

Theory Talks

Presents

THEORY TALK #64

GABRIELLE HECHT ON NUCLEAR ONTOLOGIES, DE-PROVINCIALIZING THE COLD WAR, AND POSTCOLONIAL TECHNOPOLITICS

Theory Talks

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GABRIELLE HECHT ON NUCLEAR ONTOLOGIES, DE-PROVINCIALIZING THE COLD WAR, AND POSTCOLONIAL TECHNOPOLITICS



Nuclear power has formed a centerpiece of Cold-War IR theorizing. Yet besides the ways in which its destructive capacity invalidates or alters the way we should understand questions of war and peace, there are different powers at play in the roles the nuclear assumes in global politics. Through careful investigations of alternative sites and spaces of nuclear politics, Gabrielle Hecht has uncovered some of the unexpected ways in which what one can call the ‘nuclear condition’ affects politics across the globe. In this *Talk*, Hecht, amongst others, explores what it means to ‘be nuclear’; explains how we need to deprovincialize the Cold War to fully grasp its

significance in global politics; and challenges us to explore technopolitics outside of the comfortable context of OECD-countries.

What is according to your view the most important challenge facing global politics and what is/should be the central debate in the discipline of International Relations (IR)?

I think one of the most important challenges in global politics is the question of planetary boundaries. In the 1970s the Club of Rome published the report ‘Limits to Growth’, which addressed the finite quality of the planet’s resources. It exposed the problems that the ideology (and practice) of endless economic growth posed for these limits. The question of climate change today really is all about planetary boundaries. We have already exceeded the CO₂ level that is safe for the planet to sustain human life: We have just passed 400 parts per million; the desirable level is rated at 350 parts per million; the pre-industrial level of CO₂ was 270 parts per million. So we have already produced more CO₂ than is sustainable. And that is just one indicator. There are all kinds of other planetary boundaries at play—energy supply being the most salient one in terms of climate change. How can we even produce enough energy to maintain the lifestyles of the industrialized north? What about the requirements of the so-called ‘rest’?

Obviously this is a huge issue and there are many parts to it. One part of this—the piece that I have studied the most—is nuclear power. Many people are enthusiastic about nuclear power as a solution to climate change. Some prominent environmentalists have been converted, because they believe nuclear power offers a way to produce a large amount of energy with a very small amount of matter, and because they see it as carbon free. (That’s pretty clearly not the case, by the way, though nuclear power certainly produces less carbon than fossil fuels.) But are the human health and environmental costs worth the savings in carbon? Do the resources poured into nuclear power—some are predicting a thousand new reactors in the next few decades—take away resources from other forms of energy production, forms that could potentially address the emissions problems more rapidly and with lower costs for the environment and for human health? Moreover, nuclear power in any one location ends up becoming a global issue. So in that sense nuclear power in China, in India or in Japan is inherently a global problem. And the

industry everywhere certainly needs global regulation—at the moment, there is none. The International Atomic Energy Agency is not a regulator. These are serious questions for international relations, and should be fodder for analysis.

One can obviously put this into perspective by comparing the death toll from nuclear power with that related to coal—would one then actually have to be against the use of coal? The numbers of coal-related deaths are astonishing. But the first, most obvious point to make is that being against coal doesn't require being in favor of nuclear power! It's also extremely important to realize that death and morbidity figures for nuclear power are highly contested. Take the figures concerning Chernobyl. The IAEA and WHO put Chernobyl deaths at 4,000. A study published by National Cancer Institute in the United States puts the deaths at something like 43,000. A meta-analysis of 5,000 Slavic language scientific studies estimates the total number of Chernobyl deaths (some of which are yet to come) at 900,000. These discrepancies have a lot to do with controversies over the biological effects of low-level radiation, and also with the technopolitics of measurement and counting. Comparing the two energy technologies is much more complicated than merely counting coal deaths vs. nuclear power deaths.

How did arrive where you currently are in your thinking about these issues?

