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Are Glaciers 'Good to Think With'? Recognising Indigenous Environmental Knowledge[1]

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Lively debates in arctic and subarctic communities centre on potential contributions of indigenous knowledge to environmental sciences. Some scientists are now attempting to integrate traditional ecological knowledge (TEK) into existing knowledge frameworks as data. Anthropologists working with oral tradition propose an alternative approach. They reason that greater knowledge value, especially the possibility of surprises, may come from unfamiliar oral accounts that do not seem to fit easily within conventional frameworks.

This paper builds on accounts I first heard from senior indigenous women in north-western North America about unorthodox behaviour of glaciers. These glaciers were depicted as sentient, wilful beings that responded directly and sometimes dramatically to human behaviour, often with devastating results. Similar themes are documented in colonial records where such ideas were discounted as 'superstition'. Oral traditions, though, do not provide straightforward data for contemporary sciences. As practices such as oral storytelling now become recognised as knowledge and translated in new contexts, concepts like indigenous knowledge travel and accumulate meanings. Surging glaciers disrupt conceptual fields. Stories about them may prove good to 'think with' as we consider challenges of gathering diverse practices into the ubiquitous but narrowly framed category, knowledge.

Keywords: Oral Tradition; Indigenous Knowledge; Environmental Change; TEK; Yukon Territory

The potential contribution of indigenous knowledge to environmental sciences has been topical in arctic and subarctic communities since the early 1990s. Traditional ecological knowledge studies (usually referenced by the acronym TEK) originated in collaborations among indigenous peoples, anthropologists and field scientists as a

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genuine effort to establish that people who pursue land-based economies know things about nature. Some scientists are now trying to incorporate local conceptions into existing knowledge frameworks as data. What constitutes knowledge in the twenty-first century is increasingly embedded in terms such as knowledge transfer, performance indicators, and policy outcomes, now naturalised within institutions where we work. Funding agencies' preference for knowledge deemed to be useful is recognisably an aspect of contemporary academic life (Strathern 2010). This undeniably influences how indigenous knowledge is now often defined and translated in discrete packages as 'informational inputs' (Blaser 2009, 15).

Anthropologists and historians working with oral narratives propose an alternative to the systematic collection of local knowledge as data to corroborate or disprove an existing ecological model or account of natural history. Working from the premise that what people say is common-sense, cogent, logical, and should be taken seriously, they further suggest that oral accounts and stories recorded ethnographically may offer alternative ways of thinking about the natural world and relationships among entities (see for example Fienup-Riordan 1994; Cruikshank 1998; White 2000; Gow 2001; Nadasdy 2007; Leach, this volume). It is worth keeping in mind Walter Benjamin's thoughtful assessment that, '[a story] does not expend itself. It preserves and concentrates its strength and is capable of releasing it even after a long time' (Benjamin 1968, 90). Indeed, the value of alternative frameworks may become apparent as we enter times of social and economic uncertainty that will force persons, things and ideas into new and unexpected relationships.

This paper originates in a puzzle from my ethnographic research in north-western Canada that started me thinking about what appeared to be unorthodox relationships among persons, things and ideas; specifically, the appearance of glaciers in life stories told by senior indigenous women born in the late nineteenth century, just inland from the Saint Elias Mountains. At first glance, glaciers are iconic products of what we now call nature whereas life stories are arguably social, so this is already a surprise. Some of these women had spent childhood years near glaciers that flowed from these mountain ranges. Glaciers in their narratives exhibited unusual behaviour, and they described them as sentient, wilful beings that responded directly and sometimes dramatically to human activity, often with devastating results. Similar accounts are reported in colonial records from this region where such ideas were usually dismissed as 'superstition'.

