Chapter 18

Living in a World of Movement: Human Resilience to Environmental Instability in Greenland

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Over the last decade, scientific research arguing that current climate change is more pronounced in the Arctic than in any other region has been enhanced by compelling observations from indigenous peoples (ACIA 2005; Huntington and Fox 2005; Krupnik and Jolly 2002; Nuttall et al. 2005). As well as revealing the limits of science in understanding the experience and lived worlds of the peoples who dwell in high latitude regions, the significance of these observations of a rapidly shifting environment goes far beyond the northern reaches of the Earth and enriches our understanding of living on a planet undergoing constant change. As elsewhere in the circumpolar North, Greenland's residents are reporting that they are noticing changes in the weather and climate of their Arctic homeland. Certainly, on recent travels in Greenland, I hear people say with increasing frequency "*Sila kiagukkalattuinnarpoq*"—"the weather is getting warmer and warmer." Hunters in communities along the northwest coast talk of having to travel further in search of seals and fish, of the sea ice forming later and breaking up earlier, and of not being able to live as they once did. Politicians and Inuit activists reinforce these comments about local difficulties and environmental risk with authoritative sound bites about how people can no longer hunt or fish in the ways they have always been used to because the climate is changing—or worse, that people are getting lost when out traveling because of climate change, or that they are falling through thin ice and drowning because of climate change.

I have always been a little cautious about how to respond to such statements. For one thing, I have never felt entirely comfortable with the mere chronicling of indigenous observations of climate change and their incorporation into scientific assessments, particularly when such observations are removed from their lived, everyday social and cultural context and offered as supporting evidence for scientific research on climate change without much critical interrogation. Too often this is done within a politicized research context that plays on the well-rehearsed argument about the modernist dichotomy between traditional knowledge and scientific knowledge.

Indigenous and local observations deserve serious attention, especially when we seek to understand them with reference to the everyday life, and social and cultural meanings of local people. But such attention raises questions to do with epistemology and challenges us to ask how and why people know what they know (in the same way as science is scrutinized), and to demonstrate how we can distinguish between an observation about the weather and a claim that indigenous knowledge provides evidence of climate change. Climate change is becoming an explanatory account for almost everything that seems unusual in the weather, the environment, or in people's actions and encounters with the natural world. Political correctness and the changing dynamics of research in many parts of the circumpolar North, it also seems to me, prevent many researchers working on the human dimensions of Arctic climate change from questioning why death on the ice is all too quickly explained away as a result of climate change, when it could simply be a tragic accident or because a person's inexperience is to blame (both cases could be weather related, i.e., in terms of an inability to read the weather or a lack of skill, but not necessarily because the climate is changing).

In these kinds of encounters with the use and claim of indigenous and local knowledge about climate change, anthropologists find themselves asking ethical and intellectual questions about the nature of anthropological action and the need for analytical sophistication. We need to listen carefully when people tell us that the weather does not appear to be normal for the season, or that the habits of birds, seals, and caribou are changing. Yet we need to think about what these statements actually mean in terms of their rhetorical and metaphorical senses too. In one sense, there are taken-for-granted assumptions about what is real and true and observable about the world; while in another sense, we know we need to remain attendant to understanding the multiplicities of meanings deriving from circumstances that are particular to social, cultural, and political interpretations and contexts. This is not to reduce things to a distinction between realist and constructivist ideas about environmental problems and concerns, but rather that, in arguing for anthropological action when it comes to climate change, anthropologists should not lose sight of some of the fundamental perspectives that mark out anthropology as a distinctive discipline with a claim for contributing to climate change science, policy, and discourse. Anthropology reminds us that our task is both epistemological and ontological in how we grapple with understanding what people know about the world, how they move within it, how they relate to it, how they think and feel about it, and what they say about it.

My point of departure in this chapter is with understanding the complexity of responses to climate change as an intermingling of concern, a range of possibilities, irony, and contradiction. I show that the various ways climate change is perceived, and how urgent or otherwise climate change is felt to be, depends on how individuals or communities are positioned. I do so by

drawing on several years of intermittent anthropological research in various parts of Greenland, working in both small villages and larger towns but also following political discourses about the environment and resource development. Indigenous and local perspectives on climate change, for example, are not only reports from the front line of climate change about the real nature and character of environmental problems and risks—they are suggestive of something else beyond mere description of changing ecosystems. In particular, they are entanglements of moral and emotional feelings and meanings, social and cultural claims, and political processes. This is illustrated by the difference between various Inuit perceptions about climate change and diverse views about its nature as a global crisis.