Actually, the real question is how I came to study politics. I got my bachelor's degree in physics from MIT in the 1980s. The two biggest political issues on campus at that time were Ronald Reagan's Strategic Defense Initiative and Apartheid in South Africa (specifically, a move to divest American corporate interests in South Africa, the very corporations that were funding MIT research and for which MIT students would work when they graduated). I got interested in both, and along the way I came to realize that I was much more interested in the politics of science and technology than I was in actually doing physics. So I took some courses in the field of science and technology studies (STS), and decided to attend graduate school in the history and sociology of science and technology.

I had also always had a morbid fascination with nuclear weapons. I'd read a lot of post-apocalyptic science fiction when I was a teenager. All of these things came together for me in graduate school. I first hoped to study the history of Soviet nuclear weapons but quickly realized that would be impossible for all kinds of reasons. I ended up studying French nuclear power after I realized that nobody had researched it in the ways that interested me. I had lived in France in the 1970s, when the nuclear power program was undergoing rapid expansion. So it was a good fit. After I was done with that project, I became interested in rethinking the so-called nuclear age from a colonial and post-colonial perspective.

What would a student need to become a specialist in global studies or understand the world in a global way?

Travel, learn languages. Remain attentive to—and critical of—the political work done by claims to 'global' purview. Learn history—you won't understand international relations in any depth at all if you remain rooted in the present.

Then, for those want to start exploring the global politics of science and technology, two books come immediately to mind. Timothy Mitchell's (*Theory Talk* #59) *Carbon Democracy*, on the global technopolitics of fossil fuels. And Paul Edwards's *A Vast Machine*, on the relationship between data and models in the production of knowledge about climate change. Both are must-reads.

The world is permeated with technological artifacts and systems—in what ways is this relevant for approaches to global politics? Where is the conceptual place for technologies within IR?

First, I should make clear that I am not an IR specialist.

That said, I think it does not make sense to think about international relations (lower case) without thinking about the technologies, systems, and infrastructures that make any kind of global movement possible. The flows of people, of products, of culture, political exchanges—these are all mediated through and practiced in the technological systems that permeate our globe. So are the interruptions and absences in such ‘flows’. I draw attention to the specific political practices that are enacted through technological systems with the notion of technopolitics. I initially used this concept in my work on nuclear power in France to capture the ways in which hybrid forms of power are enacted in technological artifacts, systems and practices. There I used the term in a rather narrow sense to talk about the *strategic* practices of designing technologies to enact political goals. My paramount example was that of the French atomic weapons program. In the early 1950s, France’s political leaders insisted that France would never build atomic weapons. But engineers and other leaders in the nascent nuclear program were designing reactors in a way that optimized the production of weapons-grade plutonium rather than electricity. When politicians finally signed on, the technology was ready to go. This example problematizes the very notion of a ‘political decision’. Instead of a single, discursive decision, we see a complex process whereby political choices are inscribed into technologies, which subsequently favor certain political outcomes over others.

In this example, both engineers and politicians *consciously* engaged in technopolitics. By contrast, Timothy Mitchell has used the hyphenated term ‘techno-politics’ to emphasize the unpredictable and unintended effects of technological assemblages. Over the last fifteen years, I have also developed a broader notion of the term, particularly in its adjectival form, ‘technopolitical’. I find this to be a useful shorthand for describing both how politics can be strategically enacted through technological systems, and also how technological systems can be re-appropriated for political ends in ways that were unintended by their designers. The point, really, is to highlight the myriad politics of materiality.

Do the particular characteristics of nuclear technologies and related research programs make it impossible to apply the lenses of ‘high politics’?

I think a high-politics approach to understanding nuclear weapons decision-making is extremely impoverished. It’s not that there aren’t high politics, of course there are. But they cannot offer a sufficient or straightforward explanation for how or why any one particular country develops a nuclear program. A focus on high politics implies a focus decision makers and moments. But that’s really misleading. In pretty much every case, the apparent ‘moment’ of decision is in fact a long process involving a tremendous amount of technopolitical, cultural, and institutional work, rife with conflicts and contingencies of all kinds. I think a more productive approach is to try to understand nuclear capacity-building.

