another in recognition of the utility of both descriptive frameworks (Knappet 2011) and the fact that global infrastructures of climate science research are distinctively networked (P. Edwards 2010) as opposed to meshworked. I have chosen to describe the movement of both things and objects across networks and meshworks of creative site-specific research. In this process, I draw upon both visual culture perspectives on the vital materiality of things (Bennett 2010) and science studies research on boundary objects.

Boundary objects can help us analyze the mediation of field research and modelling in climate science research (Sundberg 2007), and they are a significant methodological lens for analyzing how scientific communities manage heterogeneity in the production of common scientific goals (Star and Griesemer 1989). In a seminal study, Star and Griesemer (1989) analyze the role of methods standardization and boundary objects in mediating between heterogeneous social worlds in the production of common goals at a natural history research museum in California called the Museum of Vertebrate Zoology. Crucially, they show how boundary objects allow a heterogeneity of meanings to coexist alongside cooperation between the different social worlds of trappers, amateur naturalists, natural scientists, university administrators, and entrepreneurs that came together in the creation of this research museum.

The boundary object is an abstract or concrete object that has enough flexibility to pass between social worlds while simultaneously retaining enough analytic strength to be

useful within the research or pragmatic goals of individual social worlds (Star and Griesemer 1989). “Their boundary nature is reflected by the fact that they are simultaneously concrete and abstract, specific and general, conventionalized and customized” (Star and Griesemer 1989, 408). This multiplicity of the boundary object is partly a result of collaborative processes of representing nature and can be described in relation to the shared or cooperative scientific work that unfolds in a specific institutional ecology (Star and Griesemer 1989, 408). Star and Griesemer observe, “The intersectional nature of the museum’s shared work creates objects which inhabit multiple worlds simultaneously, and which must meet the demands of each one” (1989, 408). Similarly, in this study of the intersectional work of Cape Farewell, we encounter boundary objects such as carbon, flood barriers, the High Arctic (boundary objects can also be geographical areas), and research boats that have enough flexibility to inhabit both the worlds of climate science and contemporary art while meeting the unique conceptual and research goals of each separately. I follow these boundary objects from field research to a variety of educational and art institution contexts such as from the Thames flood barrier to Triangle Gallery, London. In contradistinction to the science studies work of Star and Griesemer (1989), I also analyze how these boundary objects sometimes morph into things with their own opacities, vital materiality, and agency. “A lot happens to the concept of agency once nonhuman things are figured less as social constructions and more as actors” (Bennett 2010, 21).

How do we go about following boundary objects, things, and materialities from art and science research trips through creative processes and art exhibitions? “Methods need to follow objects, to ‘follow the thing’” (Büscher, Urry, and Witchger 2011, 8). I

follow the movement of objects and things from expedition to exhibition as part of a comprehensive approach to mobile methodology that also includes participating in patterns of movement in order to immerse oneself in worldviews and observe social relations on-the-move (Büscher, Urry, and Witchger 2011, 8–9). "Through such 'co-present immersion' the researcher moves within modes of movement and employs a range of observation and recording techniques" (Büscher, Urry, and Witchger 2011, 9). Specifically, I participated in all of the patterns of movement of the Short Course London expedition and recorded my observations of these patterns of movement via research journal writings and photographs. In addition, I utilize mobile video recordings from this expedition in order to subsequently analyze various presentations and conversations on-the-move in London. I follow conversations, objects, and things from this expedition to the *Without Boats, Dreams Dry Up* exhibition. Where I was unable to participate in a journey, I have utilized expedition blogs and video recordings to trace lines of flight from expedition to exhibition. In triangulation with this method of participating and following various patterns of movement, I understand how artists use the materials, things, boundary objects, and meshworks encountered on a journey. In this sense, qualitative interviews and conversations with artists often offer insight into the creative process that is not available through observation alone.

I utilize the following sources obtained via mobile methods:

1. Research journal documenting my experience of participating in the Short Course London expedition.
2. Mobile video ethnography from this expedition, which was shot by videographer Matt Wainwright and focuses on curated art and science

lectures on boats and piers and in gallery spaces around London.

3. Following representations of boundary objects, things and places (knots in the meshwork/nodes in a network) from field research sites to galleries or other exhibitionary contexts.

In sum, the sources gathered via mobile methods include video, photography, and research journal writings or sketches. It should be noted that I used mobile methods and sources more extensively in chapter five than in chapters three or four. Whereas ethnographic and mobile methods have been used extensively in the analysis of art and science expeditions and courses, I draw primarily upon arts-based methods in the analysis of art exhibitions.

Arts-based Methods, Materialities, and Art Exhibitions as Places of Learning

This research interrogates art exhibitions as places of learning in multiple senses. From the perspective of long-duration processes of art and science collaboration, they emerge as outcomes of creative inquiry that can really be understood only in relation to the contexts of field research that have informed them, but as places of learning in themselves, they can be analyzed as experimental pedagogies that use exhibitionary spaces and artworks as modes of inquiry into the predicament of being together in the face of catastrophe and precarious ecological futures. These experimental pedagogies are almost always places of learning about some other place, from urban ecologies in London, UK, to melting glaciers in the High Arctic, and are animated by critical gallery education programming such as lectures or performances that often trace lines of inquiry

from artworks to contiguous areas of research in the arts and sciences. In order to analyze these complex places of learning, I draw upon recent developments in visual methodology (Pink et al. eds. 2010), arts-based research, and Elizabeth Ellsworth's (2005) theory of the pedagogical address of contemporary art exhibitions.

In *Places of Learning*, Ellsworth (2005) uses new pragmatist approaches to embodiment and Winnicott's theory of transitional space (2005), which locates creativity in the play between the interiority/exteriority of the learning subject, to show how pedagogy is always being remade through emergent learning encounters with art exhibitions and therefore cannot be reduced to the transmission of a curriculum to stable subjects. This synthesis brings together Winnicott's understanding of transitional space as a liminal area between interiority and exteriority that potentially opens up the play of the self in its relation to the object world, as well as the play of culture generally (Winnicott 2005), with Massumi's theory of an open sociality prior to predefined categories (2002). The basis of this synthesis is that both theories "put the terms that make up binaries, such as inside/outside, self/other, subject/object, into motion and interaction" (2005, 33). This putting into motion and questioning of rigid binaries is something of a leitmotif throughout Ellsworth's case study analysis of the pedagogical address of outdoor projection artworks, performance art, and exhibitions.

Ellsworth describes the pedagogical address as "an address to a self who is in the process of withdrawing from that self, someone who is in a dissolve out of what she or he is just ceasing to be and into what she or he will already have become by the time she or he registers something has happened" (2005, 34). Building on her reading of Winnicott's notion of transitional space (2005), Ellsworth emphasizes the relational becoming of the

learning subject in "a deeply interfused encounter with and at the same time in a "'differential emergence' from the materiality of the world" (Ellsworth 2005, 34). If we understand the motion of the learning self as this transitional emergence from the materiality of the world that, paradoxically, can only be seen after the transformative power of a pedagogical address has taken root, how can we go about documenting and studying it? Following Ellsworth's description of her own experiences and utilization of a wide variety of sources to document how specific exhibitions put conceptual rigidities into motion, I reflect on my own learning experiences, arts-based research, and student interviews to document the pedagogical address of contemporary art and ecology projects.

I use contemporary theories of collaborative art practice and the political aesthetics of climate change in order to analyze how these places of learning negotiate questions of ecological limits (growth/degrowth), energy consumption (intimate/utilitarian energy use), sustainability (recognizing/ignoring limits to growth), conversational drift (between artists and scientists), empathy, hospitality, and aesthetic cosmopolitanism. I inquire into how the pedagogical address of these art exhibitions variously open up transitional spaces of engagement between learning subjects and creative ways of imagining a cosmopolitan response to precarious ecological futures. I describe creative learning engagements with a wide variety of materialities—from toxic waste in the Gowanus Canal to London flood barriers—and the creative transformation of these materialities as well as learning experiences from site to gallery space.

I examined written, visual, and interview sources in analyzing the pedagogical address of art exhibitions. I also attended a wide range of lectures, panels, workshops,

and performances in the context of attending gallery education programs and events. The notes and writings from attending these gallery education programs have been a highly significant dimension of the entire research process, from establishing initial contacts to learning about specialized areas of art and ecology practice. I summarize a wide variety of university gallery lectures and panel conversations with artists and researchers, and these conversations, as documented in my research journal, are a significant source for understanding critical gallery education programming.

This case study research also involves the use of artworks, catalogs and other visual sources. First, I analyze the pedagogical address of Cape Farewell art exhibitions by documenting my own experience and critical analysis of artworks, exhibition design, and narrative via research journal writings and sketches. These documentations of my own experience and learning through direct engagement with Cape Farewell art exhibitions are the basis for the more theoretically sophisticated and dialogical accounts of these exhibitions. I understand the artworks in these exhibitions as ways of knowing and contributing toward collaborative environmental knowledge production.

In the context of participating in Cape Farewell's Short Course London Course, I have conducted my own arts-based research project called *Gleaning Walks*. This is an artists' book inspired by the London expedition that was exhibited at the *Without Boats, Dreams Dry Up* exhibition. By documenting my own arts-based research process, I am able to offer a personal counterpoint to the overall analysis of the *Without Boats, Dreams Dry Up* exhibition. Therefore, my own creative production is another significant source in this case study. More broadly, I treat all of the artworks in this case study as creative

ways of knowing that are variously articulated to collaborative art/science research projects and visions of the role of art in environmental and climate research.

I have conducted semistructured qualitative interviews with postsecondary art students who have engaged with Cape Farewell education programming in the USA and the UK. I have conducted qualitative interviews with the following groups: (1) Eight Short Course UK students (including undergraduate and MA art and design students) from Falmouth University and University of the Arts London; (2) six *Down the Gowanus* workshop students from Parsons The New School, New York City. As already mentioned, I interviewed Canary Project art and ecology instructors Edward Morris and Susannah Sayler as well as Universities Program curator and Short Course UK Director Siôn Parkinson. I also had conversations with University of the Arts London Professor Chris Wainwright, who is on the Cape Farewell board and cocurated the *U-n-f-o-l-d* show, and a range of other professors involved in Short Course UK. The art student interviews focused on student experiences of Cape Farewell programming in the context of their current art practice as well as the background context for their exhibited or planned contributions to a Cape Farewell art exhibition. I draw upon these semistructured qualitative interviewees with postsecondary undergraduate and graduate art students in order to analyze participant experiences of Short Course UK and *U-n-f-o-l-d* education programming. These qualitative interviews were not a primary focus of data analysis but, rather, were used to deepen critical and contextual analysis of student produced artworks and art exhibitions. In this context, where student interviewees have decided to waive their anonymity, I also sometimes quote reflections on a particular creative process as it pertains to an artwork or event.

Finally, I also draw upon internal CF documents and other secondary sources in the analysis of student art exhibitions. I analyze the student feedback forms from Short Course UK in order to identify overarching themes and experiences and in order to situate these student art exhibitions as outcomes of particular group learning contexts. Furthermore, I pay a great deal of attention to how student-produced art exhibitions respond to the use of particular boundary objects, things, places, and case studies as loci for conversational drift between the arts and sciences. Transdisciplinary case studies are often used in education for sustainable development (Scholtz, Lang et al. 2006) and are a significant pedagogical dimension of the student art and science expeditions examined in this research, wherein cases such as the Gowanus Canal or the London 2012 Cultural Olympiad become foci for conversations about climate change, sustainability, or spatial practice in the arts. In this context, I have paid a great deal of attention to understanding how such cases are contextualized within broader public discourse and policy, and within research and education programming. In this context, news articles and policy documents constitute a significant source of background information about the specific places and cases that these various exhibitions interrogate through arts-based research.

In sum, the sources used to analyze the pedagogical address of contemporary art exhibitions and student-produced shows in this study include artworks and written reflections on exhibitions, exhibition catalogs, art student interview transcripts, critical gallery education programming such as podcasts and lecture notes, information pertaining to particular places, and cases explored through spatial practice. These sources are analyzed with arts-based methods and in relation to Elizabeth Ellsworth's (2005)

theory of the pedagogical address and are situated in relation to relevant contexts of art and science collaboration and fieldwork.

Arts-based Methods of Environmental Education Research

This comprehensive case study interrogates Cape Farewell as a whole enterprise in order to build a more sophisticated theoretical understanding of the role of civil society arts organizations in producing artistic collaborations that might help us imagine cosmopolitan empathy and enact sustainable practices in response to the inescapable predicament of CC. In this context, the case study probes artworks, exhibitions, and art and ecology education programs as ways of knowing and negotiating the complexities of CC. These practices are highly pertinent to the field of environmental education (EE) research.

Marcia McKenzie argues, “Rather than considering educative experiences as centred around conceptual critique *or* embodied place-based experience, a rich range of pedagogical places are opened up when we consider socio-ecological learning to occur more broadly in the space between the lived and the articulated” (2008, 369). In continuity with McKenzie’s expansive reframing of EE as well as emerging literature on the role of art and storytelling in socioecological learning (Barndt 2012; Bigger and Webb 2010; Coutts and Jokela 2008; Dobrin 2010; McKenzie 2008; Payne 2010; Song 2012; Wason-Ellam 2010), we need to analyze how artworks and exhibitions generate modes of pedagogical address in spaces between the lived and the articulated. In this comprehensive case study, I triangulate a critical ethnography of collaboration with

mobile and arts-based methods in order to document the movement of learning subjects and materialities from contexts of field research to exhibitionary spaces. I document expeditions and exhibitions as places of socioecological learning that probe ecological limits and sometimes open up novel and fascinating ways of imagining a sustainable and cosmopolitan response to our global climate predicament.

Collaboration in Neoliberal Times

Introduction

Cape Farewell (CF) is a transnational nongovernmental organization (NGO) that does boundary work at the intersection of climate science and the cultural sector in order to catalyze arts-based research on CC. This organization is responsive to both the responsibilities of working with climate science institutions, such as the National Oceanography Center, and with cultural institutions, such as Arts Council England. CF works toward its agenda of ‘a cultural response to climate change’ by battening down the hatches in the face of the enterprise society of neoliberalism. In *The One and the Many*, Grant Kester argues for a more nuanced analysis of collaboration between artists and NGOs that recognizes the complex role of these organizations in civil society without reducing them to either a subsidiary of capitalist globalization or an adjunct of the state, and the many and varied relationships that artists are forming with this sector (2011, 67–153).

In this chapter, I build upon Grant Kester’s innovative work on the intersection of collaborative art practice and the nongovernmental sector by focusing specifically on how this enterprise and its distinctive practice of arts–sciences collaboration is currently negotiating two significant thresholds of neoliberalization: (1) the professionalization of social movement organizations, and (2) the culture of austerity in arts funding. I show how Cape Farewell’s bold undertaking negotiates these neoliberal thresholds in order to secure support for the development of a unique practice of networked cultural entrepreneurship. This practice draws upon countercultural traditions of networking, interdisciplinary methodologies and a deeply Romantic sensibility to the twinning of

exploration, art, and science in order to catalyze a cosmopolitan and sustainable response to global CC. As shown in the example of Cape Farewell's residency program, this practice functions as a catalyst for long-duration processes of cultural production that variously build upon the experiences and metaphors encountered on a group expedition.

In the first half of the chapter, I discuss the institutional ecology of the Cape Farewell enterprise as a whole and its negotiation of enterprise culture. This includes an analysis of its organizational ecology, funding, and relationship to wide-ranging national and international actors. After describing the organizational basis for CF's project, I discuss the practice of networked cultural entrepreneurship that defines its contribution to contemporary arts–sciences collaborations. I conclude with a reflection on the relationship between this enterprise and its distinctive environmental entrepreneurship.

Cape Farewell

Cape Farewell (CF) operates as a charitable not-for-profit organization in the UK, where it works out of the Science Museum's Dana Center in London and as a foundation in North America (Cape Farewell 2014), where it is based at the MARs Center in Toronto, Ontario.[6] The organization works towards the normative agenda of '*a cultural response to climate change*'.[7]

CF constructs normative claims about the need for an ecologically sustainable

[6] The organization is currently (2014) in the process of moving out of the Dana Center and into Chelsea College of Arts/University of the Arts London.

[7] The envisioning of a normative agenda is partly constitutive of what it means to be an NGO, which I understand as "a voluntary not-for-profit organization that is bound legally to be nonpolitical but can engage in non-institutional politics, that generates normative claims about a common good, and that acts on these claims as a public expert in variously scaled civic spaces" (Lang 2013, 13).

response to global CC and about the significance of culture as paradoxically both the locus of the problem *and* the solution to our current predicament. The frame of 'a cultural response to climate change*'* involves a normative claim that responsibility for CC is to be found in our high carbon ways of life, from our high carbon cities to our carbon-intensive lifestyles, and that the cultural sector has a responsibility to use its diverse expertise and creative labor to interrogate this challenge. This claim uses the multidiscursive trajectory of culture, i.e. its differential articulation across discourses (Hartley 1994, 68), in order to frame CC as a cultural challenge in the most general sense, across as many discourses as possible, and simultaneously as the specific challenge of the cultural sector to envision a sustainable future. The Cape Farewell crew explains, "The way that we live our lives has caused the climate to change and the solution to a potentially devastating reality has become a cultural challenge. Cape Farewell asks the best of our creative minds to respond to this challenge and to build a vision for a sustainable future" (Cape Farewell 2014b).

Cape Farewell uses collaboration to probe a sustainable future: "We bring artists, scientists and communicators together to stimulate the production of art founded in scientific research" (Cape Farewell 2014b). They use expeditions from sailing to hiking trips to facilitate experientially stimulating network forums for dialogue between artists and scientists, and they embed communicators within these forums in order to generate new metaphors and rhetorical frames for understanding global CC. Educators and wide-ranging participants from high school to postsecondary art and design students are also immersed in these expeditionary forums in order to inspire boundary learning at the intersection of the arts and sciences. I describe this practice of collaboration as a unique

form of *networked cultural entrepreneurship* that uses shared metaphors and experiences of wayfinding to generate stimulating network forums that allow diverse communities to collaborate and imagine themselves as part of the larger project of building a cultural response to climate change.

This practice draws upon the countercultural tradition of networked cultural entrepreneurship, epitomized by Stewart Brand's *Whole Earth Catalog*, which Fred Turner describes as the creation of network forums that allow members of multiple communities to collaborate and imagine themselves as part of a larger project (2006, 5). However, Cape Farewell's entrepreneurship has a wider ambit than the countercultural tradition alone, as we will see in the second half of this chapter. In order to set the stage for a discussion of the complexity of this style of networked cultural entrepreneurship, let us think about the term *entrepreneurship* itself, which derives from the French *entreprendre*. The verb *entreprendre* means 'to undertake' or 'to launch', which connotes the launching of an expedition and brings us back to the primary meaning of *enterprise*: "an undertaking, especially a bold or difficult one" (Canadian Oxford Dictionary). Cape Farewell is an enterprise in this sense of the term, but the launch of this bold enterprise involves a vigilant negotiation of its shadow meaning in the neoliberal sense of a self-responsibilized and competitive entity.

CF expeditions confront the need to 'batten down the hatches' in the face of the climate of austerity in arts funding and ongoing pressures towards social movement professionalization within the enterprise culture of neoliberalism. In *The Birth of Biopolitics*, Foucault (2008) analyzes how neoliberal political philosophy constructs individuals and organizations within civil society into the shape of completely self-

managed, competitive, responsibilized enterprises. As McNay summarizes, "The organization of society around a multiplicity of individual enterprises profoundly depoliticizes social and political relations by fragmenting collective values of care, duty and obligation, and displacing them back on to the managed autonomy of the individual" (2009, 65). The proliferation of this enterprise society can be seen in the depoliticization and professionalization of the NGO sector and within new regimes of arts funding, which are two of the most significant neoliberal thresholds negotiated by CF. To appreciate the significance of these thresholds, we will have to return to CF's larger social project.

The difficulty of CF's bold undertaking is embodied in the name of the organization, which is inspired by the southernmost point of Greenland. David Buckland explains, "If you are a sailor, you don't hang around off a cape; it is the point of decision-making, which, I think, describes exactly where the global society is on the global warming issue. The challenge is to act and move out of the doom-ridden scenarios of the emotional 'farewell' into the optimistic possibilities of the 'fare well'" (Buckland 2012, 3). Buckland explains, "We know it's anthropogenic, we're putting car fuels into the atmosphere, we know that's a reality, so let's take that as a given but let's move the whole ship in the direction of solutions and then it becomes really interesting, and that's what our whole mind-set is working towards" (pers. comm. 2011).

Buckland's use of the ship as a metaphor for the necessary coming together of disparate communities to find sustainable solutions to the "future truth" of CC is a pertinent and positive reworking of the established use of this metaphor to describe inaction in CC politics (2012, 3). Michel Serres (1995) used the ship metaphor to describe inaction on CC in the early 1990s. He argued that the combined strength of

existing political efforts "amount to the image of a ship sailing at twenty-five knots toward a rocky bar on which it will inevitably be smashed to pieces, and on whose bridge the officer of the watch advises the engine room to reduce speed by a tenth without changing direction" (1995, 30). Sadly, this sober image is not outdated and could easily describe the vast discrepancy between movement towards internationally binding agreements at the COP summits and the empirical challenge of building postcarbon societies.

CF flips the ship metaphor on its head in order to turn us away from a pessimistic assessment of climate politics and towards moving "the whole ship in the direction of solutions" (Buckland pers. comm. 2011). This orientation represents a significant shift in CF's agenda away from raising awareness of CC as a cultural concern in the early 2000s and towards a multifaceted interrogation of social, ecological, and economic sustainability and the complex challenges that come along with existing solutions.[8] This expanded focus on social and environmental sustainability comes alongside a shift in Cape Farewell UK away from working in the High Arctic and towards the specific challenges of mitigation and adaptation in the British Isles.

This return home is also a response to the susceptibility of the organization, especially in the early 2000s when all of the expeditions went to the far north, to criticisms of insularity or being too focused on high art in the High Arctic. Perhaps also in response to this line of criticism, CF's understanding of what constitutes "the best of

[8] This expanded focus on sustainability is especially evident in a couple of recent projects: *Tidal Lagoon Project*, which uses expeditions, public art, and youth programming to interrogate a sustainable energy development involving a 250MW tidal power plant in Swansea Bay; and *Sea Change*, which is a four-year program of research creation in Scotland's western and northern isles that uses local expeditionary research and public exhibition "to encourage knowledge exchange, celebrating grassroots and national initiatives which combine local knowledge and resources with advanced technologies and pioneering research into social and ecological resilience" (CF).

our creative minds" seems to have expanded considerably beyond the celebrity appeal of figures such as Antony Gormley and Rachel Whiteread (who sailed on the 2005 High Arctic expedition) and towards an inclusion of younger artists (2009 Andes Expedition), musicians and comedians (2008 Disko Bay), community artists (2011 Scottish Islands Expedition), and art students (2011–2012 Short Course UK) (2014b; 2014c). While CF's understanding of what might be included in "the best of our creative minds" extends across genres and disciplines, from social practice artists such as Mel Chin to popular musicians like Feist, it remains exclusive to the limited number of spots that can be curated for a particular expeditionary research project (2014b).

CF also exploits the elective affinities between cosmopolitan social practices and CC. Urry says, "CC contributes to cosmopolitanism through the ways in which its science, politics and media generate new kinds of mobility, openness, reflexivity, plurality and public spheres" (2011, 102). NGOs are often understood to deepen cosmopolitan understandings of CC (Urry 2011), and CF's art and CC programming offer us something of a litmus test for thinking about the elective affinities between CC and cosmopolitanism—from global mobility and a global public sphere to the imagining of alternative futures (Urry 2011, 101). David Buckland explains, "This international effort, including people from China to Mexico, has brought distinctly different cultural sensibilities to the story of CC's causes and impacts" (2012, 1–2).

If extensive mobility, social plurality in civil society, and a global public sphere are bridging practices between CC and cosmopolitanism (Urry 2011), CF's attempt to engage a plurality of cultural sensibilities on global expeditions in order to catalyze art exhibitions for a global public sphere might be described as an almost too perfect

illustration of the ways in which civil society groups are bridging cosmopolitanism and CC (Buckland 2012; Urry 2011). More specifically, CF's work can be described as a form of aesthetic cosmopolitanism that draws on the world-picture-making process of the creative imagination (Papastergiadis 2012) to ground inquiry into new forms of hospitality, empathy, resilience, sustainability, and citizenship in the face of global CC.

This bold undertaking is relationally intertwined with the activities of other national and international civil society actors, organizations, and funding bodies, which is quite typical of cosmopolitanization. Beck says, "Cosmopolitanization, thus understood, comprises the development of multiple loyalties as well as the increase in diverse transnational forms of life, the emergence of non-state political actors…the development of global protest movements against (neoliberal) globalism and in support of (cosmopolitan) globalization" (2006). Sociologist Ulrich Beck's research in *The Cosmopolitan Vision* pushes us to move beyond the nationalist methodological frameworks that continue to undergird social scientific research and towards a methodological cosmopolitanism that attends to the experience of crisis in world risk society, such as the climate crisis, and the deep interpenetration of local and international, parochial, and cosmopolitan social experiences (Beck 2006). In opposition to David Harvey's pessimistic analysis of the relationship between cosmopolitanism and globalization, Beck sees cosmopolitanism as a potentially affirmative and critical stance on economic globalization that offers a more nuanced understanding of new social movements and the interconnections between local and global processes (Papastergiadis 2012, 85–86). In this context, we need to understand how the Cape Farewell enterprise negotiates interpenetrating local and global, parochial, and cosmopolitan contexts in the

pursuit of its agenda.

This cosmopolitan methodology builds upon Grant Kester's argument for a more nuanced analysis of collaboration between artists and NGOs like Cape Farewell that recognizes the complex role of these organizations in civil society without reducing them to either a subsidiary of capitalist globalization or an adjunct of the state (2011, 67–153). Herein, Kester argues that the draining of civil society, which was epitomized in Margaret Thatcher's statement 'there is no such thing as society', is one of the primary motivations for artistic collaboration with wide-ranging public and quasi-public organizations (119). However, on the flip side of this equation, neoliberalism is also restructuring the field of action within which NGOs operate and variously facilitate artistic collaboration. Neoliberal policy contexts are influencing a turn towards professionalization and depoliticization of NGOs, which is part of a larger privatization of the public sphere (Kamat 2004). This obviously does not bode well for the potential for artist–NGO collaborations to intervene in what Grant Kester calls the "emptying out of public space, discourse and action" (2011, 119).

How do we assess the critical cosmopolitan potential of CF's agenda and its negotiation of the hollowing out of the public sphere under variegated conditions of neoliberalism? In *NGOs, Civil Society, and the Public Sphere*, Sabine Lang (2013) argues that we need to put the public sphere back into civil society and evaluate nongovernmental organizations from the perspective of their public engagement rather than with reference to their increasing participation in institutional advocacy or with reference to only public management or business criteria. "The most salient source of legitimacy of the non-governmental sector is public engagement" (Lang 2013, 1). On this

note, the quality of CF's public engagement can be assessed only via a thorough analysis of its wide-ranging public pedagogy, which includes everything from documentary film to art exhibitions. To develop this public pedagogy, however, CF relies on wide-ranging partnerships and has to traverse an increasingly austere landscape of arts funding in the UK, Canada, and elsewhere, which is characterized by an emphasis on competition, corporate sponsorship, and enterprise culture (UK context, see Alexander 2007; Canada, see Gattinger and Saint-Pierre 2010). In this sense, this bold undertaking has to constantly negotiate the neoliberal meaning of *enterprise*. This is the privileging of the individual commercial enterprise of market relations and competition that Foucault described in *The Birth of Biopolitics* as central to the ideology of ordoliberalism and later neoliberalism (Foucault 2008; Lazzarato 2009).

Lois McNay interrogates the notion of *enterprise* in Foucault's lectures in order to tease out the implications of the extension of the enterprise model all the way down to the self, where neoliberal power takes the form of self-responsibilization and highly competitive self-differentiation in order to tease out potential sites of resistance within civil society, such as in the tensions between norm and law or in rights discourse (McNay 2009). Following McNay's work, finding moments of resistance will inevitably involve a confrontation with the extreme individualization of neoliberal power. "Foucault's discussion of self as enterprise highlights, inter alia, dynamics of control in neoliberal regimes which operate not through the imposition of social conformity but through the organized proliferation of individual difference in an economized matrix" (McNay 2009, 56). And while emergent forms of artistic collaboration would seem to offer one possible locus of resistance to the individualized workings of power in neoliberal society, since

they often emphasize values of collectivity and cooperation that may rub up against the dominant self-responsibilization therein, we need to also consider the ways in which the organizational basis for these collaborations may be articulated to variegated conditions of neoliberalization (see Kester 2011; Peck, Theodore and Brenner 2012). Following Peck, Theodore and Brenner (2012), I understand neoliberalism as alive and well despite premonitions of its demise following the 2008 financial crisis and as highly variegated, taking on particular, often hybrid forms alongside other ideologies in different times and spaces (Peck 2013). This perspective of variegated neoliberalism balances insider ethnographic perspectives on neoliberalism with political economic geographies of neoliberalism to foreground 'relational' and 'connective' dimensions (2013). Herein, the 'connective' serves to foreground the "mutual constitution and qualitative interpenetration of 'local' neoliberalisms," and the 'connective' highlights an inside/outside lens on the "more-than-local patterns revealed by neoliberalization processes" (Peck 2013, 18).

Building on this discussion of variegated neoliberalism and enterprise culture, I am especially interested in the ways in which the CF enterprise negotiates the following strands of neoliberalism: (1) variegated conditions for NGO involvement in climate politics from the UK to North American civil society, (2) the professionalization and depoliticization of the NGO sector as a whole, and (3) the culture of austerity and corporate sponsorship in government funding for the arts. I discuss these themes sequentially, beginning with an inquiry into how CF differentiates itself as a unique enterprise within UK and Canadian civil society.

Civil Society

CF pursues its agenda within a fairly lively field of cultural sustainability practice in UK civil society, which is unique in having a relatively more dynamic NGO sector than many other Western nation-states due to governance conditions (Lang 2013, 106–07). Sabine Lang (2013) shows how the institutionalization of social movement organizations into professional, more hierarchical NGOs can sometimes give way to moments when these organizations face critical junctures or when governance structures intervene to allow for greater public engagement on the part of NGOs. At the same critical juncture in UK politics that saw the emergence of cross-party support for the Climate Change Act, the UK Charities Commission voted in March 2008 to accept the recommendations of a Government Advisory Group on Campaigning and the Voluntary Sector (Lang 2013, 107). This report "concluded that the mission of the law should not be to protect the public from political activity by NGOs—by contrast, "the law should encourage the public to participate in democratic processes through such organizations" (Lang 2013, 107). In this context, it is important to address the broader field of NGO activity in the area of art and sustainability. CF UK must both differentiate its enterprise and work alongside other civil society actors who are reliant on Arts Council England funding for their work in the area of art and sustainability.

UK ENGOs and Arts NGOs play a significant role in climate politics. So, one might ask, are CF and other cultural sustainability organizations realizing the potential of this critical juncture and engaging democratic participation in the politics of CC and sustainability? While it is difficult to identify whether and how this critical juncture has

influenced the field of practice of cultural sustainability organizations in British civil society, it certainly places the onus on these organizations to engage diverse publics through their various creative engagements with sustainability. This field of practice encompasses a range of institutional and public communication repertoires.

On the one hand, there are civil society groups such as Liberate Tate and Art Not Oil who bring a traditional politics of shaming into the cultural sector in order to engage public discussion about rampant oil sponsorship of museums, such as the Tate Modern, and concert venues. Liberate Tate is "a network dedicated to taking creative disobedience against Tate until it drops its oil company funding" (Liberate Tate). Art Not Oil also campaigns against big oil sponsorship and encourages creative engagement with "the damage that companies like BP and Shell are doing to the planet" (Art Not Oil).[9] This politics of shaming is an extremely important dimension of global climate politics. "Global shaming is a significant process then, and it is one which various environmental NGOs have significantly exploited, drawing upon cosmopolitan notions that the world's media extend" (Urry 2011, 104). On the other end of the spectrum, there is the NGO Julie's Bicycle that focuses on sustainability services and consultancy for the creative industries as opposed to directly engaging publics in art about sustainability (Julie's Bicycle). In addition, there are a variety of arts organizations currently curating art exhibitions on CC.[10] There are also groups such as Tipping Point that focus on

[9] In fall 2012, Liberate Tate collaborated with Platform and Art Not Oil to produce a sophisticated institutional critique of oil sponsorship of the Tate Museums that uses an audio tour format, which was called Tate à Tate (tateatate.org). Liberate Tate also does performative direct action. For instance, in *Floe Piece*, "at 6:30 PM at the Occupy London protest camp at St Paul's Cathedral four veiled figures dressed in black lifted a 55kg chunk of Arctic ice onto a sledge and walked it in procession across the Thames on the Millennium Bridge and into the Tate Modern Turbine Hall" (Liberate Tate).

[10] These include Platform (platformlondon.org), Arts Admin (artsadmin.co..uk), Live Art Development Agency (thisisliveart.co.uk), and CF. Finally, there are groups such as Tipping Point who focus on networking meetings and conferences that attempt to engage artists in climate science (tippingpoint.org.uk).

networking meetings and conferences that attempt to engage artists in climate science (Tipping Point).