In 2005, Sheila Watt-Cloutier, the former international chair of the Inuit Circumpolar Council (ICC, and then still known as the Inuit Circumpolar Conference), submitted a 167-page petition to the Inter-American Commission on Human Rights on behalf of all Inuit of the Arctic regions of the United States and Canada. The petition dealt specifically with the violation of Inuit human rights caused by greenhouse gas emissions from the United States. In it, Watt-Cloutier argued that climate change is harming every aspect of Inuit life and culture and drew attention to the intimate relations between Inuit and the Arctic environment:

> Like many indigenous peoples, the Inuit are the product of the physical environment in which they live. The Inuit have fine-tuned tools, techniques and knowledge over thousands of years to adapt to the arctic environment. They have developed an intimate relationship to their surroundings, using their understandings of the arctic environment to develop a complex culture that has enabled them to survive on scarce resources. The culture, economy and identity of the Inuit as an indigenous people depend upon the ice and snow. (Watt-Cloutier 2005, 1)

The petition goes on to describe how this delicate balance between Inuit and the environment is now threatened by climate change and how Inuit are struggling to adapt. A careful reading of the petition, however, reveals that it is about more than just Inuit concerns with the impacts of climate change. Its recasting of climate change as a human rights issue, not just an environmental one, draws attention to the position of Inuit as indigenous people within nation-states, and in particular to broader aspects of indigenous rights.

The petition was not submitted on behalf of Greenland Inuit, who have achieved a greater degree of self-government than any other Inuit population since Home Rule was introduced by Denmark in 1979. However, ICC Greenland has also been involved with documenting Inuit observations of climate change, and the list makes familiar reading (ICC Greenland 2006). But Alaskan and Canadian Inuit perspectives on climate change are not necessarily a pan-Inuit view, and as the Greenlandic context reveals to us, we

must be careful in distinguishing between an Inuit NGO view and an Inuit government view, but also not fail to acknowledge the diversity of views about climate change within families, households, and communities (Nuttall 2008). In April 2008, Josef Motzfeldt, a member of parliament in the Greenland Home Rule government, and a former minister of foreign affairs, told the audience at the Trans-Atlantic Climate Conference in Torshavn, the capital of the Faroe Islands:

> While reduction of ice cover may have a negative impact on some hunting activities, it may open up new opportunities for other activities in our society, like fisheries. A new generation of hunters and fishermen, building on their ancestor's skills, knowledge and cultural socialisation, adds to this by learning how to cope with the changes. In the way we look at climate changes we have a saying that "nothing is so bad that it is not good for something else." (Motzfeldt 2008)

Motzfeldt also went on to remark in Torshavn that "climate change has already opened up new areas for the exploitation of mineral resources as the ice cap is retreating." His comments reflect a Greenlandic government view that contradicts Watt-Cloutier's argument that Inuit economic activities and identity—indeed the very cultural survival of Inuit as a people—are inextricably linked to the continued presence of snow and ice. In a sense, Alaskan and Canadian Inuit are arguing for the right to continue to be cold, whereas Greenland is literally warming to the idea of less snow and ice. It is almost tempting to place this neatly within Cotgrove's (1982) catastrophist and cornucopian analysis of divergent views of nature. Yet these views do offer two contrasting—and interesting—cases: one that suggests that Inuit cultural survival is not possible without the familiar winters of sub-zero temperatures and the icescapes that make life possible, and another that suggests that the continued presence of snow and ice hinders the Inuit right to political, economic, and social development. Watt-Cloutier argues that Inuit are struggling to adapt to climate change; Motztfeldt argues that Inuit will adapt.

The Icelandic *Saga of Eirik the Red* famously relates how, in the tenth century, Eirik named the land to the west of Iceland "Greenland" because people would be attracted to go there if it had a favorable name. Greenland's Home Rule politicians and business leaders of the new millennium, eager to attract energy multinationals, mining companies, and aluminium producers, are similarly extolling the virtues of their country as a green land, or at least a land that is getting greener. And this is framed within a Greenlandic political discourse of nation building and development that gives a positive spin to the prevailing global discourse of climate change as a cataclysmic force about to devastate human existence. It is also distinctive in that it differs considerably from many other indigenous perspectives on Arctic climate change as a social and environmental crisis.

The Greening Land

The regional texture to climate change means changing environments are perceived and experienced differently. The disappearance of sea ice in northern Greenland may well hasten the end of traditional Inuit hunting lifestyles, yet at the southern tip of the island sheep farmers shake their heads in wonder as they dig potatoes from the ground and pluck their first harvests of broccoli, cauliflower, and cabbage from increasingly larger plots of cultivated soil. Also in south Greenland, researchers at the agricultural research station at Upernaviarsuk near the fishing town of Qaqortoq speak enthusiastically about a future of productive vegetable farms and viable forests of imported pine, spruce, larch, and firs. Their imaginative construction of this part of Greenland is that it is an agricultural frontier where temperature is a limiting factor for human survival. A slight warming of two or three degrees can have tremendous significance for those dreaming of lush forests and fertile soil. A warmer climate, as an elderly sheep farmer put it to me in spring 2008, means that the younger generation has more options for the future. Elsewhere in the circumpolar North, particularly in Canada and Alaska, indigenous politicians and activists portray indigenous peoples as victims of climate change (as well illustrated by Sheila Watt-Cloutier's petition), but the official Greenlandic response to climate change diverges from this prevalent view. For politicians in the Home Rule government, hopeful of greater political and economic independence from Denmark, climate change means more than possible self-sufficiency in vegetable production. A warmer climate brings opportunities for opening up this self-governing North Atlantic territory to mining and hydrocarbon development. Greenland Inuit are not a people imperiled by a shrinking northern icescape—climate change is revealing a bigger, greener land, and Greenlanders may be on the verge of greater political independence from Denmark because of it.