Itty Abraham has done some fantastic work on India’s nuclear program, which helps us think about other cases as well. For example, he analyzes the symbolic importance of the nuclear test, noting that IR uses ‘the test’ as kind of ‘aha!’ moment, the *moment* in which one knows that a country has nuclear weapons. Instead, Abraham sees the test as a process for the cultural

production of meaning: a process in which certain meanings get fixed, but by no means the most important moment for understanding the actual technology and politics behind the production of nuclear weapons.

Your book *Entangled Geographies* (2011) explores a plethora of places, people, and technical networks that sustained the US and Soviet empires. Here, as in *Being Nuclear* (2012), you insist on investigating the Cold War as transnational history. What difference does this move make?

In *Entangled Geographies*, my colleagues and I build on the work of Odd Arne Westad, whose book *The Global Cold War* was an argument for understanding the non-superpower, non-European dimensions of the Cold War. We give that a technopolitical spin, which offers a de-provincializing of the Cold War that's complementary to Westad's. By focusing on places like Saudi Arabia, or Zimbabwe, or Brazil, or South Africa, we show how even the central struggles of the Cold War were intimately bound up in 'northern' relationships to colonial and post-colonial worlds, and in the imaginaries that characterized those relationships.

In *Being Nuclear* I focus on uranium from Africa—more specifically South Africa, Namibia, Gabon, Madagascar, and Niger. Uranium from Africa has long been a major source of fuel for nuclear power and atomic weapons, including the bomb dropped on Hiroshima, but it has been almost completely absent from accounts of the nuclear age, whether scholarly or popular. This changed in 2002, when the US and British governments claimed that Iraqi leader Saddam Hussein 'sought significant quantities of uranium from Africa' (later specified as the infamous 'yellowcake from Niger'). Africa suddenly became notorious as a source of uranium. But that did not admit Niger, or any of Africa's other uranium-producing countries, to the select society of nuclear states. Nor did it mean that uranium itself counted as a nuclear thing. My book explores what it means for something—a state, an object, an industry, a workplace—to be 'nuclear'. I show that such questions lie at the heart of today's global order and the relationships between 'developing nations' and 'nuclear powers'.

Being Nuclear argues that 'nuclearity' is not a straightforward scientific classification but a contested technopolitical one. In the first part of the book, I follow uranium's path out of Africa and analyze the invention of the global uranium market. In the second part, I enter African nuclear worlds, focusing on miners and the occupational hazard of radiation exposure. In both parts, I show that nuclearity requires instruments and data, technological systems and infrastructures, national agencies and international organizations, experts and conferences, and journals and media exposure. When (and where) nuclearity is densely distributed among these elements, it can offer a means of claiming expertise, compensation, or citizenship. It can serve as a framework for making sense of history, experience, and memory. When (and where) network elements are absent, weak, or poorly connected, nuclearity falters, fades, or disappears altogether, failing to provide a resource for people claiming remediation or treatment. Nuclearity in one register doesn't easily transpose to another: geopolitical nuclearity doesn't automatically translate into occupational nuclearity. Yet these domains remain connected. African uranium miners depend on the transnational movement of nuclear things, but that movement also depends on African miners. Ultimately, I conclude, nuclear security must be considered in tandem with other forms of human security—food and health and environmental and political security. By placing Africa in the nuclear world, and the nuclear world in Africa, the book seeks to remake our understanding of the nuclear age.

