

Scott Gabriel Knowles

A Continent. Inter-view



(image by Nina Jäger, continent.)

Scott Knowles is Associate Professor of History at Drexel University, a U.S. private research institute in Philadelphia. His work focuses on risk and disaster, with particular interests in modern cities, technology, and public policy. His most recent book is *The Disaster Experts: Mastering Risk in Modern America* (University of Pennsylvania Press, 2011), and he is series co-editor of "Critical Studies in Risk and Disaster." With Richardson Dilworth, Knowles edited *Imagining Philadelphia: Edmund Bacon and the Future of the City* (University of Pennsylvania Press, 2009). (University of Pennsylvania Press, 2009). Knowles and Richardson Dilworth are editing a history of Drexel University that will appear in 2016 to coincide with the anniversary of the university's founding in 1891. Knowles has written for the popular press, on the memorialisation of 9/11 and flood zones, as well as for academic audiences, such as his article in *History and Technology* entitled, "Lessons in the Rubble: The World Trade Center and the History of Disaster Investigations in the United States."

cc.cc: How did you get here?

SK: I am here because I was part of a team that was invited to undertake a kind of experiment in describing an apparatus of the technosphere, and in our case they wanted us to explore phosphorus—not just phosphorus mining, but phosphorus use, and what they call here an apparatus with full stretchiness of phosphorus, from its finding to its extraction, production, use and after-use.

cc.cc: How did you get to the phosphorus discussion?

SK: My area is really disaster policy and history. My training is in the history of technology—very interested in the dark side of technological change,

not the progress side. I think they wanted somebody who had a historical perspective, and who could talk about the policy aspects and implications of this ubiquitous mineral. We had one person on our team who was a real phosphorus expert. Phosphorus is just the beginning of the story. Phosphorus is a prototypical material of the technosphere and of the anthropocene, and it is also surrounded and embedded within economic and political context, so you have to be able to talk about those elements as well.

Usually we talk about the history of companies or of countries, or at the very end of the process, we talk about environmental impact. The goal here was to try to tell a fully integrated historical narrative that also did look at some of the grittier aspects of what phosphorus mining looks like when it enters the water systems.

One of the conclusions we came to is that when you have that kind of discussion, there is a political crackle to it—potentially because we tend to look at different aspects of the technosphere as disjointed and disconnected. In fact, in our contemporary society we want that, in cases.^[1] Phosphorus is a good example: in modern society, we do not think that we should be recycling our urine—in general we have aspired to get away from our excrement, and we have aspired to get away from a farm; we would like to have a hygienic society with plenty of food and work. By the assembly of the different parts you do not escape those things. And—even for people who are savvy and sophisticated—many really never knew how much phosphorus has to be mined and used to feed 7 billion people on the planet.

When I say it has a political valence to it, there is something edgy in thinking about the assembly of all the pieces in one.^[2] Also, most of us hyper-specialise in ways that are destructive to the capacity of this kind of storytelling to change people's minds about things. That turns people off from academic discussion; we all know some little slice to it, which seems relevant to a small community.

cc.cc: What technical systems are operating on us right now?

SK: I am very interested in elements of the technosphere that are technological but are maybe not necessarily as tangible. For example, standards.

Safety standards: I have spent a lot of time studying that. This room for example, if we were in the United States, I could tell you specifically what the different fire codes and material standards have to do with whether or not there are sprinklers and various kinds of things—this almost invisible realm that is deeply a product of the technosphere. Because without the complexity of the high-tech material world, you do not need those things, but that is an interface between technology and law that I am really fascinated by.^[3]

I think city planning is very similar, but at a higher scale. I have been thinking more lately about the technical health infrastructure that surrounds us and, more and more, is part of our lives—and everything from drinking water and our sanitation systems, to the direct interventions that we have through pharmaceuticals, or my father's cochlear implant with which he went from no hearing to 65% hearing.

We talk about a new layer of the anthropocene that will now be visible in our skeletons or in our bodies if we went through a metal detector. We are modified.^[4] That is another realm or scale of the technosphere that is really interesting. Last year I was thinking about a paradigmatic object of the anthropocene and I came up with an asthma inhaler; because if you take it apart, it is aluminium, and it has plastic, then of course there is the medicine inside, it has propellant in it. And then why is an asthma inhaler necessary—because of breathing problems, and pollution in our cities. And that is just a handheld, completely inoffensive thing that we can look at, and that saves lives. But it is a necessary appendage now of the technosphere reality that we have created.

cc.cc Which pieces of the technosphere do you have on you right now?

SK: In some sense, there are no products that are not part of a high-tech, mechanised system, but, I mean, some are more obvious than others. The iPhone in my pocket or the asthma inhaler in my bag, the fact that I am carrying around enough chargers and batteries is pretty remarkable, the amount of gear we carry now. So I think those are probably the most obvious.

