

I am excited to be asked to comment on this set of fascinating and quite diverse papers about indigenous and modern knowledges. Their diversity is two-fold. In the first instance, they deal with different ethnographic contexts. In the second instance, their analytical concerns and questions are different.

Morita san discusses a set of historical changes through which the delta infrastructures of Thailand have evolved. He is keen on finding ways of characterizing these developments in a way that does not separate the natural from the cultural, or the issue of politics from that of knowledge. In particular, he offers some intriguing observations on what he calls the in-betweenness of infrastructure and his general headline refers to the delta as cyborg.

In Honda san's case, we are taken to contemporary Greenland, where traditional forms of living are increasingly under pressure, if not already transformed, by a wealth of geo-political forces, from Danish colonization to climate change. In this situation, Northern Inuit, or is it Kalaalit, find it difficult to pursue their subsistence activities, while Southern government officers attempt to navigate the complexities of the political situation, one in which Greenland is slowly detaching from Denmark, while investors from US to China attempt to find business opportunities as the ice recedes.

In some sense, the empirical context of Omura san's exploration is not radically different from Honda san's as it also deals with icy environments and arctic indigenous populations, though in Canada. Omura san describes the system of human-animal relations brought into being by traditional hunting, but the emphasis of his paper is not so much on the ethnographic details of this case as on what it might tell us about how to study relations between indigenous knowledges and modern science in a broader sense.

Finally, Kondo san's paper offers a broad ranging, indeed sweeping, attempt to characterize what is specific to modern science and indigenous knowledge as such. He also suggests that the fact that modern knowledge, while dependent on techno-

economic networks in Latour's sense, they are nevertheless not determined by them, and this leads to a series of considerations concerning how indigenous knowledges and modern knowledge might interact.

Since Omura san's paper defines something of a general analytical frame for the project, I think it is worthwhile to begin with a consideration of its key ideas. Omura san insists on the need to go beyond analysis that focuses on cultural construction while taking for granted that such constructions take place in natural environments. Instead, taking inspiration from the phenomenology of Alfred Schütz, he views communication as analytically central and suggests that Schütz's analyses of communicative interaction can be expanded also to take into account human-animal relations. The outcome of communicative interaction is the production of a local reality that specifies sociality, materiality or spirituality. Thus, he says, reality and interaction are dialectically related because reality is generated by interactions. Hence, we must study interactions and by doing so we will in effect be studying ontologies, which Omura san refers to as either networks or systems. This form of analysis cuts across the study of indigenous knowledges and modern science, for these are end results, "differentiated from the common, universal basis of human ability". Among other things, we will thus be able to come to terms with the fact that indigenous knowledges are "comparable in accuracy and validity to modern science", though based on a completely different ontology. Another benefit is that indigenous knowledges can be viewed as dynamic and changing systems, rather than inert epistemological structures fixed in the minds of the Inuit. Relativizing this idea, Omura says that "As a matter of course, however, both Inuit and scientists are human beings—sometimes rational, analytical, and objective, and sometimes irrational, intuitive, and subjective". Following this line of argument leads to a serious consideration of the "epistemological mechanism through which IQ and its ontology are generated". On this basis, finally, "On the basis of this analysis, we would be able to consider how to make IK and MS compatible and collaborative."

Omura san's argument is based on a broad range of sources and it is very

stimulating in its integrative effort. I entirely agree with its insistence on the need for going beyond outdated dualisms that separate indigenous and modern knowledges and locate them in an epistemological hierarchy that can never be overcome. However, his solution also raises a number of questions for me.

The first and perhaps most important question for me has to do with the theoretical decisions that are made to get the system of thought going. We will have to insist with Schütz that communicative interactions are the building blocks of our worlds. Maybe this is the case, maybe not. But in any case it seems to me that this forces the issue, because it means that we already know how to characterize whatever we come across ethnographically. This runs counter, for example, to how Latour or Viveiros de Castro suggest we engage ontology: as something the components of which are to a significant extent learned from our informants. So what if they do not conceive of the world in terms of communicative interaction at all? Can this starting point be falsified or why must its mandate be accepted? The trouble for me is that the model seems to assume a kind of universalism without having the means to demonstrate it. Dialectics, with its Hegelian roots, often have this inclination, but I find it in specific language too. For example, when Omura san says that of course we have a shared humanity, I do not feel myself part of that of course, or that humanity. I think I have learned from Mol, Strathern and others, that shared humanity should never be assumed. There might be many humanities and many natures, and these multiplicities can operate on many scales. For similar reasons, I also find myself withdrawing from the lesson that indigenous knowledges have proven that their accuracy is comparable with that of modern science. I do not think, paraphrasing Hans-Peter Duerr, that there is any “epistemological Switzerland” – that is an epistemologically neutral location – from which to judge such accuracy. But I think indigenous knowledges have other functions (and interests) than living up to the notions of accuracy defined elsewhere. So while I think it is important, as Omura san insists, to think of how to somehow imagine comparability and compatibility between divergent ontologies, I do not think the measuring devices are at all obvious.