CF is unique because it not only curates art and CC exhibitions but also facilitates networking. So within this scene, CF's strategy is perhaps closest to that of Tipping Point and furthest away from the public shaming strategy of Art Not Oil and Liberate Tate. Given its partnership with the Tate Museums, CF would be unable to pursue the sort of public shaming strategy that these groups pursue (Cape Farewell, 2014d).

In the North American context, the CFF works closely with mainstream ENGOs such as the David Suzuki Foundation, with whom they produced *The Trial of David Suzuki*, and wide-ranging arts organizations such as the Theatre Centre in Toronto (Cape Farewel, 2014e). While engaging in similar public programming, it is notable that the North American foundation has experienced significantly more flak than in the UK. This flak has been especially prominent in response to CBC radio host Laurie Brown's complex and multifaceted satire of Canada's climate record, criminalization of environmentalists, and defunding of climate science in *The Trial of David Suzuki*, which was exhibited at the Carbon 14 Festival in Toronto (for criminalization, see Leahy 2014; regarding the trial, see Mallick 2013; Gerson 2013). The performance included guerilla theatre, social media, street interventions, and a final performance at the ROM. CF has experienced significant flak in the sense of pressure from powerful (undisclosed) individuals, and it has been unable to publicly release the video broadcast of the final performance event at the ROM (Buckland pers. comm. 2014).

In this performance, Laurie Brown uses the space of the aesthetic as a space apart from the usually antagonistic and all-too-predictable debates within Canadian civil

society among environmentalists, financial analysts, oil lobbyists, and politicians in order to make room for a meaningful conversation among representatives of these groups. In *The Trial,* David Suzuki plays himself in a mock trial in which he is accused of seditious libel for the publication of the following carbon manifesto: (1) "exploration and subsidies to the fossil fuel industry end now", (2) "save the earth's largest carbon sinks," (3) seventy percent of our energy must be renewable energy within one generation, (4) "a carbon tax of 150$ per tonne starts now," (5) "Canadian climate scientists must be able to share their findings uncensored and unimpeded by political and corporate interests" (Trial website). The trial was presided over by Ontario Superior Court Justice Todd Ducharme and included high-level witnesses such as a Bay Street economist (Michael Hlinka) who analyzed the hypothetical economic impact of implementing Suzuki's manifesto, and the Ontario Environmental Commissioner (Gord Miller), who did a wonderful job of clearly explaining climate modelling. In a moment of dissensus with the often exclusive distribution of the sensible in the political aesthetics of CC, the audience was given the power to rule on the case live at the ROM auditorium and on the project website, and they ultimately found Suzuki not guilty of seditious libel by a vote of 1,614 to 117 (Mallick 2013).[11]

In both the UK and North America, CF's advocacy is significantly more open-ended than many cultural sustainability efforts in the sense of not focusing on a single issue and may open up critical public spaces for more meaningful climate conversations. It partly distinguishes itself from this broader field of practice by pursuing a more cosmopolitan agenda, which it pursues within a specific organizational ecology.

[11] The subsequent conservative response to the performance was unrelenting, with oil sands lobbyist 'ethical oil' making the absurd claim that Justice Todd Ducharme violated judicial independence and neutrality by participating in the theatre performance.

Organizational Ecology

How does CF balance responsibilities to the science and cultural sectors while negotiating the shifting contours of climate politics in the UK and North America? The organization has pursued its agenda by proactively adapting to the austere contours of Arts Council England policy by diversifying its funding streams and by maintaining deep alliances with UK and international climate science and policy research bodies. At the same time, while negotiating this internal balance between the science and the cultural sectors, the organization has been adept at recognizing critical junctures in climate politics. The shift in focus to North American advocacy should be seen in this light. On a general note, the organization certainly faces many of the same challenges of the NGO sector as a whole wherein the bureaucratization and professionalization of social movements (NGOization) is producing an inward-looking tendency that often precludes their capacity for successful public outreach beyond mere publicity (Lang 2013). The organization actively negotiates these kinds of pressures, neither consenting entirely nor fiercely resisting such neoliberal shifts in civil society but rather working vigilantly to find some breathing room for its agenda. To unravel these dynamics, I turn to a description of the organization itself.

The challenges CF faces are similar to those of boundary organizations that have to mediate between climate science and politics (see C. Miller 2001), but these negotiations look quite different at the science/culture boundary. David Guston argues, “A successful boundary organization will thus succeed in pleasing two sets of principals and remain stable to external forces astride the internal instability at the actual boundary”

(2001, 401). Similarly, for CF to succeed in its agenda, it has to please both its key cultural sponsors, such as Arts Council England and Musagetes, and its climate science partners, such as the National Oceanography Center, while maintaining continuity and stability in the face of shifts in the NGO sector and the geopolitics of CC.

CF has negotiated these challenges through the vision of the organization's director, David Buckland, and his creative capacity as a connector with many allies and friends. As Malcolm Gladwell likes to remind us, such connectors "are the kinds of people who know everyone" (2000, 38). However, CF is much greater than Buckland's vision or the combined efforts of Associate Director Ruth Little and the core team.[12] Central to the organization's negotiation of climate politics, funding, and other challenges is the board, which is itself made up of many connectors from the cultural and environmental sectors. CF uses cooptation, which is the inclusion of external groups in decision-making bodies, to maintain balance among its responsibilities to different sectors. David Guston says, "Boundary organizations may use co-optation, the incorporation of representatives of external groups into their decision-making structure, as a bridging strategy (Scott 1992)" (2001, 402).

CF uses cooptation of representatives from the cultural (architecture, literature, film, art education) and environmental (climate science, environmental policy) sectors in the board structure as a bridging strategy that helps the organization strategically balance between cultural and scientific principles in the pursuit of its agenda. Cultural sector representatives on the CF board include architect Sunand Prasad, novelist Ian McEwan, film producer Fiona Morris, film producer Michael Wilson OBE, Greenpeace climate

[12] The core team includes Ruth Little (Associate Director), Yasmine Ostendorf (Programme Director), Marente van der Valk (Project Manager), and Susie Steven (finance manager).

advisor Charlie Kronick (until recently), and Professor Chris Wainwright (Cape Farewell 2014f).[i]

This strongly networked and influential board connects the organization to diverse cultural sector organizations and individuals while establishing legitimacy in the fields of climate science and policy. It also informs the organization's climate advocacy strategy and, more specifically, has recently steered the organization toward a cosmopolitan outlook that is strongly oriented towards North America. This geographical shift in advocacy needs to be understood in relation to organizational history and climate politics.

For the first five years, CF focused on cultivating a response to CC in the UK (Buckland pers. comm. 2011). Buckland says, "The initial aim of CF was to create a different language of CC with which to engage the public" (Buckland 2012b, 3). CF pursued this aim by building up their reputation as a legitimate and responsible actor in both the climate science and arts communities, and by implementing a successful program that included three trips to the High Arctic (Buckland pers. comm. 2011).[13] In 2006, a Canadian foundation called Musagetes started funding CF. This allowed for the inclusion of Canadian artists such as Feist and Martha Mainwright on the 2008 Disko Bay Expedition, and CF thereby established a crucial link to the Canadian cultural sector (pers. comm. 2011).[14]

In 2008, CF led their second youth expedition to the High Arctic in collaboration

[13] The 2003, 2004, and 2005 High Arctic sailing expeditions engaged UK art celebrities such as Rachel Whiteread, Antony Gormley, and Ian McEwan.

[14] This foundation was founded by former Research in Motion (RIM) executive Michael Barnstijn and by Louis MaCallum, who is a former RIM software engineer, and is grounded in a strong belief in the transformative power of the arts (Musagetes' Manifesto). "Musagetes believes that artistic creativity embodies values and attributes diametrically opposed to the narrower concepts of efficiency and rationality that have contributed to the modern crisis" (Musagetes' Manifesto). They facilitate cafes for network building and exploring the transformative potential of the arts, where David Buckland and other British cultural leaders have come together to converse (Musagetes).

with British Council Canada. In 2009, David Buckland was invited by then-Toronto Mayor David Miller to participate in the C40 Cities summit that ran parallel to the UNFCC COP15 meeting in Copenhagen. Buckland recalls, “Cape Farewell was there as a guest of Mayor Miller of Toronto, the C40 cities president. He saw just how powerful a role the cultural sector could play by creating stories and film to provide vision for the cities’ inhabitants” (2012b). Miller was chair of C40 Cities from 2008–2010, which is “a network of the world’s megacities committed to addressing climate change” (C40 Cities), and his embrace of Buckland’s vision was another crucial link that paved the way for CF’s transition to setting up the North American Foundation (Buckland pers. comm. 2011). These bridges to the Canadian cultural sector were mobilized, i.e. at the start of the CFF, at a kind of critical juncture in UK climate politics that saw the emergence of cross-party support for a CC bill that became the 2008 Climate Change Act (Giddens 2011, 83–87). In the same year, the UK government created a new Department for Energy and Climate Change (84–85). “The introduction of the two pieces of legislation shows a determination to confront the twin problems of climate change and energy security; the bills received a high degree of cross party support in their passage through Parliament” (Giddens 2011, 85)

At a critical juncture in UK climate politics that saw the emergence of what is arguably the strongest level of cross-party support for climate policy of any nation state (Giddens 2011, 86), the CF board made a strategic decision to shift its focus to North American climate advocacy, where policy is almost nonexistent and footprints are high (Buckland pers. comm. 2011; see Giddens 2011, 87–90). Buckland (pers. comm. 2011) explains this 2008 board decision in relation to both the huge carbon footprint of North

America and in relation to the relatively greater progress of the EU in implementing climate policy towards reducing emissions. Indeed, the EU has made greater progress than any other political body towards reducing carbon emissions through effective policy (Giddens 2011). Buckland (pers. comm. 2011) also emphasizes the strong presence of ENGOs and environmental foundations such as the David Suzuki Foundation doing CC work and the absence of an adequate response from the cultural sector in the United States and Canada. While there are cultural sustainability groups working in North America, the organization perceives this field of practice to be less densely populated than in the UK.[15]

CF's participation in the global C40 network and sensitivity to both recent progress in UK climate policy and the sluggishness of policy developments in North America appear to be strong factors in the shaping of their international advocacy focus.[16] In Britain, CF seems quite focused on interrogating sustainable energy, which is actually an area where the UK is lagging behind many other nation states such as Brazil and Spain (Giddens 2011). In Canada, the CFF is now chaired by former Toronto Mayor David Miller and is closely associated with the MARs Center. The North American charity "fosters human and planetary resilience by facilitating new ways for creativity, science, technology and business to work together" (Cape Farewell).[17] In order to pursue goals of

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[15] In light of the links established with former Toronto Mayor David Miller, the Musagetes Foundation, British Council Canada, as well as many individual Canadian artists, the pull to doing climate advocacy in North America appears fairly obvious. On a practical level, the Musagetes Foundation reminded CF that their grant was for only three years and that it would be ideal for the organization to set up its own foundation in order to continue its network in North America (Buckland pers. comm. 2011).

[16] Canada ranks 59 and USA ranks 53 in Climate Action Network's ranking of state CP (see CAN website; also Giddens 2011).

[17] The core foundation team is made up of Buckland, Curator Claire Sykes, and Development Director Katherine Bruce (CFF). The foundation officially launched with a concert at Koerner Hall on Nov 10, 2011, featuring singer Amy Millan of the Stars and the Montreal-based band Patrick Watson and the Wooden Arms. The foundation has since put together a public screens exhibition in Toronto called *Ship of Fools*

planetary resilience in Canada and the UK, CF has to secure sustainable funding.

Funding Art and Sustainability in an Enterprise Culture

Cape Farewell actively negotiates the political economy of funding for the arts in England and, to some extent, internationally. It's program of expeditions, exhibitions, and engagement is funded through four major funding streams: Arts Council England grant programs (ACE), foundation grants, corporate sponsorship, and individual charitable donations where anyone can make a carbon zero donation on the website and/or purchase merchandise (books, DVDs, etc.).[18] In this sense, the organization works every possible avenue to negotiate the enterprise culture of austerity that was initially implemented under Thatcher's reign, at times making significant inroads of resistance to this enterprise culture and at other times melting into its contours. I focus on two revealing moments from CF's negotiation of public and corporate funding.

CF's most significant cultural partner is Arts Council England (ACE), whose grants make many of the large and expensive expeditions to the Arctic possible.[19] ACE

(2012) and a major exhibition called *Carbon 14*, which included Laurie Brown's satire of Canada's climate record.

[18] The organization also relies on support from a wide variety of foundations, and this funding has contributed to both operating costs and specific projects and exhibitions. Crucially, the Musagetes Foundation supported the participation of Canadian artists on the Disko Bay trip as well as other initiatives since 2006 and played a crucial role in helping set up the CFF (Buckland personal communication 2011). For their postsecondary art and ecology program called Short Course UK, CF received a three-year grant from Esmée Fairbairn (82,950 pounds), which is one of the largest independent grant-making foundations in the UK (esmeefairbairn.org.uk). In terms of more general operating costs, foundation support has also been crucial to getting the organization up and running in Toronto. Metcalf contributed a core operating costs grant for staff and communications for a year (70,000$ metcalffoundation.com), and The Salamander Foundation is giving 15,000$ for the *Carbon 14* Exhibition at the Institute for Contemporary Culture (salamanderfoundation.org).

[19] For instance, the 2008 Disko Bay Expedition was largely made possible by a 150,000 pound

has not been immune to the pressures of austerity. These neoliberal pressures began in the first few years of Thatcher's reign, when government funding for the arts was reduced, governance of museums was restructured, and incentives were put in place for corporate arts sponsorship in a new enterprise culture (Alexander 2007, 187). Victoria Alexander (2007) argues that many of the current tensions in government funding for the arts date from this period, as well as from subsequent shifts under Tony Blair's New Labor. More recently, "Arts Council England (ACE) launched a major research project in May 2006 that was intended to identify the 'public value' that existed in their operations, and to use this as the basis for identifying how the management of their activities could be improved in the future" (Gray 2008, 209). Clive Gray (2008) argues that ACE's 2006 public value research project amounts to a technocratic vision of depoliticized arts management that is, on the one hand, not so different from the current function of ACE as an arm's length funding agency and, on the other, obscures the public legitimacy of the arts in a representative democracy. In attempting to inspire a public response to CC through the arts, CF is forced to negotiate this technocratic, neoliberal vision of public value. Since CF's most significant cultural partner is ACE, they have devoted significant work toward maintaining support for cultural sustainability initiatives in this climate of austerity.

Between spring 2011 and February 2012, CF partnered with a group of arts organizations to lobby for ACE support of the art and CC field of practice in the UK. These organizations included Arts Admin, Julie's Bicycle, Live Art Development Agency, Platform, and Tipping Point, as well as individual activists John Hartley, who is

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managed funds grant from ACE (2009 Annual Review).

a former arts and ecology officer of ACE, and Michaela Crimin, an independent curator who directed the RSA Arts and Ecology Center. Platform, who coproduced Tate à Tate, is the only link between this group and the politics of shaming in the UK cultural sector. In response to a March 2011 review of ACE national portfolio spending, this art and CC group wrote a letter to Executive Director (ACE London) Moira Sinclair that expressed grave concern with deprioritized funding for this field of practice and requested a roundtable forum to address their concern. They argued, “Given that the issues we address are only becoming more urgent, that the artworks that we produce are of the highest quality and that we are driving change in the cultural sector, both in England and internationally, the timing of this shift is puzzling” (Group letter). In response, ACE organized a roundtable forum with this group, and a series of meetings were held between July 2011 and January 2012 to discuss ACE funding policy for sustainability in the cultural sector. This well-timed and pitched lobbying effort managed to take advantage of the critical historical juncture of ACE’s public value reevaluation and was presumably a major factor behind the implementation of an across-the-board environmental sustainability policy at this national arts organization.

On February 24, 2012, at a Tipping Point conference, Alan Davey, chief executive of Arts Council England, made the official announcement that ACE would be the first arts council in the world to implement “environmental sustainability in the funding agreements of all its major funding programmes” (Davey 2012). Davey (2012) announced, “Sustainability has moved to the heart of the Arts Council’s 10 year vision as we look to ensure arts organizations adapt and respond to CC”. The speech emphasized the economic and ethical reasons for implementing sustainability in ACE funding,

pointed towards the financial savings associated with lowering carbon emissions by using ACE infrastructural changes as an example, and worked hard at avoiding a patronizing note by foregrounding the existing innovations in sustainability amongst arts organizations like CF and Platform as well as the close partnership between ACE and Julie's Bicycle in the rollout of the policy.

It remains to be seen exactly how this new funding policy will influence the field of practice as a whole, but it was certainly represented as a victory by the art and CC working group (combined announcement, February 5 2012). Committed public support is invaluable to the diverse forms of public engagement undertaken by these groups. It is also clear that many will remain dependent on other funding streams such as corporate sponsorships, which may undermine the dissensual potential of CC exhibitions.

Corporate sponsorship is fairly limited but is arguably the most challenging funding stream for CF, which perhaps echoes more general challenges in the sector as a whole. Sabine Lang (2013) argues that NGOs are often forced to make very difficult decisions about whether to accept corporate sponsorship for strategic communications because the funding available for such initiatives is often tied to corporations that are advocacy targets. Lang argues that employing strategic communications "might mean forming alliances with powerful partners who bring the money for these tools to the table, while facing strategic decisions about public advocacy strategies that might target these very companies that are campaigning allies" (2013, 90). The CF board faced exactly this type of difficult decision with regard to the *Carbon 12* exhibition in Paris because they were offered significant funding from the world's largest nuclear provider, EDF, at a moment when board member Charlie Kronick happened to be involved in a Greenpeace

legal action against EDF for spying on Greenpeace France headquarters (Buckland pers. comm. 2012). The board did not survive this decision intact, as a decision was made to accept EDF funding, and Charlie Kronick resigned his long-standing position on the board (Buckland pers. comm. 2012). EDF was convicted on November 10, 2011, of spying on Greenpeace and was fined 1.5 million in damages to the organization (Greenpeace), but a recent Versailles appeals court decision overturned the original Nanterre court decision and scrapped the fines (Boxell 2013).

EDF has been a subject of greenwashing discourse in the lead-up to UK climate week 2013 (Carrington 2013) and is a client of the Euro RSCG advertising firm (Lang 2013, 990) who designed the highly successful tck tck tck campaign logo (tcktcktck.org). CF is a partner organization of tck tck tck, which is a major climate action campaign endorsed by Kofi Annan that has been accused of greenwashing (Lang 2013, 89–90).

The EDF example highlights the challenges involved in successfully negotiating corporate sponsorship, which involves making difficult decisions regarding advocacy focus and the risks associated with either not pursuing a particular project or going forward, as was the case here, and risking public perceptions of greenwashing. This is “the adoption of NGO PR avatars by companies to foster engagement, while at the same time employing economic strategies that are based on exploitation of the environment” (Lang 2013, 90). The accusation of greenwashing is tantamount to betrayal and is the flip side or even the Achilles’ heel of environmental collaboration.

Grant Kester describes a “semantic slippage between positive and negative connotations” of the term collaboration, wherein it can mean both “to work together” and “collaboration as betrayal” (2011, 1–2). In this example, there is a fascinating

engagement with the limits of collaboration in both senses of the term. The *Carbon 12* exhibition pushed the limits of collaboration as working together by asking artists and scientists to present their research alongside one another in the Espace Foundation EDF gallery (see Straughan and Dixon 2012 review), while simultaneously walking the tightrope of collaboration as betrayal by virtue of using this particular gallery space and funding stream. In this sense, it seems fair to ask, is the decision to accept EDF funding for *Carbon 12* a betrayal of CF's association with Greenpeace and its roots in green politics? It certainly risks public perceptions of greenwashing and betrays the earlier use of expeditionary tactics as a way of intervening between industry and nature in the Greenpeace campaigns of the 1970s in favour of an expeditionary practice that is much more about reconciling the interests of industry with practices of art and science collaboration. As EDF sponsorship director Elisabeth Delorme explains, "They [artworks] illustrate the complexity of climate change, which calls for the intervention of multiple disciplines, which in turn echo the commitments undertaken by the Foundation EDF" (2012, 6).

The broader significance of the EDF decision may lie in an emergent shift away from the organization's deep association with modern British environmentalism, which has a long history of opposition to nuclear energy, and towards a liberal climate politics wherein there is an increasing emphasis upon assessing the risks associated with both incorporating and abstaining from nuclear energy in climate policy (see Giddens 2011). It is perhaps also continuous with 'the new green', as even Stewart Brand has moved toward a pro-nuclear position (Giddens 2011, 132). In this light, the decision might be read as an organizational adaptation to the funding opportunities associated with a liberal

climate politics. Speculatively, to the extent that nuclear power will remain an ingredient in climate policy, CF's decision to accept EDF sponsorship for *Carbon 12* points to the ways in which their enterprise can easily become a vehicle for liberal climate politics. Furthermore, it shows how this enterprise is sometimes amenable to the demand for collaboration within enterprise culture writ large, where collaboration is valued not so much for its epistemic or political dimensions but rather for its capacity to cut costs and increase competitiveness, i.e. via publicity (Papastergiadis 2004, 13).

CF is a small NGO and relies on partnerships to pursue its agenda with relatively limited funding while maintaining legitimacy in both climate science and the cultural sector. It negotiates the enterprise society of neoliberalism by sometimes resisting the culture of austerity in arts funding and, at other moments, by going along with the demand for collaboration from within private industry for purposes of greenwashing. While its partnerships and sponsorships sometimes foreclose particular kinds of activities, such as the public shaming work of some civil society groups, its sophisticated collaborations also open up small moments of dissensus with depoliticized neoliberal climate politics, as exemplified in Laurie Brown's *The Trial of David Suzuki*. These collaborations build on the organization's legitimacy across the social worlds of art and science. Building on this legitimacy while negotiating a somewhat perilous stability in the face of external pressures of neoliberalization, the CF enterprise creates some breathing room for its style of arts–sciences collaboration.

Networked Cultural Entrepreneurship: Arts–Sciences Collaborations

Cape Farewell's practice of collaboration is grounded in the countercultural tradition of networked cultural entrepreneurship, wherein network forums allow diverse communities to come together in the imagining of a transformative social project. While networked cultural entrepreneurship is now a pervasive dimension of contemporary knowledge production and the information economy, its historical emergence in the American counterculture and back-to-the-land movement should not be forgotten (Turner 2006). Turner shows how Stewart Brand was a kind of network entrepreneur who migrated across disparate academic and countercultural communities and created network forums that variously connected the ecological and social ideals of New Communalism with the systems thinking and collaborative research models of postwar cybernetics. "Brand established a series of meetings, publications, and digital networks within which members of multiple communities could meet and collaborate and imagine themselves as members of a single community" (Turner 2006, 5). Similarly, as will be shown, CF Director David Buckland is a charismatic entrepreneur who creates network forums—expeditions, meetings, and exhibitions—within which members of the disparate social worlds of climate science and contemporary art come together to collaborate and imagine themselves as part of the project of fostering 'a cultural response to climate change' (Cape Farewell).

The distinctiveness of CF's networked cultural entrepreneurship lies in using art and science expeditions to produce CC frames and catalyze the production of artwork for exhibition in museums, galleries, or other cultural venues. This entrepreneurship includes

residency expeditions that bring practicing artists into contact with oceanographers and other scientists, youth expeditions with high school students, postsecondary art and ecology expeditions in rural and urban settings, and various smaller-scale urban expeditions.[20] Central to this work is the creation of a forum for exchanging legitimacy between different social worlds, as *The Whole Earth Catalog* facilitated between New Communalists and systems theorists in the late 1960s (Turner 2006). CF expeditions function as forums for the exchange of legitimacy and knowledge among climate science and art communities. Buckland explains, "Each expedition has a scientific and cultural objective: the boat is a research platform, a vehicle for social engagement and creative exchange" (2012, 2).

CF's expeditionary approach to networked cultural entrepreneurship is multidimensional and includes research, storytelling, and learning dimensions that draw upon a range of sources: (1) the permeability of art, science, and exploration in the Romantic tradition; (2) the use of shared metaphors in interdisciplinary research seminars during the postwar period; (3) the history of expeditions as a medium in environmental communication; (4) conversational drift; and (5) the generation of phenomenologically 'thick' experiences of wayfinding alongside (or across) socioecological places. In order to tease out some of this complexity, I will now turn to a discussion of the research, communicative, and learning dimensions of this practice.

[20] There have been nine sailing expeditions to the Arctic (2003–2008; 2007–2008 youth trips; 2010), one hiking expedition through the Andes (2009), urban expeditions in London and Liverpool (2011–2012), a rural expedition in Cornwall (2011), and four weeklong expeditions across the Scottish Isles aboard a marine mammal research vessel called the *Song of The Whale* (2011) (Cape Farewell, 'The Expeditions'). These journeys have generated publications, artworks, shows, and educational resources. They have been the basis of international CC exhibitions such as the touring *U-n-f-o-l-d* show that has been to London, Vienna, Chicago, New York City, and elsewhere, as well as *Carbon 12* in Paris, *Carbon 13* in Marfa, Texas, and the upcoming *Carbon 14* show in Toronto (Cape Farewell).

The research dimension of these collaborations is characterized by a unique style of action research on planetary futures. Buckland writes, "In these artistic journeys we have evolved a culturally equivalent tool to the mathematical modellers: a way of interrogating the future through a process of 'action research'" (2012, 4). In this description of action research, Buckland explains to the scientific public of *Nature Climate Change*, where the article was published, how the aesthetic can mirror the scientific by orienting itself to the complex epistemic category of *the future.* The future is a central challenge posed by the cultural politics of CC (J. Smith 2011). As exemplified in Giddens's (2011) paradox, CC confronts us with unusual challenge of reorienting our everyday lives in the present so that future generations will be able to continue living. Sociologist John Urry says, "This politics involves imagining alternatives, developing 'great fictions', demonstrating through actions, and building material futures that substantially challenge twentieth-century carbon capitalism" (2011, 92). To be sure, we need to imagine 'great fictions' and artworks that challenge carbon capitalism, but one might ask, why should the aesthetic mirror the scientific in its orientation to this societal challenge?

The mirroring of science and art is a dimension of the systems thinking approach to action research that Buckland (2012) draws upon, which can be historicized in relation to Stewart Brand's Learning Journeys. In the 1980s, Brand organized a series of network forums called Learning Conferences that brought together academics, ecologists, and corporate executives to explore group learning systems in a variety of stimulating landscapes such as the Arizona desert (Turner 2006, 182). Fred Turner explains, "They were a human 'system,' the biological mirror of the digital networks through which they

communicated and of the geographically distributed network of 'learning systems' they visited twice a year" (2006, 183). Like these earlier network forums, CF's expeditionary practices of action-based research involve a complex mirroring of scientific, aesthetic, and ecological systems. Artists conducting action research on alternative futures mirror scientists doing fieldwork that contributes to the fine tuning of climate models, and together, they can be seen as a kind of adaptive learning system that is responsive to the geographical and climatic systems that they encounter on expeditions to the Arctic, the Andes, or elsewhere. There is an extraordinary dimension to this adaptive learning. Professor Daro Montag of University College Falmouth, who participated on the 2009 Andes expedition, points to the role of CF in generating unfamiliar situations that force participants to learn necessary adaptation skills (Montag 2011). "I think the CF mission has created a space where people have to cope with situations that are slightly different from their everyday, and I think we're heading into a world that is going to be very different from what we're familiar with" (Montag 2011).

Cape Farewell's action research also involves the generation of conversational drift across disciplinary boundaries and in response to particular socioecological places, which certainly reverberates with Helen and Newton Harrison's innovation of this arts-based methodology (Kester 2004, 64). Conversational drift happens in response to particular experiences of wayfinding and involves the curation of shared metaphors. The use of shared metaphors is central to the curation of conversational drift on CF expeditions (Parkinson pers. comm. 2011b).

CF's style of conversational drift can be historicized in relation to the central role of shared metaphors and physical journeys in experimental approaches to

interdisciplinary research in the postwar period. In relation to the former, we might cite the use of *acoustic space* as a shared metaphor in the interdisciplinary Explorations seminar in Toronto during the 1950s (Marchessault and Darroch 2009). Here, communications scholar Marshall McLuhan, urban planner Jaqueline Tyrwhitt, political economist Tom Easterbrook, and anthropologist Edmund Carpenter came together to study "the new grammars and environments created by electronic communications technologies" (Marchessault and Darroch 2009, 10). The experimental pedagogy of this seminar involved the communal intellectual exchange of ideas and metaphors, such as the notion of acoustic space, which exceeded singular disciplines and provided a focus for interdisciplinary inquiry (Marchessault and Darroch 2009). In relation to the latter, we might recall the Delos Symposia, which was a mobile platform for interdisciplinary collaboration that took place on a boat cruise near Delos Island in Greece. "The symposia sought to address the problems of world population growth, housing and settlement and attracted prominent intellectuals like historian Arnold Toynbee, anthropologist Margaret Mead…and Buckminster Fuller" (Marchessault and Darroch 2009, 24). A decade after the Delos symposia, in the 1970s, one of Buckminster Fuller's strongest advocates and popularizers became Stewart Brand, who published Fuller's systems theory ideas and geodesic dome architecture in *The Whole Earth Catalogue* (see Turner 2006).

The combined use of physical journeys and shared metaphors to coordinate interdisciplinary inquiry is perhaps epitomized in Stewart Brand's Learning Conferences and subsequent Learning Journeys, which used the material and metaphorical dimensions of particular locations to cultivate interpersonal connections and foster group learning (Turner 2006). Fred Turner has criticized the insular character of these Learning

Journeys, which were facilitated for an elite group, and their lack of critical engagement with their surroundings. They brought participants together to share ideas and find metaphors in the surrounding landscape in ways that tended to confirm participants' existing beliefs about the liberatory potential of the information economy while ignoring the lived experience of the people and places they encountered along the way (Turner 2006).[21] In Ingoldian terms, they moved across rather than alongside places (see 2007; 2011a).

Turner's critique of the Learning Journeys points to the ways in which shared metaphors can both coordinate connection across disciplines, from neurobiology to ecology, and insulate group learning from a critical engagement with socioecological places. It offers a crucial test case for reflection on the synthesis of physical journeys and metaphors in Cape Farewell's networked cultural entrepreneurship, pointing to the necessity of analyzing both horizontal collaboration across disciplines and vertical collaboration between people and places in the analysis of their collaborations. From an Ingoldian viewpoint, we need to understand how conversational drift unfolds while travelling alongside or across places and work toward a more nuanced understanding of the connections between mobility and epistemology. The epistemological potential of Cape Farewell's research expeditions can be analyzed from this perspective.

CF expeditions also function as a stage, as a vehicle for storytelling by journalists,

[21] In 1993, ecologist Peter Warshall led a small group, including Mary Catherine Bateson, former Grateful Dead manager Jon McIntire, neurobiologist William Calvin, and Stewart Brand himself, down the Rio Chama tributary of the Rio Grande to study local ecology and build the GBN network (Turner 2006, 191). "For all the materiality of rivers and mud and boats, the Rio Chama journey, like the communal migrations of the back-to-the-landers, took participants into a deeply semiotic region, one in which the exigencies of everyday life assumed an informational cast" (191).

filmmakers, and curators on a variety of media platforms.[22] In terms of curatorial practice, these expeditionary forums are a highly experimental and risky endeavor. Buckland explains how "each expedition is a curatorial project because you're putting the artists together and you don't know what the art will be. So all of the shows I've created, you have no idea what the art will be" (Buckland pers. comm.). First, one has no idea how an artist will respond to a scientific expedition; second, how long it will take for he or she to produce artwork in response to an expedition (months or years); and third, whether he or she will respond by producing artwork as opposed to responding in more personal, less tangible ways (Buckland pers. comm.). Since these residencies are completely open-ended, there is no obligation for artists to produce anything in response to their participation on a voyage (Buckland and Wainwright 2010). Nonetheless, these voyages have inspired profuse creativity. Artworks are sometimes produced years after a residency and in association with another curatorial project, such as Situations' production of Alex Hartley's *Nowhereisalnd*, and sometimes produced as part of an exhibition curated by David Buckland. By diffusing these expeditionary narratives across numerous sites, CF's transmedia storytelling requires what Henry Jenkins calls "the active participation of knowledge communities" (2006, 21). Fans and audiences have to seek out the unfolding of expedition stories from blog posts to docs to exhibitions. Buckland quotes McLuhan to underline this participatory commitment: "“Spaceship Earth doesn't carry passengers, only crew”" (McLuhan quoted in Buckland 2012).