The less obvious ones are probably more important. The unexpected materials inside of our materials—plastics that seep into every kind of

product we have. I'd love to know what my plastic load is right now. It is much higher than I would probably imagine. There are a lot of things that are hidden in plain sight and I think that is part of the story of the technosphere. It is not a straightforward history of industrialisation,^[5] it is also about the blending together of the natural and the technological to a point at which the two are no longer distinguishable.^[6] A cotton shirt does not mean what it meant 100 years ago.

Lately, I feel like I am a concierge to my devices, to make sure that they get enough rest and that they get enough electricity; feeding their needs becomes part of your daily chores.

cc.cc: What is the technosphere?

SK: The technosphere is an identifiable realm. I suppose it is conceptualized generally as geological—that there is a marker of human activity having to do with the creation of tools and machines. It is a realm that we might think would be identifiable in a future time as a distinguishing point between a past when there was not complex technological activity on Earth, into a present and some sort of indeterminate future that is going to be more and more defined. I suppose that is the anthropocene too, but the technosphere is maybe a way of talking about even more intentional, highly complex technological systems.

We have been thinking about the technosphere in terms of satellites a lot lately too. A lot of the discussion about the technosphere is a way of talking about how we get to such and such a carbon level. But the atmosphere is full of other things too: it is full of satellites and debris, so the technosphere is not just terrestrial, it is not just a railroad network, it has these other dimensions to it.

I have some concerns with the technosphere: I really find Peter Haff's work very provocative. I am a historian of technology by training and the first thing that mattered to me—that I learnt in that training—was that technology and culture are inseparable, and co-create one another, and there is nothing deterministic or autonomous about technology. We might choose to define certain technologies in our lives—just as I was aiding to feed my battery, I have given agency and autonomy to my machine. But ultimately these machines are as embedded in our society and our

politics as any law, relationship or anything else.

There are times when some discussion around the technosphere—because it takes on this material dimension—it feels like it is real and perhaps separate from us, and I do not accept that; I do not find that very useful because ultimately, the reason to have concepts like this is to understand power and change over time (for me). What we have done is just discovered a new geological strata that is full of cadmium, that feels a little separate from us, and also cuts off, potentially, the possibility for reform and change—if we feel like it is operating out here, and that were not part of it. That is some of the territory within the technosphere where I would like to see further discussion.^[7]

We are in an interesting time where people are grasping for these large, stretchy concepts that help them understand global change: “anthropocene,” “technosphere,” and “resilience” are concepts that we are hearing a lot about. I think they are all incredibly useful, but none of them should become totalising. Particularly, I get concerned when some of them become a space for us to shrug our shoulders and say that this is just the new reality that is terrible. This was part of the experiment of the phosphorus apparatus discussion which was trying to recover agency and connectedness in every aspect of it—from miner to producer to farmer, to the algae bloom that is going on in your local pond—finding agency, elaborating it and contextualising it are a really important part of this work. You do have a room full of geographers, physicists, communication people—I have never been in a setting like that, and it is a little jarring at times, in good ways. It is a call to further diversify our skill sets.

cc.cc: Please pick one image that resonates with your idea of the technosphere.^[8]

SK: The water truck. There is nothing more fundamentally human than agriculture—but we can mark a pretty remarkable set of changes of what agriculture means and how it is done, and what it has become and is now since the 1800s, and that matches pretty well with the anthropocene discussion.

So this is a technological, complex picture, but sometimes we assume the anthropocene or technosphere means other things, but even more

fundamentally, it means things like water trucks, or what is in the water. We are doing lots of things to feed ourselves that we were not doing 200 years ago, which is an unexpected aspect of the anthropocene. As we found with phosphorus: none of us knew much about it, and yet there is nothing more important to our daily lives in terms of calorie consumption.

cc.cc Notes

[1] EDITORS' NOTE: This disjointed and disconnected technosphere calls to mind the resourcification Godofredo Pereira discusses, "Techno-scientific modes of seeing, classifying, and measuring the earth are reformulating the ways in which territorial disputes are currently played out. Due to the mobilisation of science by capital, we today inhabit an earth that is being reduced to discrete components." Godofredo Pereira. "The Underground Frontier" *continent*. 4, no. 4 (2015): 4–11.

A quantification of being—a fragmentation of self and environment. In the essay "Uncommoning Nature," Marisol de la Cadena writes of the Peruvian populist resistance against the sale of land and water to mining corporations, where she explores the trace of an interdependent cosmology in the rhetoric of indigenous Peruvian communities. The language used to relate to the land, Cadena writes, reveals "an ecologized nature of interdependent entities that simultaneously coincides, differs, and even exceeds – also because it includes humans—the object that the state, the mining corporation, and environmentalists seek to translate into resources, whether for exploitation or to be defended." Marisol de la Cadena. "Uncommoning Nature" *e-flux. Apocalypse*. August 22, 2015.

[2] EDITORS' NOTE: The political valence Scott Knowles refers to incites an upheaval of Western hegemonic understandings of the relationship of the human to ecological, planetary systems and, increasingly, on an extraterrestrial vanguard.