I will make one smaller and one larger point. The smaller one is that I am not convinced by the notion that there is a dialectical relation between interactions and realities. It appears to me just right to say that we need to study practices, including the making and breaking of relationships (thus interactions). But to my mind that *is* studying ontology, it is studying how the world is produced on an ongoing basis and what it consists of. There is no dialectics to me, because relations do not underlie reality but are reality.

But I would like to end on a more important issue, which has to do with the general differentiation between indigenous knowledges (holistic, self-contained and in that sense systemic) and modern knowledges (reductive, expansive and networked). Given that Omura san complains about the dichotomizing and reductive claims of much modern science it is worth noticing that this claim is itself dichotomizing and also reductive. There are just two overarching kinds of knowledge and they have some general features we already know how to recognize. In contrast, following the emphasis on the production of multiple ontologies as and in practices, I would venture that there are very numerous ontologies, that they take different forms both indigenous and scientific, and that, just as the former are not all holistic and self-contained, so all the latter are not reductive and expansive. So I believe the field is more open and varied, ontologically speaking, than this dual system allows for. And I think that would be important to take into account in all the studies produced as part of this project.

In some sense, Kondo san's paper operates at a similar level of generalization as Omura san's but there are also a number of instructive differences between them, relating to Kondo san's philosophical starting point. Kondo san notes that it is difficult to compare modern science and indigenous knowledge, because, philosophically speaking, we do not know for sure what either means. However, he takes for granted that there are indeed two general types to distinguish between.

Hence, the issue is how to reach an adequate characterization of modern knowledge, which is required even to begin examining and comparing science and indigenous knowledges. The issue, as he says, is what type of philosophy to adopt. Clearly this problem is quite different from the anthropological or STS starting point, which is one of using ethnographic or historical description and characterization in order to find out what kinds of things it is we tend to call modern and indigenous. Kondo san says that his ambition is to define a position from which it will be possible to treat modern and indigenous knowledges symmetrically. This is a fine ambition, I think. Contrary to what he says, it is also precisely what Latour expressly have argued: it is the core argument of *We have never been modern*. Kondo san invites us to engage in a thought experiment, where “knowledge, information, cultures, institutions, and technologies are “natural kinds” just as much as animals and plants.” Whether or not it is sensible to make that analogy, the attempt is worthwhile because putting these different things on the same level is indeed a way of treating them in the same manner, that is symmetrically. It appears to me, however, that there is also a problem here. For how do we predetermine what are the entities that should be treated symmetrically? This decision seems informed by nothing else than a common sense inclination to ascribe particular value to the chosen key words. I use the term key words deliberately here. For what is science? In the first instance, science is not a substance in the world. In the first instance, it is a word, a word with a history of variable and still changing usage. And so is technology, culture, and the rest. This raises the issue of what gives us the right to assume that our current notions of science and technology can be retroactively used to characterize all of human history? And it poses the question: what is science, technology and culture in fact made up of in this imagination? Specifically, Kondo’s argument assumes a dramatic separation between modern knowledge and everything else, which is thus rendered as belief rather than knowledge. In that sense it is asymmetrical from the outset. Kondo san develops a sweeping and abstract argument about the emergence of society and culture at large, and the role of economics and knowledge as part of it. This will not satisfy anthropologists or historians, whose detailed studies and sensitivity to context have long ago forced them to recognize diversity among

societies and deep variety even within the sciences. Even modern science, not to say human societies, come in multiple forms and their forms of knowledge are by no means of one kind. I would like to pinpoint the problem I see with this mode of exposition by considering the solution Kondo san offers: Modern science is characterized by “abstraction”. Since this is a differentiating trait it would thus appear that other knowledges do not rely on abstraction. But this is clearly wrong, as evidence from the study of myth and cosmology, or navigation, or divination, or kinship makes obvious. Modern science is not uniquely characterized by abstraction because abstractions are everywhere and come in many forms. Nor does modern science abstract in one singular way but in many different ones. In short, the approach needs to be relativized and this can only be done by paying attention to empirical particulars as much as to generic categories, philosophical or otherwise.

I find Kondo san’s final questions concerning the relation between modern science and indigenous knowledge evocative. Only I would note that they do not need to be defined only in terms of future inquiry. For of course there are already very numerous studies that examine precisely these questions, including the extent to which such knowledges can be reshuffled and learn from one another. I imagine that this project will offer up many more examples of just how and why this occurs or fails to do so.