The melting of the Greenland ice sheet is a much-reported and potentially catastrophic impact of climate change. Covering 1.7 million square kilometers, with an average thickness of 1,600 meters and total volume of some 3 million cubic kilometers, Greenland's inland ice consists of a northern and southern dome, with maximum surface elevations of approximately 3,200 and 2,850 meters respectively. It is a frozen archive of the climate of the past, with each frozen snow layer retaining memories of what conditions were like with each annual snowfall. The ice core record is incredibly detailed, extending back through the present interglacial period, through to the last ice age (when temperatures on the ice were 20° C colder than at present), and into the preceding interglacial when the sea level was some five meters higher than at present (Thomas 2005). What this ice archive shows is that the climate has experienced remarkably abrupt and severe changes. Scientists have drilled ice cores that reveal how, between these periods, there were dozens of abrupt temperature warmings and coolings. During the glacial period, for example, there were twenty-six abrupt temperature increases of

about 7°–10° C. These glacial warm periods, named *Dansgaard-Oeschger events* after the two scientists first observing them, may be random, chaotic, and unpredictable.

Globally, this ice record reinforces our knowledge of how human development, especially over the last 11,500 years (the Holocene), has taken place against an environmental backdrop of climatic and geological instability. Sudden and dramatic climatic shifts and extreme biophysical events have always ensured that nature is in flux, and not in static balance. Alarm about the melting of the Greenland inland ice, however, arises from scientific scenarios that suggest the scale and nature of climate change in the coming decades may be greater than previous changes in the earth's history. Within the context of global climate change, the Arctic and sub-Arctic regions of the circumpolar North will experience a greater degree of change than countries in the tropics (e.g., ACIA 2005; Weller 2000). The melting of the entire Greenland ice sheet is projected to raise global sea levels by seven meters over the next two or three centuries.

As the inland ice melts, a new Greenland is emerging. Geographically, mountains, headlands, and islands are appearing and cartographers are beginning to revise maps and charts—for example, the retreat of the Sermeq Avannarleq glacier near Ilulissat in Disko Bay has recently created a new island, which has been named Qarsunga (Always Pale Island). But this process of topographical reshaping is coinciding with the emergence of a new Greenlandic nation that is redefining people's relationships to place, to the environment, and to one another. Politically, Greenlanders say they are ready for the challenge of greater autonomy—indeed a warmer climate is seen by some as a positive transformation helping Greenland to become a modern nation. Yet this responsibility will also challenge the Home Rule authorities as they face the magnitude of possible environmental change and its local effects. Accordingly, research efforts should not only focus on local observations and community perceptions of change, but, perhaps more importantly, on identifying the nature of human agency and resilience, assessing community vulnerability, and understanding community responses to past and current change.

Recent work suggests that Arctic communities are facing greater change, and that they need to be prepared for the unpredictability of the weather and an increase in extreme climatic events. They are told to brace themselves for a future of living precariously on thin ice, and researchers and indigenous leaders report to the wider world that the peoples of the Arctic are becoming strangers in their own lands (ACIA 2005). But change is nothing new and one way to know how to be resilient to it, as far as my work in Greenland seems to suggest, is appreciation of this fact. Culture frames the way people perceive, understand, experience, relate to, and respond to the social and physical worlds around them. It is a characteristic of life in smaller hunting and fishing communities all around the Greenlandic coastline that

people consider the environment to be in a process of "becoming" rather than "changing." In the communities in which I have worked, acquiring personhood is a matter, in part, of growing up to be always prepared for change, for seeing the world as one of constant surprise and the environment as one of motion (Nuttall 1992). An inability to respond appropriately to this world of constant flux has much more to do with institutional, political, and social changes that provide no room to move freely in a changing world and to navigate it with reference to the experience of an intimate relationship with one's local environment.

Climate Change through Greenlandic Eyes

Greenland's climate has undergone significant periodic and often abrupt changes in the past, just as the global climate has changed historically in response to natural variability. Relatively minor variations in temperature have produced large positive feedbacks in the Greenlandic environment that have often had dramatic impacts on physical and biological systems (e.g., Vibe 1967). The successful long-term occupation of Greenland over several thousand years by various Inuit hunting and fishing societies has been possible, in part, due to their adaptive capacity (in social, economic, and cultural practices) to adjust to climate variation and change, to move around, and to see and seize opportunities in the environment. Change is a fact of life for Arctic peoples generally, and they have a rich history of culturally adaptive responses to deal with it. Many of the short-term (or coping) responses appear to be based on this tradition of flexibility and innovation (Nuttall 2005). Across the northern circumpolar world, seasonal, annual, and periodic transitions from sedentary to nomadic subsistence livelihoods and vice versa was the key to the survival and sustainability of Arctic indigenous cultures. Cultural and ecological diversity required flexibility. Resilient coping strategies during periods of extreme change and subsistence diversity were the outcome of a successful cultural and social response to climate variation and the resource instability of the Arctic (Krupnik 1993; Nuttall et al. 2005).