What is the historical precedent for CF's use of expeditions as a basis for

[22] This transmedia storytelling includes (1) daily blog posts from climate scientists, journalists, and artists on expedition sites that are linked to the CF website; (2) subsequent media productions such as documentaries about specific High Arctic expeditions; and (3) art exhibitions that are curated on the basis of particular expeditions.

storytelling and environmental rhetoric? CF's style of transmedia expedition storytelling builds upon a long history of expeditionary tactics in the visual culture of environmentalism, such as Greenpeace's use of expeditions to catalyze 'image events' for the antiwhaling movement (DeLuca 1999). Image events are staged photographic and televisual events for environmental awareness raising (DeLuca 1999, 3). The success of these events, according to veteran Greenpeace campaigners, "“comes in reducing a complex set of issues to symbols that break people's comfortable equilibrium, get them asking whether there are better ways to do things"" (Veteran Greenpeace Campaigner, quoted in DeLuca 1999, 3). Whereas Greenpeace's 'mind bombs' were geared for a television audience, contemporary image events, such as those of *No Impact Man*, tend to be oriented toward multiple platforms (Schneider and G. Miller 2011).[23]

CF's transmedia expedition stories clearly draw from Greenpeace's experience using expeditions as a medium for environmental rhetoric but are closer to contemporary image events in their use of multiple platforms. They also aim towards raising awareness by reducing the complexity of our ecological predicament to symbols, such as the image of the High Arctic sailing expedition, but they are significantly more complex and open-ended than the Greenpeace image events because they do not entail activists standing between oceans and industrialists, between nature and culture (see DeLuca 1999; Schneider and G. Miller 2011). Rather than intervening between nature and industry to

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[23] Greenpeace is famous for using antiwhaling voyages to manufacture image events (DeLuca 1999), such as the seminal filming of Bob Hunter and George Kortova attempting to disrupt a Russian whaling fleet off the coast of California in 1975 (Dale 1996, 148–77). The expedition did not successfully stop the whaling but produced a memorable image event (DeLuca 1999, 1–22). Hunter recalls, "With the single act of filming ourselves in front of the harpoon, we had entered the mass consciousness of modern America—something that none of our previous expeditions had achieved. It was Walter Cronkite himself who introduced our footage to the mass TV audience" (Dale 1996, 150). As illustrated by this account, Greenpeace's image events were largely focused on producing mind bombs of awareness raising for prime time television (DeLuca 1999).

produce a symbolic image event, CF expedition stories rely on revivifying the shared spaces and correspondences between nature and culture, between science and art. As discussed in the *Carbon 12* example, this style of expeditionary storytelling is susceptible to cooptation for corporate greenwashing if it fails to negotiate neoliberal thresholds.

This revivification of a dialogue between science and art is at the heart of CF's transmedia stories, which basically narrate the conversational drift between artists and scientists aboard an expedition and utilize the Romantic rhetoric of environmentalism that is at the heart of this image of artists and scientists sailing off to save the planet. Buckland says, "By putting it on a sailboat, it has a Romantic aspect; it's also about struggle into the future. It's a completely different paradigm than doing it on a big boat. Also, the carbon footprint is zeroish. But as a media story, you put artists and scientists together on a sailboat and it's like… that worked" (pers. comm. 2011). The Romanticism of this project can be read in relation to the intertwined roles of artists, scientists, and explorers during the Romantic period of British literary culture. Fulford observes, "The terms exploration, science and literature designate sometimes overlapping areas of thought and practice, which were sometimes performed by the same people, yet retained distinct cores and skills" (2004, 4). This Romantic intimacy of exploration, art, and science is a recurring motif in CF's practice. As we will see, it even reverberates in projects inspired but not produced by CF, such as Alex Hartley's *Nowhereisland*.

The Artist-in-Residency Program: Following Alex Hartley's *Nowhereisland*

Inspired by the romance of a CF residency and subsequently produced by

Situations, Alex Hartley's *Nowhereisland* explicitly references Robert Smithson's *Floating Island to Travel Around Manhattan Island* (1970, 2005) by towing an Arctic island from the High Arctic region of Svalbard to South West England, where it undertook a 500-mile coastal journey during the 2012 Cultural Olympiad. The project was partly inspired by the artist's participation on a Cape Farewell voyage to Svalbard in September 2004, during which he performed a highly formal reenactment of the archetypal colonial act of claiming land in the High Arctic in the contemporary context of the tipping point status of this landscape. The performance involved 'discovering' and 'claiming' a barren land revealed by retreating glaciers. Hartley reflects, "This land so newly revealed, land which has lain below the crushing weight of the ice for thousands of years, land on which no human had ever stood. This new land, so freshly released, was indeed our land, and part of me was left behind there" (2004, 1). By using the metaphors of 'new land' and 'our land', Hartley brings the nationalist and colonial legacy of the High Arctic into strong relief; these metaphors reverberate all the way from Hartley's residency in 2004 to his final land artwork in 2012. And by reenacting the colonial act of taking possession of this new land while reflecting on the possible 'ill feelings' that would be inspired by egoistically calling it Alex HartleyLand, he humorously draws upon literary tropes of the High Arctic as a 'no-man's-land' in order to probe the spatiality of the High Arctic as both the canary in the coal mine and the site of competing nationalisms.

Within the British geographic imaginary, the High Arctic has served as a blank space for the narration of Romantic critiques of empire, colonialism, and nationalism (see Hill 2008). While Hartley's 2004 residency experiment probed the limitations of

contemporary nationalist claims on Arctic territory, it also continued to draw on the aesthetic significance of the High Arctic as a blank space. This is evident in Hartley's fanciful and humorous description of possible futures for the newly discovered island on the CF blog: "nothing has yet been ruled out; annexation, independence, tax haven, wild life sanctuary, short let holiday homes or time shares" (Hartley 2004, 1).

This residency experiment eventually unfolded into an artwork called *Nymark (Undiscovered Island)*, which was exhibited in CF's touring *Art & Climate Change* exhibition. Here, Hartley probed colonial relations to the High Arctic with a photographic piece that drew inspiration from the narratives of early Arctic explorers to represent this experience of finding and naming a 'new' island uncovered by a retreating glacier (Cape Farewell 2014g). Building on these experiences and on the metaphor of new land, Hartley developed *Nowhereisland*.

Nowhereisland uses the physical journey of an island as a platform for peer-to-peer information-sharing among artists, scientists, geographers and 'citizens' of the state of Nowhereisland. With twenty-three thousand people from one hundred thirty-five countries participating as 'citizens' of *Nowhereisland*, with the opportunity to reimagine ecological citizenship and write its constitution, this journey aimed towards the production of a cosmopolitan worldview on CC, sustainability, and citizenship. However, this aesthetic cosmopolitanism remains thoroughly grounded in a British tradition of Romanticism that criticizes nationalism from the perspective of the emptiness of the High Arctic, as is embodied in the emptiness of the name given to this new land.

Geographer Tim Cresswell reflects on the image of this erratic rock as an excuse for rethinking the challenge of hospitality to migrant people since the island travels from

a region with a remarkably open immigration policy (no visas required in Svalbard) to a nation-state with detailed curtailments on the limits of hospitality (2011). Cresswell says, "We can imagine a world with no limits to migration—where everyone is free to move where they wish," but "perhaps a more realistic wish is that the rocks which form Nowhereisland bring some of Svalbard's hospitality with them" (2011, 1). In this contextualization, *Nowhereisland* offers a powerful way of imagining hospitality beyond the curtailments of the nation-state (Cresswell 2011). However, central to this aesthetic cosmopolitanism is the inclusion of critical contextualization as part of the production of the artwork itself via 'resident thinkers' on the project website, such as Greenpeace climate advisor Charlie Kronick, Yoko Ono, and other celebrity thinkers, which helps frame the social dimensions of this land artwork. This leads critic Suzanne Lacy (2012) to identify a double image: the image of the moving island and the politics that is enacted through the participatory enactment of island citizenship, educational programming, and critical contextualization. "There is a gendered quality of the two images: in the one, laying claim to and transporting a solitary island as a grand (and perhaps even ironic) gesture and in the other the contextual, relational and complicated set of gestures that make up everything else about the work, extending its scope and breadth" (Lacy 2012). In this way, the work brings together the macho sensibility of the American tradition of land art (see Roelstraete 2010) as exemplified in the nod to Smithson with a nuanced sensibility to art educational contextualization, which has been historically marginalized as a feminine practice associated with social reproduction (Morsch 2009).

On the one hand, there is the movement of a barren landscape alongside the coastline, and on the other, there is the profusion of community arts initiatives that take

place alongside the movement of the barren rock: "choirs, bands, citizen marches, a flotilla of surfers, gig rowers, sea shanty singers and thousands of people on cliff tops" (*Nowhereisland*). This integration of land and community art practices draws clear inspiration from Tania Kovats's project *Meadow* (2007), wherein she towed a meadow on a tugboat from Bath to London while engaging in community events along the way. While the integration of community arts events alongside the movement of the erratic rock shows potential for the grounding of this artwork in place-based contexts, the overarching trajectory of the journey—from the High Arctic to the South West of England—remains deeply entangled in the homeward-bound gaze of Western environmentalism.

The journey of the new land metaphor, from Hartley's residency to the eventual production of *Nymark* and subsequently *Nowhereisland*, demonstrates the ways in which the Cape Farewell residency inspires long-duration processes of research creation and aesthetic cosmopolitanism in response to global CC, even if these ways of imagining hospitality remain tied to particular forms of cultural nationalism like the Olympics. The residency is a space for experimentation with new metaphors and themes, such as Hartley's exploration the new land metaphor for ongoing colonial and nationalist relations to the High Arctic in a time of global CC. The influence of this metaphor and thematic on Hartley's subsequent creative explorations from 2004 to 2012 certainly testifies to the extraordinary experiences that this residency offers as a kind of adaptive learning system in the face of precarious futures. However, like the enterprise as a whole, the critical acclaim of CF's residency in informing long-duration processes of creative production is deeply entangled with the broader assemblage of arts organizations and

funding bodies involved in art and sustainability initiatives in the UK and internationally.

Conclusion

In chapter 1, we saw how the political aesthetics of CC are characterized by a Western colonial imaging of the earth that draws its strength not only from the Western locus of global climate research infrastructures (P. Edwards 2010) but also from a vision of saving the planet via decentralized peer-to-peer information-sharing among scientists, environmentalists, artists, and others. In this chapter, we have seen how CF's entrepreneurship draws upon the latter vision in order to bring the former into conversation with the cultural sector. In the process, it generates opportunities for boundary learning and diverse wayfinding experiences, but it also risks reproducing the homeward-bound gaze of modern environmentalism. However, this bold and difficult undertaking cannot be reduced to a mere reproduction of countercultural collaboration to address our current ecological predicament. CF's expeditionary forums are also deeply informed by a Romantic sensibility to exploration and by a sensitive reworking of postwar traditions of interdisciplinary research that similarly used physical journeys and shared metaphors to address intractable social issues. In sum, a mélange of historical sources or models of collaboration seem to reverberate in this networked cultural entrepreneurship: the Romantic blurring of roles between artist, scientist, and explorer; the use of shared metaphors in the Explorations Seminar; the physical journey as a basis for interdisciplinary research in the Delos Symposia; and Stewart Brand's 'elitist' Learning Journeys.

Building upon these and other sources, David Buckland draws on his nautical wisdom and strong belief in the power of storytelling to rework arts–sciences collaboration in a time of global CC. Buckland quotes Lewis at the beginning of an article about *CF* in *Nature Climate Change*: "“Reason is the natural organ of truth; but imagination is the organ of meaning. Imagination, producing new metaphors or revivifying old, is not the cause of truth, but its condition”" (2012, 1).

This entrepreneurship maintains a difficult balance between responsibilities to scientific and arts organizations while traversing the enterprise society of neoliberalism. In its negotiation of the climate of austerity in arts funding and the neoliberal professionalization of social movements, CF uses a variety of tactics to create some breathing room for its practice of networked cultural entrepreneurship. These tactics include joining forces with other civil society organizations to resist enterprise culture, and giving in to the demand of corporations for greenwashing exhibitions, i.e. in the example of *Carbon 12*. While the former example of joining forces with like-minded individuals and organizations constitutes a timely response to the predominant climate of austerity in arts and culture, the latter example serves to undermine the basic aims of the organization while negating its deep roots in the green movement.

We will now turn to an in-depth discussion of Cape Farewell's public pedagogy via an analysis of the *U-n-f-o-l-d* exhibition.

The Unfolding of High Arctic Romanticism

Introduction

We have seen how CF uses networked cultural entrepreneurship to organize collaboration between artists, climate scientists, and communicators in the context of producing a cultural response to climate change. We have also seen how this entrepreneurship negotiates neoliberal thresholds of greenwashing and social movement professionalization, and we have started to glimpse some of the deeper Romantic thresholds that underpin this entrepreneurship. Building on the discussion of the artist-in-residency program, this chapter digs into the Romantic thresholds—from the *beautiful soul* to *terra nullis*—that inform CF's public pedagogy in the *U-n-f-o-l-d* exhibition.

The *U-n-f-o-l-d* exhibition mirrors the multidisciplinary and processual epistemology of climate science and utilizes the paradoxical qualities of Arctic geography—everywhere and nowhere—as a symbolic space for creatively probing future planetary change. The 'curatorial practice' that informs this show, or its strategic approach to curating an artistic response to CC, is notable for both its paradoxical quality and its geographic orientation. Specifically, this practice interrogates the spatiotemporal paradoxes of climate research in the High Arctic, from Giddens's temporal paradox of climate politics to the paradoxical spatiality of the High Arctic in the British geographical imaginary. The address of this exhibition utilizes these spatiotemporal paradoxes to connect faraway landscapes of climate research to close-to-home encounters with consumer society, transportation, and rising sea levels. It can be described as a 'work in movement' that mirrors the kaleidoscopic qualities of Arctic space in its shifting manifestations at each stop on the tour, zooming in and out on CC from local and global

viewpoints. In this way, the show offers a nuanced, critical curatorial recontextualization of High Arctic Romanticism.[24]

The title of the exhibition, *U-n-f-o-l-d*, reflects the expeditionary practice at the core of the international Cape Farewell Project, and the idea that lines of travel—the dashes connecting the letters of *unfold*—are productive of novel ways of knowing climate change. The anthropologist Tim Ingold has argued that "a way of knowing is itself a path of movement through the world: the wayfarer literally 'knows as he goes', along a line of travel" (2007, 89). The curation of *U-n-f-o-l-d* similarly follows lines of travel, from expedition to exhibition; artists are given an open-ended invitation to participate in a journey without any obligation to produce new work, and their unfolding creations become the basis for subsequent exhibitions (Buckland and Wainwright 2010; Bieler 2012). This process begins with the curation of expeditions (Buckland pers. comm. September 2011), and the show brings together twenty-five artists, musicians, and other creative practitioners who participated in Cape Farewell expeditions to the High Arctic (2007 and 2008) and the Andes (2009) (Bieler 2012). It was cocurated by artists David

[24] The focus on Romantic thresholds and symbolic spaces of the High Arctic is designed to capture a central tendency rather than a rule, so it is important to acknowledge the shifting status of this curatorial trajectory within the organization as a whole. First, as discussed in relation to *Nowhereisland*, the grounding of this paradoxical symbolic space in British cultural nationalism can, with a high level of critical recontextualization, be at least partially reframed, if not fully 'detourned', towards aesthetic cosmopolitanism by using participatory methodologies to open up the imagining of this 'nowhere' in relation to issues of migration, hospitality, and citizenship. Similarly, CF's curatorial practice often involves a nuanced, critical curatorial recontextualization of High Arctic Romanticism, from the artist-in-residency expeditions to the High Arctic, to the show *High Arctic*, to *U-n-f-o-l-d*. An exception to this tendency is the *Carbon 14* festival that helped launch the North American Foundation, which evinced signs of a shift in curatorial practice away from this terra nullis Romanticism and towards a stronger engagement with the meshworks of inhabitation in Canada's far north. This was achieved through a strong commitment to intercultural dialogue between interdisciplinary climate science and indigenous ways of knowing within the *Carbon 14* exhibition, such as Inuk film producer Zacharias Kunuk working alongside researcher Ian J. Mauro, and at the Day of Dialogue, where Canadian Inuit activist Sheila Watt-Cloutier spoke alongside climate scientist Dr. Andrew Weaver about the implications of a warming Arctic. However, in contrast to this emergent shift alongside Claire Sykes's curatorial vision for *Carbon 14*, the curatorial practice and public pedagogy of the travelling *U-n-f-o-l-d* exhibition is significantly less engaged with indigenous perspectives on the far north and continues to rely on a Romantic sensibility to expeditionary research in the High Arctic.

Buckland and Chris Wainwright and was first shown at the University of Applied Arts, Vienna, from May 18 to June 8, 2010. It has travelled to seven university galleries, including the Stephen Kellen Gallery, Parsons The New School for Design, from September 30 to early December 2011.[25] It was most recently shown at CAFA Art Museum in Beijing in June 2013. This chapter follows the chronology of the curatorial process, from the curation of expeditions to the aesthetics of the show itself and its distinctive pedagogical address.[26]

The overarching focus of this chapter is on the pedagogical dimensions of this show, in relation to both the engagement of post-secondary art and design students in learning about an environmentally sustainable response to CC and in terms of engaging broader publics with this challenge. This focus reflects the intent of the exhibition, as part of Cape Farewell's New Generation program, to engage art and design students, in the UK and internationally, in learning about the cultural challenge of climate change and in developing arts-based research that engages with climate, sustainability and ecology issues (Cape Farewell 2009; 2013). The show also constitutes an ambitious example of public pedagogy on climate change, in terms of its engagement with diverse audiences not only within but also beyond the art schools where it is shown.

[25] The New York City showing ended early at the end of November, but programming continued on into December.

[26] *U-n-f-o-l-d* is the international component of CF's New Generation program of engagement around art and ecology at the postsecondary level. Chapter five looks at the second component of this program, called Short Course UK, which is focused on the UK context.

The Curatorial Practice of *U-n-f-o-l-d*

A Work in Movement

U-n-f-o-l-d can be described as a *work in movement* that epistemologically mirrors the processual and multidisciplinary dimensions of climate science research, and utilizes mobile pedagogical tactics to open up transitional spaces of boundary learning between art, science, and climate politics. In 'The Poetics of the Open Work', Umberto Eco describes "works in movement" as artworks that take the variability of singular performances of a particular composition, especially the open and physically incomplete dimensions of this variability, as their starting point in a phase of aesthetic innovation that mirrors developments in contemporary science (1989, 12). These works in movement are a subcategory of the 'open work', which are artworks that use polysemy as a starting point for creative inquiry (Eco 1989, 1–23). Eco explains, "Inside the category of 'open' works," there is "a further, more restricted classification of works which can be defined as 'works in movement,' because they characteristically consist of unplanned or physically incomplete structural units" (1989, 12).

U-n-f-o-l-d not only uses the polysemy of the artworks in its travelling exhibition crates as a starting point for creative aesthetic and scientific inquiry into a sustainable response to CC, which would qualify it as an open work, but it also consists of "physically incomplete structural units" that are added to the show as it travels from one place to another (Eco 1989, 12). This show exemplifies the work in movement because it consists of such unplanned elements, like emergent artworks; it involves a fundamental uncertainty in how these elements will be constructed in exhibition design; it invites art

student participants to collaborate in the production of the exhibition; and finally, it aligns with developments in contemporary scientific method (multidisciplinarity, infrastructural inversion). Eco argues, "The poetics of the 'work in movement' (and partly that of the 'open' work) sets in motion a new cycle of relations between the artist and his audience, a new mechanics of aesthetic perception, a different status for the artistic product in contemporary society" (1989, 22-23).

What are the pedagogical openings of this work in movement? The public pedagogy of this show uses the characteristic openness (unplanned elements) and epistemological mirroring of the work in movement to generate transitional spaces of boundary learning. Following D. W. Winnicott in *Playing and Reality* (2005), this refers to spatiotemporal phenomena that bring interiority into relation with exteriority in experiences of childhood play or in adult experiences of creativity in science and the arts. "For a surprising moment of spontaneous play, creativity, and imaginative putting to use —when we are in transitional space—we are neither ourselves as we have come to know them nor are we our others" (Ellsworth 2005, 61). *U-n-f-o-l-d* holds this transitional potentiality.

Transitional spaces cannot simply be designed *a priori* but rather must be found and then created anew by the user/viewer. "Their users must both find transitional space (thanks, to say, an artist's design or performance) and create it (through their own idiosyncratic and imaginative uses of its transitional potential)" (Ellsworth 2005, 60). Similarly, this public pedagogy can be read as a way of opening up paradoxical, ambiguous spaces that must be both found and created anew, such as a viewer's encounter with *U-n-f-o-l-d* and creative response to its polysemic openings. For instance,

a viewer may find Clare Twomey's *Specimen* (2009) and be touched by the sense of fragility and loss conveyed by the broken, unfired china clay flowers, but the transitional phenomenon emerges only with their creative response to this encounter and to the question, how can we care for the fragility of these flowers and the planet as we make our journey through the world?

The openings towards transitional space in this show are deeply humanistic and self-reflexive; suggestive glimmerings that offer forceful insight in one moment and gentle invitations in the next. In a text artwork on LED display, novelist Ian McEwan writes, "The pressure of our numbers, the abundance of our inventions, the blind forces of our desires and needs are generating a heat—the hot breath of our civilization." He asks, "Are we at the beginning of an unprecedented era of international co-operation, or are we living in an Edwardian summer of reckless denial?' (2006). To respond to this urgent query, the viewer must not only locate her/himself as an optimist or as a pessimist with regard to future climate catastrophe, but also locate her/his own sense of responsibility in relation to collaboration and international climate politics. In this characteristically urgent tone, *U-n-f-o-l-d* demands a creative response to mitigating 'the hot breath of our civilization' but remains flexible in terms of what this creative response might look like.

The curation of *U-n-f-o-l-d* fosters a creative response to CC by balancing between structure and flexibility, which is typical of works in movement. These artworks are not completely unstructured and open to any improvisation whatsoever but rather have a structural vitality or coherence to them that is characteristically open to variation and the integration of novel elements (Eco 1989). Likewise, the *U-n-f-o-l-d* show is

characterized by a coherent set of curatorial concerns and a strong narrative about averting future climate catastrophe but, at the same time, flexibly opens itself up to the integration of novel elements as university gallery curators, art students, faculty, and local artists engage with the exhibition and make their own uses of its aesthetic openings. This balance between the structure of the exhibition and the flexibility of its site-specific adaptation closely aligns with the educational characteristics of transitional space, which requires a level of suggestiveness but “will not be complete or realized until and unless its users enter it and find their own uses for it” (Ellsworth 2005, 61). We need to find our own creative, collaborative way forward in responding to Twomey’s fragile specimens and McEwan’s highly suggestive query at each stop along the tour.

The flexibility of *U-n-f-o-l-d* is facilitated by a flat pack exhibition design. This design is made possible by the large percentage of two-dimensional artworks in the show that can be packed away tightly, on top of one another, for shipment overseas. Buckland and Wainwright explain, “When planning the Unfold exhibition, we wanted it to have a ‘flat pack’ feel to both facilitate its compactness and touring profile in a manner that would minimize the carbon footprint of a world touring exhibition” (2010, 7). This design is a practical response to the question of how to implement sustainable practices within the institutional context of the gallery (see Kagan 2011; S. Smith 2007). Stephanie Smith says, “If we are going to show art that addresses CC or other topics related to sustainability, we should consider ourselves ethically bound to thoughtfully assess how we make use of resources” (2007, 14). The flat pack design responds to this ethical challenge by conserving resources and mapping the exhibition’s carbon footprint as it travels overseas. More concretely, the design builds on CF’s organizational experience

with a previous touring show called *Art & Climate Change*, which was curated for museums in partnership with the *Natural History Museum* in 2006 and subsequently toured worldwide via the management of Barbican Touring Ltd. This show experienced substantial critical success and generated huge audiences, with over a quarter of a million people seeing the show at the *Natural History Museum* in London (Cranbrook 2010), so CF wanted to build on this momentum but avoid the organizational challenges of working on this scale by focusing on the university gallery context and trying to minimize the carbon footprint associated with the travelling form (Buckland pers. comm. 2011).

As part of the focus on university galleries and the integration of this show within the New Generation program, the exhibition utilizes the dynamism of the touring format to inspire new artwork and creative responses to CC. The curators explain, "We anticipated that, in addition to the core works in the exhibition, the various venues would select, or represent, local artists' contributions, and that they would undertake a responsibility for the public engagement with the work by organizing workshops or related events" (Buckland and Wainwright 2010, 7). This invitation to local artistic contributions is the unplanned element of this work in movement, which includes not only the core artworks contained within the flat pack exhibition crates but also local art and/or art student contributions (including small exhibitions) that are unique to each stop on the tour. Second, this open invitation is a crucial dimension of the transitional potential of *U-n-f-o-l-d* since the transitional space of this show must not only be found in response to its distinctive pedagogical address about mitigating the 'hot breath of our

civilization', but also created anew in response to the polysemic openings of this address and in response to local socioecological contexts.

Underlying the transitional potential of *U-n-f-o-l-d* for boundary learning among art, science, and climate politics is a complex process of curating art/science expeditions.

Curating Expeditions to the High Arctic and the Andes

The curation of artists on board the High Arctic and South American research expeditions is geared towards generating conversational drift between artists and scientists in response to the ambiguities of the art/climate science boundary, where questions of experimentation, doubt, risk, and creation overlap against the backdrop of physically and symbolically demanding landscapes. Chris Wainwright notes, "Certainly the methodological processes that artists take are similar to the sciences…processes of experimentation, doubt, reworking, things not working as you expect…issues of following instinct: all things that artists might recognize but these are words that come from the mouths of scientists" (2011). The expedition can function as a way of opening up these ambiguities, which is crucial for the dialogical experience of boundary learning (Akkerman and Bakker 2011). "Both the enactment of multivoicedness (both–and) and the unspecified quality (neither–nor) of boundaries create a need for dialogue, in which meanings have to be negotiated and from which something new may emerge" (Akkerman and Bakker 2011, 142).

The curation of *U-n-f-o-l-d* explores multivoicedness and ambiguity at the art/science boundary by constructing the shared problem space of CC in relation to the

distinct physical and ideological dimensions of fieldwork in the High Arctic and the Andes. The construction of this shared problem space is central to the transformative potential of this exhibition and of boundary crossing generally. "Transforming current practices is not without direction; it is motivated by and directed toward the problem space that binds the intersecting practices together" (Akkerman and Bakker 2011, 148). The problem space of climate research in these tipping point landscapes effectively binds these intersecting practices together in relation to the challenging epistemology of climate research, especially its multidisciplinarity and unsettled relations with policy, and in relation to the complex ideological terrain of these particular landscapes. On a granular level, this problem space is interrogated through the use of boundary objects that coordinate inquiry across the arts and sciences and through the shared experience/s of real and imagined geographies, from the physically demanding Andes expedition route to the ideological articulation of Arctic space with elitist, white male nationalism (Hill 2008; Bloom 1993).

The ideology of Arctic exploration is central to the curation of this show, which brings together two Arctic and one South American expedition in a characteristically British manner. The curation of work from both South American and Arctic expeditions not only probes these tipping point landscapes for clues about future planetary change, but also structurally mirrors the symbolic function of Arctic space as a counterpoint to colonial encounter in the British national imaginary, wherein each stage of Arctic narrative in travel writing and Romantic literature corresponds with a stage of British colonialism in the Global South (Hill 2008, 4).[27] In the contemporary context of this

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Jen Hill identifies three phases of British Arctic narrative in the nineteenth century. She explains:

show, the Arctic continues to function as a reflective counterpoint to humid, tropical geographies in the Global South and, most significantly, continues to serve as a symbolic space for ethical and political critique of British domestic and international affairs, now in the context of UK carbon emissions and relations between the Global North and South in climate politics. Drawing out the critical potential of this symbolic space, the curatorial approach of *U-n-f-o-l-d* negotiates its whiteness and hypermasculinized dimensions while perhaps reproducing some of its elitist connotations and making use of its liminal and paradoxical qualities to open up dialogue about planetary limits, biodiversity loss, and GCC.

The curation of the High Arctic is deeply paradoxical: a physical geography with planetary significance as a tipping point that also exceeds this status, as a symbolic space for envisioning human and planetary futures, or as curator David Buckland says, "interrogating the future through a process of action research" (2012, 4). This curatorial interrogation of planetary futures relies on a cosmopolitan sensibility to the climactic significance of this tipping point landscape, which has consequences that stretch across borders, and simultaneously draws on the exceptional qualities of Arctic space within the geographic imaginary of British nationalism (see Hill, 2008). In a comprehensive study of the symbolic function of High Arctic exploration narrative in nineteenth-century discourses of British colonialism and nationalism, Jen Hill argues, "The Arctic is important as a geography that is not a geography (because perceived as blank), as an

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"British Arctic narrative is traceable through three distinct phases that correspond with different periods of British colonial encounter and expansion: an early phase during which Britain's main imperial focus is on the West Indies and fears of miscegenation and disease, a second phase in which the disappearance of Franklin coincides with unrest and resistance to British rule in India, and a third phase, following the discovery of the Northwest Passage, that accompanies Britain's expansion into Africa and its recognition that its imperial preeminence would not last." (2008, 4)

imperial space that is not part of empire (because there are no economic and colonial goals in its exploration), and as a place that is everywhere (on Arctic-themed menus, in panoramas, in paintings) because it is nowhere" (2008, 16). Of course, as of the early twenty-first century, global warming has opened up the Arctic to increased economic exploitation and multiplied its scientific significance as a destination for fieldwork. Yet as a symbolic space, it remains simultaneously geographical (fieldwork destination) and nongeographical (a reflective surface), everywhere (greenwashing Coca-Cola ads and Greenpeace campaigns) and nowhere (a blank space).

The geographic significance of the Arctic is paradoxically located in *both* its physical status as a tipping point landscape that shows our cosmopolitan responsibilities to one another in the face of planetary flux *and* its negative quality in the British geographic imaginary (see Hill 2008), where it functions as a mirror or blank canvas for ethical reflection on GCC. This paradoxical quality is beautifully rendered by poet Nick Drake: "The Arctic holds a mirror up to us all, and I see now we're living like gods on borrowed time" (quoted in Buckland 2012, 2). This reflective geography is curatorially significant because of its hermeneutic complexity, which functions as a clear stage for action research on planetary futures in one moment and then fogs over, resisting perceptual focus, in the next. Like CC itself, the High Arctic is important because it has always been so tough to crack. In the nineteenth century, "the kaleidoscopic, shifting nature of Arctic space resisted standard interpretive models, both scientific and aesthetic, and brought into question the explorer's strategies for making sense of the world" (Hill 2008, 19).

The curation and public pedagogy of *U-n-f-o-l-d* builds on the capacity for kaleidoscopic Arctic space to resist interpretive models and catalyze self-reflexivity (Hill 2008, 19). Artist Michele Noach describes this experience in response to the 2004 and 2008 trips: "Twice I sank into the Northern reverie that renders you dumb, floundering for adjectives or expletives, when silence is better.…The daring simplicity of the Arctic challenges you to think any other way of life has meaning, it mocks your ambitions and desires" (2010, 74). Noach's reflection on the expeditions and her own creative exploration ends on a self-reflexive, ethical note: "Our attachment, so undentable, so *understandable*, is now our weakness—we are growth junkies. Please, *please*, someone ration me" (2010, 79). This experiential circuit, from encountering the hermeneutic resistance of Arctic space to ethical self-reflexivity, can be usefully historicized in relation to the role of liminal experience in the production of Romantic self-reflexivity, which often reverberates within contemporary environmental discourse (see Morton 2007, 111). "Transformative experiences are valued…traumas that nudge the self out of its circularity and force it to circulate around something new" (Morton 2007, 111). As gestured to in Noach's reflection, the curation of Arctic space fosters a similarly Romantic moment of self-reflexivity.

We can read both the High Arctic and the Andean expeditions as attempts to foster a Romantic moment of self-transformation in response to hermeneutically dense geographies that beg us to reflect on the shared problem space of CC and our relation to limits in both the Romantic sense of self-understanding and the climatological sense of 350 ppm in the atmosphere. This curatorial practice frames planetary limits within liminal spaces that generate self-reflexive movement across boundaries, which is

continuous with the catalytic role of limits in transitional space. "What Winnicott's notion of transitional space suggests to us as educators is this: The limits of our knowledge of self, of other, and of the world require us to put ourselves in relation while at the same time keeping ourselves separate" (Ellsworth 2005, 61). As Ellsworth's reading of Winnicott suggests, these limits catalyze movement across boundaries between interiority and exteriority (2005, 61), individual and social, personal and historical, or, indeed, scientific and aesthetic terrain. Each of the expeditions can be read as unique ways of curating a Romantic sense of liminal space to catalyze transformative, transitional movement across boundaries.

The 2009 Andes expedition, which partly informs this show, was a partnership with the Environmental Change Institute (ECI) of Oxford University and involved a grueling three-week trek from the Salcantay Glacier, east of Cuzco, down through the Madre de Dios, the Puna cloud forest, and into the Amazon basin (Cape Farewell). The curation of this strenuous expedition was neither entirely based on scientific field research on carbon sinks, biodiversity, and the impacts of CC in the Andes as part of the ECI research program called *Climate and Ecosystem Dynamics in an Andean to Amazon Transect*, nor entirely grounded in the idea of engaging a younger group of artists in CC research. Rather, it is based on the overlap of these research agendas in a physically demanding, liminal geography, where limits of biodiversity loss are all too apparent. This geography was well suited to the curation of younger, physically active artists and coincided with the fieldwork of ECI (Buckland pers. comm.), but the interdisciplinary conversations and resulting artworks should be understood in relation to the curation of an ambiguous realm between these emerging art practices and scientific field research,

and between scientific observation and experimental mapping in humid terrain where planetary and affective limits overlap.