Elsewhere I have discussed this material with a different focus: first, contrasting how colonial visitors and local indigenous residents differently imagined environmental changes associated with Little Ice Age glaciers (Cruikshank 2005); and second, discussing new understandings of indigenous history that are revealed by artefacts now emerging from melting glaciers in north-western Canada (Cruikshank 2007). Here, I am concerned with how local knowledge is recognised (or not) in contemporary social and environmental sciences. Do glacier stories have contemporary relevance, given uncertainties about impending climate change and contentious debates about local knowledge and science? Which stories take root and

which ones sink from view? And what are the consequences for indigenous peoples and for knowledge more generally when stories deemed to have no impact in dominant regimes of knowledge are not taken seriously?

Setting and Stories

The Saint Elias Mountains include some of North America's highest peaks and provide scaffolding for the world's largest non-polar ice fields. These glaciers were created by ice ages, maintained by climate, and have been in place for thousands of years. Now they are melting. There is a long history of human co-habitation with glaciers on both the Alaskan coast and in the Yukon interior. Crucially, two processes that are usually discussed independently coincided here in the eighteenth and nineteenth centuries: first, geophysical changes associated with Little Ice Age (the turf of natural sciences) and second, European colonial incursions (more the sphere of social sciences and humanities). These stories date from late stages of a period some scientists refer to as the Little Ice Age. Spanning roughly AD 1550–1900 in the Gulf of Alaska, it was characterised by cooler and more variable temperatures, with pronounced outcomes at high latitude. At its height, by the late 1700s, a global commerce in furs was actively transporting furs from here to Moscow, London and Paris. By 1825, Britain and Russia had signed a treaty dividing Russian America from British North America, though it took surveyors almost another century to locate and demarcate the boundary.

Crucially, these Icefield Ranges include glaciers that surge, of great interest to both local residents and geophysical scientists. Surging glaciers may advance without warning after years of stability, sometimes several kilometres, and they frequently create ice-dammed lakes that build up and eventually tunnel beneath the glacier when the ice thins and the dam fractures. Surging glaciers also occur in Greenland and the Antarctic, but scale and accessibility make them easier for scientists to study in the Icefield Ranges.

During the 1970s and early 1980s, I lived in the Yukon Territory and worked with several women who were eager to document life stories for younger generations. All had been born just prior to or just following 1900, and I expected to hear stories of struggle associated with impacts of the Klondike gold rush; construction of the Alaska Highway; and the increasing intrusion of the state into regulation of family lives as Canada proceeded to extend governance northward. To my surprise, they responded to my questions about these events with instructions that I record stories that I recognised as classic, traditional narratives. My attempts to redirect our conversations to themes that I took to be related to life stories were politely but firmly rebuffed. They clearly had their own purposes, and I unexpectedly found myself preparing lengthy booklets of narratives under their direction, taking us far from what I took to be our original purpose.

The majority of stories they asked me to record seemed to entangle categories we now call nature and culture. Most were structured around an encounter between a

protagonist and an ambiguous person who is soon revealed to be an animal in human disguise. Such encounters are inevitably attributed to a human act of hubris—reckless behaviour, frivolous treatment of animals, 'playing with' animal prey, resulting in offense and thereby setting the plot in motion. The animal representative entices the protagonist away from his or her familial context. Their journey begins by boundary crossing (under a log, through a cave, beneath the horizon) to an unfamiliar dimension often characterised as colourless and glacier-like. Here the protagonist struggles to comprehend his or her captors' social habits which inevitably present a disorienting version of familiar habitus: for example, foods offered to the visitor generally violate human taboos, and human food preferences are equally shocking to animals. Wet logs make the best fires; animals are often white or colourless, and so on. This is a world turned upside down. Gradually the visitor becomes accustomed to these new perceptions, the great risk being that acculturation will transform him or her into membership of the host species. The subsequent drama concerns complications of return; if successful, a protagonist brings back specialised knowledge, invaluable for humans dependent on that species for sustenance.