Honda san’s paper also operates with a general distinction, no doubt relevant, between the knowledges of Arctic indigenous people and southern Kalaalit. Just because he makes much of that distinction does not mean that the paper is dualist. After all, Honda san emphasizes, with Law and Urry that there is not one global, but many situated globalities. That mimics the argument I just made that, rather than thinking in terms of indigenous knowledges versus scientific knowledges, we need to think of situated knowledges, cross-cutting and taking many forms. Even so, it is still the case that many of these forms assume hierarchy. So of course Honda san is perfectly right to note that political elites usually ignore Inuit perceptions of climate change and often look down on their knowledges. It is presumably just because of

the recurrence of such hierarchies that anthropologists so often take as their job to defend indigenous knowledges against modern bureaucratic or scientific ones. In relation to climate change this takes a particular form that I have also seen in other discussions. And I am not sure I think it is a good idea. It goes like this. Climate scientists are now certain that we are currently beginning a massive shift in the ecological conditions of our planet. However, if you ask many indigenous people, Arctic as elsewhere, they will say that climate variation has always happened. In other words, according to them, nothing unusual is happening. Flux is the norm. Now often the anthropological study of indigenous knowledges offer a counterpoint to common sense. They generate perplexity and complexity and offer nuance. But when indigenous voices are used to highlight that nothing is new, they align in a strange and I don't think too happy way with climate deniers from the oil industry, or Bjørn Lomborg the notorious *Skeptical Environmentalist* from my home country. In strange ways, indigenous, scientific and industrial knowledges overlap. It seems that the spectrum of political correctness in anthropology whereby one could always invoke indigenous perspectives against neoliberalism and for ecological sensibilities may itself be changing, alongside our global climate. There are indeed many situated knowledges, agendas and aspirations. And that, too, calls for some careful analysis, both of what it is that indigenous people say when they say that there has always been climactic flux, and how and why that claim is operationalized as part of anthropological critique. Not least, it includes careful specification of whether they are even talking about the same things as us when they say nothing is new.

Finally, I want to just note that I found his depiction of the double-bind of the Greenlandic government very interesting and worth pursuing. They are caught between a rock and a hard place, he tells us. They do want to protect the Northern population, because they represent traditional Greenland, the heart of the country's identity. But they also need to make money, among other things to free themselves from Denmark, and to do that they will pursue activities that run against the first goal. It is extremely interesting to see how this is going to play out over the next

years, how this double bind is in fact handled.

To turn at the end to Morita san's paper, in my view it offers an extremely interesting analysis of relations between forms of nature and forms of culture, mediated by infrastructure. The focus is on Chao Praya delta and the mode of analysis centers on the continuous intertwinement between the agency of the delta and the activities of various social groups. The delta as we see it today is the result of these ongoing processes, this dance of agency, in Andrew Pickering's sense. Thus Morita san describes how the particular hydrological features of the delta: how it behaves, so to speak, interferes with and creates conditions for political projects of different kinds, and how it leads to various forms of scientific and engineering interventions, that seem never to create real stability. In particular, he emphasizes what he calls the delta's inherent 'in-betweenness', which I find to be a very apposite phrase. The delta is in between sea and land. But it is also between the human and the natural. And it is indeed also between the human and the human; since numerous groups have historically engaged the delta with quite different social, economic and political ambitions in view. However even at the present time, where it would appear that the fluid environment has been controlled and submerged by terrestrial concerns, Morita shows, the delta retains capacity to strike back – flooding, inundating and wreaking havoc, mainly on those areas that are most modern, because they are least resilient and adaptable to the delta's demands. I might perhaps have wished that Morita san would pay even more explicit attention to what he means by in-betweenness and its different forms. I am curious to know what he feels anthropology might learn from recognizing this condition. How does it redirect anthropological imaginaries, and in which ways? Where are we headed if we think not just of social practices but of infrastructures and deltas? What indeed is intended by the very headline the cyborg delta, since the notion of the cyborg is nowhere introduced and it remains unclear just what is cyborg about the delta. Is the in between and the cyborg somehow related, why and how? More than anything, I am curious to know more about how Morita san thinks the study of materiality – the interrelations between geomorphology, inundation, growing crops, building

houses, and so forth, speaks to the topic that gathers us here today: relations between modern knowledges and indigenous ones. Such knowledges seem to be addressed only implicitly, floating around, in between, as it were, the different fluid and terrestrial infrastructure projects that take center stage in this paper. So what is the role and position of diverse knowledges here?