The Andes expedition artworks have a gritty sense of site specificity, such as Marije de Haas's precise mapping of physical and emotional responses to climate extremes in *Wellness over time* (2010).[28] This work shows the interconnectedness of physical, emotional, and environmental limits with a colour field that maps each of the crew members' responses to variables of heat, cold, water, altitude, cockroaches, mosquitos, and other bugs, as well as physical experiences of digestion and respiration in the Andes and Amazon. Ambiguously, this work can be read both as a fine-grained scientific map of affective response to climactic extremes and as an index of participants' variable tripping experiences and creative responses such as Lucy and Jorge Orta's high sensitivity to water and subsequent interrogation of this topic in *Vitrine–Amazonia* (2010).

The curation of the 2008 Disko Bay expedition can neither be read entirely in relation to field research on ice melt on the west coast of Greenland nor entirely in relation to the attempt to foster ecologically engaged music, but it should rather be read at this ambiguous boundary between ice melt and popular music as explored by Robyn Hitchcock and KT Tunstall in their soulful adaptation of George Harrison's "Here Comes the Sun" called "There Goes the Ice" (2010). The lyrics express a melancholic journey of doubt in response to the kaleidoscopic space of the High Arctic as it shrinks from a

[28] From the 2009 expedition, the following artists made contributions to the show: visual artist Adriane Colburn, designer Marije De Haas, sound engineer Brenndan McGuire, and artist and professor Daro Montag, as well as artist collective Lucy and Jorge Orta.

sublime to an intimate scale: ‘Forgotten land/ Crumbling/ Into my hand/ Tumbling down stairs/ Is it any wonder you can’t/ Live with yourself/ Anymore?’

The curation of this ambiguous realm between Greenland ice melt and popular music can be read as a reflexive response to the perception of polar exploration generally and CF specifically as elitist or only concerned with high art in the High Arctic. Building on the historic use of photography and popular media to mediate the elitism and specialization of northern exploration with a mass audience, the Disko Bay trip included photographers but also a wide range of musicians, performers, filmmakers, playwrights, and poets, from Jarvis Cocker, who fronts the band Pulp, to performance artist Laurie Anderson, artist Sophie Calle, and singer-songwriter Feist, among many others on this celebrity-strewn team (see Bloom 1993). This curation of celebrity works towards giving everyone a stake in the otherwise exclusive realm of polar climate science via the affective force of the celebrity artist. In a sensitive response to this agenda, Laurie Anderson reflects on the indigenous musical voices that have been historically silenced in polar research (see Bloom 1993). She recounts hearing an old man forget the words to a Cree song: “I am singing the song/ the old songs/ but I can’t remember the words/ I am singing the songs/ Of my fathers/ And of the animals they hunt/ I never knew these songs” (Anderson 2010, 39). By recounting this cultural loss, Laurie Anderson resists the reflective blankness of Arctic space in the geographic imaginary of British nationalism and the broader wasteland theology that continues to structure Western relations to indigenous peoples and knowledge in the North (Leduc 2010).

Contemporary Western views of northern climate change have tended to reentrench what author Timothy Leduc calls a colonial ‘wasteland theology’ wherein the

logic of environmental externalities, such as the impact of greenhouse gas emissions on Inuit communities, basically reproduces a view of the north as 'impoverished' and in need of improvement, i.e. until climate impacts open up new opportunities for transportation and extraction industries (2010, 125). In opposition to this wasteland theology and its devastating impact on Inuit ways of knowing (IQ) climate, or *Sila*, Anderson's (2010) intervention foregrounds the need for a more meaningful intercultural dialogue between global climate science research and indigenous epistemologies.[29]

Finally, the curation of the 2007 High Arctic trip should be read neither entirely in relation to the scientific field research on North Atlantic and East Greenland currents, or polar and Greenland ice melt (25% melt of the northern ice cap in 2007), nor entirely in relation to the focus on diversity on the artistic side of the equation, but rather in precisely this ambiguous space between currents, ice melt, and diversity. Twenty artists from seven countries sojourned to witness polar ice melt, from Toureg singer Aminatou Goumar to Japanese installation artist Shiro Takatani. The curation of this ambiguous space might be read as a way of countering the ideological articulation of polar exploration with white masculine heroism in both British and American national identity formations, an ideology aptly described by Jen Hill as "the Arctic relation of white man and white landscape" (2008, 13), by including a wide range of female artists—from Amy Balkin to Emily Venables—and artists from outside the European continent. In Japanese artist Shiro Takatani's response to this trip, a media installation called *Ice Core* (2005), we experience deep geological time by observing the cracks and density of a 2503-meter

[29] Interdisciplinary scholar Timothy Leduc argues that intercultural dialogue should be central to public pedagogy on global CC: "Spirited sensibilities and stories, when brought into intercultural dialogue, have the pedagogical potential to ground the globalizing tendencies of Western climate research and politics in a diversity of regionally accessible cultural views, practices and passions" (Leduc 2010, 228).

ice core. This installation ambiguously inhabits both the realm of scientific visualization —the representation of a geological ice core—and the symbolic realm of kaleidoscopic polar space since the endless downward movement of the ice core photographs frustrates the desire for a coherent perceptual grasp.

The Tensions of the Curatorial Process and Invitation: Raising Awareness of CC

The curation of the highly diverse group of artists from the 2007, 2008, and 2009 trips not only had to negotiate ideologies of race and class associated with the symbolic function of Arctic space in British nationalism, but at the same time also proactively engage with the cultural politics of climate change. This curatorial challenge was negotiated in relation to a dichotomy between raising awareness and artistic autonomy, wherein the question of how to balance between an appreciation of the independence and uniqueness of the artistic process and communicating the urgency of the climate crisis became a central curatorial preoccupation (Buckland and Wainwright 2010). Mrill Ingram argues, “Many climate-change scientists will recognize a parallel sense of conflict between science and activism” (2011, 134). This tension between the perceived autonomy of science and art and the desire to raise awareness of CC is the complex ground for CF’s boundary work, which refracts aspects of scientific epistemology (uncertainty, interdisciplinarity) into contemporary curatorial practice in a paradoxical way that *both* stimulates conversational drift between artists and scientists *and* maintains slightly Romantic boundaries around the often unpredictable and open-ended quality of

research-based art practice. This both/and contradiction seems to emerge out of the distinctive mirroring of scientific epistemology within this work in movement.

Works in movement offer complex and sophisticated interpretations of trends in scientific epistemology. Eco argues, “It is not overambitious to detect in the poetics of the ‘open’ work—and even less so in the ‘work in movement’—more or less specific overtones of trends in contemporary scientific thought” (14). One overtone in *U-n-f-o-l-d* is the problematic of the uncertainty of knowledge production, which is negotiated through the curatorial process. On the science of the uncertainty equation, as Paul Edwards describes in *A Vast Machine*, the climate science research infrastructure will never settle upon a final data image or model because it is not just unfinished but unfinishable, a constant process of analysis, reanalysis, and modelling that is captured in the phrase “shimmering data” or “shimmering futures” (P. Edwards 2010, 398). This metaphor describes the processual quality of this knowledge infrastructure, which functions through a process of infrastructural inversion that is akin to history in its constant turning over of the archival record of data collection and its persistent analysis of metadata, i.e. the context of data production (P. Edwards 2010, 20–23).

In place of the certainty of a final data image, which media representations of CC tend to reify, this knowledge infrastructure produces convergent understandings (P. Edwards 2010), and in place of facts to be acted upon, it shows us the collective risks that we need to politically act upon and take into account in our everyday lives (J. Smith 2011). As Joe Smith points out, “Such an approach doesn’t walk away from the science but rather opens more possibilities for people to be tolerant of the unsettled, developing relations between climate science, policy and politics” (2011, 20). In other words, we

need to move away from deficit models of climate science communication—bridging the gap between expert facts and public opinion—and towards novel ways of communicating the processual character of climate science research and its ongoing, shifting relation to policy contexts.

Cape Farewell's curatorial practice tackles this always-ongoing process of knowledge production not only by gathering essential field research data and contributing to the ongoing production of climate science literature, but also from a boundary-crossing perspective by mirroring the unfinished quality of climate science within arts-based research. This can be seen in the curatorial invitation: artists are given an open-ended invitation to engage in a conversation with climate scientists and to see how the experience influences their creative process, but crucially, they are not obligated to produce a finished work for exhibition (Buckland and Wainwright 2010, 7). This refusal to demand a final image seems to acknowledge the processual character of the climate science research infrastructure, pointing to the absurdity of demanding a final image from either science or art in their constant quest to probe our planet's 'shimmering futures' (P. Edwards 2010, 398). In place of a final model or image, this curatorial practice facilitates arts-based research on planetary futures by encouraging a process of infrastructural inversion that runs parallel to climate science research (see P. Edwards 2010), but in contrast, it is focused on aesthetic metadata, i.e. the context of artistic production, and the sociopolitical contexts of climate crisis. Just as climate research works by "constantly unpacking, re-examining, and revising both historical evidence and predictive models" (P. Edwards 2010, 398), this arts-based research functions as a process of unpacking historical frameworks, such as consumer society, and aesthetic models, such as the

sublime, in order to reflexively examine the social roots of anthropogenic CC. This self-reflexive process of infrastructural inversion is unfinishable yet highly productive in creative output, from Nick Edward's reexamination of aesthetic models of the sublime in relation to a high carbon society to Sam Collins's examination of the metadata of the *U-n-f-o-l-d* exhibition itself. In these and other examples, the mirroring of climate science within arts-based research has less to do with explicitly overlapping content and more to do with a meta-mirroring of this epistemological process of infrastructural inversion, an endless unpacking of the social and historical contexts of climate crisis and a simultaneous revision of aesthetic metadata.

This process of infrastructural inversion unravels the generalized significance of carbon. Curator David Buckland explains, "Carbon is a building block of life, carbon is the root cause of the increase in greenhouse gases, and carbon is the original drawing material of artists" (2012c, 11). Mirroring the interrogation of the first two characteristics of carbon within scientific research, this arts-based process of infrastructural inversion unpacks climate crisis by continually returning to the latter, i.e. the originary significance of carbon as an artistic media, as it manifests in wide-ranging aesthetic and material manifestations, from the leg of a polar bear (2007) to C02 (2008 trip) and oil (2009 trip). And mirroring the scientific process of infrastructural inversion in this arts-based process, "you are never going to get a single universal data image, or a single uniformly agreed-upon projection. Instead you will get shimmering data, shimmering futures" (P. Edwards 2010, 398).

While epistemologically grounded in this arts-based process of infrastructural inversion, the curatorial invite can simultaneously be read as a Romantic refusal to give

up the independence of the artistic process in the face of the unsettled politics of CC. The curators explain, “Clearly this [expectation of a finished artwork] would compromise those artists whose practice, whilst being aligned to an ethos of environmental responsibility, quite rightly want to retain a necessary degree of autonomy” (Buckland and Wainwright 2010, 7). So the invite treads every so carefully. It avoids asking artists to alter the independence of their creative process, let alone make topical, collaborative, or activist work about this unsettled challenge of our times, thereby side-stepping the challenge that collaborative practice poses for the autonomy of the creative process (see Kester 2011). Yet at the same time, this approach to the curatorial process is clearly aimed towards raising awareness about ‘the hot breath of our civilization’. The curators explain this tension in relation to the title of the exhibition: “it also reflects the continuously unfolding debates and tensions that often exist in particular for artists, between raising awareness and creating influence, at the same time as preserving and maintaining a cultural practice that is grounded in a myriad of personal values, and emotions” (Buckland and Wainwright 2010, 7).

We can read this tension between raising awareness and creative autonomy as an incarnation of what Hegel called the ‘beautiful soul’ of Romanticism: an environmental subject position that yearns to close the gap between self and world, humanity and nature, while paradoxically maintaining an irresolvable chasm between the two (Morton 2007). “The beautiful soul maintains a split between self and world, an irresolvable chasm created by the call of conscience—‘consciousness raising,’ as an activist might put it” (118). From this perspective, Buckland and Wainwright’s understanding of a curatorial dichotomy between individual creative autonomy and awareness-raising is hardly unique;

the maintenance of an analogous split between 'self' and 'world' is part and parcel of what we habitually, if not explicitly, signify as 'consciousness raising' in environmental discourse (Morton 2007). In this version, to nudge the self out of its familiar orbit against the sublime backdrop of the High Arctic is not only to spark the collaboration we need to mitigate the 'the hot breath of our civilization', but also to retreat from actually unfolding climate politics for the sake of self-reflexive, creative exploration in an exclusive landscape. This contradictory impulse of the beautiful soul is very much at the heart of *U-n-f-o-l-d*.

Finally, the open-ended curatorial invitation is a way of engaging a multitude of creative voices that extend far beyond the purview of already-established ecologically engaged art practice, let alone eco-art. This multidisciplinary show includes not only visual artists such as Ackroyd and Harvey, but also musicians such as Leslie Feist, Robyn Hitchcock, and KT Tunstall; photographers such as Nathan Gallagher; designer Marije de Haas; architect Sunand Prasad; sound artist Brenndan McGuire; and literary artists such as novelist Ian McEwan and poet Lemn Sissay. This multitude of creative voices mirrors the multidisciplinary scope of the knowledge that climate change science rests upon, which Joe Smith describes as the fifth defining feature of the cultural politics of climate change (21, 2011). While the IPCC reports represent one of the most ambitious attempts to integrate this multidisciplinary and often interdisciplinary knowledge base—which includes everything from meteorology, oceanography, and geography to glaciology and vegetation history—even it fails to include voices that should be central to any discussion of planetary futures: social sciences, arts, and humanities (J. Smith 2011, 21). "This is all the more surprising given how heavily the processes of the IPCC, as well as of the United

Nations Framework Convention on Climate Change, rely on 'scenarios', and hence involve acts of imagination about possible futures in human as well as natural systems" (J. Smith 2011, 21). In order to imagine such possible futures, this curatorial practice extends the multidisciplinarity of climate change science with a distinctive multivoicedness that speaks both in the vernacular of conceptual art and folk–pop music.

The curation of *U-n-f-o-l-d* mirrors the multidisciplinarity and infrastructural inversion of climate science research against the physical and ideological backdrop of Arctic space, a tipping point landscape that highlights our cosmopolitan interdependencies in a climate-changed world and a unique symbolic space in the British national imaginary. In this latter sense, it is a liminal space for the reimagining of self and society that paradoxically exists everywhere—in Greenpeace climate campaigns and Coca-Cola ads—and nowhere—a blank canvas for creatively probing CC. Liminal Arctic space is curated alongside Andean and Amazonian geographies, which mirrors the historic structure of Arctic travel narrative as a counterpoint to British scientific and economic exploration in the Global South. The curation of these liminal geographies is aligned with a Romantic sense of the role of intense experiences in fostering self-reflexivity, and it is more specifically geared toward the curation of transitional spaces of boundary learning between art, science, and climate politics. This curatorial practice is partly defined by the contradictory tensions of the beautiful soul and partly defined by the paradoxical openings offered by the symbolic space of the High Arctic in the British geographical imaginary. Finally, this action research on planetary futures is characterized by an open-ended, unfinishable process of unpacking aesthetic models such as the sublime and sociohistorical contexts such as consumerism in relation to climate crisis and

the multiple aesthetic and material manifestations of carbon. This process is highly productive, and the next section describes the artworks that were curated for the *U-n-f-o-l-d* exhibition.

Pedagogical Address of *U-n-f-o-l-d*

The 'Core' Artworks

The curation of liminal Arctic and Andean geographies translates into a pedagogical address that is distinguished by the kaleidoscopic perspective that it offers on global warming, shifting back and forth between local contexts of place attachment and global contexts of cosmopolitan responsibility. This kaleidoscopic space not only mirrors the perceptual ambiguities of the High Arctic but also suggestively invites participatory engagement and reflection in the unique space of the university gallery.

The address of *U-n-f-o-l-d* invites the viewer to vicariously travel to sublime, faraway places in the High Arctic and the Andes and then to reflect on the significance of these tipping points in the context of place attachments and identities closer to home. It accomplishes this movement by making use of the paradoxical quality of Arctic space, asking us to consider the geographical significance of the tipping point landscapes represented in the show while simultaneously inviting us to reflect upon them less as geographies per se than as blank canvases for sketching new relations to self, consumption, and the commodity form. If this space of reflection is deeply paradoxical, its temporality is even more so. Temporally, this address probes what is called *Giddens's paradox*: people will not seriously address climate change until its dangers become

evident at the level of everyday life, by which point the consequences will render intervention futile (Bieler 2012; see Giddens 2011, 2; Urry 2011, 14–15). In its interrogation of this paradox, the pedagogical address of *U-n-f-o-l-d* draws upon both orthopedic (therapeutic shock) and dialogical (conversational) modes of address to evoke the visceral planetary impacts of global warming and to communicate the need for behaviour change in the present to avoid future climate catastrophe.

Like the visual climate campaigns of Greenpeace (see Doyle 2011), this address frames climate change as a future catastrophe that is already present but, crucially, as a catastrophe that we can still avert for the benefit of future generations. The ethical challenge of this temporal framing of CC is directly voiced in Ian McEwan's text work on LED display, which variously welcomed visitors to the gallery space in New York, London, and Beijing. "We are shaped by our history and biology to frame our plans within the short term, within the scale of a single lifetime. Now we are asked to address the well-being of unborn individuals we will never meet and who, contrary to the usual terms of human interaction, will not be returning the favor" (McEwan 2006). This reciprocity dilemma plagues the temporal framing of CC as a future truth and similarly troubles the need for a radical hospitality in the face of globally uneven CC impacts. The rest of the show can be read as a prolonged response to McEwan's ethical reflection and concluding query, 'Is this the beginning, or the beginning of the end?'

The apocalyptic tone of McEwan's query is reflected in Chris Wainwright's exposure of crumbling icebergs with a bright flash in the photographic series *Red Ice—White Ice* and is acoustically embodied in an aeolian soundtrack that renders a whole-earth imaginary of the fragility of our planet. In Robyn Hitchcock and KT Tunstall's

"There Goes the Ice" (2010), visitors find themselves humming, 'There goes the world, Turning, All round itself, Burning ice, Alive… alive'. These lyrics are a suitable soundtrack for the global purview of the show, from oil exploration along the Madre de Dios River in the Peruvian Amazon, as Adriane Colburn explores in *Forest for the Trees* (2010), to Disko Bay, where Sunand Prasad's *Greenhouse Gas* (2008) shows the space occupied by the average monthly per-person emission of carbon dioxide in the UK (Bieler 2012). Building on the symbolic role of Arctic space as an empty canvas for criticizing domestic affairs in the British national imaginary, Prasad's installation uses four tethered helium balloons to delineate the average space of individual UK carbon emissions against the majestic backdrop of a beach at the end of a fjord in Disko Bay, Greenland. Crucially, the photographs of this installation are supposed to be accompanied by site-specific adaptations that reference local per-person emissions, which serves to connect the global purview of the exhibition to local contexts and foster a kaleidoscopic sense of zooming in/out on CC from different perspectives. However, despite this potential for site-specific adaptability, the work remains clearly grounded in a British sensibility toward Arctic space, as a sublime landscape that exposes political and economic limits, especially in relation to the decline of empire in the nineteenth century but also today in relation to UK climate policy. Rubbing up against this national context, the ethical viewpoint of this work clearly aligns with a cosmopolitan sense of personal responsibility for mitigation, i.e. above and beyond but not excluding the significance of the nation state (see Harris 2010), which the viewer sees projected in the seemingly vast, individuated volume of airspace between the shiny red balloons hovering in front of a northern sunset.

It is hard not to be impressed by the huge volume accounted for by each of us every month as it seems to almost dwarf the otherwise majestic mountainscape in *Greenhouse Gas*. However, the orthopedic address of this work seems to function on the assumption that the audience is somehow ignorant of the scale of individual carbon footprints in the Global North and, second, that the affective shock of seeing this footprint juxtaposed against a sublime landscape will inspire ethical reflection and action towards mitigation. The difficulty of this orthopedic address, which Grant Kester (2004, 82–123) has diagnosed as instantiating a naïve relation to art audiences, is found in its attempt to bridge a growing gulf between affect, especially eco-guilt, and the immense scale of human-induced GCC, which tends to negate the sublime terror of natural landscapes. The difficulty of this gulf is eloquently queried in Bruno Latour's recent reflection on the inversion of the sublime under GCC, wherein he asks, "How to feel the sublime when guilt is gnawing at your guts?" (2011, 3). While many of the works in *U-n-f-o-l-d* grapple with this question, including the apocalyptically shrouded icebergs in *Red Ice–White Ice*, Prasad's installation is most concise in its articulation of personal responsibility and guilt to the precarity of the sublime landscape under GCC.

The cosmopolitan ethic of *Greenhouse Gas* aligns with the exhibition's attempt to reduce its own carbon footprint, which similarly emphasizes individual responsibility but contrasts with more structurally inclined probes of carbon, climate, and society. "We tend to think of carbon as the black stuff that provides energy, warmth and pollution—coal and oil—forgetting that sparkling diamonds are also carbon; and that carbon compounds that are heating the planet are invisible to our eyes" (Montag 2013, 32). A few artworks remind us of this fact and question whether we should be trying to commodify carbon,

i.e. whether carbon should be transformed into a 'universal equivalent'. Francesca Galeazzi's performance of the ethical absurdity of carbon offsetting schemes in *Justifying Bad Behaviour* (2008) involved purchasing carbon offsets for six kilogrammes of C02 via an online offsets scheme and subsequently releasing the equivalent amount from a C02 cylinder invisibly into the air at an unspoiled snowfield in the Jokoshavn fjord, showing the abstraction of carbon offsetting and other ways of turning C02 into a universal equivalent from the realities of global warming in the High Arctic. In tune with this performative critique of carbon offsetting, we might consider Ackroyd and Harvey's stunning *Polar Diamond* (2009). In this work, the failure of global flows of capital to account for the real price of carbon is allegorically brought into focus with a dazzling diamond that was grown with the leg of a polar bear; the price of extinction should certainly be brought to mind by this transformation of a species indicator of biodiversity loss into the hardened symbol of surplus value (Bieler 2012). The artists received the leg of a polar bear from the environmental manager at Svalbard, whom they met on a CF expedition. They subsequently reduced the bone to carbon graphite through cremation and then used advanced technology to accelerate the growth of a diamond from this residue. They explain, "Using technology to accelerate a process that usually occurs naturally over millions of years, a diamond has been grown from the residue" (Ackroyd and Harvey 2009, 30).

This conceptual artwork and its narrative, which is exhibited alongside the diamond, draws on the symbolic meaning of the polar bear as a guardian of future scenarios and as a boundary object that passes between diverse publics (Yusoff 2010) in order to allegorize the role of destruction (cremation) in the production of surplus value

(diamonds) within carbon capitalism. The point is that these cycles of capital accumulation, especially the emergent cycles of capital accumulation that are opening up as a result of accelerated ice melt in the Arctic, are destroying the future that the polar bear has come to guard as an indicator of biodiversity loss. Unless we learn to listen to this indicator species, it may indeed be what Ian McEwan calls "the beginning of the end" (2006, 66). In continuity with Prasad's installation, *Polar Diamond* draws upon a British Romantic sensibility to the Arctic as a locus for ethical critique but, in contrast to the focus on individual footprints in *Greenhouse Gas*, uses conceptual language to probe *societal* responsibility for CC: what is more valuable, the continued pursuit of surplus value and the glimmering fetish of the commodity form or mitigating biodiversity loss? This query is consistent with the general way in which *U-n-f-o-l-d* interrogates CC by opening up a deeply Romantic space of reflexive engagement with consumption, from Lucy and Jorge Orta's critique of water commodification in the installation *Vitrine–Amazonia* (2010) to Lemn Sissay's poem and short film called *What If?* (2009).

U-n-f-o-l-d consistently uses the force of the sublime—in text and image—to therapeutically shock the spectator into some knowledge of GCC or reflection on the limits of consumption, which is consistent with both the orthopedic address of modern art and the transformative dimension of Romantic subjectivity (Kester 2004; Morton 2007). The attempt to self-reflexively catalyze transformative moments of encounter with sublime landscapes in the 2007, 2008, and 2009 expeditions is aesthetically mirrored in the gallery by lines of flight that move from the external scale of GCC to internal reflection on self and consumption. This is continuous with Kant's reflection on the mathematical sublime wherein a negative quantity evokes the mind's capacity to imagine

what is not there—the endlessness of sheer space—and the outward journey of the mind ultimately leads back to internal reflection (Morton 2007, 46). "The sublime transports the mind from the external world to the internal one" (Morton 2007, 46). Similarly, Lemn Sissay's poem *What If?* (2009) uses a hypothetical lost number to send the reader on a journey of doubt toward the external foundations of society that ends up by the sheer negative quantity of the 'lost number in the equation' self-reflexively turning back to aporia of desire and consumption. In continuity with this textual movement, the film brings the intimate space of his poetry performance alongside musicians Gary Crosby and Peter Edwards into dialogue with fleeting landscape shots of crumbling icebergs, traffic jams, and cityscapes to explore the ties that bind the current socioecological crisis to ideologies of consumption and progress:

> Let me get it right
>
> What if we got it wrong
>
> What if we weakened ourselves getting strong
>
> What if we found in the ground a vial of proof
>
> What if the foundations missed a vital truth
>
> What if the industrial dream sold us out from within
>
> What if our impenetrable defence sealed us in
>
> What if our wanting more was making less,
>
> And what if all this wasn't progress?

Sissay uses negative space, especially in the repetitive reference to the 'lost number' in the opening verse, to catalyze a sublime movement from the 'industrial dream' into an interior space of reflection on consumption: 'What if our wanting more

was making less?' This sublime address might be experienced in synaesthetic harmony with David Buckland's photographic series called *Ice Texts* (2008), which is a print series of large-scale text projections on icebergs. Specifically, in *Discounting the Future* (2008, text by Amy Balkin), the title of the artwork is projected in bright white capital lettering over the surface of the top half of a Greenland iceberg so that 'THE' and 'FUTURE' are broken apart by a crack running across the ice, which brings the catastrophic overtones of the text into greater relief with the ice underneath (Bieler 2012). In continuity with Sissay's use of the sublime to query consumption, this work probes the negation of the sublime landscape—the disintegration of its previously overwhelming scale—by the cycles of excessive consumption in a high carbon society. How can we experience the sublime terror of the natural landscape, let alone its moralizing qualities, if all we see is the massive scale of the human footprint? *Ice Texts* inhabits this problem space without resolution and perhaps prompts viewers to meditate on the sublime and on the discordant temporalities between human progress and the eons of geological time. Similarly, in Michèle Noach's *Through the Ice, Darkly* (2010), the fissures of geological time are seen from the perspective of a tourist who witnesses the sublime scale of Norwegian glaciers circa 1890–1930 and then, as the viewer shifts position in front of the 3D lenticular print, travels to see their presently diminished mass.

Whereas Noach, Buckland, and Sissay variously use sublime aesthetics to probe the limits of consumerism and carbon capitalism, Nick Edwards's *Expedition to the Source of the Dollis Brook in search of the consequences of the ideas of the Sublime and the Beautiful* (2009) reflects on the limitation of the sublime as an aesthetic experience (2013). This conceptual artwork uses a simple map printed on inkjet paper and a set of

instructions to query the limits of the sublime and the possibilities of endotic travel, in the sense of roaming alongside familiar geographies. The work is inspired by Edwards's reflection on the archaism of the sublime category as a remnant of eighteenth-century thought and as complicit with modern tourism in response to faraway journeys to the High Arctic with CF and by his daylighting of a lost river—Dollis Brook—that runs through north London (N. Edwards 2013, 83). Grounded in this experience, the work is designed as a 'set of instructions' for exploring the endotic route of the Dollis Brook, in the sense of the abstract line traced by the Dollis Brook alongside each of the geographical stops on the *U-n-f-o-l-d* tour. Underneath an abstract line drawing of the brook, these instructions read: "1. Print map onto A4 paper, 2. Acquire a 1:50,000 scale map of the area you wish to explore, 3. Place the Start on your point of departure, 4. Endeavor to follow the course of the Dollis Brook as closely and as safely as possible until you reach the end of the line you have discovered the source of the Dollis Brook". The consequences of the ideas of the sublime and the beautiful, like the emergence of mass tourism and related places of excess consumption under carbon capitalism (see N. Edwards 2013), can be found at this close-to-home source. As Rod Slemmons observes in relation to this artwork, "Being safely handcuffed to both of these artistic behemoths [the sublime and the beautiful] makes it almost impossible to consider that we may be responsible for the decline and death of our planet" (2010, 22). Edwards's map shows us the limit of these aesthetic behemoths by directing us to their consequences in everyday places of tourism and consumption around the world. In a similar way to Prasad's *Greenhouse Gas*, this map connects the global focus of *U-n-o-l-d* to its site-specific contexts while remaining explicitly grounded in a British geographical imaginary, i.e. the

Dollis Brook. Significantly, it opens up an important conversation around aesthetics and mobility.

A number of works explore mobile ways of knowing, from the deployment of the movement of the boat as a drawing tool in Tracey Rowledge's *Arctic Drawing* (2008) to Chris Wainwright's photographs of Robyn Hitchcock performing "Here Comes the Sun"—"There Goes the Ice" (2010) in semaphore language as instructions for an approaching ship (Bieler 2012). In these and other works, we can see how the explorative basis of this curatorial practice fosters a meta-level of self-reflexivity concerning mobility: its creative possibilities, relation to carbon capitalism, and allegorical significance vis a vis GCC. As an example of the latter, Daro Montag's *Leafcutter Ant drawing, Amazon rainforest* is an experimental series of drawings with accompanying video documentation that probes the journey of leafcutter ants across a piece of drawing paper and around an 'oily line of carbon' from a candle in order to tease out the allegorical and interspecies significance of the leafcutter ant journey for the societal journey of learning how to respond to GCC (see Montag 2013). In this series of drawings made by the journey of leafcutter ants in the Amazon, the artist asks, "In what way is our behaviour reflected in that of the ants? What responses will we make as carbon completely changes our world?" (Montag 2013, 70)

In continuity with Daro Montag's urgent line of questioning, conceptual artist Amy Balkin's *Climate Change 2007: Synthesis Report Summary for Policymakers* (2008) asks viewers to engage with the urgency of climate policy negotiations. She responded to the 2007 Arctic trip by implicitly resisting the 'elitism' of Arctic narrative and explicitly fighting against the exclusivity of climate politics with a thoroughly dialogical mode of

address. In this interrogation of the role of expertise in the framing of carbon policy and attempting to expand participatory engagement with such a policy, Balkin reads the IPCC's 'Summary for Policymakers' of the last installment of the Fourth Assessment Report. She looks straight at the camera in a single-take, 38-minute reading of this policy document, which is effectively transformed from the exclusive context of climate policy negotiations into the slightly more democratic context of the gallery, where it becomes a boundary object for coordinating reflection and praxis among artists, scientists, art audiences, citizens, and activists.

This work is aligned with Balkin's participatory reading of the Working Group 111 climate policy document, in which fifty participants took turns reading policy and conversing with one another in Manchester in 2009. Rubbing up against the largely abstract and conceptual probes of climate in response to the High Arctic expeditions, Balkin's work functions on a more dialogical basis wherein aesthetic force is located within the conversational opening of the voice (see Kester 2004). It uses the space of the university gallery to propose a shared boundary object, the 2007 Synthesis Report, for coordinating action and conversation between citizens, artists, art students, scientists, and policymakers. In this manner, Balkin redirects the contradictory impulse of the curatorial strategy's 'beautiful soul'—its engagement and retreat from climate politics—by modestly proposing an expansion of collaborative engagement with climate policy.[30]

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[30] This focus on expanded understandings of participation in climate politics is also seen in Balkin's recent contribution to Cape Farewell's *Carbon 13* exhibition in Marfa, Texas. For instance, Amy Balkin's *A People's Archive of Sinking and Melting* is an online and public archive, open every Wednesday at the Prelinger Library in San Francisco, which engages participants in a reflection on the future anterior of those places that will have been lost as a result of anthropogenic climate change. This public midden of future loss "operates from the principle that anything is equally valuable as a record of present or projected future disappearance of a place, as chosen by someone there," and includes fragments of future loss from across the globe, from confetti paper from the Venice carnival, presumably indexing the vulnerability of this coastal city to sea level rise, to a black slipper from the Upper Ninth Ward in New Orleans (Balkin).

Whereas Amy Balkin's performative reading deploys the university gallery as an open space for initiating dialogue about climate policy, Sam Collins's *Sometimes the Journey Is Better than the Destination* (2010) uses experimental mapping to catalyze dialogue about the ecological sustainability of the art world itself. Like Nick Edwards's piece, Collins's work uses mapping to unpack aesthetic metadata and thereby contributes to the infrastructural inversion of *U-n-f-o-l-d* in the specific sense of the show's self-reflexive reliance on the sublime as an aesthetic category and the travelling exhibition format as a physical platform. Collins's artwork offers a self-reflexive viewpoint on the latter. And in contrast to the mapping of wayfinding experiences in Marije de Haas's *Wellness Over Time* (2010), this artwork maps the global transportation of the exhibition itself. The crates used to transport the works in *U-n-f-o-l-d* among university galleries in Europe, North America, and China are placed together alongside computer monitors with GPS tracking of the exhibition's global journey (Bieler 2012).