As we continued working together and eventually returned to a chronological life-history model, I recognised how narrators were using these narratives to explain choices each had made in her own life. They spoke about transitions from childhood to adulthood to middle and old age in ways that demonstrated how such foundational narratives provide the intellectual and narrative scaffolding for achieving a well-lived life. The stories provided a framework that enabled these women to tell stories of coherence about their own lives 'as though the world were inherently transformational and intrinsically subject to change' (Gow 2001, 10) quite confounding my expectations and echoing experiences Peter Gow describes in his Amazon fieldwork. Angela Sidney's comment to me late one afternoon conveys this: 'Well, I've tried to live my life right – just like a story' (Cruikshank *et al.* 1990, 20).

Glacier stories, though, differed. The stories I heard associate glaciers with the white, colourless dimension common to other stories. My interlocutors depicted glaciers as sentient actors that take action and respond to their surroundings. They make moral judgments and they punish infractions. They respond directly and sometimes dramatically to human behaviour, often with devastating results. Glaciers appear sometimes as animate and other times as animating or enlivening landscape. They have *bodily* forms, and their shape shifting or metamorphosis (in the case of surging glaciers) is especially disturbing—and consequential for humans. Their senses are all engaged. Glaciers in these stories *listen*: a thoughtless remark prompted by human hubris may trigger an unexpected surge. Glaciers also *see* and have 'eyes like the moon'. They resent humans looking directly at them, so in the past people darkened their faces and more recently began to wear dark glasses to conceal their gaze (de Laguna 1972, 819). Glaciers have a sense of *smell*: their olfactory abilities are especially astute and they are particularly offended by odours arising from 'cooking with grease'. Consequently, near glaciers food should be boiled, never fried, and no liquid should spill from the cooking vessel. Conceivably, sentient glaciers perceive

refined, white animal lard crackling and sliding around in the cooking fire as mimicking the sounds and action of a surge, and take umbrage when they view humans as casually 'playing with' them.

Encounters with surging glaciers in this disorderly terrain seem to have been more fraught, and certainly harder to predict or to manage, than those with animals. Glacier surges signalled disruptions, inevitably interpreted as failed negotiations with larger-than-human forces. Elders continue to be concerned about scientists or hikers who travel in these glaciers and possibly cook bacon, potentially triggering a surge of ear-splitting force and exposing everyone to great danger.

One story from Aboriginal oral tradition concerns the Lowell Glacier, identified in Southern Tutchone as Nàlùdi or 'Fish Stop' because it interrupted salmon migrations up the Alsek River. Nàlùdi was reportedly provoked to surge when a young boy travelling inland with coastal Tlingit traders recklessly joked about a balding inland shaman, implying resemblance of his head to this glacier. The aggrieved shaman withdrew to the top of a high bluff across the river from Nàlùdi—the now polished promontory named Goatherd Mountain—and began to dream, summoning the glacier to advance. It crossed the Alsek River, reached this bluff and built an immense wall of ice that dammed the river and created an upstream lake. When that ice dam eventually tunnelled and burst, the resulting flood drowned families camped downstream (de Laguna 1972, 89; McClellan 1975, 71–2; Cruikshank 2005, 43–45, 104–107).

These events are also preserved in the geoscience record, although scientists provide different causal explanations for surges (Clague and Rampton, 1982). They estimate that the advancing Lowell Glacier created a 200m-high ice dam after it came to rest against Goatherd Mountain and impounded Neoglacial Lake Alsek (100 km long) in the mid-nineteenth century, as it had several times during the previous 2800 years.When the dam deformed under pressure from rising waters in the 1850s, it discharged through the Alsek Valley in an enormous flow, emptying the lake in one or two days. In 2010, it was surging again.