I should note that it's not only uranium production that connects the colonial and postcolonial spaces with nuclear things. (Also: African countries weren't the only such places where uranium

was produced. Much of the rest of the world's uranium came from the Navajo nation in the United States, Aboriginal territories in Australia, First Nation territories in Canada, colonized spaces in the Soviet Empire, etc.) French nuclear weapons were tested in the Algerian desert and French Polynesia; the United States tested its weapons on the Bikini Islands; Britain tested its weapons in Maralinga, in Aboriginal Australia; the Soviet Union tested its weapons on the planes of Kazakhstan. And so on.

So, understanding the history of the Cold War—even its most iconic technology, nuclear weapons—as a form of transnational history really calls attention to spaces that have previously been considered marginal, even perhaps not fully nuclear. Ultimately, it should provoke us to problematize 'the Cold War' as a frame for global or transnational history (and social science).

Looking at those colonized and semi-colonized spaces of mining, testing and monitoring infrastructures gives us not necessarily an answer to the question of why the Cold War ended, but it does enable you to ask different and possibly more interesting questions. It can lead you, for example, to place the Cold War within the framework of imperialism (rather than the other way around). A longer historical view questions whether the Cold War really represents historical rupture. What political work is done by such claims to rupture? How does that work differ in different places? What are its material consequences?

Why are science and technology hardly ever studied in the postcolonial world from a STS perspective?

I think there are a number of reasons why STS has paid relatively little attention to the postcolonial world. One is that in STS—like many disciplines—the prestige of the subject matter maps onto the prestige of the researcher. So STS researchers who study cutting-edge science or large-scale technological systems seem somehow to be getting at 'harder' topics, ones that focus on active creation. Engineering and other acts of creation appear more prestigious than acts of maintenance, or acts of dismantling. Even studying small-scale creation seems to confer more prestige than studying mundane practices. This brings us back to the theme of rupture vs. continuity: studying or proclaiming rupture seems somehow sexier—and certainly more radical—than studying continuity.

Another, more trivial answer is just that most STS researchers so far have come from Europe and North America, and they tend not to be trained in area studies.

Does the constant ontological insecurity of nuclear things mean that the 'nuclear' is purely a matter of social and political construction?

No, definitely not. But I think to explain what I mean by all this we should take a few steps back and start with what I like to call *nuclear exceptionalism*. This is a technopolitical claim—emerging immediately after the end of World War II—that there was something radically unique about nuclear things. From 1945 onward, both cold warriors and their activist opponents cultivated this nuclear exceptionalism. Atomic weapons were portrayed as fundamentally different from any other human creation. The bomb was the ultimate geopolitical trump card, and it was imagined as replacing empire in one fell swoop. You see nuclear scientists and engineers gaining prestige, power, and funding far beyond their colleagues in conventional research. In the meantime, anti-nuclear groups make their own claims to exceptionalism by talking about the unprecedented dangers posed by nuclear things. Everywhere you see nuclearity and morality intertwined. Nuclear things either represent salvation or moral depravity... or the apocalyptic end of

mankind. But regardless of where you stood politically, this notion of nuclear exceptionalism rested on the sense that the difference between nuclear and non-nuclear things was transparent—ultimately a clear-cut, physical matter of radioactivity.

The nuclear thus emerges not just as a category, but also as a universal and universalizing ontology, one that seems to apply in the same way all over the globe. And frankly, historians, political scientists, anthropologists, and sociologists have reproduced that nuclear exceptionalism. (I did it myself in my first book, *The Radiance of France*.)

All of which has made it hard to see that what I call nuclearity—the process by which something comes to count as a “nuclear” thing – has a history, a politics, and a geography. Things that count as nuclear in one time and place might not count as nuclear at another. Rendering something as nuclear and exceptional is a form of technopolitical claims-making. It follows that insisting that certain things are not especially nuclear, or that they are banal, is also a form of technopolitical claims-making.

You can see this in the response of the nuclear industry to activist opponents. In the late 1960s and over the course of the 1970s, the nuclear industry began to represent nuclear power not as a life-saving technology for the human race, but as simply another way to boil water. Radiation was just another industrial risk. Such representations seek to banalize nuclear things.