By visualizing the physical infrastructure of packing, shipping routes, and satellite tracking that supports the exhibition and its carbon footprint, Collins's installation differentiates the 'place' of this show from the 'space' of global art flows with a re-mark that brings the institutional, physical, and spatial background of the show into the aesthetic foreground, visualizing the carbon footprint of global art flows from the Appolonian viewpoint of the digital earth. It reminds us that "our knowledge of climate change as a harbinger of catastrophic and abrupt change would not be possible without

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Balkin's project directs our attention to the centrality of the archive in the political aesthetics of CC, which is evident in Margaret Atwood's literary exploration of a global extinction game in *Oryx and Crake* and the "multimedia representation of the biological world" in *The Encyclopedia of Life* (Yusoff 2010, 88–89). Furthermore, in bringing together contributions from Anverse Island, Antarctica, Cape Verde, Greenland, Kivalina (Alaska), Nepal, New Orleans, New York City, Panama, Peru, Senegal, and Tuvalu, Balkin's artwork expands participatory engagement with this political aesthetics of loss.

the work of whole-earth technologies and their 'vision' of the world" (Yusoff 2009, 1016).

The re-mark, as theorized by Derrida in *The truth in painting* and subsequently by Timothy Morton (2007) in *Ecology without Nature*, is that which separates background from foreground and differentiates place from space in the ambient poetics of environmental art. A basic gesture of ambience, the re-mark is that which "differentiates between space and place" (Morton 2007, 49). Collins's artwork skillfully deploys this ambient gesture to differentiate the spatial context for the journey format of contemporary art—the whole-earth imaginary—from the unfolding of this exhibition in a particular university gallery, thereby inviting the visitor to gaze down upon the kaleidoscopic movement of the show from the disinterested perspective of tracking its carbon footprint. This re-mark echoes the aeolian soundtrack of *U-n-f-o-l-d*—'there goes the world/ Turning/ All round itself/ Burning Ice/ Alive…alive'—by offering a distanciated 'view from nowhere' on climate crisis that is typical of digital earth visualizations. "As digital earth and scientific visualization reenergize the calcified 'whole earth' environments through animated images, real-time visualizations and flyovers, they simultaneously mirror, in their construction and effect, the seemingly disinterested view from outside, what Martin Dodge calls, 'the view from nowhere'" (Yusoff 2009, 1018)

From this whole-earth perspective on our planet, Collins's installation probes the Orwellian bargain that may well define twenty-first-century ecological modernization in response to GCC. "This bargain could involve a digital 'Orwellian-ization' of self and society, with more or less no activity or movement without digital tracing and tracking"

(Urry 2011, 153). In tune with this future scenario, this installation suggests that a sustainable response to GCC may entail the all-pervasive use of low carbon digital networks to track art and other commodities, which would lower carbon footprints but also entail losing some level of privacy (see Urry 2011). This eco-institutional critique raises the question, is a utopian future still imaginable, or will a sustainable art world involve tough decisions between localism, or the 'think global, act local' mantra of modern environmentalism, and an ecological modernization of low carbon digital networks that monitor the footprint and resources of a global art world? This aesthetic query catalyzes dialogue about art and sustainability.

Sometimes the Journey inhabits the exhibitionary pivot point between the sublime, planetary purview of the core artworks contained within the exhibition boxes that structure this work and the local adaptation of the show. It differentiates the background of this kaleidoscopic exhibition from the foreground of its site-specific incarnations and fosters an aesthetic opening to local artistic contributions. This opening is central to the transitional potentiality of this exhibition, which hinges at the intersection of the sublime address of the artworks that are found already made in the gallery space and the incomplete artworks that emerge in response to the site-specific contexts of the show.

Unplanned Dimensions of the Work in Movement

The variability of *U-n-f-o-l-d* to local contributions at each stop on the tour creates the kaleidoscopic effect of zooming in (local viewpoint) and out (global) on CC in

relation to a variety of interrelated issues, from photographic interrogations of pollution in Beijing (Sebag-Montefiore 2013) to arts-based research on sea level rise along Brooklyn's toxic Gowanus Canal in the Canary Project's *Fieldnotes from the Gowanus* show at the NYC stop. Beyond these shifting aesthetic patterns, this local variability is a crucial dimension of the transitional potential of *U-n-f-o-l-d*. Following Ellsworth's reading of D. W. Winnicott, I analyze this programming through the lens of the 'good-enough holding environment': "the space and time of an attentive, responsive holding of demands and invitations that carry the potential for transitional experience" (2005, 60). Hypothetically, a good-enough holding environment would not collapse the multivoicedness of *U-n-f-o-l-d* or the diversity of voices in the gallery space into a false unity, but rather would allow for a lively intermingling among the address of the artworks and the multitude of creative voices brought together in programming. "Like a good conversation, the good-enough holding environment does not collapse the space of intermingling between self and other. It does not allow either self or other, inside or outside, to do all the talking" (Ellsworth 2005, 60–61).

I inquire, how does the 'good-enough holding environment' of gallery programming invite boundary learning at the intersection of arts-based research and climate discourse? By focusing on curator Radhika Subramaniam's programming at Parsons, I show how a balance of hospitality and criticality opens up a space of intermingling between self and other, art and ecology, that is conducive to reflection on the role of the artist, and of learning how to coordinate across fields of inquiry to interrogate climate change in NYC. This programming at Parsons was unique on the *U-n-f-o-l-d* tour. In comparison to gallery education programming for *U-n-f-o-l-d* in Chicago,

where talks and performances tended to simply reproduce the pedagogical address of the artworks, the program of talks, workshops, symposia and performances at Parsons retained a high level of critical distanciation from the pedagogical address of the show and offered a fascinating curriculum on the role of the imagination in climate change discourse.

Radhika Subramaniam's programming integrates deconstructive and transformative dimensions that have the potential to rub up against the hierarchical positioning of gallery education beneath curating (see Morsch 2009). This aligns with Carmen Morsch's vision of critical gallery education, which "sets itself the task of not leaving any issues unaddressed, including the production of gender, ethnicity, or class categories in the institution, and the related structural, material, and symbolic devaluation of gallery education" (2009, 20). In this case, critical gallery education includes both a deconstruction of the role of the artist in expeditionary research at the poles, especially in relation to whiteness and ethics, and potentially transformative engagements that connect these faraway landscapes to close-to-home dimensions of social and environmental sustainability, including in relation to Occupy Wall Street.[31] I begin by looking at a moment of deconstructive education programming about the role of the artist in expeditionary research and end by looking at a workshop that connects these faraway landscapes to challenges in New York City.

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[31] This was a significant topic of conversation throughout the exhibition run, from broadcasts on the movement from WSNR Parsons's mobile radio lab in the middle of the university gallery to the use of the space by Occupy Parsons and the Canary Project's film connecting Occupy to larger questions about the city and climate change. The Occupy Wall Street movement was significant in the following three ways: (1) it was a significant topic in the radio programming of WSNR Parsons that broadcast from the middle of the gallery space throughout the exhibition run; (2) it led to the displacement of the exhibition two weeks prior to its planned closing date; and (3) it was a topic of arts-based research undertaken as part of the exhibition itself.

The first moment happens in the wake of the displacement of the core artworks of the *U-n-f-o-l-d* exhibition from the Kellen Gallery at the end of November, which was a couple weeks prior to the expected wrap date on December 15, 2011, in order to make room for the Occupy Parsons campus occupation. It is important to note that this displacement was not motivated by any direct relationship between the Occupy Parsons student group and the *U-n-f-o-l-d* exhibition. While Kellen Gallery programming had engaged with Occupy Wall Street topics, especially via the mobile WNSR radio booth located in the middle of the gallery, there was not a substantive conversation between the gallery and the Parsons's hub of Occupy prior to a crisis involving the relocation of the movement from another building on campus. The displacement of the core artworks was the unfortunate side effect of university President David Van Zandt pressuring the student movement to relocate from another location on campus to the Kellen Gallery, despite student opposition to the move on the grounds that the gallery did not have computers or adequate facilities. After only a few days, Occupy Parsons abandoned the gallery space, and it returned to regular programming but without any of the core artworks, which had been shipped back to the UK in the wake of the relocation crisis.[32] However, the exhibition of local artistic contributions to *U-n-f-o-l-d* remained on show during this period as a result of their installation just outside the main gallery space. To begin

[32] Two weeks prior to the expected end date of the show, New School President David Van Zandt was in negotiations with Occupy Parsons to have the group move their occupation out of the Abby Rosen building, whose owners had been complaining, to a different location on campus. Zandt asked Radhika S for the possible use of the Kellen Gallery, which was offered, and pressure was placed on Occupy Parsons to move to the gallery. Occupy students voiced opposition to the move on the grounds that the gallery did not have the right amenities, computer access, or sleeping accommodations for an Occupy camp. However, after a general assembly meeting, a majority voted to accept the offer of the Kellen Gallery as an Occupy hub. Radkhia and her colleagues had to work hard to pack up the *U-n-f-o-l-d* exhibition in time for the move but committed to keep programming for the exhibition running despite the absence of the artworks.

unravelling these complexities, I will now look at a panel called *Southern Discomforts: A Focus on Antarctica*, which took place in the aftermath of these events.

Disappearance, Whiteness, and the Poles: The *Southern Discomforts* Panel

The ethics of travelling to faraway landscapes was the focus of a panel called *Southern Discomforts: A Focus on Antarctica*, which offered one of the strongest moments of deconstructive programming. Curator Simone Douglas engaged a conversation with artists who have travelled to the Antarctic via the National Science Foundation's Artists and Writers Residency program, including Andrea Polli and Xavier Cortada, or via self-initiative, such as Paul Miller, aka DJ Spooky.[33] Although there is a long history of embedding artists on scientific expeditions to Antarctica for documentation and strategic reasons, it was not until Swiss photographer Emil Schulthess's time-lapse fisheye photographs at the South Pole in 1959 that contemporary art really took hold on the continent (Fox 2012, 23). At the turn of the twenty-first century, there has been a high level of experimentation with the use of new media in Antarctic art, such as in the work of Lita Alberquerque, which the panel introduced to the SJDC audience (Fox 2012, 24).

On the evening of November 29, 2011, the gallery walls were glaringly empty and white, aside from a few faint gestures to the content of the show seen in projections of some of the core works. In contrast to the usual intermingling of gallery conversation

[33] The artists shared their experiences of trying to get into the National Science Foundation's Artists and Writers Residency, as each failed on their first application. Cortada and Polli were successful in subsequent attempts, and Miller ended up funding his own trip via a Russian vessel.

with the address of core artworks in the show, there was a kind of collapse of the aesthetic into the dialogical; visitors to *U-n-f-o-l-d* on this evening and for the remaining two weeks experienced the exhibition as a series of conversations about climate that continually referenced the artworks on the walls as memories or specters but without any direct engagement with the artworks themselves. The disappearance of the pedagogical address of the core artworks opened up an aeolian experience of the all-encompassing whiteness of both the gallery space and the specter of this exhibition's beautiful soul.

Radhika Subramaniam introduced the panel by saying, "Owing to a very complicated series of events over the last few days including a profound misunderstanding of the term 'occupation', we have had to take down the show.…What you see in this rather spartan but white environment is our attempt to give you some whiff of what this show is" (Introductory Address, 2011). This white environment catalyzed a deconstruction of the whiteness of polar discourse. Panelist Paul Miller, aka DJ Spooky, intuitively responded to the show's absent presence in the aeolian experience of an all-encompassing whiteness by speaking to the connections between the whiteness of art and environmental discourse. "You go to a gallery and it's much like the audience today, typically a lot of white people talking to a lot of other white people. So, how do we change that? I'm fascinated by art as a way of challenging notions of how to be on this planet" (Introductory Address, 2011). Miller, who participated on the 2010 CF expedition to the High Arctic and coordinates his own expeditionary project in Antarctica, identified his practice as a multicultural artistic inquiry into the meaning of ice across boundaries of polar science and remix culture. In dialogue with the specter of Shiro Takatani's media installation *Ice Core*, which shows photographs from a 2503-meter ice core drilled at

Dome Fuji in Antarctica, Miller's talk addressed the acoustic sampling of ice cores, i.e. the sound ecology equivalent of Takatani's installation, and connected this to the significance of ice in hip-hop culture, the perpetual remixing of the Foreigner lyric 'You're as cold as ice, you're willing to sacrifice'.[34]

At the conclusion of the *Southern Discomforts* panel and against the backdrop of an aeolian experience of the show's polar whiteness, an audience member questioned the necessity of travelling to the poles: 'Is it really necessary to go there?' In response, all of the panelists unanimously agreed that it is not 'necessary' to go. Andrea Polli made the claim that if you choose to go, you should feel ethically obligated to produce artwork in response to your trip, which is in direct contrast to the ethical standpoint of *U-n-f-o-l-d*'s open-ended curatorial invitation. This response implicitly queries CF's beautiful soul; is it unethical for artists to embed themselves on a polar expedition without any substantive responsibility? On a similar but less clear-cut note, Xavier Cortada spoke of his experience of feeling compelled to produce and make up for his huge carbon footprint and also to engage as many people as possible with his work. Finally, on a more speculative note, DJ Spooky reminded the audience that both the Arctic and the Antarctic were named in Ancient Greece by people who had never been there, who told stories of the unknown, and that it is an ancient function of the bard or storyteller to tell stories of faraway places to people who have not been there.

[34] Miller's inquiry into Antarctica and the meaning of ice includes the multimedia performance artwork *Terra Nova: Sinfonia Antarctica*, *The Book of Ice*, as well as graphic design and a poster contribution to the Canary Project's sustainability campaign, Green Patriot Posters. Building on his involvement with CF and subsequent collaboration with David Buckland on a series of performances at Toronto's Nuit Blanche (2010), this body of work and Miller's remix style lecture interrogates the ethics of Antarctic expeditioning through a multicultural and cosmopolitan lens.

As a whole, the space of intermingling between this panel conversation and the blank walls of the SJDC initiated a deconstruction of *U-n-f-o-l-d*'s curatorial engagement with multiculturalism, which was a focus on the 2007 High Arctic trip, and the ethics of their expeditionary practice. In the space of intermingling between the varied responses to the ethics of embedding oneself as an artist on a scientific research expedition and the whiteness of the SJDC's gallery walls, we are reminded of the extreme privilege associated with this role of expeditionary storyteller and the unresolved ethical questions raised by the search for the beautiful and the sublime in an age of anthropogenic CC. Paradoxically, the complete disappearance of the pedagogical address of the core artworks, aside from a few faint projections and the memory of gallery programming participants, fostered an aeolian experience of the whiteness of snow, ice, and race that has historically structured polar exploration narratives and continues to limit the diversity and vibrancy of the climate conversations in this show. Second, paradoxically in a panel on Antarctica, the aeolian experience of the whiteness of this show's beautiful soul reminds us of the history of Arctic exploration. As Jen Hill observes, this history is "important because it is a 'white' history about white Englishmen in a white space", that has mainly involved investing in the production of a legible national identity to be imported back to the metropole (2009, 9). And while CF's focus on diversity in the 2007 High Arctic trip certainly begins to take on the challenge of this whiteness, it is also clear that broadening and deepening this climate dialogue will necessitate a more profound remix of this show's beautiful soul of environmental awareness raising.

Whereas this deconstructive focus on the role of the artist was a consistent focus throughout gallery talks and symposia, the programming of workshops at the SJDC

included a strong focus on the challenges of coordination across the arts and the sciences. This is exemplified in the Canary Project's Climate in Concrete workshop, which took place near the beginning of the exhibition run and led to an exhibition called *Fieldnotes from the Gowanus*. This was exhibited in a space just outside the *U-n-f-o-l-d* show and stayed up after the core artworks had been packed up and shipped back to the UK.[35]

Fieldnotes from the Gowanus

Fieldnotes was inspired by a canoe expedition down the canal, which was led by art collective the Canary Project (Edward Morris and Susannah Sayler). The Canary Project's canoe expedition down the Gowanus Canal brought together Parsons students and faculty, including Professor Simonetta Moro, as well as the artist collective Mare Liberum, and led to an exhibition on the urban ecology of this toxic brownfield. The aim of the canoe expedition was to show that an experience of transport can happen close to home and does not need to involve travelling great distances in order to experience climate change firsthand (Morris and Sayler pers. comm.). However, the Canary Project did not simply repurpose the CF expedition model for an urban context. They drew upon their understanding of art as research, of collective art practice, and of the role of listening and silence in field studies in order to make some space for a group reflection on the experience of the Gowanus Canal in the present and thereby intervene within dominant discourses about the future of the canal (pers. comm.).

The role of silence in their practice can be seen in the *History of the Future*

[35] *Fieldnotes* stayed up after the early closure of *U-n-f-o-l-d*.

project, which involved intense research and collaboration but ended with a photographic series that is more meditative and gives voice to the pensive murmurings of climate research sites around the world. Similarly, with the Down the Gowanus expedition workshop and the resulting *Fieldnotes* show, the Canary Project tried to balance intense conversations with scientists such as Vivian Gorntiz and community leaders such as Eymund Diegel with a method of listening to place that involved silently canoeing up the canal in a group procession (Morris and Sayler, pers. comm. 2011). Sayler and Morris explain, "This relationship between the research and the experience is really important to the methodology. By no means are we just doing factual research or having an experience; they are mutually supportive, not mutually exclusive" (2011 pers. comm.).

In dialogue with *U-n-f-o-l-d* and sustainable development proposals for the Canal, the *Fieldnotes* exhibition was an invitation to pause for a moment of silence and glean the depths of the Gowanus in continuity with the descending flow of the Bataillean city. Allan Stoekl says that the "Bataillean city entails a movement downward and outward: a fall from elevation, a labyrinthine wandering—or passage through its emptiness and away" (Stoekl 2007, 111). In this show, we see the impact of CC on New York City from the labyrinthine perspective of a wandering canoe trip along the empty shorelines of postindustrial modernity, along a vulnerable landscape in transition from the disintegrating technological sublime of New York City's waterways to an unknown future. At the entrance to the exhibit, the visitor is offered a postcard showing the crumbling concrete shoreline of the canal as various shrubs and graffiti reclaim parts of its surface. Turning over the postcard, one reads, "The canal is tidal. If you didn't paddle, you would float one way and then another, thinking to yourself, 'To imagine is a form of survival.'"

In response to tidal rhythms and in conversation with the polysemic opening of sublime

aesthetics in *U-n-f-o-l-d*, *Fieldnotes* invites us to reimagine the disintegration of the technological sublime of urban nature in New York City, the crumbling remains of the immense scale of water-management infrastructure that helped inspire an aesthetic of cleanliness and remains as a kind of hidden city. This technological sublime was celebrated as a kind of democratization of nature since the infrastructure of the Croton system brought water into the homes of city dwellers and inspired new ideals and consumer patterns of beauty—soap and faucets—but is now largely forgotten, remaining as an "invisible city" of "upstate reservoirs…underground pipe galleries…and other largely hidden or distant architectural features" (Gandy 2003, 41–43). *Fieldnotes* explores this hidden city by inviting us to touch and be touched by the abject, revolting surface of oil sheens that are made visible by the intimate space of wandering offered by canoe travel alongside the Gowanus; this strange 'space apart' from the cleanliness of urban modernity (Fig. 1). In an insightful reflection on this hidden city, *Fieldnotes* participant Rebecca Volinsky observes:

> When we were riding down, I felt all the layers of the space just in its visual kind of arrangement, that you would have, like, just so many visual stimuli that you don't normally see together kind of collapse into one neglected thing…which allowed us to see truth because it didn't have the façade of, let's say, and I thought about this a lot, 5th Avenue with the beautiful expensive dresses, but the backside, and the interesting thing about this space was that it was all there. The façade of consumption without waste is not there. (pers. comm. 2011)

In Rebecca Volinsky's short film *Perfume Miasma* (2011), nonaqueous phase liquids form large globs on the surface of the water and then separate into distinct clumps as the afternoon light reflects these fluorescent pink, purple, and blue sheens against the murky depths

of the canal. In Christine Howard Sandoval's two-channel video installation, we dive beneath this surface to see the slimy landscape of a disintegrating industrial bulkhead as it slowly returns to the canal floor. Reflecting on this landscape of crumbling edges, Sandoval remarks, "In the Gowanus, you have to keep telling yourself that this is super toxic and not to get too close, so there was this constant desire to touch and pull back" (pers. comm.).

The intimate perspective of Sandoval's underwater camera seems to ask, what would it be like to touch and be touched by this relic of industrial modernity? One response, Curtis Hamilton's *Gowanus* (2011), is a photographic essay that uses oversaturated newsprint to mimic the smell of industrial toxicity along the canal and to leave a tangible, grey memory of this encounter on the hands of the viewer since the excess ink rubs off against thumb and index finger (Fig. 2). Visually, the essay follows the rhythms of canoe tripping, from shoreline shots on the left side of each page to the murky depths of condoms, mushrooms, and oil sheens on each right-hand side of the newsprint. From shoreline to murky depth, each two-page spread follows the visual and sensory logic of a canoe expedition down the Gowanus Canal. Hamilton, who lives just a couple blocks from the canal, reflects on the expedition: "It did open my eyes to the geography of my neighborhood and just how far downhill it is, and how everything moves downhill, and when you're on the water, you kind of view it from the lowest point, you kind of understand it from the final destination" (pers. comm. 2011).

This canoe expedition also reminds us that "to glean is not only to take what others no longer want and make use of it, but to reflect quite openly on the limitations of a contemporary society of individualism and consumerism" (Stoekl 2011, 4). A number of artists glean industrial relics, consumer waste, and other materials for creative production, from Lou Wright's gleaning of samples of nonaqueous phase liquid, iron flakes, calcified tar, and decaying wood in *Untitled*

(2011) and Hannah Kram's détournement of industrial relics in a sacred altar to the canal in *The Forgotten* (Fig. 3), to Aron Louis Cohen's fishing rod in *On the Banks of the Gowanus* (Fig. 4). Cohen reflects on the creative process: "Everything that I did, I asked myself, could I do this with a jackknife? If I lived on the shores of the Gowanus, could I make a fishing rod with these materials, and could it actually function?" (pers. comm. 2011). Cohen's fishing rod and video foreground the current recreational use of the canal as a quiet and otherworldly space apart from Madison Avenue, which would likely vanish under redevelopment. Canary Project researcher Edward Morris observes, "If something is abject and then you move the boundary of that margin to encompass it, it's no longer marginal, it's no longer wilderness" (pers. comm. 2011).

In the Canary Project film *Gouwane* (2011), the canoe expedition is transformed into a situationist-inspired derive around New York City, probing the colonial occupation of the canal through the myth of the Dutch purchase of the canal from Chief Gouwane, apparently for $1, and opening up its multiplicity: waterway, toxic site, real estate, factory for new utopias, and last but not least, as a 'place apart' or an urban wilderness away from the hubbub of city life. The derive takes us down the canal via canoe and uses this place apart to reflect on the historic conjuncture of so-called sustainable development in New York City more broadly, from the seemingly bland design proposals being put forward under the banner of sustainable development to the gatherings of Occupy Wall Street. We see the canal from the perspective of a kind of future anterior, as an urban wilderness that is being gradually erased by the imperatives of economic growth and development as represented in various models for regenerating the toxic canal into a more consumable place of leisure that is also, in tension with this, more sustainable, in the limited sense of restoring the ecological functions of this watershed.

The Gowanus watershed is visualized from both intimate and global perspectives, from

Rebecca Volinsky's mesmerizing short film *Perfume Miasma*, which uses the intimate motion of the canoe to capture multicoloured oil sheens, to Simonetta Moro's *Venice/Gowanus: Watery Landscapes* (Fig. 5), which compares the Gowanus with the Conenzara Canal in Venice in relation to sea level rise and CC but also in relation to the perceptual experience of these places. Moro reflects on the canoe trip: "I was looking at industrial buildings. Some of them were very beautiful, late nineteenth-century warehouses that were semiabandoned, but there were other things, so many details. I made many drawings. I was observing the foundations through the water, for example, and we had this layering of stone, wood, and cement, so I realized that is very similar to Venice. The water is also very murky in Venice, so there is this same sort of opacity" (pers. comm.).

Venice/Gowanus: Watery Landscapes uses gorgeous hand-drawn maps on Mylar and observational notes embedded within the experimental maps to invite the viewer on a journey that leads from a palimpsest of overlapping flood zones in Venice and New York City to an aporia of questions about knowing the city and the role of water therein, via a series of revealing historical and ecological comparisons between these two seemingly distant sites. The palimpsest of flood risk in Venice and New York City is achieved through an overlaying of blue and black marker on Mylar maps that leads from distinct representations of flood zones in the respective cities in the outer area of the map to the palimpsest of overlapping Mylar cartography in the middle, where the convergence of geographically distant yet qualitatively similar flood zones raises a fundamental question—how do we change our relationship to watersheds in order to adapt cities to rising sea levels and more frequent storm events? How can we move away from burying waterways and toward novel ways of daylighting rivers, canals, and waterfronts in order to make our cities more adaptable to the ecological precarity of twenty-first-century

urbanization? This aesthetic probe of urban climate change connects the intimate explorations of the canal in *Fieldnotes from the Gowanus* to the global questions and purview of the *U-n-f-o-l-d* exhibition.

At the center of *Fieldnotes* is a work of eco-institutional critique by art collective Mare Liberum called *Liberum Kayak* (Fig. 6) that responds directly to the questions and concerns of Sam Collins's *Sometimes the Journey is Better than the Destination*. In contrast to the re-mark of Collins's artwork, which differentiates the footprint of global art flows from the unfolding of this particular exhibition in order to probe the Orwellian bargain of twenty-first-century ecological modernization, the re-mark of *Liberum Kayak* differentiates the globalism of contemporary art from the creative communities of the Gowanus neighborhood in Brooklyn in order to propose local practices of sustainability that respond to the limits of growth. In *Liberum Kayak*, wasted vinyl from New York City museums is gleaned alongside locally sourced bamboo from Queens to create a kayak for local transportation along the Gowanus Canal in Brooklyn. Whereas *Sometimes the Journey* probes the future scenario of reforming the global art world with low carbon digital networks, *Liberum Kayak* offers a vision of gleaning waste from global art flows, of feeding off the excess of contemporary art in the formation of experimental gleaning communities—of printing and boat making—as the way towards a locally sustainable art world. The *Librum Kayak* responds to the sacred dimensions of the now-toxic Gowanus Canal with a pragmatic and aesthetic gesture. It envisions an ethics of sustainability, as the gleaning of the detritus of carbon capitalism –the wasted vinyl from art museums—and as the spending of the sacred energy that cannot be reinvested in growth, such as the sacred energy of the Gowanus Canal that hides underneath a smelly layer of oil sheens.

In response to the polysemic openings of *Sometimes the Journey*, Mare Liberum invites us to consider aesthetic sustainability as irreducible to the conservation of energy resources and as aligned with our relation to limits. This is a vision of aesthetic postsustainability, an encounter with the limits of growth and consumer culture as gestured toward in the use of wasted museum vinyl, and a glorious spending of the sacred energy that cannot be reinvested in the growth of the economy, i.e. the energy of the Gowanus watershed. It is a vessel for sacred waters gleaned from the aesthetics of carbon capitalism for pragmatic local transportation alongside the labyrinthine waterways and artistic communities of the Gowanus Canal in Brooklyn.

The Openings and Limits of This Work in Movement

As exemplified in the conversation between the eco-institutional critiques of Mare Liberum collective and Sam Collins, the movement of *U-n-f-o-l-d* generates a fascinating dialogue on sustainability: is sustainability equivalent to the conservation of energy resources through low carbon digital networks and carbon footprint mapping, or does a sustainable response to GCC require a fundamental reorientation towards the limits of growth? This conversation is generated by the multivoicedness and polysemic openings of this work in movement, which brings together a multitude of aesthetic probes of ecological thresholds in a complex conversation between its core artworks—contained in the travelling crates—and local artistic contributions. In especially revealing moments, the core artworks fold back in upon themselves to reveal the whiteness and beautiful soul of expeditionary research at the poles. And at each step along the way, gallery education

programming plays a strong role in shaping the character of this folding and unfolding.

The programming of *U-n-f-o-l-d* at SJDC Parsons The New School shows how artists are questioning their role in response to a wide range of experiential and dialogical encounters with climate research. The space of intermingling between education programming and the address of the artworks is a 'good-enough holding environment' that is always in danger of collapsing, as was evident in the displacement of the core artworks as a result of the forced relocation of Occupy Parsons. This moment required a delicate high-wire act on the part of SJDC curator Radhika Subramaniam to maintain a critical inquiry into the core themes raised by the exhibition even in the absence of its physical presence in the gallery space. Here we see how cultivating a space of dialogue between the address of the artworks and gallery programming in a good-enough holding environment is difficult work that, arguably, calls for deconstructive and transformative approaches to critical gallery education (Morsch 2009). A critical approach to gallery education programming can help deconstruct the role of the artist in expeditionary research while also connecting the global concerns of the exhibition to place-based inquiries into adaptation and mitigation.

The example of *Fieldnotes from the Gowanus* shows how the movement of *U-n-f-o-l-d* generates a multiplication of aesthetic perspectives on CC that connect the global purview of the show to local concerns of ecology and sustainability, which often have a global viewpoint while remaining grounded in a place-based inquiry. The perceptual dynamism generated by the movement of *U-n-f-o-l-d* in dialogue with local inquiries is characteristic of such works in movement. Eco describes this effect in a discussion of Calder's mobile sculptures, saying, "There are, for example, artistic products which

display an intrinsic mobility, a kaleidoscopic capacity to suggest themselves in constantly renewed aspects to the consumer" (1989, 12). While this description of the work in movement relates to a single artwork as opposed to a travelling exhibition, it captures the way in which the show suggests ever-shifting variations to its audience by virtue of an 'intrinsic mobility'—folding and unfolding—that requires the creative participation of local artists, such as the *Canary Project*, to be set in motion.

The openness of this work in movement generates distinct aesthetic inquiries that connect the climate theme of the core artworks to a wide variety of other ecological issues, such as the toxic brownfield explored in *Fieldnotes,* in a way that grounds the urgency of this show's address in relation to local contexts. As we have seen, this address utilizes the paradoxical dimensions of the High Arctic (everywhere/nowhere) and future climate catastrophe (Giddens's paradox) to open up a complex discussion that begins with the geographic tipping points represented within the show but expands to include a broad range of locations and issues, from consumerism and carbon capitalism to waste, transportation, sustainable development, and urban watersheds in New York City.

The openness of this address is spatially and temporally structured. Spatially, this pedagogical address invites us to look down upon CC from the whole-earth imaginary of the fragility of planet earth, echoing the cover of Stewart Brand's *The Whole Earth Catalogue*, and then subsequently to zoom in on CC through the lens of a distinctively British geographical imaginary that connects the liminal spaces of the High Arctic to the Andes, to the Amazon, and to each of the stops on the tour. Thereby, the urgency of mitigating per-person carbon emissions against the sublime backdrop of the High Arctic is connected to relevant per-person emissions and site-specific contexts at each stop on

the tour; the path of the Dollis Brook in North London is superimposed on the urban watershed of New York City. Temporally, this address responds to Giddens's paradox by shocking us with the sublime to evoke transformative reflections on self, consumption, and carbon capitalism, but also by dialogically inviting our participation in climate policy within the space of the university gallery. Of course, while the dialogical aesthetic of Balkins's *Climate Change 2007: Synthesis Report* is a strong contribution to the overall experience of *U-n-f-o-l-d*, it is also an exception to the show's general reliance on sublime aesthetics.

Through the infrastructural inversion of aesthetic metadata, the address of this show reveals its own limits to the viewer, from the conceptual critique of the sublime in Edwards's map of the Dollis Brook to the eco-institutional critique of Sam Collins's *Sometimes the Journey*. If the sublime is complicit with places of excess consumption that contribute to CC, as suggested by Edwards's map, and if the globalism of the travelling exhibition format is similarly complicit with rising carbon emissions, as Collins's work suggests, how can the synthesis of the sublime and the travelling exhibition format in this particular show possibly raise enough awareness to overcome its embeddedness within carbon capitalism? In part, the answer of this exhibition is reformist and pragmatic: a flat pack, low carbon exhibition design offers a way of raising awareness while minimizing the carbon footprint of this particular exhibition format. However, the answer is also ethical. We can read this continual return to ethics, as exemplified in Prasad's *Greenhouse Gas*, Francesca Galleazzi's *Justifying Bad Behaviour*, and Buckland's *Discounting the Future*, as suggestive of the implicit response that the aesthetico-ethical force of the artworks is strong enough to at least balance out

the show's carbon footprint. However, the limitation of this response is that it simply returns us, as in a vicious circle, to the rhetorical limitations of the sublime. "The sublime replace a rhetorical aesthetic based on shared discourse with an aesthetic based on somatic shock" (Kester 2004, 85). In this show, the somatic shock of the sublime tends to interpolate a green shade of consumer subjectivity.