Resilience is often defined as "the capacity of a system to absorb disturbance and reorganize while undergoing change so as to still retain essentially the same function, structure, identity, and feedbacks" (Walker et al. 2004). Adger (2000) draws attention to the contested nature of the concept of resilience in ecology and environmental studies, and argues that social resilience is important for understanding the circumstances under which individuals and social groups respond and adapt to social change. Resilience, he points out, relates to the functioning of a system. Social and ecological resilience are clearly linked, yet merely appropriating the concept and the principles of ecological resilience and applying them to social systems "assumes that there are no essential differences in behaviour and structure between socialized institutions and ecological systems" (Adger 2000, 350). Adger defines

social resilience as the ability of groups or communities to cope with external stresses and disturbances as a result of social, political, and environmental change, and he goes on to argue that it is institutionally determined and, as such, can be examined through a number of proxy indicators, such as economic structure, institutional change, and demographic change.

I would argue, however, that resilience also depends on how people perceive and conceptualize change—in short, one's world view goes some way to determine the kinds of adaptive strategies people utilize. In the small Greenlandic communities in which I have worked—in the north, south, and east of the country—I have been struck by the fact that people do not necessarily talk of the environment around them as *changing*, but of it being in a constant process of *becoming*. The environment—and each feature in it—has its own essence (*inua*), for example, *qaqqap inua*, "the essence of mountains," or *sermersuap inua,* "the essence of the great ice." Weather, or climate, is known as *sila*, and *silap inua* is "the essence of *sila*"—but its meaning is deeper, and people understand *sila* as the breath of life, the reason things move and change. *Sila* is also the word for "intelligence/consciousness," or "mind" and is understood to be the fundamental principle underlying the natural world. *Sila* is manifest in each and every person. It is an all-pervading, life-giving force connecting a person with the rhythms of the universe, and integrating the self with the natural world (Nuttall 1992). As *sila* links the individual and the environment, a person who lacks *sila* is said to be separated from an essential relationship with the environment that is necessary for human well-being. Lack of *sila* can be a temporary disorientation, such as when a person has a momentary lapse of reason, or makes an uninformed judgment about something (*silaaruppoq*). But lack of *sila* can also happen when someone goes crazy (*silanngajaarpoq*). *Silaqaraluarneq* is the state of being out of one's mind, but it can also mean "the weather is out of its mind."

Given this context, it is perhaps more understandable that when some people in Greenland experience a change in the weather, this change is experienced in a deeply personal way. And when they talk about their concerns about climate change, they articulate this in terms of how their own sense of self, personhood, and well-being is changing in relation to external climatic fluctuations. Climate change is understood as being consistent with the constant making of the world, with its uncertainty and with the environment coming into existence through continuous actualization and realization. However, the current rate of such change is faster than many people recall having experienced it in living memory.

How Greenland Inuit respond to change and remain resilient is dependent, in part, on them continuing to learn how to grow up and dwell in an environment where one is always prepared for surprise, where one is constantly challenged by uncertainty, and where one can never take anything for granted. But as I have written elsewhere, based on extensive fieldwork

in northwest and south Greenland, being resilient in the face of change also depends on the strength of a sense of community, kinship, and close social associations. In a world of flux, uncertainty and unpredictability, social relationships are a source of constancy (Dahl 2000; Nuttall 1992). If a person breaks from networks of kin and social relationships, they are set adrift from the security of their social world. Loss of community is a threat to individual and social identity and, combined with loss of livelihood, exposes people to the impacts of climate change in a way that makes it difficult for them to respond effectively, if at all. To become a stranger in one's own land does not happen solely because the environment has changed, but also because political and social change threatens the social cohesion of community; endangers one's livelihood; and separates one from a fundamental relationship with people, animals, and place (Nuttall 1992).

Over the last one hundred years or so, dramatic changes in marine resources have contributed to structural changes in the Greenlandic fishing industry and have also impacted the social and economic structure of small hunting and fishing settlements. For much of the twentieth century Greenland's economy depended on a rich cod fishery, yet since the 1980s the harvest of Greenland shrimp has comprised around 75 percent of the country's total export, with a significant fishery of Greenland halibut and snow crabs representing an important diversification of marine resource exploitation.

Research on the social consequences of climate change in coastal west Greenland from the early 1900s onwards shows how people living in towns with similar social and economic settings and political and institutional structures showed a marked difference in their abilities and readiness to adapt to changing conditions (Rasmussen and Hamilton 2001). Environmental changes, particularly in climate and ocean currents, that have affected fisheries in West Greenland are well documented, as are the associated social and economic changes, especially at the beginning of the twentieth century (Hamilton, Lyster, and Otterstad 2000). As the waters of southern and western Greenland warmed, seals moved further north, making seal hunting harder for the Inuit population. Cod as well as halibut and shrimp moved into the now warmer waters and made the development of a cod fishery possible. The development of fishing in West Greenland shows how climate change can provide opportunities for some people, some local communities, and some local regions. As Thuesen (1999) argues, the political and economic changes taking place in West Greenland at the beginning of the twentieth century meant that Greenlanders were now involved in and participating in the new political structures of local municipal councils and two provincial councils, established in 1908. In 1910 experimental fisheries were taking place in West Greenland and Greenlandic fishers were learning new skills in fisheries training programs. The west coast town of Sisimiut was able to take advantage of these new developments, advantageously situated as it is at the northernmost limit of the ice-free waters on the west coast.