Some consistent principles sharply differentiate scientific practices from indigenous oral traditions. First, scientific studies monitoring environmental change (like climate change) attempt to disentangle natural cycles from anthropogenic causes, whereas oral traditions from this region merge natural histories of landscape with local social histories. Second, geophysical scientists studying what makes glaciers surge focus on physical forcing mechanisms—causes external to the glacier system. In oral traditions, by contrast, materiality is subordinated to interpretations that centre on reciprocity among humans and glaciers, and on more-than-human forces intrinsic to the glacier. Third, indigenous elders formerly created new knowledge about such events by focusing on relationships and transactions among human and non-human persons. Sometimes these transactions succeed and sometimes they fail, but failures are also incorporated into stories, whereas unsuccessful experiments are more likely to drop from the scientific record. Not surprisingly, scientifically oriented TEK studies rarely bother to reflect on the nature of oral traditions and their significance and problems as historical sources. Local knowledge, of course, is not always presented in narrative

form. However, when oral sources are reduced to linear evidence or harnessed to contemporary ecological agendas, the demands made on those sources can be quite out of proportion, in part because of what gets stripped away.

Questions of Ontology

Brazilian anthropologist Eduardo Viveiros de Castro (1998, 2004) offers another approach. He invites us to consider alternatives to our modernist conceit that humans always and everywhere understand the distinction between nature and culture as straightforward binary categories, with nature providing the universal, singular background inhabited by plural and particular cultures. He points to what he calls Amerindian perspectivism, the idea that the world is inhabited by a range of beings—human *and* non-human—who all apprehend that world from distinct vantage points.[2] Amerindian cosmology, he continues, universally posits an original state in which humans and animals were able to communicate freely and shared a condition of humanity (*not* animality). Because they were once human, animals continue to retain human traits. This, of course is quite unlike our foundational narrative that humans diverged and evolved from animals, leaving them behind. Amerindian perspectivism, he insists is an indigenous theory, widespread and ancient in the Americas. His ethnographic research is based in the Amazon, but he cites numerous accounts from arctic and subarctic North America, going so far as to state that perspectivism 'can also be found, and maybe with even greater generative value, in the far north of North America and Asia' (1998, 471).[3]

In this ontology, everyone understands that animals, humans and spirits all perceive the world from distinct points of view. This should *not* be confused with relativism, he insists, a proposal that culturally distinct groups *interpret* the world differently. Perspectivism is more fundamental: it supposes that all beings (humans, animals, and let us include glaciers) see the world in the *same* way: what changes is the world they see, and indeed they see different things (Viveiros de Castro 1998, 477–78). Animals see *themselves* as humans living in their own homes, eating human food and immersed in human relationships. But they also see humans as animals—either predators or prey—the kinds of reversals in the stories Yukon narrators tell.

One of his key examples comes from an article by anthropologist Roger McDonnell who worked in the Yukon during the 1970s, and I paraphrase his account:

> One man invited me consider a beaver we had been watching. What we were able to see was an animal swimming about, cleaning off its fur, and eating bark and twigs, etc., and as he pointed out, we would appear just as different and strange to the beaver as it did to us. [My companion urged me]to imagine myself over with the beaver, to reduce the strangeness of all the material and sensible differences that separated us. The inference was that it was my vantage point that created the differences; were I able to shift this, then what had seemed strange and remote would become intimate and familiar—the inedible wood would become food to eat

> and so on. Kaska believe it is not only possible but necessary to make such a move. (McDonnell 1984, 43).

In citing this, Viveiros is *not* reporting exotica. He views this as a fundamental challenge to what he calls 'naturalism', the default position for our Western categories of nature and culture. The sixteenth-century Cartesian break with scholasticism, he argues, produced a radical simplification of European ontology by positing two opposing poles—mind vs. matter, nature vs. culture—that cascade into other self-replicating binaries. In his view, this has impoverished 'modern thought' (Viveiros de Castro 2004, 483). Naturalism takes for granted that a unified nature provides the universal background setting, and that it is populated by diverse human cultures. In this formulation, nature is the fixed point and culture is the variable that influences how we come to know the world. So, we speak of multi-culturalism distributed throughout an encompassing physical world, with diverse cultures contributing partial understandings of a single robust nature: one nature; multi cultures.