The use of the ethical force of the sublime to catalyze reflection on self and consumerism within many of the core artworks of the show is oriented towards a certain self-reflexivity about consumption that is hard to differentiate from the generalized ecological reflexivity of consumer culture, wherein rebelling and selling are coterminous with one another (see Morton 2007). "Green consumerism made it possible to be both pro-Capitalist and green, repeating the Romantic struggle between rebelling and selling out" (Morton 2007, 110). The fact that this green consumerist subjectivity is often overladen with guilt, i.e. for participating in a consumer society, and self-righteousness, for making the green consumer choices, presents a unique challenge in the context of the ethical force of the Arctic sublime; whereas the sublime used to inspire a sense of ethical or moral transcendence, i.e. in the Kantian sublime (see Morton 2007; Latour 2011), it now confronts us only with a growing gap between the enormity of anthropogenic CC and individualized consumer guilt. This gap seems too big to fill, even with sophisticated projections on ice, and while the individualized focus of some of the artworks is perhaps balanced out by the structural focus of others, the core of this work in movement speaks in a Romantic language of environmental poetics that reflexively overlaps with consumer society. It negotiates the vicious circle of reflexive environmentalism: "Romanticism is consumerism; consumerism is Romanticism" (Morton 2007, 110). This Romantic tongue

emerges in response to the beautiful soul of the curatorial practice as a whole, which fuses the aesthetic and the moral in an unhappy consciousness of the separation of humanity and nature, of Western carbon emissions and the High Arctic. This practice tries to close the gap while simultaneously retreating from actually unfolding climate politics into an exclusive landscape. As Timothy Morton points out, “The chasm cannot be fully bridged; not, at any rate, without compromising the beauty of the soul itself” (2007, 118).

This show responds to its own limits by constantly opening itself up to the outside. The limit of what can be stored in the flat pack exhibition crates is the opening towards the unplanned and physically incomplete elements of this work in movement, such as the *Fieldnotes* exhibition that gradually emerged at the New York City stop, and it is this incompletion that opens up a transitional space for exploring the multiple possible meanings of a sustainable response to GCC, from the probe of Orwellian sustainability in Collins’s *Sometimes the Journey* to intimations of postsustainability in Mare Liberum’s *Kayak*. Local artists and art students create their own visions of a sustainable response to GCC in response to the polysemic openings of the exhibition and by creatively contributing to its unfolding at each stop on the tour.

Finally, the opening of this work in movement reveals itself most clearly at a moment of absence, wherein ethical and aesthetic reflection unfolds without the address of the core artworks while maintaining a high level of criticality and a dose of fidelity to the questions raised by the overarching curatorial practice. Here, perhaps somewhat belatedly, the exhaustion of this folding and unfolding work in movement reveals its main threshold—the whiteness of the beautiful soul that usually comes under the guise of

awareness raising. The process of deconstructing this Romantic threshold requires a critical approach to gallery education programming, such as Radhika Subramaniam's innovative series of talks, symposia, panels, performances, and workshops for the Kellen Gallery.

The Wayfaring Role of the Artist

Introduction

We have seen how critical gallery education programming can play a central role in deconstructing the role of the artist in expeditionary research and in connecting the global purview of the *U-n-f-o-l-d* exhibition to site-specific contexts. Building on these themes and moving from the threshold of Romanticism to disciplinary thresholds, we will now examine an experimental approach to integrating sustainability into art education in the UK. Here, I draw on the theory of ecological wayfinding as introduced in chapter 1 to analyze the embedding of emerging artists and designers on expeditionary field study courses to rural and urban locations across the UK in a program called Short Course UK (SC).

On SC, wayfinding involves the use of shared metaphors, such as trash, and materials, such as plastic, to foster boundary-learning experiences of identification and coordination and to catalyze arts-based research on place identities and meanings in the face of global CC. This experimental pedagogy builds upon strands of the educational turn in contemporary art in order to propose a shift towards environmental sustainability practice in postsecondary art and design education in the UK. The significance of this intervention lies in its deployment of the notion of the autonomy of the artist as a model pedagogue within educational turn practice and discourse, wherein experimental art pedagogies are construed as more capable of imagining alternatives (Graham 2010) in order to intervene within discourses of sustainability in higher education and arts schools in England. Specifically, it proposes a practice of collaborative wayfinding that involves boundary-crossing experiences of identification, or reflection on the role of the artist in a

climate-changed world, and coordination, or learning how to inhabit a shared problem space with other disciplines.

Boundary crossing between the arts and sciences is seen as central to education for sustainable development since art can help foster critical awareness of environmental sustainability and make connections between university research, places, and communities (B. Clark and Button 2011). Yet, as B. Clark and Button note, “A review of the literature indicates that there is a lack of educational models that unify art and science to engage local, state, national, and international communities in thinking about sustainability” (2011, 42). SC works towards making these sorts of connections in the UK and, as part of the New Generation program, internationally. The innovation of SC’s pedagogical intervention lies in the curation of shared metaphors that connect interdisciplinary perspectives to particular socioecological places and to the shared problem space that is being investigated therein. This curation of site-specific metaphors generates an expansive interdisciplinary conversation that deeply informs subsequent exhibitions.

I begin with a discussion of Short Course UK and its emergence in response to both education for sustainable development and educational turn discourses in the UK. Then, in the main section, I theorize the potential and contradictions of Short Course UK as a distinct form of collaborative wayfinding. This leads into a discussion of the outcome of this pedagogy with the example of the *Without Boats, Dreams Dry Up* show. Finally, I offer some conclusions regarding the practice of collaborative wayfinding.

Short Course UK

Cape Farewell's SC initiative responds to both their organizational strategy for engaging a cultural response to CC and, externally, to conversations about the future of higher education, and art education specifically, in relation to sustainability in the UK.

The UN Decade of Education for Sustainable Development, launched in 2005, has prompted a growing discourse regarding the aims and goals of sustainability education, such as whether it is directed primarily towards a learning agenda or merely towards behavioural change (Bourn 2008). In this context, there is increasing attention to *sustainability* as a kind of floating signifier (Gonzales-Guadiano 2009) or umbrella term that gathers seemingly disparate educational agendas under its name, perhaps most prominently development education and environmental education (Bourn 2008) but also, in the context of this study, art education.

In bridging education for sustainable development discourses with emergent discussions about the future of art education in England and the UK, Cape Farewell's intervention is located in the paradoxical attempt to *both* extend experimental art pedagogy into an engagement with the flickering signifier of sustainability *and* bring interdisciplinary sustainability education into the art school. This paradoxical effort makes use of the creative tension between its organizational goals and the postsecondary art institutions within which it intervenes, which actually contributes to a long history of such creative tension between external organizations and higher education institutions more broadly in the discourse of sustainability education in England (Scott and Gough 2007). Here, this discourse substantially predates the UN Decade begun in 2005. External

(outside higher education) organizations and policy groups have been conducting research and working towards policy change since the early 1990s, especially in response to the UN Rio Summit on Sustainable Development in 1992 (Bourn 2008; Scott and Gough 2007). Commenting on this history, Scott and Gough (2007) argue that the creative tension between externally mandated sustainability education policy objectives and barriers to change at the level of individual universities is not necessarily a negative trend or an impediment in the sense that these barriers may create space for meaningful conversations about what future sustainability might mean. Similarly, Bourn argues "that a key question that needs greater debate is the purpose of education for sustainable development (ESD) and whether it is primarily about learning about agreed goals and objectives or whether it is about opening up the debates about the purpose and role of education more widely, in relation to the needs of society and the future of the planet" (2008, 194).

In response to this emerging discourse about the meaning of sustainability in higher education, Cape Farewell's SC UK offers a paraeducational model for engaging with sustainability that is both continuous with the current zeitgeist for interdisciplinarity in sustainability education and quite novel in its approach. So, while interdisciplinarity has been a significant focus since 2005 of the Higher Education Academy, which is a UK-wide sustainability education organization, Cape Farewell's work in extending an interdisciplinary approach to sustainability in UK art schools is novel in the specific collaborative and experimental approach that it brings to the table. This approach stems from both its organizational strategy as a whole and its style of networked cultural entrepreneurship, and from recent developments in the pedagogical turn of contemporary

art. I begin by addressing the former, since Cape Farewell's SC program emerges out of their recent organizational and strategic goals.

Internally, as part of their 2008–2011 strategic plan, CF sought to bridge the gap between their work with professional artists and their youth expeditions to the High Arctic with secondary students by working with the university sector to help develop arts-based research methods and postsecondary engagement with CC (2008). These aims were supported by a grant from the Esmée Fairbairn Foundation for a program called the Platform, the original name for SC, which would be run by CF in collaboration with cultural partners, such as the Eden Project and Southbank Centre, and universities. CF would be responsible for a program of engagement with postsecondary art and design students, cultural partners would host exhibitions of student artwork in collaboration with universities, and university partners would be responsible for taking the lead in managing the resulting platforms of student-produced artworks or exhibitions (Parkinson pers. comm. 2011b).

The partner universities included University of the Arts London, University College Falmouth, and Liverpool John Moores University. CF had existing relationships with these three universities, and the project's intervention into postsecondary art and design education was premised on the positioning of Chris Wainwright (UAL), Colin Fallows (LJMU), and Daro Montag (UCF) as ambassadors of CF in their respective schools and as project leads on SC. Artist Siôn Parkinson was hired to be the universities curator for the project, and SC gradually evolved from a program of talks and workshops programmed by CF for the three schools, as originally envisioned in the supporting grant, into a more intensive series of journeys modelled on the CF residency. This project

evolution can be understood only in relation to contemporary discourses on alternative art education in the UK.

SC emerges out of conversations about the role of art education in learning for a sustainable future that took place in the midst of the UN Decade of Education for Sustainable Development and at a moment of intensive experimentation with alternative art pedagogies in the UK. Experiments such as the Edgeware Road Project in London and related research such as the Tate's Art School Educated inquiry into the history of British art education were part of a global turn to educational models and theories in contemporary art. One of the outcomes of the educational turn, especially since *Documenta X*, has been a sense of commitment to the art world's infrastructure for facilitating expansive and interdisciplinary conversations (Rogoff 2010). "As a result, a set of conversations not experienced previously, between artists, scientists, philosophers, critics, economists, architects, planners etc. came into being, engaging with the issues of the day through a set of highly attenuated prisms" (Rogoff 2010, 43). The potentiality of this kind of interdisciplinary conversation was a hot topic at University of the Arts London in 2010. Artists and art educators came together to debate the role of art education in a cultural response to climate change at a one-day symposium called *Lines of Enquiry: Art School Curriculum & Climate Change*, which was hosted by C-C-W (Chelsea, Camberwell and Wimbledon Colleges of Art) in partnership with Cape Farewell. This conversation was grounded in the idea that "the art school, defined by its dynamic and dialectical approach to ideas, would seem to provide a most apt and instant forum to debate climate issues within a contemporary cultural context; art schools are, after all, places of such rare enthusiasm" (Cape Farewell 2010). The conference inquired,

"What is the potential for innovation through cross-disciplinary collaboration? What does it mean to be an artist or an art student, and what is actually at stake in being called a designer, a sculptor or painter?" (Cape Farewell 2010). In this way, the conference extended the style of interdisciplinary conversation characteristic of the educational turn in contemporary art to an engagement with the role of the artist in a time of global CC.

In response to these conversations, Universities Curator Siôn Parkinson built on the initial proposal of curating a series of artist and scientist talks at the partner universities, which was the initial idea for SC, by taking the talks on the road in a modified version of the CF residency program (pers. comm. 2011). By taking the talks on the road, Parkinson and SC UK not only extend CF's style of networked cultural entrepreneurship to postsecondary art and design education but, more significantly, draw on the commonly held assertion of the freedom or autonomy of the artist as a model pedagogue within educational turn practice and discourse (Graham 2010). Following Janna Graham's observations, this idea commonly takes one of the following two forms: (1) "artists, curators and arts intellectuals are in a better position to produce—or at least imagine—alternative models…than those encumbered by the daily practices and instrumentalised demands of education"; and (2) the art school and its expanded art world network (galleries, museums, etc.) "is a space in which to resist the incorporation of art and creativity into the excessively technocratic exercises and forms of standardisation that have become customary in higher education" (2010, 125–26). By utilizing the space of the journey as a space apart for model pedagogues to practice their craft away from the everyday demands of education and utilizing the expanded network of the art school—Cape Farewell, Eden Project, Southbank, and the universities—CF's SC UK works both

ends of the perceived autonomy of artistic labor to envision an interdisciplinary approach to sustainable art school curriculum. In this way, it uses the special status associated with artistic pedagogy within the current educational turn (Graham 2010) as a locus for reimagining an approach to interdisciplinary sustainability in the context of postsecondary art and design education. However, we should not confuse this entrepreneurial intervention as a form of resistance to the enterprise culture that continues to dominate education (Peters 2001) and arts funding in the UK (Alexander 2007) since the persistence of the idea of artistic autonomy is intimately linked with the cooptation of creativity within neoliberalism and the associated subjectivication of wide-ranging social actors (Graham 2010), from artist baristas and interns to the so-called 'dark mater' of the contemporary art world (Sholette 2011). "The redistribution of the rhetoric of creativity tells us that we cannot conflate the desire for political autonomy—that is, to resist the current forms of instrumentalisation of culture and education by coercive economic and governmental forces—with the discourse of artistic autonomy" (Graham 2012, 127). And in the context of this intervention, the desire to resist the unsustainability of postsecondary art education and thereby intervene within debates about the future of sustainability in higher education tends to be conflated with the need to create a space apart for the model artistic pedagogue, alongside scientific collaborators, to teach away from the institutionalized spaces of the lecture hall and the studio.

This is how the beautiful soul of engagement, followed by retreat, unfolds in the contours of postsecondary art education. On this note, we need to move beyond the old and recurring distinctions that continue to structure attempts to imagine a new (Graham 2010) and in this case more sustainable art education.

In the case of SC, these recurring structures of thought are particularly evident in the promotion of a textual paradigm of collaborative art practice that is continuous with the paraeducational tactics of the course in its reliance on the symbolic autonomy of the artist's labor (Kester 2011). In *The One and the Many*, Grant Kester shows how modernist understandings of symbolic labor persist within this textual paradigm of contemporary collaborative practice, as exemplified in Francis Alys's *When Faith Moves Mountains*, and how critical discourse has failed to engage with this continuity (2011, 71–72, 74). So it is important to note that CF's SC UK is similarly structured by a textual paradigm of contemporary collaborative practice that structures arts–sciences collaboration as fieldwork for the production of a final artwork or 'text' for exhibition in a university gallery as opposed to opening up longer-duration artistic collaborations whose import is irreducible to any final text (see Kester 2011). As in the textual paradigm of collaboration more broadly (Kester 2011), this sensibility is grounded in a modernist notion of symbolic labor. "The artist's labor in the act of creation, marks an autonomous and free exercise of will, as beauty (or transgressive meaning) is extracted from the dross of quotidian reality" (Kester 2011, 101).

CF's mission implies that we need this autonomy of the artist's labor to catalyze a new language for understanding CC on the "human scale" (CF) since quotidian reality distracts the rest of us from inventing this new language even though particular art projects inspired by their residency often deviate from this particular brand of creativity rhetoric. And SC UK is similarly committed to a discourse of creative autonomy. On this note, Short Course ambassador and curator Chris Wainwright offers a Kantian-hued reflection on the need to maintain this autonomy in the face of climate discourse. "It's our

function to maintain the dysfunctional dimension of art. You know, art is essentially useless; it doesn't lock itself into a kind of illustrative way of expressing scientific data or fact or opinion; it has its own set of values. I think it is really complex when you deal with such an urgent issue as climate change to avoid being didactic. It's a balancing act really" (Wainwright 2011). Of course, while not all of those involved in SC would agree with this claim of aesthetic uselessness, it gestures towards the broader commitment to symbolic autonomy in this paraeducational intervention. However, in tension with the rhetoric of creativity drawn upon in the overall framing of this intervention, the actual unfolding of SC opens up moments of identification, of reflection on the role of the artist in a time of global climate change, that sometimes rub up against this meta-level sensibility. To open up these contradictions, it is necessary to dig into the moments of contradiction and potentiality that emerge *in medias res* on SC expeditions.

By following expeditions, we will see how the process of fieldwork itself contains moments of potentiality that can be drawn out to understand the larger role of interdisciplinary sustainability curricula and pedagogy in postsecondary art and design education. However, in order to understand this field of potentiality and contradiction, it is necessary to explain the strands of postwar interdisciplinarity and boundary learning that are drawn upon in this paraeducational intervention.

Boundary Learning

Contemporary theories of boundary learning have turned toward the philosophy of Mikhail Bakhtin, who showed how "understanding and all symbolic activity of

humans are "founded on 'dialogue' between different minds expressing multitudes of multi-voiced meanings"" (Markova quoted in Akkerman and Bakker 211, 83). In the 1919 text "Art and Answerability", Bakhtin argues, "the three domains of human culture—science, art, and life—gain unity only in the individual person who integrates them into his own unity. This union, however, may become mechanical, external" (1990, 1). This insight continues to resonate for postsecondary education, which raises the question, how can universities invite learning subjects into a transitional space of learning across the mechanized boundaries of disciplinary specialization so as to integrate them into a unified program of study? An early response to this question can be seen in architectural historian Sigfried Giedion's advocacy in the early 1940s for universities to focus on the interrelations between the arts, sciences, and humanities and his related unsuccessful attempt to establish a Faculty of Interrelations (see Marchessault and Darroch 2009; Geiser 2010). At a guest lecture at the Culture and Communications Seminar at the University of Toronto in 1955, Giedion reflected upon this frustrating failure. "It's so depressing that you can't ask the man in the next faculty 'What do you think about this? How has this to be done?'" (Geiser 2010, 305).

Through his relationship with communications scholar Marshall McLuhan and urban planner Jaqueline Tyrwhitt, Giedion's notion of a Faculty of Interrelations between the arts, sciences, and humanities had a significant influence on the direction of the interdisciplinary Explorations seminar in Toronto during the 1950s (Marchessault and Darroch 2009). Central to the germination of ideas at the Explorations seminar was a "reflexive pedagogical approach to studying contemporary culture" (Marchessault and Darroch 2009, 19). As mentioned in chapter 3, this experimental pedagogy involved the

communal exchange of shared metaphors that exceeded singular disciplines and provided a focus for interdisciplinary learning and research, such as the idea of acoustic space (Marchessault and Darroch 2009). Marchessault and Darroch argue, "The very germination of the idea of acoustic space is itself a product of the acoustic environment and a dialogic way of working, it cannot be attributed to any one person or discipline" (2009, 19). Cape Farewell's practice of networked cultural entrepreneurship and the SC experiment draw on this historical model for interdisciplinary inquiry, often citing McLuhan's body of work (see Buckland 2012a), but they also draw on the elitist tradition of Stewart Brand's combined use of metaphor and physical journeys to spark interdisciplinary learning on the Learning Journeys. The SC approach to interdisciplinarity synthesizes these traditions alongside a morphogenetic orientation to making and a Romantic sensibility to awareness raising, i.e. the beautiful soul.

The genealogy of Short Course raises the following question: can shared metaphors and physical journeys be synthesized in group learning events to critically engage participants in learning at the boundary of university institutions and their surrounding places, and across the boundaries between the environmental sciences and arts-based research? To interrogate this query, I now turn to a theorization of vertical collaboration between people, places and, materialities, and horizontal collaboration across disciplines, which I describe as a form of collaborative wayfinding.

Collaborative Wayfinding

The potential significance of this collaborative art pedagogy lies in its grounding

of artistic creation in boundary-learning experiences of identification and coordination, and in a form-generating process that is attuned to the vital materiality of place and landscape. If conventional understandings of making in material culture are grounded in *hylomorphism*, wherein “practitioners impose forms internal to the mind upon a material world ‘out there’” (Ingold 2013, 21), SC asks us to think about making as a morphogenetic process, wherein the maker works alongside the vital materiality of the world. “To read making longitudinally, as a confluence of forces and materials, rather than laterally, as a transposition from image to object, is to regard it as such a form-generating—or morphogenetic—process” (Ingold 2013, 22). Drawing on this morphogenetic perspective, I analyze the correspondences between the flow of consciousness and materials on group learning journeys and the arts-based research projects that answer to these journeys in unique and fascinating ways.

There are material and dialogical dimensions of this collaborative art pedagogy. Materially, it introduces collaboration as a correspondence with the kinaesthetic flow of life and active materials encountered on group experiences of wayfinding. Dialogically, it fosters boundary-learning experiences of identification or reflection on the role of the artist in a climate-changed world, and coordination, which is learning how to inhabit a shared problem space with other disciplinary perspectives in a site-specific context. In the context of group learning journeys, these material and dialogical dimensions of collaboration happen alongside one another, from corresponding with the force of the River Thames to inhabiting the shared problem space of London’s infrastructure of water from diverse disciplinary perspectives, and finally reflecting on how this particular problem space throws up unique questions around the role of the artist. In the group

exhibitions that respond to the intensive learning journeys, artists and designers correspond with the questions, metaphors, and materialities encountered within the various problem spaces of a group journey. “To correspond with the world, in short, is not to describe it, or to represent it, but to answer to it” (Ingold 2013, 108). The artistic correspondences of SC are sentient and imaginative answers to wayfinding experiences.

Wayfinding is an experiential pedagogy of moving alongside places and forming meshworks of knowledge whereby participants explore the forces, materialities, and meanings of place from a variety of interconnected perspectives. In his materialist anthropology of archaeology, art, and architecture, Tim Ingold extends his theory of wayfaring to describe how makers follow the flow of materials: “Artisans or practitioners who follow the flow are, in effect, itinerants, wayfarers, whose task is to enter the grain of the world’s becoming and bend it to an evolving purpose” (2013, 25). From this perspective, the wayfaring path of the maker is both transformational and humble, since reshaping the “world’s becoming” requires a sensitivity to vitality of the natural world that is foreclosed by the hylomorphic model of making but disclosed by a more subtle understanding of the maker’s or artist’s being-in-the-world. Ingold explains, “The most he can do is to intervene in worldly processes that are already going on, and which give rise to the forms of the living world that we see all around us—in plants and animals, in waves of water, snow and sand, in rocks and clouds—adding his own impetus to the forces and energies in play” (2013, 21). From this perspective, making is not understood from an anthropocentric perspective but rather is understood in the broader phenomenological sense of the ongoing making of the lifeworld, from the slow formation of a stalagmite to the erosion of limestone in the formation of a cliff face. The wayfaring

path of artists, architects, designers, and other human makers is to collaborate or "join forces" with these wider, nonhuman processes (Ingold 2013, 21).

We need to understand how makers can collaborate or correspond with the environments of which they are a part. Of course, this does not mean that makers or art students do not have exciting ideas that they wish to manifest in their projects, but rather that what matters is the process of engagement that they undergo with the vital materiality of the living world in order to grow their projects (Ingold 2013). This is to foreground the relationship between human creativity, making, and the generativity of *natura naturans*, which is the creative force of materiality that is discussed in the works of Spinoza, Deleuze, and Guattari, amongst others (Bennett 2010). If "a *creative not-quite-human force capable of producing the new*, buzzes within the history of the term nature," as Jane Bennett (2010, 118) shows, we need to understand how making, in and beyond art pedagogy, joins forces with this generativity.

From this morphogenetic perspective, the wayfaring path of the maker corresponds with these worldly processes by intuitively responding to forces of materiality—clay, climate, snow, and sand—through both artistic technologies, like a potter's wheel, and emotive, animate sensitivity (Ingold 2013). This Ingoldian notion of *correspondence* highlights the give-and-take between the flow of consciousness and the flow of materials, between maker and materiality in the form-generating process. And it is precisely this correspondence that is at stake on the SC journeys, wherein participants connect wide-ranging processes of making to vital materialities of clay, copper, e-waste, water, soil, and seeds, amongst other elemental and artificial materials in a wide range of site-specific contexts. For instance, in her land artwork *Lines in the Sand*, SC Cornwall

participant Sonia Shomalzadeh joins forces with the incoming tide at a beach in Cornwall to illustrate the vulnerability of whales to global CC. The touch of her hand through the sand is a correspondence with the force of the sea and the shifting coastline that traces a soft, ephemeral, and yet grand response to endangered whale species. In this way, and in its stronger moments, SC connects a morphogenetic orientation to making with an understanding of curriculum as grounded in the lived experience of socioecological places.

SC is aligned with the place-based education principle of connecting students to the socioecological dimensions of local places (see Gruenewald and G, Smith 2008). SC curator Siôn Parkinson explains, "It is a project designed to stimulate a creative response by immersing emerging art and design students in environments that challenge and enable them to take their learning outside of the studios, seminar rooms, and lecture theatres" (2012, 108). In this way, it facilitates a crossing of the boundaries between universities and the socioecological places where they are situated. Taking participants on group learning journeys that thematically interrogate a wide range of landscapes, infrastructures, and places in the broad vicinity of the university itself but, crucially, far away enough to be at least somewhat novel or Romantic, fosters diverse wayfinding experiences that can be understood only through a phenomenological lens.

Hamish Ross and Greg Mannion (2012) show how Ingold's phenomenological ontology challenges representational or textual understandings of curriculum making and necessitates an orientation to curriculum as lived experience in place. "From a dwelling perspective, the necessary alternative is to consider that a curriculum can only be lived as an on-going process, an improvisation, a response to a context inherent in the relations

among people, places, materialities and activities (Ross and Mannion 2012, 5). If lived curriculum involves ongoing improvisation in response to material and perceptual relations with the environment (Ross and Mannion 2012), how does one go about understanding the relationship between planning a curriculum, such as through curricular texts, and lived experience? One approach is to think about curricular texts and planning as a kind of score that is suggestive rather than prescriptive of the performance of learning, as Elizabeth Ellsworth (2005) suggests. "Just as a musical performance suffuses listener and performer, the lived curriculum comes into being around and through a participating inhabitant or dweller" (Ross and Mannion 2012, 308). From this perspective, the lived curriculum of wayfinding can be 'scored' in the sense of planning for various site-visits and speakers, but it will always be more on the side of 'improvisation' than is commonly seen in more prescribed forms of representational curriculum making.

This lived curriculum is simultaneously oriented toward understanding the relational and material characteristics of the places explored in the course and toward generating conversational drift across disciplines. In this sense, it builds on ideas from dialogical aesthetics, which is the deployment of the aesthetic as an open space for initiating dialogue about social or environmental issues (Kester 2004), and especially on the formative influence of Helen and Newton Harrison's practice of conversational drift (Kester 2004). The motivating questions of SC inhabit a similar terrain. Curator Parkinson inquires, "How can we reflect a growing interest in multidisciplinary learning, where expertise is shared, and where concern for sustainability and local environmental issues figure prominently?" (2012, 108). One response to this question would be to turn

to the insights of boundary-learning theory.

Central to Bakhtinian boundary-learning theory is the idea of dialogicality, which is the "ontological characteristic of the human mind to conceive, create, and communicate about social realities through mutual engagement of the ego (i.e., self or selves) and the alter (i.e., others)" (Akkerman and Bakker 2011, 136). Akkerman and Bakker draw on this notion of dialogicality and an understanding of the boundary as "a sociocultural difference leading to discontinuity in action or interaction" (2011, 139) to synthesize interdisciplinary perspectives on boundary crossing and theorize the potentiality of learning at the boundary. They argue that learning at the boundary is a fundamentally dialogical phenomenon wherein participants negotiate and speak about ways of coordinating their distinct practices, ways of maintaining continuity across practices within a larger framework of activity, what distinguishes their practice from another, or how the perspective of their field might look to another sociocultural domain (Akkerman and Bakker 2011).

Akkerman and Bakker (2011) identify four key learning mechanisms across this body of literature: identification, coordination, reflection, and transformation. I operationalize their terms by analyzing the following dimensions of conversational drift on SC: (1) identification or reflection on the role of the artist in response to a dialogical encounter with environmental research and the predicament of global CC; (2) reflection, which entails taking perspective on art practice from the perspective of environmental science or another discipline; (3) coordination, which entails coordinating arts-based research with other areas of research by inhabiting a shared problem space; and (4) transformation, which involves the innovation of hybrid art/science projects. There is a

special focus in this analysis on identification and coordination. Notably, while there are transformative potentialities in some of the morphogenetic engagements with making in collaboration with nonhuman nature, such as Sonia Shomalzadeh's land artworks, the course does not tend to open up transformative boundary-learning moments either in the specific sense of challenging existing divisions of roles and responsibilities between artists and scientists, or in the broader sense of engaging group learning in more deeply transversal relations to place, community, or climate politics. I will return to this absence in the conclusion.

I will now offer an in-depth analysis of coordination and identification on Short Course London. I try to maintain an attentiveness to the dialectical interrelation of these moments of learning at the boundary while also homing in on one moment in particular for each section of the analysis. I begin by homing in on *coordination* by following shared metaphors and materialities from expedition to exhibition, and then I move into an in-depth analysis of *identification* by similarly following negotiations of the role of the artist from expedition to exhibition.

Coordination

The conversational drift of SC involves a movement across the boundary through listening, conviviality, and shared metaphors. In the process of coordination, conversational drift is ultimately oriented toward being able to overcome and move freely across a particular sociocultural boundary (Akkerman and Bakker 2011). "The potential in the coordinative mechanism resides not in reconstructing but in overcoming the

boundary, in the sense that continuity is established, facilitating future and effortless movement between different sites" (Akkerman and Bakker 2011, 144). And if this coordinative mechanism is to become transformational, it is important that participants also recognize the shared problem space that motivates their inquiry (Akkerman and Bakker 2011). For instance, on SC London, we were engaged with the motivating problem space of London's infrastructure of water and its precarity in the face of global CC (Lavery and Donovan 2005; Penning-Rowsell et al. 2013).

SC London inhabited the urban climate challenge. Cities are responsible for no less than forty percent of global greenhouse gas emissions and are increasingly vulnerable to the stresses of adaptation (Rosenzweig et al. 2011, 16). Cities on estuaries are particularly vulnerable to flooding, which is often intensified due to rising sea levels caused by CC and by falling land levels due to settlement along the estuary, as is the case in London (Penning-Rowsell et al. 2013).

London developed alongside the marshes of the tidal River Thames. There has been an ongoing struggle over the past two thousand years to protect the city against increasingly severe tidal flood conditions, which has lately been exacerbated by rising sea levels and by intensive urban development along the Thames (Lavery and Donovan 2005). We interrogated London's infrastructure of water by wayfinding alongside the Thames and by exploring interrelated thematic problem spaces of *trash*, *flood*, and *edgelands* on a three-day journey from October 24 to 26, 2011.

While shared problem spaces ground inquiry in SC, the real catalyst for coordination is the translation of these problem spaces into metaphors. SC curator Siôn Parkinson uses shared metaphors to provide a focus for interdisciplinary inquiry on the

learning journeys (pers. comm. 2011). In fact, he explains the general significance of SC as very much grounded in the sharing of metaphors of "earth and dirt; air and breath; of waters, deep and dark," as well as "arsenic, pollen, plastic, fish, the fume of flowers and the dirge of birdsong" (Parkinson 2012, 107). It is the sharing of these metaphors in particular places that provides the primary basis for coordination.

On the learning journeys, the unique insights of guest lecturers from diverse disciplinary backgrounds all revolve around a thematically described problem space in a site-specific context, and as in a widening circle, these insights are then debated with the participants who are ultimately responsible for carrying forward the conversation in their own arts-based research. The trick lies in curating the problem space in a site-specific context, which is achieved by translating it into a shared metaphor or set of metaphors that resonates with both the overarching problem and the locale, such as translating London's infrastructure of water and its precarity in the face of global climate change (problem space) into the metaphor of *flood* and then exploring it at the site of the Thames Barrier, or, as on day one of the London course, by translating the thematic problem space of trash into a metaphor for the unsustainability of high carbon societies of consumption, wherein consumer objects are all too frequently made for obsolescence, and exploring this metaphor by going on an antipilgrimage to Rainham Marshes Landfill (Fig. 7). The significant part of this method of curating interdisciplinary conversations lies in facilitating a dynamic sense of relationality between site and metaphor, a kind of ambient poetics that can lead to the explosion or opening up of a metaphor, such as *trash* in Rainham or *flood* at the barrier, from distinct perspectives in the arts, sciences, and humanities. Parkinson explains, "So where you are physically, and this is kind of the

important bit, when you are physically in the site and those metaphors are present and in the air, usually people can find commonality between these subjects, and that's when artists, scientists, academics, all find a common subject, although they are all speaking about it from the individual discipline, and that's what is exciting, and students can vibe off it as well" (pers. comm. 2011b).

This explosion of metaphor in site-specific contexts grounds arts-based research in both interdisciplinarity and visual research (Parkinson pers. comm. 2011b). Crucially, this is achieved through the sensory and intellectual reverberation of the metaphors. If successful, these metaphors reverberate in complex correspondences between expedition and exhibition, with participants opening up wide-ranging viewpoints on a metaphor through processes of arts-based inquiry that unfold after an expedition. There are, however, multiple points of relay in this process of artistic correspondence with a shared metaphor and the subsequent processes of arts-based inquiry. "A correspondence is rather like a relay, in which each participant takes it in turn to pick up the baton and carry it forward, while others remain temporarily quiescent, awaiting their turn" (Ingold 2013, 105). On SC London, the relay between fieldwork and subsequent processes of arts-based inquiry was quite strong.