Greenlanders who embraced change and the opportunities it brought benefited more than the rest because they played crucial roles as local entrepreneurs and took advantage of the opportunities to diversify local economies. Thuesen (1999) argues that the development of Sisimiut as an important fishing center was due in part to a strong sense of local identity and strong dynamism in the community—in short, people had a willingness to embrace change, to diversity the economic base, and to work to develop new industries.

The development of Sisimiut into a major west coast fishing community stands in stark contrast to the development of the southwest Greenlandic town of Paamiut around the same time. Paamiut's development was based largely on plentiful resources of cod. With few other resources available in commercially viable quantities, there was little incentive to diversify the local economy (Rasmussen and Hamilton 2001). The concentration on a single resource demonstrated the vulnerability of Paamiut in the face of environmental change. The cod population began to fall, due to a combination of climate change and overfishing, and the economy and population of Paamiut declined as a result.

This highlights the importance of recognizing that in any adaptive strategy, local conditions and social and cultural differences are considerable factors in the success of a region affected by change, be it from climatic, social, economic, or political factors. The development of cod fishing in Greenland also shows, however, how climate change and social change go hand in hand. Cod fishing developed at a time when climate change was having an adverse effect on seal hunting, yet the population of Greenland was also growing, making it necessary for the Danish administration to find alternative ways for the majority of the population to make a living. Despite these studies of fisheries and climate change, the relationship between ecosystem changes, changing resource dynamics, and socioeconomic responses to these changes is poorly understood, particularly in smaller communities where marine mammal hunting (predominantly seals) and small-scale fishing provides the basis for local livelihoods.

Living in a World of Movement, Becoming, and Surprise: An Example of How to Be Adaptable

Upernavik is the most northerly municipality of West Greenland, stretching some 450 kilometers northwards from the Svartenhuk Peninsula to Melville Bay. More than half the population of roughly three thousand lives in ten settlements, with the remainder living in the town of Upernavik. People have long depended on harvesting and using marine and freshwater resources—marine mammals such as seals, walrus, narwhals, beluga, fin and minke whales, and polar bear, and fish such as Greenland halibut, salmon, and Arctic char. Land animals such as caribou and Arctic fox were of some importance until the 1960s. Many of these species are still used for food,

clothing, and other products and, as in many other parts of Greenland, have long played an important and prominent role in the cash economy of local households and communities (Caulfield 1997; Dahl 2000; Nuttall 1992; Petersen 2003). Today the primary occupation providing an income is fishing for Greenland halibut, but hunting still plays a vital role in the settlements. Indeed, for hunters, fishers, and their families, movement, seasonality, and animals are the very substance of life. *Piniartoq*, the Greenlandic word for hunter, translates literally as "one who wants." To hunt is to strive for something one wants and needs. A second meaning of *piniartoq* is "provider." Ringed seals provide the main food source for much of the year. Narwhals are still caught in Melville Bay using traditional methods from kayaks, and beluga whales and polar bears are also hunted. The sea freezes over from December to June and transport to the fishing sites and hunting areas is by dogsled or snowmobile. During this time halibut fishing is carried out by using long lines under the ice, and hunters either catch seals in nets or hunt them in spring as they crawl out on the ice to bask in the sun.

The sea dominates and influences daily life, but it does not necessarily constrain it. The sea, as people in northwest Greenland understand it, is probably more akin to the Amazonian floodplain described by Harris (1998, 70) in that it is perceived and experienced as being in a "constant process of re-definition and becoming" throughout the year. This is an environment of opportunity rather than one of external environmental constraint, a place of constant unfolding of possibility. The local environment, *nuna*, is experienced not so much in spatial terms, as "a realm outside humans or their immediate living (cultural) space" (Ellen 1996, 105), but as a place in which people dwell and in which they engage in social relations of exchange between one another, and between themselves, animals, and the environment. Central to this is daily discussion of *pinngortitaq* and its significance for people and their movement around the locality. Although *pinngortitaq* is often simply translated from Greenlandic as "nature" or "creation," its literal meaning is "to come into being." *Pinngorpoq* is a process of "becoming," "to come into existence," referring to the unfolding of possibility and opportunity.

In northwest Greenland the sea is referred to locally by two names. In summer and autumn it is *imaq* (water) and fluid, becoming *siku* (ice) with the appearance of being solid in winter. In between these periods of open water and ice, the sea is no longer referred to as *imaq*, but is described as *sikuaq* ("has thin ice") in late autumn, before becoming *sikuvoq*, "frozen over in winter." Sometime between late spring and early summer, the nature of *siku* changes, becoming *imarorpoq* ("becomes open water with the breaking up of the ice"), *sikueruppoq* ("has no ice") and, eventually, *imaq* once more. It brings different opportunities and possibilities for hunting different species of marine mammals, and for harvesting different species of fish.