In an ethnographic excursion through social

relationships to land, Edward S. Casey writes in *Getting Back into Place* about the effects of colonialism upon the Navajo as not just a physical displacement, but a displacement that incurs "both culture loss and memory loss resulting from the loss of the land itself, each being a symptom of the disorientation wrought by relocation." Western colonialism brought with it concepts and language that inform a cosmology of separateness between the human and non-human—or being and environment, contaminating the tradition of interconnectedness and entanglement, and shaking the foundation of this complex existential orientation across generations.

"It follows as a devastating deduction that to take away land is to take away life, that the major cause of illness is not something 'physical' or 'psychological' in the usual bifurcated Cartesian senses of these words but, instead, the loss of landed place itself [...] To take a people's land away altogether, so that reciprocating with it is not even possible, is to disrupt the sacred balance even more drastically." Edward S. Casey. *Getting Back into Place: Toward a Renewed Understanding of the Place-World*. (Bloomington: Indiana University Press, 1993), 37. [See also: Industrialisation.]

In discussing the technosphere, interviewees frequently expressed an intuitive alignment with ideas that are present in many Indigenous cosmologies and rhetorics. More now than ever, where state agents are being called to accountability and reconciliation with displaced Indigenous communities, the nuances of these cosmologies would have significant impact on the ethical and legal systems that frame (and reflect) human relationships to the earth and to non-humans, and ultimately shape environmental policies and industrial practices. What Knowles calls an "edgy assembly of all the pieces in one" would necessitate a reconnection with this complex interdependency of self and place, a type of re-indigenisation, a reconnection, of beings and technologies with a more intimate experience of place.

[3] EDITORS' NOTE: [See also: Mushon Zer-Aviv on the affordances and interfaces in this issue; Lucy Suchman on military technologies also in this issue.]

[4] EDITORS' NOTE: Lucy Suchman writes on the transition of public interfaces onto the intimate body through wearable technology: "My concern, then, is with the kinds of 'we's' that are posited by this future vision, widening the circle of those who employ, manage, and command to include more and more of 'us,' while those who serve us are re-fantasized from problematic human workers to the now-quite imitable in silicon Jeeves. Discourses of agency at the interface at once naturalize the desirability of "service provision," and further obscure the specific sociomaterial infrastructures—including growing numbers of human workers – on which smooth interactions at the interface continue to depend." Lucy Suchman. *Human-Machine Reconfigurations: Plans and Situated Actions*. (Cambridge: Cambridge University Press, 2006), 225.

[5] EDITORS' NOTE: As addressed in several of the interviews, the ecological and social crises that in part necessitate discussion around a technosphere, originate out of a divide between the human and the environmental—a schism of self and place. The planetary trauma of industrialisation was fundamentally permitted through a perception of the earth as resource. This legacy of exploitation is evident in the ongoing pacification of Anishinaabek demands for returning federal, provincial and municipal land-holdings to Indigenous stewardship (the term "ownership" allowing misrepresentation of human relationship to the land). The ongoing industrial and luxury residential development of Asinabka is an example of the permeation of this schism into the so-called "green economies" of developing cities:

"In 1800, Philemon Wright saw Asinabka as a place to settle and, by employing labour for the transformation of nature (land use!), a means to build a community. When Robert Randall surveyed the Chaudière Falls in 1807, he saw water and force, and a means to extract power from nature for economic gain. In 2006, Domtar seized an opportunity to invest capital into its extractive infrastructure, expand its facility, and in so doing, increase profit. Each of these 'colonial moments' was made possible because of an a priori perception of the relationship between people and land. Battiste and Henderson (2000), in their critique of Eurocentric ontology, describe this perception as a consciousness that 'artificially

constructs a place for existence' then 'treats the natural world as a practical source of the means to achieve its own objectives'. All three moments were made possible by period-specific political technologies, respectively: a land survey, a colonial missive, and an environmental screening report." Eric L. Smith. "An Urban Epicentre of Decolonization in Canada: The Indigenous-Settler Alliance To Make a Place for Peace at Asinabka." Masters thesis. Carleton University. (2011), 55.

[6] EDITORS' NOTE: See also: TERADA Masahiro (XXXX) on co-evolution. Negarestani's "mutual affordance between surfaces or the entity and its environment, that is to say, according to the eco-logical web, the Whole" [or "()hole"]. Reza Negarestani. *Cyclonopedia: Complicity with Anonymous Materials*. (Melbourne: re-press, 2008), 46.

[7] EDITORS' NOTE: [See also: Abstract, Complexity, Interconnectedness, Everything–Everything–Everything.]

[8] EDITORS' NOTE: During the discussions, interviewees were asked to pick from a set of somewhat random images. This collection of different phenomena served as a prompt for thought on the forms of appearance and the visuality of the technosphere. You can view the set here www.flickr.com/photos/57221817@N07/25411316686/in/photostream. The discussion here refers to www.flickr.com/photos/57221817@N07/25320618692/in/photostream.