The point of failure in coordination occurred at the point of relay between arts-based researchers and the curation of a platform for exhibiting this research, which was the responsibility of University of the Arts London in coordination with CF. On the university end of the collaboration, where Chris Wainwright is the ambassador, an outside curator who had not participated in the fieldwork was given responsibility for organizing the exhibition, a graduate student from Chelsea College of Art who had not

participated in the course. So in the passing of the baton from CF to University of the Arts London, the pedagogical approach to coordination with shared metaphors was abandoned in favor of a distribution of responsibility between a lead curator in charge of managing the show and the art students who had engaged with the shared metaphors. After a series of missed meetings and failed correspondences over a planned exhibition catalog that never happened, the curator and graduate student who had been assigned, Manca Bajec, resigned. In the wake of the failed exhibition catalog and Manca Bajec's resignation, Siôn Parkinson recruited SC participant Samuel Cook to take on the responsibility of curating the show. Cook did an admirable job of picking up the pieces and creating a stronger sense of cohesion—conceptually and interpersonally—for the final exhibition on February 20. A couple weeks of late nights and hard slogs led to a final exhibition of artistic correspondences with flood, trash, and edgelands at Triangle Space, Chelsea College of Art. This project evolution brings to mind Nikos Papastergiadis's boxing allegory for artistic collaboration: "The real mark of the idealist is found in the boxer's response to the question: 'What do you do when you have been knocked down for the second time?' 'You get up for the third time'" (Papastergiadis 2004, 15).

In order to tease out the nuances of this collaborative process, I will now follow the metaphor of *growth* from the Olympic Edgelands in East London to subsequent processes of arts-based inquiry that were eventually exhibited at *Without Boats, Dreams Dry Up*. As we will see, moments of coordination in boundary learning tend to open up wide-ranging questions of identification.

Coordination in Action

On day three, we gathered at Limehouse Marina at 9 AM to await the clipper boat to Old Ford Lock and the View Tube community center at the Olympic site in Stratford. Designer Darryl Clifton was with us from Camberwell, where he teaches illustration. Sculptor and land artist Tania Kovats (2011) joined us, as well as environmental forensic scientist Dr. Stephen Mudge from University of Wales.[36] As a group, we were setting out to extend our interrogation of London's infrastructure of water to questions pertaining to land development along the Thames, since development accounts for over fifty percent of the increase in flood risk in London (Dawson et al. 2011). The area of 345 km2 that is at risk of flooding, dependent on the current infrastructure, includes the 2012 Olympic site at Stratford (Dawson et al., 2011), which we took as our focus by looking at the shared problem space of Olympic Edgelands.

This problem space interrogates both the development of the Olympic site and the metaphor of *growth*. Growth connotes not only unsustainable economic growth along the flood-prone estuary but also the natural regrowth of derelict edgelands in East London. It connotes the tension between the ecological lines therein and the geometric lines that set limits, such as the lines of planning land use in relation to flood risk (see Dawson et al. 2011). We are perhaps used to thinking about landscape in relation to these geometric lines, which make connections, set limits, and are at the root of analytic thought, Euclidean geometry, and the rule of law (Ingold 2013, 134).

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[36] Kovats recently shifted her focus from utopian architectural installations to long-duration engagements with the experience of place and landscape (Millar and Hoare 2010).

A shift of perspective on the growth of this landscape would require the untangling of relations between these geometric lines and the abstract lines of ecology. On day three, we discovered that this perspectival shift requires a movement away from looking at landscape, which has traditionally relied upon organic lines of description or geometric lines of connection, towards looking *with* landscape by following the growth of abstract ecological lines, which are the lines of life itself (Ingold 2013). This is equivalent to a shift in perspective from the visual regard of landscape to the haptic feelings of the earth sky world. "The abstract line, however, anticipates the becoming of things in the earth sky world" (Ingold 2013, 136). Tim Ingold explains, "In such a world, lines are not imposed by representational convention, nor are they plotted between points. They are rather laid down in growth and movement" (2013, 136). This is to move away from the idea that the line does not exist in nature, that there is only a symbolic connection between line and world, and towards a phenomenological attentiveness to the lines of life that we and other creatures live alongside, from lines of flight of tilapia to furrows in a field. From this Ingoldian viewpoint, to interrogate the metaphor of growth is to follow the lines of life itself by looking with landscape, with the earth sky world (Ingold 2013). It was alongside these nonrepresentational lines of the lifeworld that we inquired into the nuances of the shoreline in Stratford, East London. And it was along these growing shorelines that we opened up the multidimensionality of growth through conversation across disciplines while also opening up spaces of identification.

We began our interrogation of the growth metaphor at View Tube social enterprise at the Olympic development site in Stratford, where we heard a frank but optimistic talk about the Olympics. The talk navigated between pitching the sustainable

legacy of the games and addressing criticism of it as a security lockdown and as a massive displacement of council housing and Romani communities, which gestures to View Tube's role in mediating between the sustainability pitch of the games and community development in Stratford. In relation to the environmental sustainability discourse, View Tube representatives emphasized the fact that large industrial sites were regenerated by washing soil at these sites but were unable to respond to environmental forensic scientist Stephen Mudge's queries about the details of this regeneration process. And in relation to the social sustainability discourse, our speaker went back and forth between emphasizing the legacy of the games and frankly admitting that this legacy of new jobs and homes would not be for the same people who once inhabited Stratford. In response, our conversation drifted around the question, even if they successfully clean the soil, who is going to be living and growing food in Stratford after the games? Building on this query, we left View Tube, walked past the spectacular larger-than-life Anish Kapoor sculpture, called *Orbit*, and returned to our boat on the river lea to hear from feminist scholar Ethel Brooks about the displacement of Romani.

We traveled along the river lea past relics of Hackney's shipping past, such as huge steel crane supports, and past residential barges with large gardens, solar panels, and even rooftop BBQs. As we slowly inched our way alongside this canalside community, Dr. Ethel Brooks discussed the social life of the Romani along these waterways of East London, which she related to seasonal labor markets. And against the backdrop of the invisibility of this Romani community in the postindustrial landscape that we travelled alongside, Brooks delved into an analysis of the displacement of the Romani by the Olympic development and related this most recent deracination to larger invisibilities of

Romani culture within visual archives in Europe. This critique of the social legacy of the games led into a conversation about the displacement of artists and artist studios by Olympic development, which drifted into a broader discussion of identification and the games. The minefield of the role of the artist in gentrification and growth, such as cultural policy that instrumentalizes public art to promote regeneration (Cameron and Coaffee 2005), was briefly dwelled upon in relation to Olympic development. Then, in a playful inversion of this question, conversation drifted to the role of the artist in integrating natural growth in the creative process as we shifted our attention to the ecological connotations of our shared metaphor with a brilliant talk by Tania Kovats.

As we drifted through the canals of Hackney at a snail's pace, Tania Kovats asked us to look with the landscapes revealed by our path of wayfaring in order to query, when you move through a landscape, does a landscape move through you? She asked us to consider this question by paying attention to the rhythms of the canal and the ways in which our slow pace opened up a different relationship to place.

By drawing our attention to the temporality and formal qualities of the canal, Kovats brought us into a contemplative space of 'looking with' a land artwork called *Meadow*, which was very much enmeshed in the distinct temporality of these waterways. When we look with a landscape and join in the rhythms of its becoming, we are able to see "the very lines along which we and other creatures live" (Ingold 2013, 136). By fostering a sense of looking with, Kovats invited us to feel the lines along which she lived with a *Meadow* of wildflowers—of corn cockle, cornflower, ox-eyed daisies, rocket, and

viola among others—on a large butty boat that was towed with a tugboat through the canals from Bath to London.[37]

Inspired by Smithson's *Floating Island* and Lucy Lippard's notion of the lure of the local, Kovats explained how the work engaged a canalside audience. She described the design of her butty boat relative to our own vessel, gesturing to where her sleeping nook would have been located on our boat, and then intoned the cosmic name for the boat: *Betelgeuse*, after the second brightest star in the Orion constellation. This gestural description of *Meadow* allowed participants to imagine they were moving with the landscape itself by the canalside audience on a boat called *Betelgeuse*, a journey alongside the lure of local canal communities on a boat named after a giant star, a nomadic meadow of local wildflowers invading postindustrial landscapes, showing the shifting juncture of canalside and biotic communities in a weaving-together of stories and ongoing geographical movements that gestured towards Doreen Massey's theory of the eventfulness of landscape, "as provisionally intertwined simultaneities of ongoing, unfinished, stories" (2006, 21). As our own stories intertwined with the unfinished story of *Meadow*, we eventually made our way to another art project called *FARM:shop*, where we were able to more tangibly engage with the idea of integrating ecological growth into an artwork.

We were famished and, at least speaking for myself, somewhat exhausted and moody upon arrival at *FARM:shop* (Fig. 8). If we think about food as one of the vital materialities that enter into our moods, patterns of cognition, and moral purview, and

[37] In the first stage of the journey in Bath, the meadow was effectively moving through itself because of the general biotic continuity between the wildflowers on her boat and the wildflowers in surrounding fields. As she moved into London, the wildflower meadow contrasted sharply with the postindustrial landscape such as the one we were moving through and generated diverse social responses as she interacted with local press and community groups on the way.

indeed one that we are increasingly disconnected from (Bennett 2010), *FARM:shop* is a space for learning how to reconnect our moods and eating practices to more sustainable farming practices.[38] *FARM:shop* is a wonderful example of the integration of ecological growth into the core of an artwork. It explores the growth of ecological lines and the agricultural genealogy of the line itself. In contrast to the geometric lines explored by Leon Battista Alberti in his famous treatise on architecture and the modern computer-generated lines that connect points on Google SketchUp (see Ingold 2013, 48-50, 134), *FARM:shop* explores the continuous variation and movement of the abstract lines of ecology or the living lines of the meshwork.[ii] In 1935, Kandinsky queried the connections between a line and a fish by describing the ways in which "both are animated by forces internal to them that find expression in the linear quality of movement" (Ingold 2013, 135). Whereas Kandinsky ultimately chose the line over the fish, *FARM:shop* chooses the linear movement of fish in an aquaponics installation and its intertwining with a meshwork of growing Swiss chard, kale, beets, and other veggies in a sophisticated intervention between art and agriculture. It draws upon the agricultural genealogy of the line as a thread to illustrate the joys of growing your own food and to create convivial spaces for eating and conversing about local food production (Bieler 2014). As our last stop, *FARM:shop* offered a convivial space for sharing food and conversation (Fig. 9). As a conclusion to our inhabitation of the shared metaphor of growth, it shifted our attention away from the geometric lines of architecture and land use planning of development in the floodplain, and towards the abstract ecological lines of life itself. Finally, it

[38] It responds to urgent challenges of global food security by experimentally redesigning the vernacular architecture of an East London storefront to accommodate urban farming systems and show how edible materialities might play a more active role in the design of our everyday dwelling places (Bieler 2014, Fig. 22–23).

functioned as a significant space of identification for reflecting on the integration of ecological systems and lines of agricultural growth in arts-based inquiry. In this way, it inspired novel artistic correspondences with the growth metaphor.

Correspondences with Shared Metaphors

Artistic correspondences with the shared problem space of Olympic Edgelands extended our interrogation of the tensions between the geometric and the abstract line, and they offered unique insights into the formal and aesthetic qualities of the East London canal system as well as the invisibilities therein. Finally, as correspondences with the identificatory moments of day three, these arts-based inquiries opened up the potentiality of integrating ecological growth into an artwork (Fig. 10).

In correspondence with the analytic lines of land use planning and development in East London, Emma Cheng's fine art book and installation invited us to explore geometric lines of expansion and contraction in urban development by opening up or closing a foldout book mapping the growth of arterial roads and connecting hubs in the city (Fig. 11). Following our path of wayfaring away from the development zones of the Olympic site in Stratford and in correspondence with Ethel Brooks's discussion of the displacement and invisibility of Romani communities therein, artist Jina Lee created a series of layered, experimental maps of London's invisible landscapes called *Tilbury Dock* (Fig. 12). These diarylike drawings and collage maps show the meshwork of our own path of wayfaring alongside the shoreline of various invisible geographies, from Tilbury Dock to to the displaced Romani communities in Stratford.[iii]

In correspondence with our exploration of the formal and temporal quality of East London's canal system with Tania Kovats, artist Mario Pires Cordeiro made an installation consisting of impressionist maps and video of the colour fields of these canals called *From Limehouse Marina to Tottenham Hale* (Fig. 13).[39]

Finally, in correspondence with the tensions between economic and natural growth in our shared problem space, Rebecca Hooper created *Untitled* (Fig. 14). This is an installation artwork that uses an abandoned mattress, grass seeds, organic materials, and photography to probe the status of liminal edgelands in East London that are caught in the gap between cycles of redevelopment. The work consists of a series of documentary photographs of these liminal spaces and, to the left of this photographic series, an abandoned mattress with bright green grass sprouting from its surface. In dialogue with *FARM:shop*, the growing meadow on the mattress shows the agricultural genealogy of the line as linea. In this sense, Hooper's work is a fascinating negotiation of the modern dichotomy between growing and making, wherein practices of making are often extended into spheres of growing, such as GMOs, but we often forget that things must also be grown. In this context, Tim Ingold (2000) compares modern Western and indigenous understandings of making and growing, as well as cultivating and collecting, in order to show that there is no absolute distinction between making and growing. Similarly, Rebecca Hooper's *Untitled* reminds us that there is no ontological distinction between growing and making art since both involve an attuned, hands-on engagement

[39] This gap is unsettled in a video that visualizes a matching game wherein Cordeiro attempts to find the right colour card for the landscape as if he were matching the walls for a new apartment in Stratford against the background landscape of canals seen through the window. While there are moments of congruity, the viewer is struck by the overarching disconnect: the mixture of sepia, deep red and grey in the overarching fall tree canopy, which feels as if it is protecting the canal, feels as unmatchable to consumer colour codes as does the grey, murky depths of the river lea.

with establishing conditions for growth. And more broadly, Hooper's artwork responds to the query of identification opened up on day three: what is the role of the artist in gentrification and economic growth and, inversely, what is the role of ecological growth in the work of the artist? In these kinds of ways, the curriculum of coordination with shared metaphors on SC tends to open up novel ways of thinking about identification.

Identification

The boundary-learning process of identification is fundamentally about making sense of your own practice in relation to the broader challenge of CC. Akkerman and Bakker argue, "What is typical in identification processes is that the boundaries between practices are encountered and reconstructed, without necessarily overcoming discontinuities. The learning potential resides in a renewed sense making of different practices and related identities" (2011, 143). Similarly, in SC, there is a focus on a renewed sense-making of the role of the artist that is not wholly focused on overcoming discontinuities between art and science, but rather attempts to inspire reflection on what it means to be an artist through an encounter with environmental science. This questioning of the role of the artist was a core aspect of Cape Farewell's grant application to the Esmée Fairbairn Foundation, where the project leads (Professor Chris Wainwright, Dr. Daro Montag, and Professor Colin Fallows) pitched the idea of questioning the role of the artist and establishing "that cultural responsibility has a place at the heart of artistic practice" (Cape Farewell).

Universities curator Siôn Parkinson carried this inquiry forward on each of the expeditions by including guest lectures by artists who have been grappling with this question in their own practice, by speaking to the question himself, and by curating a related set of questions in the invitation to visiting staff. In the invitation to contribute to the London expedition, Parkinson inquired, "Are environmental issues too distant and diffuse from the principles of an individualized art practice? Or, might they have the capacity to empower?" (Parkinson 2011a). By framing environmental issues from the perspective of individual art practice, this line of questioning gestures to the structural contradiction between this paraeducational intervention's reliance on a rhetoric of artistic autonomy of the special status of the artistic pedagogue away from the institutionalized spaces of the university, and its attempt to explore new roles and responsibilities for art students. This certainly reverberates with the beautiful soul, simultaneously engaging with environmental issues and offering a space of retreat away from the unfolding of these issues. This contradiction also gestures to the deeper contradiction between the dominant individualism of modern art, as well as art school, and contemporary engagements with artistic collaboration.

Suzi Gablik famously interrogated these contradictions in her essay 'Connective Aesthetics', wherein she argued for "a shift away from the myth of the hard-edged, autonomous individualist that has formed the artist's identity, particularly in modern times," and towards a listener-centered paradigm of collaboration that is attuned to ecosystems and the natural world (1996, 2). This emphasis on collaboration is thematically continuous with recent experiments in art education in Britain wherein artists and art collectives have been trying to move away from individualist approaches to

art pedagogy (Williamson 2013). These experiments need to be historicized in relation to a broader shift in British art education, from the focus on training the individual artist in the development of their authorial capacity in twentieth-century art pedagogy, to a focus on collaboration among art students, teachers, and communities in twenty-first-century experimental art pedagogies (Williamson 2013).

SC's attempt to foster self-reflexivity about the role of the artist through collaborative dialogue is both part of a broader shift in recent experimental art pedagogy in Britain and part of an ongoing meditation on art/science relationships. In a report on the Bretton Hall art education conference in 1956, educator Harry Thubron stated, ""I believe that the artist has an increasingly important role to play in this highly scientific world"" (quoted in Williamson, 2013). SC continues this ongoing conversation on the role of the artist in a highly scientific world by curating encounters between art students, marine biologists, environmental forensicists, oceanographers, and other scientists, as well as social scientists and humanities researchers, in site-specific locations around the UK.

The curriculum of identification is characterized by a tension between the roles and responsibilities opened up through conversational drift during fieldwork, and the subsequent demand to produce an object or idea for the university gallery, which is continuous with a textual paradigm of collaboration (Kester 2011). This tension between process and product shows how the emergent moments of identification explored during fieldwork are often in a slightly tense relationship with the institutional professionalization of the artist or designer as a producer of ideas or brands for the neoliberal information economy. As historian Alan Moore explains, despite the collective

dimension of most artistic production, the ""marketable artistic product must be branded, and in this the individual producer alone is valued"" (quoted in Sholette 2011, 43).

The process of fieldwork opens up many emergent roles and responsibilities for the artist in shaping a collaborative response to CC. Moments of identification emerged in dialectical relation to particular moments of coordination across disciplines and at times aligned with moments of reflection wherein artists saw their roles from scientific viewpoints. These moments of identification included (1) the role of the artist in gleaning waste, (2) the role of the artist in responding to the gaps in scientific communication, (3) the role of the artist in probing ideologies of urban infrastructure, (4) the role of the artist in listening and attuning to ecosystems and to scientific research therein, (5) the role of the artist in intellectual disagreement, (6) the role of the artist in negotiating the complexities of urban development and gentrification, and (7) the role of the artist in integrating agricultural growth and abstract ecological lines into the creative process.

These wide-ranging and often disparate roles are often at odds with the overarching structure of the paraeducational research project; listening to ecosystems is very much at odds with notions of artistic autonomy (see Gablik 1996), while integrating agricultural growth into the core of an artwork may significantly decenter authorship. From an Ingoldian (2013) lens, it represents the reimaging of the role of the artist in more humble and transformational terms, as immersed in a world of lively materials.

There was also a fascinating tension between models of artistic collaboration that positioned the role of the artist in the collaborative relationship as an equal participant in intellectual disagreement and debate versus models that positioned the artist's role as carrying forward already-established scientific research. This tension was especially

evident on day two, as we will see in the following 'thick description' of these contrasting role models of artistic collaboration that respond to the metaphor of flood.

Identification in Action: Role Models of Artistic Collaboration

The thematic problem space of *flood* is both a metaphor for CC as a whole, in continuity with the deployment of the flood myth in popular representations of CC such as *The Day After Tomorrow*, and a reference to the real impact of CC on flood risk. We interrogated this polysemy of *flood* by wayfinding alongside the meshwork of London's watershed in order to find the connections between physical infrastructures and cultural infrastructures such as artist studios as well as their historical and ecological underpinnings, from the Thames Barrier to Second Floor Studios and Arts, just downstream of the barrier, to Blackfriars Road Port alongside the Thames, and ending at a sewer grate where one can still hear the murmurings of the buried river fleet. This journey reveals the force of water as a multiple entity that is shaped by processes of capitalist urbanization: "Water is a multiple entity: it possesses its own biophysical laws and properties, but in its interaction with human societies it is simultaneously shaped by political, cultural, and scientific factors" (Gandy 2003, 22). By interrogating this shared problem space of the multiplicity of water and its flooding, we engaged in an improvisational curriculum of boundary learning that highlighted multiple possible roles for artists in interrogating the flood metaphor.

This interrogation of identification began at 'The View' Centre of the Environment Agency (EA), which is an information centre overlooking the Thames

Barrier. This center is symbolically significant in the context of the recent devolution in flood risk management in England (See Johnson and Priest 2008).[40] Aesthetically, the barrier is often described as looking like a bunch of sinking ships—hulls reaching for the sky as they fall into the river—and can therefore in hindsight be read as an expression of the flood metaphor that is irreducible to managing risk. Standing at the edge of the river immediately in front of this barrier of shiny stainless steel sinking ships, David Buckland improvised a talk that used this barrier as an example of the kind of foresight that is needed to deal with the challenge that CC poses for us as a society and, more specifically, for artists. Throughout this talk, Buckland drew on both the metaphorical connotations of the barrier's sinking hulls as a flood metaphor for CC as a whole and the history of their construction prior to our current climate predicament in order to theorize the kind of creative foresight that is needed to tackle CC. Building on this ambience, Buckland took perspective on the boundaries between art and science in relation to the language of expertise vs. everyday language and thereby framed the problem of the gap in climate science communication within which CF intervenes. Later in the day, this moment of reflection was echoed in oceanographer Simon Boxhall's talk wherein participants saw themselves as artists and designers from a scientific perspective.

Boxhall (2011) says, "We're interested in working with the arts, because it's a way of communicating some of the science issues. Scientists are, to put it bluntly, crap at communication.…Artists tend to have many different ways of communicating. In

[40] In this devolution, there has been a paradigm shift away from the structural flood management era that resulted in the brilliant design of the Thames Barrier and towards nonstructural flood risk management that is based more on raising awareness and individual rather than state responsibility (Johnson and Priest 2008). For more information, please see the TE2100 Study. This study emphasizes the high ratio of benefits to the cost of protecting London's capital infrastructure and financial might from severe flooding, and it used a triangulation of benefit–cost and multicriteria analysis to analyze the economic viability of various options for managing London's flood risk (Penning-Rowsell et al. 2013).

continuity with Boxhall's reflection, Buckland argued that artists tend to soak up information from scientists and take it forward in singular processes of making that, taken as a whole, constitute the innovation of a new language for understanding CC (2011b). This highly specialized role is then expanded to encompass the entirety of the creative sector and the turn towards social collaboration in contemporary art. Buckland framed the challenge for SC participants to continue the process of collaboration and inquiry in their own art practices through a kind of action research that is grounded in foresight, such as the barrier, and engaged in processes of research that feed into making. This talk ultimately led into a conversation about our own roles and responsibilities on SC and opened up the stage for further interrogations of the role of the artist at our next stop, Second Floor Studios and Arts (SFSA).

Wayfinding alongside the Thames to SFSA gave a strong sense of the enmeshment of cultural spaces within the forces and flows of a complex infrastructure of water. This was only heightened by our entry to the art studio itself since it stands in front of the river. Here we gathered in an empty studio space to hear from David Cross. Cross told his story of becoming an artist and described his ongoing collaboration with Matthew Cornford in the collective Cornford & Cross in the context of creatively probing society's dysfunctional relationship to the natural world as it is embodied in the ideological underpinnings of urban infrastructure (Cross 2011). Building on our conversations about the barrier, David Cross introduced Cornford & Cross's site-specific practice of probing urban infrastructure at the city's edge. He explains, "The idea of infrastructure as a physical thing…is always double coded. It has a cultural meaning, which is not just to do with the technical management of material resources. It's to do

with our ways of thinking about ourselves" (Cross 2011). The Thames Barrier is not just a hard infrastructure for managing flood risk since its aesthetic form gestures to current fears and hopes for averting future climate catastrophe. And from this perspective, David Cross positions their site-specific practice as an interrogation of the double codings of infrastructure and related environmental issues through wide-ranging lenses, from power to conceptions of time and identity (Cross 2011).

Cross offered an intimate portrait of his own path to becoming an artist and of the daily challenges of living a double life—as an artist driven by dissatisfaction with the existing state of the world and as an artist employed within a university institution. In this context, he described the challenges and fruits of working as part of a collective and placed a lot of emphasis on disagreement as a working method in his collaboration with Matthew Cornford (Cross 2011; See Cornford and Cross 2004). This idea of theoretical disagreement as a basis for artistic collaboration contrasts significantly with the reflection on identification in David Buckland's lecture, wherein the role of the artist in the collaborative relationship is grounded less in contentious debate and more in the process of listening and absorbing scientific ideas in order to engage in subsequent processes of arts-based inquiry. Whereas the model of intellectual disagreement likely offers a stronger basis for intervening or marking a dissensus with the depoliticization of climate policy and politics (see Swyngedouw 2010), the model of carrying forward scientific research through subsequent processes of arts-based inquiry fits quite snugly into scientific reflections on the possible roles of the artist in climate science communication. And in contrast to David Buckland's discussion of the overarching trajectory of artistic collaboration as geared toward subsequent processes of making and public engagement,

David Cross shared a model of collaboration that does not necessarily lead to a finished work of any kind but rather can take the form of textual proposals for unrealized site-specific projects that disclose the limits of collaboration within particular institutional contexts.[iv]

Following David Cross's talk and building on many of the ideas put forward in David Buckland's talk, we heard from Annie Cattrell, whose practice speaks in subtle ways to the role of the artist in listening and drawing out research from the scientific community for subsequent processes of making (See Cattrell, Cornford, and Cockrell 2010; Gere 2004.). Annie Cattrell shared photographs from her portfolio and reflections on the experience of collaborating with scientists on Cape Farewell voyages to the Isles of Scotland as well as with neuroscientists in biomedical labs. She described the ways in which these experiences commonly involve a cognitive and identificatory moment of reorientation. "I like things that are a bit 'full on' actually; it gives you a bit of a thrill and it makes you have to, I mean all the kind of sailing metaphors come to mind—you have to navigate, you have to reorientate, and I think you do these things when you are watching brain surgery" (pers. comm. 2011). Cattrell emphasized that this identificatory moment of reorientation in response to an encounter with scientific activity, from brain surgery to climate science expeditions, involves a process of complete immersion within a situation and a subsequent experience of clarity and attunement. This sense of attunement echoes the listener-centered paradigm that Suzi Gablik (1996) argues can help develop a sense of reciprocity with the natural world.

The identificatory moments of day two opened up the following questions: What is the role of the artist in probing ideologies of urban infrastructure? What is the role of

the artist in learning from oceanographers or other scientists? These queries fed into wide-ranging correspondences with the flood metaphor.

Correspondences with Identificatory Moments

Artistic correspondences with *flood* answer to the identificatory moments encountered on day two, as described above, in order to probe water infrastructure, climate communication, and the emotional nuances of relating to the flood metaphor. For instance, in correspondence with our conversations about the barrier, Samuel Cook's *Apparatus* is a kinetic sculpture that transforms the hardness of steel and the sense of flow of the tidal Thames into a playfully engaging 'infrastructure' that asks the viewer to develop a more intimate relationship to it by grabbing a crank and rotating its central axis (Fig. 15).

Simon Boxhall's lecture on the role of the artist in scientific communication and on the melting of glaciers in Svalbard seemed to have an especially strong imprint on artistic correspondences with *flood*. Aaron McPeake shot a film called *Toll* (Fig. 16) that synthesizes sculpture and film to probe the contradiction between the urgency of mitigating CC and the deafening silence of anything close to an adequate political response. The sculptural antagonist of the film is a bell made from ice with a brass mallet that was cast with the mould of an old prewar fire engine bell. The film sets the sculpture against a black background and documents the melting of the ice bell in complete silence so that we are able to witness the temporality of melting ice. Its melting heightens an attentiveness to the temporality of rising sea levels as glaciers melt in Svalbard and gives

a sense of things creeping up. Drops fall from the edge of the bell quite slowly at the beginning and gradually pick up pace until, a third of the way into the film, we see the whole bell suddenly shake but miraculously stay in place. After a series of near breaks, the bell finally crashes to the floor like a glacier crumbling in Svalbard.

The contradiction between the urgency of mitigating global CC, as signified by McPeake's use of the prewar fire engine mould, and our societal deafness to this urgency captures a problem at the core of climate communication: how do we engage people with the temporal urgency of mitigating CC in a mediascape of 'urgency overload' when people are tired and overworked? In response to this query, Ashley Yeo interrogates the interrelation between domestic spaces of exhaustion in London and the melting of glaciers in the High Arctic. The series of two drawings called *Overtime* is a diptych that connects the crumbling of a glacier to the interiority of a domestic scene of overtime recovery, thereby gesturing to the ways in which our overworked lives are interconnected to a reclusive turning away from CC (Fig. 17).

Finally, Cadi Froelich's artwork offers a fascinating take on the role of the artist in probing the double coding of infrastructure and in gleaning materials. Froelich gleans a copper hot water tank to sculpt a minimalist inquiry into the transversal relations between self-identity, embodiment, and London's infrastructure of water. In *40 Litres* (Fig. 18), a salvaged water tank is cut to size and remoulded so that it holds exactly forty litres of water, which is the amount contained by the average human body, and then filled with water and placed on the gallery floor. The high water line of *40 Litres* is just barely contained by the copper structure. Gazing into the reflective tank of water inspires reflection on the preciousness of copper and the ways in which the bodies of urban

modernity are dependent upon a complex infrastructure for cleaning, accessing, and containing water. At the same time, this minimalist inquiry shows how the identificatory moment of self-reflection intersects with learning to live at the threshold in a kind of transitional space between interior reflection and flood, gazing down at the meniscus of water at the edge of the hot water tank while responding to one's reflection in the pool of water. This transitional space of engagement between identification and flood brings us to the broader significance of *Without Boats, Dreams Dry Up*.

Without Boats, Dreams Dry Up

Without Boats, Dreams Dry Up maps correspondence with the shared problem space of London's infrastructure of water and its precarity in the face of global CC in relation to a series of shared metaphors: trash, flood, and growth (Fig. 19). The title is taken from Michel Foucault's 1967 lecture entitled "*Des Espace Autres* (Of Other Spaces)", wherein he argues that we have moved away from the temporal obsessions of the nineteenth century and are currently in the midst of an epoch of space. Therein, Foucault theorizes a typology of heterotopias, which are places that function as counter-sites because they are able to simultaneously represent, contest, and invert the real spaces of a given culture (1984/1967, 3). At the conclusion of this lecture, Foucault muses on the boat as a 'heterotopia par excellence' (9), which is not reducible to the real spaces of its journey or its historical role in economic colonization since it has simultaneously served as "the greatest reserve of the imagination" (1984/1967, 9).

Drawing on the imaginative reserve of the Cabby sailboat, clippers, and of course our own two feet, *Without Boats* maps a journey of sensitive correspondence with the nuances of London's infrastructure of water, but this path of wayfaring is irreducible to a representation of the urgent problems therein. Rather, it traces a subtle contestation of the real spaces of the landfill and of water infrastructure, and a radical inversion of the spaces of economic regeneration in East London that flips the question of the role of the artist in economic growth into the question of the role of growth in the work of the artist. These subtle contestations and inversions are curated as a series of artistic correspondences with the three thematic journeys. Participant Samuel Cook, in collaboration with fellow participants, and the exhibition design by participant Charlie Abbott and Alex Hough, curated the exhibition as a relay of artistic correspondence. At the entrance to the exhibit, viewers encountered a rack of postcards from London's post-industrial landscape, in Charlie Abbott's *The Monuments to Daniel Defoe* (fig. 25), which extended this relay of correspondence to the gallery visitor.

In correspondence with the metaphor of 'trash', the show explores a subtle contestation of the real spaces of the landfill, wherein artworks by Katriona Beales (fig. 20), Saba Zavarei (fig. 21), and myself (fig. 22) prompt us to shift our attention away from the mounding of consumer objects and toward a gathering of things in movement. For instance, I developed a walking art project that explored the possibilities of gleaning as a way of knowing place. *Gleaning Walks* (2012) is an installation that includes a set of instructions for an urban ecology workshop based on gleaning and a research journal composed of materials that I gleaned on a series of exploratory gleaning walks (fig. 22). On hand-made paper composed from gleaned detritus, I created a set of instructions for a

workshop that begins with a silent walking tour and ends with the composition of a site-specific sketch map (fig. 22). The materials gleaned on the group walk are used to make the sketch map. “The walk of the line retraces your own ‘walk’ through the terrain” (Ingold). In the process of retracing a route with materials found along the way, the sketch mapping process asks us to consider how the lines we trace, in our everyday routines, intersect with the historical sediments and sustainable possibilities of a place.

The show also maps a journey away from the real spaces and economic frames of water infrastructure and towards a more complex appreciation of water as a ‘multiple entity’ (Gandy 2003) that is simultaneously shaped by emotion, as shown in works by Ashley Yeo (fig. 17), Jasmine Fung (fig. 23) and Jarrod Sim (fig. 24), scale, as seen in Samuel Cook’s sculpture (fig. 15), and by the gaps of scientific communication, as seen in Aaron McPeake’s film (fig. 16). Finally, it maps a journey of inverting the real spaces of economic regeneration in Stratford, East London, where the problem of the role of the artist in ‘growth’ is inverted into the question of the role of ‘growth’ in the work of the artist, as seen especially in the work of Rebecca Hooper (fig. 14).