Amerindian cosmologies shuffle this deck by viewing what we might call more-than-human spirit (rather than nature) as the foundational principle that binds all beings together. From this framework, animals, humans and even features of landscape have points of view, exhibit agency, and engage in reciprocal responses. However, if beings in this cosmology are connected by immanent 'spirit', they are *divided* by nature—the radically diverse bodily forms and behaviours they exhibit, what they eat, how they move, how they communicate, what they see (or fail to see). In the Yukon, for instance, animals disguised as humans are inclined to give themselves away by sitting on the opposite side of the fire from their human hosts, or by refusing to eat foods offered to them by humans, behaviours that unquestionably mark them as non-human, despite appearances. The first colourless Europeans to arrive across glaciers were identified as *k'och'en* or 'cloud people', deemed to originate in that white domain beyond the horizon to which stories refer, with no certainty at all that they were human. Transactions in such cases must be cautious and closely observed. Viveiros coined the term multi-naturalism (in contrast with multi-culturalism) to refer to a relational world of humans and fully agentive non-humans. Multi-naturalism pays attention to varieties of nature and relationships among them. Multi-naturalism posits these more-than-human spiritual features as universal, with *nature* the unpredictable variable (Viveiros de Castro 1998, 470, 473). His challenge is that if we are *really* interested in indigenous knowledge, why not *think* about multi-naturalism as a concept with enormous generative value to see where this takes us.

This brings to mind another Yukon story in which a glacier figures, told by Kitty Smith. It seems hopelessly confusing until it becomes clear that the protagonists are struggling with this exact problem of what each sees (or fails to see). The cast of characters includes Wolf, his new father-in-law Woodpecker, and Wolf's new wife (Woodpecker's daughter). First, Woodpecker appropriately asks his son-in-law to

hunt for a moose. Wolf is eager to comply, but stymied when his father-in-law points directly to an owl, insisting that it is a moose, and demanding that he kill it and bring it back to camp. Mystified, Wolf complies with his father-in-law's instructions. He is astonished when all his new affines (including his wife) insist on roasting the owl (while calling it a moose), even giving the new son-in-law a favoured piece of meat—the moose nose—which looks to him very much like a beak! However, food taboos are reliable clues differentiating species, and Wolf knows that this is not 'food' as he understands it. In order not to offend, he discreetly hides it. The next day Wolf leaves early, looking for recognisable meat. He is forced to return empty-handed when he stumbles onto a glacier and soaks his snowshoes. When Woodpecker sees the snowshoes, he insists that 'this is no glacier: it's a bear den!' and leads the whole family, including his son-in-law Wolf, back to this 'den' (which still looks like a glacier to Wolf). Woodpecker has special powers and uses them to break open the glacier, then drags out a giant snake, proclaiming that it is really a bear. Again they haul it back to camp and cook it! Again, Wolf receives a prime morsel of cooked meat. Again, he hides it, despite his father-in-law's admonition that all the cooked fat must be consumed. But this time Wolf reveals his error when that cooked piece of meat turns into a surging glacier overnight. End of story!

This is an abrupt ending, perhaps, but one that reveals the close attention paid to differentiated nature in all its complexity. It may also reveal the initial isolation and gradual induction of an in-marrying stranger, especially in this matrilineal society where men join their wife's household at marriage. And in our time, it may illustrate the kinds of problems that can arise when visiting strangers, asking questions about what we call nature, may interpret puzzling or unfamiliar accounts as 'beliefs' or 'myths', or more politely respect them as 'culture' rather than paradigms based on long-term, engaged relations with other active beings (Nadasdy 2007; de la Cadena 2010).

What, then, follows when practices of exploration confront matters of locality? The flamboyant Frederick Schwatka, a United States army veteran who took up 'exploration', visited this region twice—in 1883, and again in 1891. On his second trip, he travelled overland from the Yukon River towards glaciers with local guides. As they prepared to cross the Klutlan Glacier, Schwatka reported that their guides insisted that 'we must not fry grease in our pans that day, or the ice of the glaciers will tumble in as we cross and kill us all'. He then noted dismissively with conventional Anglo-American humour that 'we easily catered to this and told them we would forbear oleaginous condiments rather than have a ton of ice tumble in on us' (Harris 1996, 168). During a glacier crossing that he describes as 'simply frightful', he noted that the guides 'besought us to make no noise while on the ice or the crevasses would open wider and swallow us up.... They firmly resented even our whispering, so fearful were they of its consequences' (Harris 1996, 168–69).