The experience of growing up in an environment that is also undergoing a process of becoming informs hunters and fishers that, in addition to good equipment and skill, knowledge about the movement, behavior, and habits of animals is vital to their successful capture, as is the knowledge of good hunting places, and the names and stories associated with the landscape, seascape, and icescape. Often, place names provide information about climate change and significant weather-related events. For Inuit, stories and discussions about the weather and climate are interwoven with stories and experiences of doing particular tasks like hunting, fishing, berry-picking, or traveling. Much of this is bound up with memories of past events, of local family histories, and of a strong sense of attachment to place and locality (Nuttall 2001). The weather connects people to the environment and animals, but also to their genealogical and local histories.

Moving and traveling through these memoryscapes of individual and community experience, hunters learn to identify with the hunting territories of the locality. They come to understand the movement and habits of seals and other animals, and the hunter's place in the wider social context. They also learn to appreciate the shifting nature of the environment, and to understand that *pinngortitaq* is a process of the world around them coming into existence through its actualization and through their engagement with it. As Proust once wrote, "A change in the weather is sufficient to recreate the world and ourselves." Nothing is ever fixed or certain, and success as a hunter or fisher is not just dependent on skill, but on a person's ability to be open to surprise and uncertainty. The vagaries of the weather require a certain attitude of acceptance. The sea may freeze continuously for several days (*sikujartuaarpoq*), and then the ice may suddenly be driven away with the winds and currents (*saavippoq*), only to return again.

This was driven home to me forcibly when camped on the sea ice one winter with a friend in northern Greenland, a hunter who has spent much of his life getting to know the sea and the land, the islands, bays, and headlands of his locality in all seasons and in all weathers. We had been traveling for several days by dogsled across smooth ice and looked as if we would make good progress in the days ahead. One evening, huddled around the primus stove in our small tent, I began to make a remark about how good the ice was, but he raised one finger to his lips to silence me. We awoke the following morning to find much of the ice gone and that we were camped on a rather large ice floe surrounded by open water. My companion looked around, scanned the ice through his binoculars and said calmly, "This is what I meant, *silarlukkajuppoq* (the weather is often bad)." We had no choice but to stay where we were and to wait. After two days the ice had returned sufficiently, and *imaq* had become *siku* once more, to allow us to travel and cross at an open lead and continue our journey. As Riddington (1990, 86) has written, "The essence of hunting and gathering adaptive strategy is to retain, and to act upon, information about the possible relationships between

people and the environment," and I often reflect on how my companion's "adaptive strategy" in response to this situation was to accept the situation calmly and to sit and wait. We could do nothing else, of course, but it struck me that the situation was a perfect example of how Inuit grow up to expect the unexpected (Briggs 1991). I have experience of many such episodes and they are not met with hysterical responses about cataclysmic climate change. The environment is capable of surprise. When we eventually returned to the village, this became another story told about the power of the sea, the fickleness of the ice, its essence and agency, and about *sila*, the breath of life. It did not become an example of a local observation of climate change.

Victims of Modernity and Change

In May 2007 Aqqaluk Lynge, Inuit Circumpolar Council (ICC) president for Greenland, traveled to the United Kingdom to give evidence at the Stansted Airport expansion public inquiry (the British Airports Authority proposed to develop a second runway at the airport). Opposition to the plans came mainly from local residents who feared greater activity, increased noise levels, and loss of quality of life, and from environmentalists concerned that aviation is the fastest growing source of carbon dioxide emissions in the UK. At the public inquiry, Lynge spoke of the loss of sea ice and habitat critical for Arctic wildlife, of the melting of Greenland's inland ice, and of the cultural impact of climate change on Greenland Inuit. For Lynge, the anthropogenic impacts on Greenland from areas far to the south of his homeland are obvious:

> What happens in Britain affects us in the north. You may say that the expansion of London Stansted airport will play only a small part in increasing climate change, but everyone can say that about almost everything they do. It is an excuse for doing nothing. The result of that attitude would be catastrophic.
>
> The serious consequences affecting my people today will affect your people tomorrow. Most flights from Stansted are not for an important purpose. They are mostly for holidays and leisure. Is it too much to ask for some moderation for the sake of my people today and your people tomorrow? For the sake also of our wildlife and everything else in the world's precious and fragile environment that is more important than holiday flights. (Lynge 2007)

In this narrative, Lynge draws attention to both global consumption patterns and to the globalization of leisure, positioning Greenlanders as victims of modernity and environmental change. He also places his discussion of Arctic climate change in the context of global change, reiterating the familiar mantra about the Arctic as a bellwether of change, underlining the scientific argument that what will happen in the rest of the world is happening first and foremost in the Arctic. His evidence ranged across landscapes of increasing unfamiliarity to local people; to places where hunters are finding their traditional hunting grounds of ice floes, in some cases, have disappeared;

where hunting areas are impossible to get to because of eroding shorelines; a land where the weather is increasingly unpredictable, and local landscapes, seascapes, and icescapes are becoming unrecognizable.