What does it mean to map this wayfaring journey of the artist? The process of mapping this journey is a subtle negotiation of our spatial epoch of simultaneity, juxtaposition and the network. Foucault argues, “We are at a moment, I believe, when our experience of the world is less that of a long life developing through time than that of a network that connects points and intersects with its own skein” (1984, 1). Here, one thinks of the networks of urban climate research and policy that connect across points, across cities, or of the EA’s mapping of the spatial relationships of flood risk in the TE2100 report. And, indeed, the exhibition mapped some of the locations addressed in

this report, such as Rainham Marshes and the Thames barrier, but it significantly shifted our attention away from the network of connection across these sites in order to trace a larger meshwork. In a subtle perspectival shift away from this urban climate network, we mapped the relationship between these places as a meshwork of intersecting lines of wayfaring that are irreducible to geometric lines of connection and articulation. In contrast to the nodal structure of the network, which connects points, the meshwork is characterized by the coming-together of lines of wayfaring in knots that never fully articulate these lines, since there are always loose ends that are left behind as these paths of wayfaring continue on their journey (Ingold, 132-33). “Knots are places where many lines of becoming are drawn tightly together” (Ingold 132). In *Without Boats, Dreams Dry Up*, we see a map of the knots of Short Course London, where the wayfinding of participants was drawn together at landfills, barriers, artists studios, and sewer grates to coordinate with other disciplines and negotiate the shifting role of the artist in a time of global climate change. To situate the broader significance of this show in the context of SC UK as a whole, I will now offer a conclusion regarding the broader significance of this boundary learning curriculum.

Conclusion

In response to discourses about the future of higher art and design education in relation to sustainability and global climate change, Short Course is a paraeducational project that draws upon the commonly held assertion of the freedom or autonomy of the artist as a model pedagogue within educational turn practice and discourse (see Graham

2010) by creating a space apart from the institutionalized spaces of higher education for such model pedagogues to teach alongside environmental and social scientists in unique settings on boats, at barriers and on walking journeys alongside hidden rivers. This reverberation of the beautiful soul of Romanticism involves shifting the spaces of teaching postsecondary art and design from the lecture hall to the city-as-classroom, which is always an interesting move within place-based approaches to education but, in this case, is far from transformational since it uses these spaces more as a retreat than for establishing longer-duration or transversal engagements with socioecological places. However, there are significant moments of identification opened up by this course that are at odds with the characteristic retreat of the beautiful soul, such as artist David Cross's notion of agonistic disagreement as a model for artistic collaboration, which would seem to offer a stronger starting point for engaging the often depoliticized spaces of climate policy at COP summits and elsewhere.

This improvised curriculum of wayfinding is oriented towards site-specific boundary learning about the role of the artist in a time of global CC and grounds arts-based inquiry in the sharing of metaphors across disciplines. This curriculum sometimes introduces site-specific and long-duration approaches to collaboration, such as Tania Kovats's *Meadow*, that are at odds with the overarching textual paradigm of collaboration introduced on the course. And finally, this curriculum of collaborative wayfinding introduces moments of identification that rub up against the overarching reliance on a commitment to the symbolic autonomy of the artist within the paraeducational project as a whole, such as in reflections on the role of the artist in listening or attuning to ecosystems, which may challenge modernist notions of individualism and autonomy

(Gablik 1996), or in integrating agricultural growth into the production of an artwork, which may recast the wayfaring role of the artist in more humble and transformational terms (see Ingold 2013; 2010; 2011b).

In medias res of particular experiences of fieldwork, there are moments of potentiality that can be drawn out from this course that speak to the potentially transformative wayfaring role of the artist in a time of global CC. Sonia Shomalzadeh's morphogenetic land artworks on the coast of Cornwall (fig. 26), for instance, as well as Rebecca Hooper's engagements with agricultural growth and regeneration in East London (fig. 14), speak to some of the ways in which emerging artists are negotiating new kinds of roles and responsibilities in a time of global climate change. These morphogenetic engagements with the abstract lines of ecology illustrate the transformational potential of working alongside the *threads* of agriculture and plant life, as in Rebecca Hooper's work, and with the *traces* left by the human animal in its trek alonside dissolving shorelines, as exemplified in Sonia Shomalzadeh's *Sand Drawings*. Tim Ingold observes, "the snail leaves an additive trace of slime, but animal tracks are usually reductive, caused by boring in wood or bark, imprinting in the soft surface of mud, sand or snow or, on harder ground, the wear and tear of many feet" (2007, 43). The reductive traces of Shomalzadeh's *Sand Drawings* (fig. 26) imprint in the soft surface of mud and sand to show how the "unfinished business" of place attachment and identity in the face of global climate change is an ongoing correspondence with the stories of other species and the force of rising waters (2005, 131).

Conclusion

This dissertation has examined the role of ecologically engaged art practice in the innovation of public pedagogy about a sustainable response to global climate change. In reflecting on the diverse public pedagogies examined in this dissertation, I find myself returning to Félix Guattari's (1989) theory of eco-art in *The Three Ecologies*, wherein he responds to the geopolitical transformation of the end of the Cold War and the simultaneous degradation of social, psychic, and natural ecologies. This text remains timely in our current neoliberal conjuncture of social movement professionalization, austerity in arts, culture and education, and depoliticized climate policymaking. In this text, Guattari tackles nothing less than "the production of human existence itself in new historical contexts," which he refers to as modernist integrated world capitalism (IWC) (1989, 34). He presents a combination of ethics and politics called *ecosophy* as a simultaneously analytic and creative way of addressing the interrelation between mental, social, and environmental ecologies within the context of IWC. Guatarri says, "The increasing deterioration of human relations with the socius, the psyche and 'nature', is due not only to environmental and objective pollution but is also the result of a certain incomprehension and fatalistic passivity towards these issues as a whole" (1989, 41). In response, he suggests a way of thinking about the interrelation between mental, social, and natural ecologies within the globally shifting patterns of IWC (1989).

These three ecologies are less distinct domains than alternate and interchangeable viewpoints from which to understand the broader assemblage of IWC (Bennett 2010, 113). The analytic emphasis is upon thinking transversally across the interchangeable viewpoints of the three ecologies in order to discern dominant modes of subjectification such as green consumerism (Bennett 2010, 112) and openings towards healthier ways of

articulating *interiority* and *exteriority* (113–116). It is within this framework that the concept of eco-art should be understood. Guattari says, "It is this praxic opening-out which constitutes the essence of eco-art" (1989, 53). This flowering of each of the three existential territories into one another allows for a healthy rearticulation of interiority and exteriority and space for the carving out of a more viable human project. It works against the opposing tendency of the bifurcation of territories into the "deathly repetitions" of unhealthy modes of subjectification (Guattari 1989, 53) such as the guilty, unhappy consciousness of green consumer subjectivity.

Where might we find eco-art? Guattari says, eco-art "subsumes all existing ways of domesticating existential Territories and is concerned with *intimate modes of being*, the *body*, the *environment* or large contextual ensembles" (1989, 53). In the context of arts–sciences collaborations, the concept of eco-art raises the following question: what kind of engagements with intimacy, the body, and the environment might help open up mental, social, and environmental ecologies to one another in order to create more viable ways of articulating interiority with exteriority in the act of collaboration? The practices of ecological wayfinding examined in this dissertation respond to the challenge of what Guattari calls eco-art by engaging with *intimate* modes of energy expenditure, such as Eve Mosher's wasting of bodily energy in a walk around New York City's *HighWaterLine*, that attempt to open up relational and embodied ways of knowing environmental ecologies. Theoretically, these practices of ecological wayfinding have the potential to open up decolonizing ways of knowing socioecological places by moving alongside the meshwork of human and nonhuman lines that come together therein rather than moving across places and ecosystems in colonizing movements, and to foster new

forms of sustainability and cosmopolitanism in the face of global climate change. And we certainly need such relational and site-specific art practices to help us envision an ethics of sustainability on the scale of the cosmos rather than the scale of free market fundamentalism, such as through the intimate expenditure of bodies-in-motion on walking or boating journeys.

The actual contribution of ecological wayfinding to relational, site-specific art practice and towards opening up healthier relationships between mental, social, and environmental ecologies is distinctly shaped by the ways in which it negotiates a variety of sites of encounter with particular cultural and political thresholds. In particular, this dissertation has traced the sites of encounter of ecological wayfinding as a distinct form of arts–sciences collaboration with the following thresholds: *Western globalism*, *cosmopolitanization, anthropocentrism*, *neoliberalism*, *Romanticism*, and *disciplinary boundaries* in postsecondary art and design education.

At the threshold of Western globalism, practices of ecological wayfinding often reproduce the homeward-bound gaze from a colonizing journey that fundamentally transformed the Western geographic imagination in the wake of the Apollo whole-earth images. This gaze backwards at the globe-as-object continues to inform the political aesthetics of many site-specific and relational experiments, such as Alex Hartley's *Nowhereisland*, and fundamentally negates the decolonizing potential of wayfinding as an alongly integrated knowledge of place by its uniform imposition of a distinctly Western spatial politics. So this is what happens when ecological wayfinding passes through the threshold of the geographic imaginary of modern Western environmentalism.

In the case of *U-n-f-o-l-d*, the threshold of modern Western environmentalism often pairs with the threshold of Romanticism. Here, the twinning of art, science, and exploration comes along with a British geographic imaginary of the High Arctic as a deeply paradoxical terra nullis, a geographic tipping point landscape that functions simultaneously as a blank canvas for the reflexivity of a green consumer subjectivity. This British geographic imaginary tends to circumscribe the forms of aesthetic cosmopolitanism seen in *U-n-f-o-l-d*, such as the cosmopolitan ethic of mitigation explored in Sunand Prasad's *Greenhouse Gas* (2008), and perhaps best exemplified in Alex Hartley's *Nowhereisland*. These ways of imagining what it is to be a citizen on a planet in crisis are typically universal in their ambitions and nationalist in their spatial imaginaries, which results in the reproduction of individualistic and romantic conceptions of global citizenship in these climate change pedagogies. These romantic iterations of aesthetic cosmopolitanism attempt to reconstruct universal notions like citizenship and ethics in order to address the challenge of climate change yet remain tied at the heels to perhaps less universally appealing, nationalist orientations to the High Arctic.

Perhaps more fascinating than this unfolding of seemingly archaic imaginaries in the spatial politics of contemporary climate change exhibitions is their negotiation of the architectural connotation of the threshold, as in the strip of wood forming the bottom of a doorway. In particular, the example of *U-n-f-o-l-d* shows the pedagogical potential of what Umberto Eco calls the 'work in movement' to function as a kind of architectural threshold for structuring transitional spaces of participation in climate change exhibitions. The folding and unfolding of this work in movement allows local curators and art students to engage with its tensions and contradictions, such as the whiteness of its

beautiful soul, and to undertake their own nuanced correspondences with what a sustainable response to global climate change might look like. Here, following Carmen Morsch's theory of gallery education (2009), it becomes paramount for local curatorial collaborators to program critical and transformative as opposed to merely reproductive or affirmative talks, workshops, and events in the spaces of this unfolding work in movement.

The educational sense of threshold, as 'the point just before a new situation, period of life, etc. begins' (Canadian Oxford Dictionary), takes on a variety of meanings in this study: the threshold or boundary between disciplines, the thresholds between universities and their surrounding regions, and the thresholds between hylomorphic and morphogenetic approaches to making art. In the moments of potentiality opened-up during fieldwork on Short Course UK, we saw how emerging artists are moving beyond anthropocentric orientations to making and towards morphogenetic engagements with the ongoing making of the lifeworld. Here, the wayfaring role of the artist emerges as simultaneously more transformational and more humble.

In the spaces of conversational drift across disciplinary boundaries that unfold on these short courses, we see how learning at the thresholds of global climate change involves a constant negotiation of contrasting and often contradictory spaces of *identification*—reflection on the role of the artist—and *coordination*—learning how to inhabit shared problem spaces in site-specific contexts. If these spaces of boundary learning are to become transformative, however, they will need to move beyond their overriding commitment to aesthetic autonomy and the retreat of the beautiful soul in its simultaneous engagement and reclusive turning away from actually unfolding

sustainability politics. This sensibility seems to foreclose a more radical questioning of the division of roles and responsibilities between the arts and the sciences in the political aesthetics of climate change while foreclosing longer-duration, transversal engagements with the politics and places introduced on these learning journeys. A more transformative approach might draw on Guattari's theory of eco-art and his related ideas around subject making, institutional analysis, transversal relations between art and social movements, and the *associative sector.* This is "an association based neither in the state nor in private capital nor in small collective practices, but in the combination of those committed to working transversally across social institutions, social movements and artistic strategies, against the forces attempting to link creativity to the production of alienated and exploited subjectivites, no matter where these were located" (Graham 2010, 128). From this perspective, arts-sciences collaborations need to move away from the escapism of the beautiful soul and towards the hard work of building a vibrant associative sector of like-minded individuals and organizations involved in reclaiming the role of creativity in developing a sustainable response to climate change.

This study has also shown how contemporary arts–sciences collaborations confront neoliberalism in their transversal engagements with climate politics. In particular, I have shown how Cape Farewell draws on a variety of tactics to make space for its practice of networked cultural entrepreneurship in the context of the neoliberalization of social movements and the culture of austerity in art and culture. Here, I argue that civil society organizations working at the intersection of the climate sciences and contemporary art should join forces with like-minded individuals and organizations in order to resist the predominant climate of austerity in arts, culture, and education, and

avoid giving in to the demand from the fossil fuel sector and from big nuclear for arts–sciences collaborations that serve greenwashing purposes. When arts–sciences collaborations pass through the threshold of neoliberalism, they often perform public pedagogy that maintains the status quo. To negotiate this threshold, collaborations should be significantly more mindful of the consensual implications of particular partnerships and funding arrangements that can foreclose authentic and lively public pedagogy about the difficult knowledge of CC. And in the process of joining forces with others, arts-sciences collaborations should aim to build a larger associative sector of those committed to working transversally across climate justice and environmental sustainability movements, artistic strategies and allied organizations to resist the depoliticization of climate politics and to engage more meaningfully with questions of diversity and hospitality in the development of public pedagogy for a vibrant planetary future. Finally, these collaborations should work towards a rupture or dissensus with the dominant political aesthetics of climate change by opening up spaces for audiences and learners to critically engage with the urgent questions of biodiversity loss, sustainability, hospitality, and empathy that confront us today.

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Illustrations

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Aron Louis Cohen, *On the Banks of the Gowanus*, 2011. Photograph by Andrew Bieler.

Illustration 5

Simonetta Moro, 2011, *Venice/Gowanus: Watery Landscapes*. Photograph by Andrew Bieler.

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Mare Liberum, 2011, *Liberum Kayak*. Photograph by Andrew Bieler.

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Rainham Marshes Landfill. October 24, 2011. Photograph by Andrew Bieler.

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Something & Son, FARM:shop, Ongoing project, Photograph by Andrew Bieler.

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Something & Son, FARM:shop (interior). Photograph by Andrew Bieler.

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Darragh Gallagher, 2012, *Untitled.* Photograph by Samuel Cook.

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Emma Cheng, 2012, *Untitled*. Photograph by Samuel Cook.

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Jina Lee, 2012. *Tilbury Dock*. Arcylic, conté, tracing paper on paper, wire
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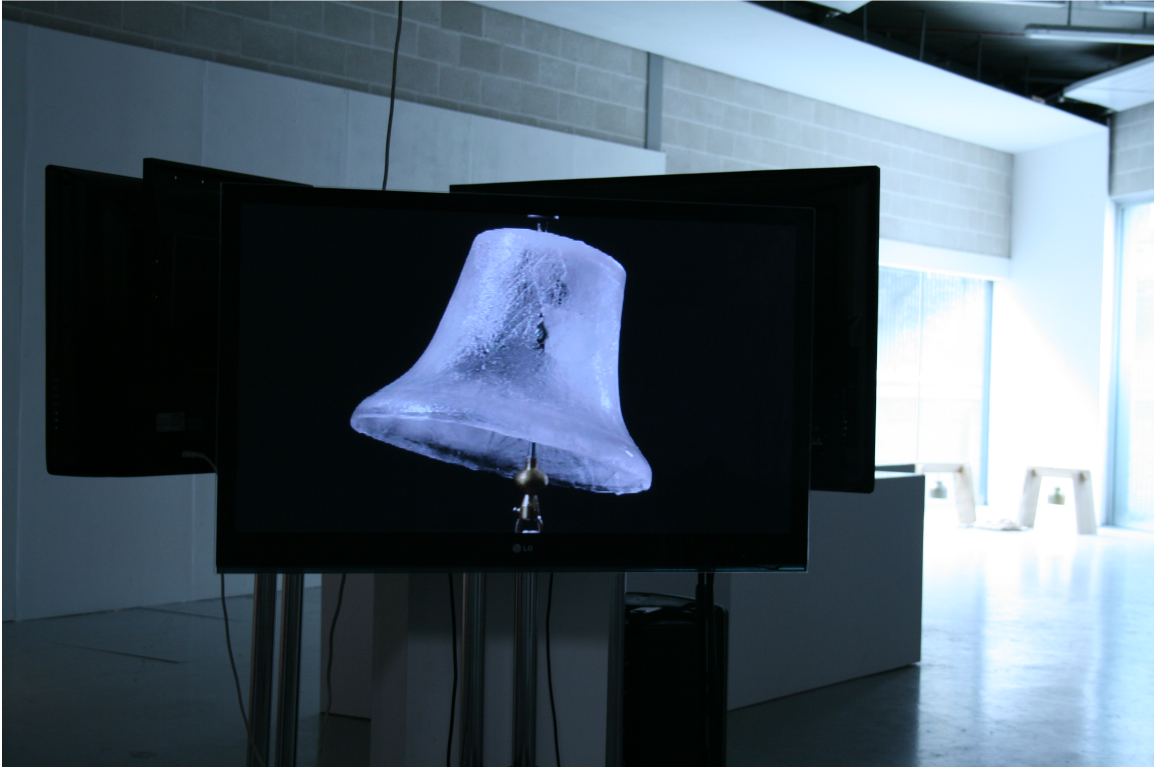
Illustration 14

Rebecca Hooper, 2012, *Untitled*. Photograph by Samuel Cook.

Illustration 15

Samuel Cook, 2012, *Apparatus*. Photograph by Samuel Cook.

Illustration 16



Aaron McPeake, 2012, *Toll*. Photograph by Samuel Cook.

Illustration 17

Ashley Yeo, 2012, *Overtime*. Photograph by Samuel Cook.

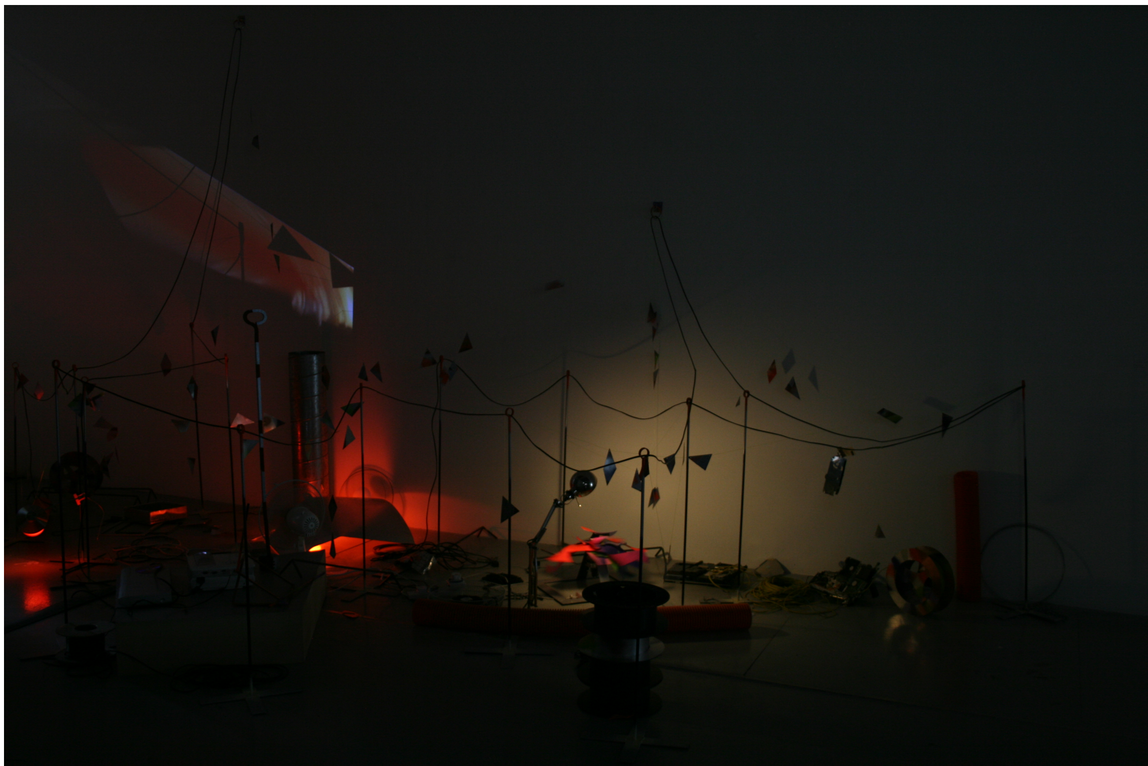
Illustration 18

Cadi Froelich, 2012, *40 Litres*. Photograph by Samuel Cook.

Illustration 19

Without Boats, Dreams Dry Up, 2012. Photograph by Samuel Cook.

Illustration 20

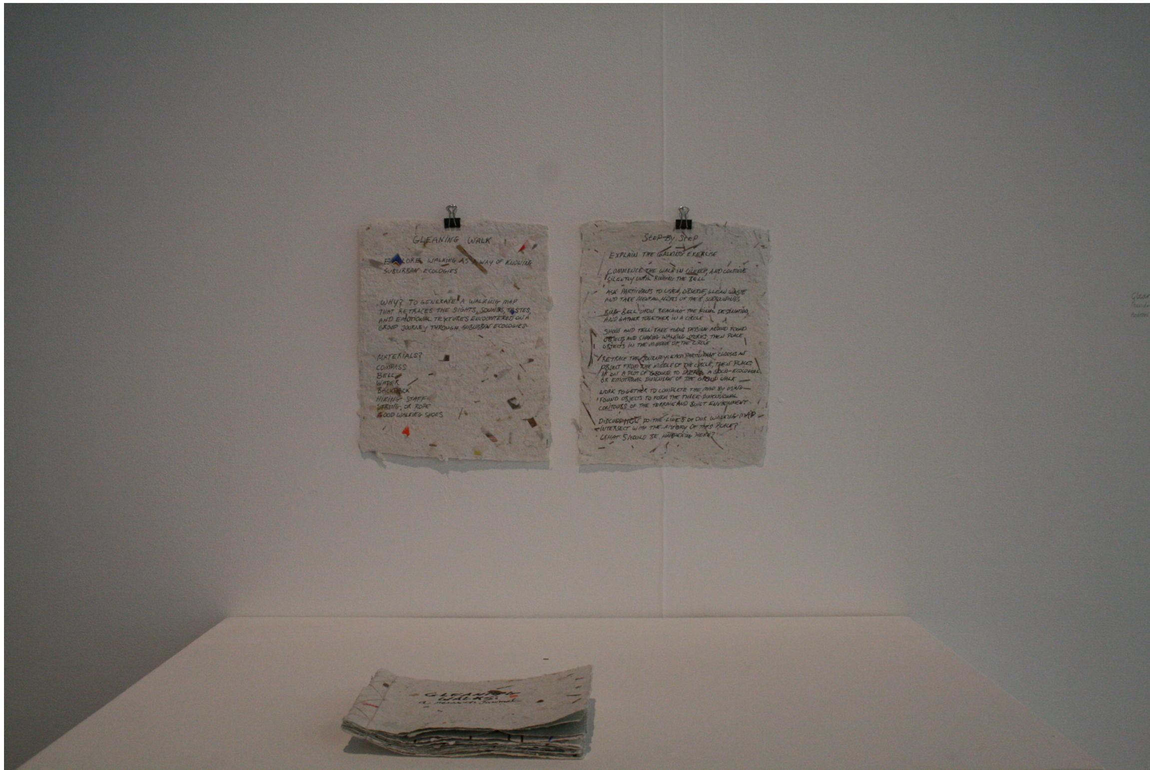


Katriona Beales, 2012, *@£$%$%^&%^&£$%£$%**$ & {}<>>£^$%^$>{}P}]]*.
Photograph by Samuel Cook.

Illustration 21

Saba Zavarei, 2012. Photograph by Samuel Cook.

Illustration 22



Gleaning Walks

Step by Step:

A. Explain the walking exercise.
B. Commence the walk in silence and continue silently until ringing the bell.
C. Ask participants to listen, observe, glean waste, and take mental notes of their surroundings (after ten minutes of walking).
D. Ring bell upon reaching the final destination and gather together in a circle.
E. Show and tell: take turns passing around found objects and sharing walking stories, then place objects in the middle of the circle.
F. Retrace the journey: each participant chooses an object from the middle of the circle, then places it on a plot of ground (circumscribed area on a stretch of sidewalk, grass, or field) to sketch a socioecological or emotional dimension of the group walk.
G. Work together to complete the map by using found objects to form the three-dimensional contours of the terrain and built environment.
H. Discuss: How do the lines of our walking map intersect with the social and ecological history of this place? What should be happening here?

Andrew Bieler, 2012. Photograph by Samuel Cook.

Illustration 23

Jasmine Fung, *Peko and Pudo*, 2012. Photograph by Samuel Cook.

Illustration 24

Jarrod Sim, *Scape*, 2012. Photograph by Samuel Cook.

Illustration 25

Charlie Abbott, 2012, *The Monuments to Daniel Defoe*. Photograph by Samuel Cook.

Illustration 26

Sonia Shomalzadeh. *Gray Whale with Kayaker*. Sand and water. Photograph 37 by 29 cm. Photograph by Sonia Shomalzadeh.

[i] Architect Sunand Prasad was the president of the Royal Institute of British Architects (RIBA) from 2007 to 2009 and was listed by the independent newspaper as one of the UK's 100 most important environmentalists for his work towards greening the profession (*penoyreprasad.com*). Prasad is also a member of the UK government's Green Construction Board and a senior partner of the architectural practice Penoyre & Prasad LLP, which has been focused on sustainable architecture for two decades (ecobuild.uk; penoyreprasad.com). He is on the steering committee of the RIBA's most recent Climate Change Briefing (RIBA 2012). Prasad's participation on the board is significant not only because of his expertise and recognition as one of the UK's top architects but also for his experience implementing climate policy at a cultural organization. Prasad is CF's bridge to the world of sustainable architectural practice, which the organization has explored in numerous exhibitions.

CF has pursued many literature and poetry projects, such as the ADRIFT climate poetry residency (2012–13, CF.com), and acclaimed novelist Ian McEwan is their main bridge to the literary world.

McEwan won the Man Booker Prise for Fiction in 1998 for his novel *Amsterdam* and has received numerous awards for the novel *Atonement*. His recent novel *Solar* was partly inspired by his residency on the 2005 High Arctic trip (ianmcewan.com).

CF has produced two documentary films: *Art from the Arctic,* directed by David Hinton, explored the 2005 High Arctic expedition and was coproduced by the BBC; *Burning Ice*, directed by Peter Gilbert, explored the 2008 Disko Bay expedition and was broadcast on the Sundance Channel in the USA in 2010 (CF.com). As bridges to the film industry, the organization has two established producers on its board: Fiona Morris and Michael Wilson OBE. Fiona Morris is head of Arts and Performance at Leopard Films, which is a UK production house focusing on factual entertainment and children's media (leopard.com). She has produced many films for the BBC such as *A Poet's Guide to Britain* and documentaries on Chopin and Elgar, as well as various 3D productions, including "the world's first live 3D multi-cast opera" (leopard.com). Michael Wilson was made an Office of the Order of the British Empire (OBE) in 2008 and has been an executive producer or producer of numerous James Bond films, from *Moonraker* (1979) to *Skyfall* (2012) (imdb.com). Between Wilson and Morris, CF would appear to have an extensive network of connections to the film industry, and it is almost surprising that they have not produced more films than they have so far.

CF has pursued many projects in the university sector, including the travelling *U-n-f-o-l-d* art exhibition and the Short Course UK program of art and ecology expeditions in Cornwall, London, and Liverpool. As a bridge to the university sector in the UK, Europe, and North America, Professor Chris Wainwright has played a central role in the organization and is currently chair of the CF board in the UK (CF.com; pers. comm.). Professor Wainwright is head of Camberwell, Chelsea and Wimbledon Colleges and is a recent past president of the European League of Institutes of the Arts (ELIA), which is an organization that represents over 350 European higher arts institutions (Camberwell). Prof. Wainwright was president of ELIA from 2006–2010, during which time CF developed the touring *U-n-f-o-l-d* exhibition that was designed for university galleries in Europe, North America, and China (Buckland pers. comm., 2011). Wainwright was a cocurator of this exhibition and also a contributing artist. In addition to his work as chair of CF and head of colleges, Wainwright serves as a member of the Tate Britain Council and is obviously a crucial bridge to this partner organization.

In order to bridge its agenda with the environmental sector, the organization includes Prof. Diana Liverman as a bridge to environmental policy and Prof. Christopher Rapley as a bridge to climate science. Prof. Liverman is the codirector of the Institute of the Environment at the University of Arizona and is also a visiting professor of environmental policy and development at Oxford University (UofA.edu). "Her career has focused on the human dimensions of global environmental change and her main research interests include global change, climate impacts, vulnerability and adaptation" (UofA.edu). On the climate science side, Prof. Christopher Rapley was a lecturer at the Department of Space and Climate Physics of University College London (1981–1987) and was appointed director of the Science Museum in 2007. He is an honorary professor at the University of East Anglia (uea.ac.uk). In the climate communications world, Rapley is famous for helping Al Gore with the *Live Earth* concert "by arranging for the Rothera Research Station's in-house band, Nunatak, to perform in Antarctica as part of the event" (uea.ac.uk). For an organization devoted to climate science, these two high-level bridges to the environmental sector play a crucial role in legitimating its work. It should also be emphasized that the board also included Charlie Kronick for many years. Charlie Kronick is the senior climate advisor at Greenpeace and is a central figure in UK climate politics. Finally, the CF board includes a lawyer by the name of Andrew McMillan, who is head of the firm Simmons & Simmons's technology, media, and telecommunications sector (SS.com).

[ii] In 1935, Kandinsky queried the connections between a line and a fish by describing the ways in which "both are animated by forces internal to them that find expression in the linear quality of movement" (Ingold 2007, 135). Whereas Kandinsky ultimately chose the line over the fish, *FARM:shop* chooses the linear movement of fish and its intertwining with a meshwork of growing Swiss chard, kale, beets, and other veggies in a sophisticated intervention between art and agriculture. This intervention discloses the agricultural genealogy of the word *line* itself. The etymology of the word *line* gives us "lint or flax" as one of its meanings, which is significant both because it is a thread rather than a trace, and because it is an ancient agricultural product (Ingold 2007, 61). Ingold observes, "*Lint* is derived from the Latin linea, which originally meant a thread made from flax, *linum*" (61). The shop shows us this agricultural genealogy of the line and the distinct properties of the living, growing thread in designing complex, three-dimensional spaces (Bieler 2014). "The thread is a filament of some kind, which may be entangled with other threads or

suspended between points in three dimensional space" (Ingold 2007, 41). The vibrant green threads of nasturtium shoots are suspended between points on living walls, and Swiss chard roots are entangled within the flow of nutritious tilapia excrement in the aquaponic system. This use of small-scale urban agriculture technology to suspend living threads between points or alongside walls engenders a variety of landscape installations and surfaces that illustrate how to grow food in unusual spaces (Bieler 2014).

FARM:shop juxtaposes diverse growing systems. Whereas the red spectrum hydroponic system for growing tomatoes on the top floor utilizes energy-intensive fluorescent lighting that leaches huge amounts of electricity from the city grid, the polytunnel in the backyard offers small-scale growers more economical methods by utilizing trapped solar energy to experiment with longer growing seasons and permaculture techniques for growing kale, winter peas, and tomatoes with less reliance on the city energy grid. In this way, *FARM:shop* demonstrates a broad range of farming techniques, from energy-intensive but high-yield commercial growing to small-scale residential options, and it foregrounds each installation as an ongoing experiment in how to make urban agriculture more economically, socially, and environmentally sustainable as well as popular (Bieler 2014).

[iii] Lee reflects, "I have become attracted with an aspect of invisible scenes in London such as London's Hidden Rivers, Olympic Village beyond displaced communities and Tilbury Dock's veiled wastes."

[iv] For instance, in an artwork called *The Ambassadors*, which was an unrealized project proposed for the Liverpool Biennale, they pitched the idea of flying "the flags of three nations with which the UK did not have any diplomatic relations" (2006). This critique was turned down flat, which reveals the limit of nationalism as central to the operation of the biennale and shows the way in which their artworks necessitate a textual anchoring point prior to any collaboration with an outside institution, which serves to anchor meanings so that even unrealized projects can have a discursive life of their own as unrealized works that index the limits of collaboration itself (Cornford & Cross 2006).