His conclusion conveys both his relief after their safe crossing and a sense of how ideas were now being ranked. 'Before crossing, they all ''made medicine'' and no doubt it saved many valuable lives. Their fear of glacial ice is too pronounced and

manifest to be based on any general physical reasons, and must be accounted for wholly by superstition' (Harris 1996, 169). Despite his utter dependence on local guides, Schwatka could casually dismiss local knowledge of landscape as irrelevant by 1891 (except when deemed practically useful). Notably, Schwatka's journals were lost, and then located and published in 1996 by historian Arland Harris, who still treated this description as straightforward common sense, adding a footnote: 'The origin of the Pelly River Natives' unreasonable or superstitious fear of glacier ice and the connection with frying with grease is not known' (Harris 1996, 169n62).

What is remarkable is how speedily new landscape stories took root and gained authority as official common sense. Michel Callon (1991) writes about how frameworks of translation acquire durability and robustness during periods of social and technological change. They achieve this, he suggests, by attachment to and circulation within prestigious networks, thereby contributing to the hardening of facts. Subsequent interpretations become increasingly dependent on previous translations: what sinks into history and what floats away is not random. Yet a century after Schwatka's visit, Yukon elders still considered these prescriptions about glacier landscapes significant to include in life stories.

Recognition, Translation, Capacities

This paper, like others in the volume, does not address questions about the veracity or utility of particular kinds of knowledge. Rather, contributors ask what processes are set in motion when longstanding practices become recognised and defined as knowledge, then translated and circulated, sometimes as fragments without reference to the contexts and relationships from which these practices emerged. What happens when practices, activities or skills are swept up in conversation with others sharing this ubiquitous term and are then transformed and translated into new frameworks? Do glaciers and stories about them help us to think about this issue?

At one level, unfamiliar accounts from people whose immediate forbears experienced Little Ice Age climate change are of interest to environmental sciences because they cast light on adaptations humans have made to relatively recent environmental change. Oral traditions provide the conceptual ability to recreate, through language, situations for someone who has not experienced them directly. They may indeed provide evidence; for instance, oral traditions helped to establish the mid-nineteenth century date when the Nàlùdi (Lowell Glacier) ice dam deformed, releasing a giant outburst flood that swept down the Tatshenshini-Alsek River Valley to the coast (de Laguna 1972, 89, 276).

Yet what might make glacier narratives interesting to scientists leaves out what makes them effective for people who still tell and think about these stories. Elders continue to express qualms about uninformed scientists or hikers in these mountains who might endanger everyone by casually cooking bacon for breakfast, potentially triggering a surge of immense physical force. Themes of capacity and contingency pervade their accounts. When I recently described, with photographs, a huge

landslide I had observed in 2009 from a scientist's camp in the Icefield Ranges, Marge Jackson, a senior woman from Champagne-Aishihik First Nation, had only one question: 'What are those guys cooking up there?' What Schwatka dismissed as superstition in 1890 might be translated as TEK a century later and on one level, this seems like progress. But what is gained and what is lost in this translation when stories are assessed for veracity, and when instrumentality and utility become TEK's goal? The process, invariably selective, narrows the register of what knowledge is deemed to be. For Mrs Jackson, what is elided in translation is the relationship among humans and other sentient beings—the capacities that are brought to life in interactive settings. For her, as for her colleagues, glacier behaviour is contingent. Human hubris alerts us to glaciers' capacities to act: to surge, to listen, to see, to smell. In translation to data what disappears are the relationships through which entities in the world come into being as well as the capacities we might gain if we could actually learn to think with such stories.