Nuclearity could thus get made, unmade and remade. My favorite example comes from a 1995 US government report on nuclear proliferation. The appendix has a table that summarizes the nuclear activities of 172 nations. Neither Gabon, nor Niger, nor Namibia are listed as having any nuclear activities, despite the fact that those nations together, during that very year, produced something like 25% of the world’s uranium. So when does uranium count as a nuclear thing? When does it lose its nuclearity? And what does Africa have to do with it?

The argument is not that radioactivity doesn’t have to do anything with nuclearity, or that nuclearity has nothing to do with the technologies and physical processes we typically associate with the word. Rather, I argue that nuclearity is one thing, and radioactivity and fission are another; sometimes they are co-terminus, but not always and not necessarily. Understanding where (and why) they *don’t* map onto each other is politically revealing.

Which kind of interdisciplinary exchanges do we need between your discipline and IR to deepen our understanding of global technopolitics?

Science and technology studies (STS) is really good at exploring practice, and especially at calling attention to the differences between principles and practice—for example, between regulation on the one hand, and the actual practices that regulations are meant to control (without ever entirely succeeding). STS can bring to IR an understanding of how the intimate details of practice matter politically—of how everyday technopolitical and techno-scientific exchanges can be more important loci for politics than treaties, diplomacy, and other forms of what you called high politics.

I can also answer this question wearing my historian’s hat. The IR scholarship on nuclear weapons that I’m familiar with (and again, I’m not an expert!) seems to be quite focused on producing models—on using history to produce predictive models that will in turn serve to shape international policy on nuclear weapons regulation. But if history tells us one thing, it is that models are basically useless for understanding how countries develop nuclear weapons. Instead, history and STS both teach us about which questions to ask (in this instance, about nuclear

development). Identifying the important questions—rather than prescribing the applicable model—leaves open the list of possible answers. It also leaves open solutions and policies, letting us be more attentive to the specificities and uniqueness of individual cases.

Let's take the example of Iran's nuclear program. What alternative question about the issue would lenses of nuclear exceptionalism bring us?

Nuclear technology has played an important role in shaping modern Iranian national identity. This began in the 1970s under the Shah, who – with the support of the US – developed a grandiose plan to build a fleet of nuclear reactors. It took a different turn after the 1979 Iranian revolution. For a while, the new regime sidelined the nuclear program as an unwelcome manifestation of western corruption. But after a few years leaders reappropriated nuclear development and sought to invest it with Iranian-ness. The dynamics of nuclear exceptionalism have operated in Iran much the same way they did in France and in South Africa. Nuclear exceptionalism has served to give material form to national identity. And materialized national identity is most emphatically *not* something that you can negotiate away in the P5+1 talks.

Gabrielle Hecht is Professor of History at the University of Michigan, where she also directs the Program in Science, Technology, and Society and serves as associate director of the African Studies Center. She recently published *Being Nuclear: Africans and the Global Uranium Trade* (MIT Press and Wits University Press, 2012), which has received awards from the American Historical Association and the American Sociological Association, as well as the 2013 Susanne M. Glasscock Humanities Book Prize and Honorable Mention for the African Studies Association's 2013 Herskovits Award. She is also the author of *The Radiance of France: Nuclear Power and National Identity after World War II* (MIT Press 1998 & 2009) and editor of *Entangled Geographies: Empire and Technopolitics in the Global Cold War*, editor (MIT Press, 2011). Hecht is embarking on a new book project on technology and power in Africa, as well as new research on transnational toxic trash. She has held visiting positions at universities in Australia, France, Norway, South Africa, and Sweden.

Related links

- Hecht's faculty profile at the University of Michigan
- Read Hecht's *The Power of Nuclear Things* (Technology & Culture 2010) here (pdf)
- Read Hecht's *Nuclear Ontologies* (Constellations 2006) here (pdf)
- Read Hecht's *Rupture-Talk in the Nuclear Age* (Social Studies of Science 2002) here (pdf)