Lynge's testimony presented to the Stansted hearings is remarkably similar to the accounts of climate change presented at international forums by other Arctic indigenous leaders. A reading of his account suggests that he drew upon and distilled key messages from the Arctic Council's Arctic Climate Impact Assessment rather than local Greenlandic examples grounded in everyday experience. Such indigenous understandings and generalized representations of a changing Arctic—and the implications for Inuit culture and livelihoods—have been expressed powerfully and emotionally by Inuit leaders and politicians in recent years, most notably by Sheila Watt-Cloutier (who was also a 2007 Nobel Peace Prize nominee) in testimony to the US Senate on the impacts of climate change in northern Canada in 2004, as well as her petition to the Inter-American Commission on Human Rights a year later.

In these accounts of climate change, where the world is told how Inuit are on the front line and experiencing the immediacy of the impacts, indigenous people's phrasings of their situation shape a simpler narrative of traditional lifestyles under threat. For indigenous peoples the Arctic is often represented as both an environment *of* risk and an environment *at* risk (Nuttall 1998, 170) and, as I discussed earlier in this chapter, climate change is an issue of cultural survival and a threat to human rights. Lynge's submission was exemplary of this in that he carefully related how Inuit have lived a sustainable lifestyle, something they have maintained despite a legacy of colonialism, rapid social change, the impacts of animal-rights campaigns and international whaling regulations, and pollutants and contaminants. For indigenous peoples climate change is another chapter in the history of how the rest of the world has reached into, explored, exploited, and influenced the Arctic for centuries. But they are portrayed (and often portray themselves) as victims of change unable to respond effectively to the environmental and social crises that the Arctic meltdown will bring.

Nation Building and Climate Change

In her petition, Watt-Cloutier (2005, 5) emphasized that "the subsistence culture central to Inuit cultural identity has been damaged by climate change." I recently heard a politician from Nuuk remark in a similar vein, as Aqqaluk Lynge did at the Stansted Airport public inquiry, that hunters in Greenland cannot hunt anymore because of climate change. While shifting ice conditions and changing animal migration routes may indeed make it difficult for hunters to secure what they need, blaming this entirely on climate change is a simplistic explanatory account, ignoring historical processes, colonial encounters, Inuit participation in the global economy, and even contemporary Inuit political attitudes towards Inuit tradition. This kind of remark,

it also strikes me, is an example of the kind of taken-for-granted assumption about climate change one hears far too often, and one which climate change researchers all too enthusiastically listen to and record uncritically.

When Greenland achieved Home Rule from Denmark in 1979, it embarked on a process of nation building. Recent discussions and negotiations between Denmark and Greenland on self-government and a new form of self-governance have focused on greater autonomy within the Danish realm. A major barrier to this is Greenland's continued dependence on an annual block grant from Denmark, which essentially props up the country's economy, and Greenlandic politicians widely agree that the development of minerals and hydrocarbons is the key to financial and economic independence (Nuttall 2008). The US Geological Survey estimates that the waters off Greenland's west coast could contain more than 110 billion barrels of oil (roughly 42 percent of Saudi Arabia's reserves) are attracting interest in the territory's potential. The Home Rule administration has been involved in talks with several multinationals who covet exploration licenses for oil and gas (Rasmussen 2006), and a warmer climate, and hence easier access to exploratory sites, is seen as something positive if Greenland is to attract international investors. ExxonMobil and Chevron from the US, Husky and Encana of Canada, the UK's Cairn Energy, and Denmark's Dong Energy are among the companies that have either already won or applied for exploration licenses from Greenland's Bureau of Minerals and Petroleum for acreage.

Ironically, or perhaps just an occasion of bad timing, Aqqaluk Lynge's submission to the Stansted inquiry coincided with Air Greenland's inaugural flight on its new route between Kangerlussuaq and Baltimore/Washington International Airport the same month. Lars-Emil Johansen, Greenland's newly appointed minister of finance and foreign affairs, used the occasion of a reception at the Danish ambassador's residence in Washington, DC, held to celebrate the route, to announce:

> I am very excited about the possibilities this new airway opens up for Greenland. . . . I am also happy that I . . . can announce to you that the Greenland Home Rule government has decided to let Alcoa make a huge investment in Greenland. This investment will not only produce work places in remote areas of Greenland, it will also be a showcase for the rest of the world and [show] other American companies that Greenland has a lot to offer for companies and that it is a place you can invest in.

The ambassador himself remarked:

> It is my hope that more Americans will travel more often to Greenland, the world's biggest island. It is a place with wonderful people—Inuits [*sic*]—and a landscape you will find nowhere else in the world. In Greenland, you have the opportunity to travel on the ice cap, boat in ice fiords, climb the hills, or just experience a special culture that you only find in remote areas of the world. (Both quotes from *Diplomatic Pouch* 2007)

The excitement over Air Greenland's new North American connection was short lived. The airline's board, citing a massive loss in its first and only season, announced its cancellation in March 2008. Johansen's reference to Alcoa was to a Greenland Home Rule government decision to sign a memorandum of understanding with the world's leading producer of aluminium concerning the possible construction of the world's second largest smelter, based on the promise of major hydroelectric development. All this is consistent with current Greenlandic political thinking about economic development and aspirations for political independence. It is also another example of the way *pinngortitaq* is a process of the world coming into being—as the inland ice melts and Greenland's mineral, hydrocarbon, and hydropower potential is uncovered and revealed, the environment is mapped and described as a flexible resource that can be used to promote economic growth and political development.