Ethnography allows us to identify concepts from fieldwork as vantage points from which to comment on social transactions, surging glaciers and other emergent forms. Oral traditions make us think about how humans generate social worlds as well as what we now call knowledge. For me this became apparent as part of my early collaboration with senior women during the 1970s. They rapidly made me aware that that they were evaluating our relationship by my readiness—my emerging capacity—to think with stories they told me. Without this, they implied, they would be wasting their time, and mine.

Glacier stories might well expand Viveiros de Castro's concept of multinaturalism. In his view, Amerindian perspectivism usually centres on 'those species which perform a key symbolic and practical role such as the great predators and the principal species of prey for humans' (1998, 471). At issue, he adds, are the relative and relational statuses of predator and prey in this deeply transformational world. Surging glaciers, neither quite predator nor prey, are also subject to metamorphosis. They are sometimes solid, sometimes liquid, and always flowing. They are shape-shifters of magnificent proportion. Like tidal zones, they signify transitional spaces. Aboriginal elders who speak knowledgeably about them refer to glaciers listening, observing, and participating with humans in relations of ritualised respect. Surging glaciers engage all the senses. Visually, they are spectacular. Aurally, they are disturbingly noisy. Everyone who has experienced proximity to a glacier surge refers to the cracking, sometimes thunderously explosive noises they make. Glaciers appear to be sentient themselves. They respond to humans and especially to smells when meat is fried nearby. They are quick to hear and to take offence when humans demonstrate cockiness by making jokes at their expense. They are equipped with vision and are characterised as giant worms 'with eyes as big as the moon' (Cruikshank 2005). They enlarge our understanding of nature by their remarkable transformational capacities.

Bruno Latour reported enthusiastically on a public debate between Philippe Descola and Viveiros de Castro in Paris in 2009 on the topic, 'the anthropology of

nature' (Latour 2009). Latour approvingly described Viveiros's concept, Amerindian perspectivism, as a 'time bomb' for anthropology, because it demonstrates so clearly that naturalism is just one of many ways that humans understand relations among entities. Comparisons of 'naturalism' with 'perspectivism' suggest how unstable and problematic polarities like nature and culture may be made to appear, especially as we enter an era of climate instability when persons, things and ideas may well be forced into recombinations and unexpected rearrangements. Latour agreed with Descola, that with the demise of the 'imperialist universality of the naturalists' (Latour 2009, 2) we have reached a stage when nature and culture no longer constitute anthropology's inevitable background. So, he asks, why not make this background anthropology's object of study?

There are new spaces for anthropology now that nature has shifted from being a resource to becoming a highly contested topic at the same time ecological crises are reopening debates. The search for a common world is immensely more complicated now that so many radically different ways of inhabiting the earth are being deployed. But, in Latour's words, 'the task of composing a world that is not yet common is clearly opened to anthropologists, a task as big, serious and as rewarding as anything they have had had to tackle in the past' (Latour 2009, 2).As Simon Shaffer concludes in his comments following a forum on climate knowledge, just as climate science presents a more comprehensive picture than weather, so oral traditions convey understandings that are much broader than data. 'The challenge is to mobilize these insights about broad comprehension, both as scale and as understanding' (Schaffer 2012, 242).

Notes

[1] Levi-Strauss famously argued that some phenomena are 'good to think with' because they provide material stimuli for ordering the social and material worlds we inhabit. Here I borrow his phrase to ask whether it might contribute to our analysis of issues raised in this volume.I thank James Leach and Richard Davis and two anonymous reviewers for their helpful comments on an earlier version of this paper.

[2] Perspectivism, it should be noted, derives from the work of Nietzsche, but Viveiros de Castro investigates and applies this concept in original ways.

[3] Writing in 1998, Viveiros de Castro cites M. Boelscher, R. Brightman, I. Goldman, M. F. Guedon, A. I. Hallowell, R. McDonnell, R. Nelson, B. Saladin d'Anglure, C. Scott, and A. Tanner, all of whom have written write about these themes in arctic and subarctic regions.

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