The Greenlandic nation-building process denies diversity within the country, and oil and gas exploration and development projects like the one proposed by Alcoa have implications for the continuity of small villages that depend primarily on marine mammal hunting and small-scale fishing. The reality for the Home Rule authorities is that these traditional pursuits, while playing a significant part in the construction of Inuit cultural identity, do not contribute much to the economic development of the country. The future of the villages in Greenland has long been debated, with political views often divided between those who see small communities as repositories of traditional Greenlandic values and lifestyles, and those who argue that the Inuit hunting culture belongs to the past and has no place in modern Greenlandic society. Rather than Inuit hunters being prevented by climate change from catching seals, the reasons, I suggest, are rather more complicated. Long-term policies of shifting demographics, investment in a few major centers, a reluctance to introduce development policies for small villages and settlements, a redefinition of resources and rights of access to them, and a political desire to encourage the depopulation of some communities all perhaps have greater significance for changing hunting and fishing practices than climate change does.

Administratively, Greenland is being redefined as one national hunting and fishing territory, contrasted with a diversity of local hunting and fishing territories that have long characterized the social, cultural, and economic make-up of the coastal areas. Caribou, whales, seals, and fish, which have traditionally been subject to common-use rights vested in members of a local community, are becoming national and privately owned divisible commodities. The ways they are caught, used, and consumed are now subject to rational management regimes defined by the state and the interest groups of hunters and fishers (such as KNAPK, the Greenland Association of Hunters and Fishers), rather than locally understood and worked-out rights, obligations, and practices. Membership of a territorial, or place-based, community no

longer gives hunters exclusive rights to harvest animals as it has done so traditionally. Hunting and fishing were largely family and community events, and kinship, locality, and territory were the mechanisms for regulating harvesting activities. Today, hunting rights are vested in people as members of social and economic associations irrespective of a local focus.

Home Rule government bodies and administrative and research institutes are increasingly charged with the task of describing and regulating access to living resources. Biologists occupy a central position in the management of resource use as primary expert advisers to the Home Rule administration. They provide advice to Home Rule agencies that then use this advice to decide upon and fix quotas for particular hunting and fishing activities. One resulting (and perhaps inevitably unsurprising) conflict is between biologists and user groups (i.e., hunters and fishers), the latter disputing the nature of this scientific expert advice because the defining of ecological sustainability ignores local knowledge and is concerned with a strict delineation and measurement of the natural world.

Climate change impacts are not universal manifestations of totalizing global transformation. In Greenland and elsewhere in the Arctic, Inuit and other indigenous peoples are facing special challenges, but are also pondering the benefits. Some are concerned over the prospect of major and irreversible impacts on indigenous communities and livelihoods. Others, as this chapter has shown, are contemplating a future of opportunities for growth and development. In Greenland, climate change is present in the unavoidable evidence of melting ice and receding glaciers. However, rather than having immediate social and economic concerns, it magnifies the threats to the cultural and economic viability of hunting livelihoods in small Greenlandic communities that come more immediately from transformations in resource-use rights and Home Rule government policy to the villages. These subvert local customary practices and knowledge systems (Dahl 2000; Nuttall 2001). How individuals, households, and communities adapt to extreme climate events will be a measure of their ability or inability to make decisions that allow them to respond effectively and with a degree of autonomy. Climate change adaptation policy is not well served by scientific knowledge alone, and discussion of such policy is hardly going on in Greenland at all. Furthermore, critics of the aluminium smelter proposal argue that it demonstrates how the Greenland Home Rule government has no vision of any kind when it comes to resource development. Opponents to the plan have also pointed out that, once in production, the Alcoa smelter will almost double Greenland's annual greenhouse gas emissions. Concerns are increasingly expressed about the absence of community and stakeholder consultation and of social and environmental impact assessment processes (Nuttall 2008).

As a researcher, I am conscious of having to understand and unravel the different kinds of meanings and implications climate change has as it directly or indirectly affects people's lives, work, and local environments. Whether

sitting in people's homes in northern Greenland, or spending the summer in fishing camps, or out on long journeys by dogsled on the winter ice, I have come to appreciate that knowledge of weather and climate events grows through the experience of living in and moving through local landscapes and environments, and that uncertainty and surprise are things that people expect to encounter in a world that is always in a process of becoming. At different levels, from small villages through municipal politics and Home Rule government institutions, an anthropological challenge, as I see it, is to understand climate change within a broader context of political process and ambition, cultural specificity, and people's epistemological, social, cultural, economic, and moral relationships with the environment. As Greenlanders achieve greater autonomy over their lives, they may be forced to ask whether the process of nation building and ambitions for economic development (together with the absence of appropriate tools to manage it) will reduce the abilities of people to adapt and be flexible in coping with climate variability and change, as well as to ponder their own contributions to global climate change that may accompany such development. If all I have to offer is a comment on this, something that contributes to the development of perspectives on the political ecology of human-environment interactions, then surely that in itself is a form of anthropological action.

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