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# Toxic uncertainties of a nuclear era:

## Anthropology, history, memoir

### ABSTRACT

New narratives of toxic contamination are expanding and challenging our ethnographic sensibilities. In confronting the contamination left behind from the Cold War period, a range of disciplinary approaches, methods, and writing styles is necessary. Ethnography plays a crucial role here, but it cannot fly solo in these sorts of projects. In this review essay, I compare three books from authors belonging to distinct scholarly traditions, each one dealing with complicated cases of radioactive contamination that began in the Cold War era and that demand rethinking in the contemporary one. Anthropologists have much to learn from approaches pursued in other disciplines, particularly if the end goal is a more holistic portrait of contamination and toxicity. [*Cold War, nuclear era, radiation, contamination, uncertainty, toxicity*]

**Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters.** *Kate Brown.* Oxford: Oxford University Press, 2013. 416 pages. ISBN 978-0-19-985576-6.

**Full Body Burden: Growing Up in the Nuclear Shadows of Rocky Flats.** *Kristen Iversen.* New York: Broadway Books, 2012. 432 pages. ISBN 978-0-307-95565-4.

**Consequential Damages of Nuclear War: The Rongelap Report.** *Barbara Rose Johnston and Holly M. Barker.* Walnut Creek, CA: Left Coast Press, 2008. 312 pages. ISBN 978-1-59874-345-6 (cloth), 978-1-59874-346-3 (paper).

**M**any of my colleagues in anthropology are concerned that scholars in other disciplines have hijacked ethnography, the defining methodology of our field, without necessarily acknowledging the source. Yet I would reply that there is something quite positive in the desire of our colleagues in other disciplines to use our cherished methods and even, at times, claim alliance with anthropology's ethnographic history. New meldings give rise to novel forms of successful scholarship, even as banal discussions of "mixed methods" fail to generate enthusiasm. Ultimately, our success depends on our audience. And given the diversity of audience in this interdisciplinary moment, perhaps we need not worry too much about policing our borders for fakes. Rather, our work can benefit from seeing how other disciplines utilize elements of the ethnographic in productive ways.

### **Ethnography, access, and the literatures of nuclear-era contamination**

Our contemporary ethnographic successes include engagement with not only so-called local populations but also a range of experts, among them, scientists, politicians, and lawyers, who may not always grant us the access we desire. I was compelled to think through these issues when I entered a field of inquiry not entirely accessible through anthropological ethnography and attended to in disciplines governed by other rules: radiation contamination resulting from the Cold War period—much of it

caused by the mining, production, and testing of nuclear materials, and much of it toxic to humans, animals, and the environment. I have found myself going down a variety of rabbit holes in areas of scholarship that include studies of the environment, the courts and legal system, genetics, population and radiation biology, epidemiology, public health, and medicine as I have sought to find what this toxicity means and how it manifests in a range of disciplines.

In this review essay, I compare three books from authors belonging to distinct scholarly traditions, each one dealing with the problem of access in their explorations of complicated cases of radioactive contamination that began in the Cold War era and demand rethinking in the contemporary one. *Consequential Damages of Nuclear War: The Rongelap Report* is authored by anthropologists Barbara Rose Johnston and Holly M. Barker. *Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters*, an ethnographic account in many ways, is written by the historian Kate Brown. *Full Body Burden: Growing Up in the Nuclear Shadows of Rocky Flats* is a memoir written by Kristen Iversen.

### Ethnography and Cold War histories

New histories of toxic contamination are expanding and challenging our ethnographic sensibilities. In confronting the contamination left behind from the Cold War period, a range of disciplinary approaches, methods, and writing styles is necessary. Ethnography plays a crucial role here, but it cannot fly solo in these sorts of projects. Anthropologists have much to learn from approaches pursued in other disciplines, particularly if the end goal is a more holistic portrait of contamination and toxicity. In turn, scholars from other disciplines have made use of ethnographic methods in ways that are both promising and relevant to anthropology's own approach to such issues. In exploring their own disciplinary edges, our colleagues from other disciplines are finding beauty in ethnography. We should not discourage them.

As anthropologists, we are conditioned to illuminate the local perspective, despite plentiful internal discussions that seek to destabilize any purist ethnographic model. But, while the attention to the local endures as one of our discipline's sacred tenets, I would also contend that this aspect of our work is never enough. The authors whose work I discuss in this review essay are all aware that, to narrate Cold War histories of nuclear-era contamination accurately, an exacting "fusion" of approaches is necessary. Scholarly investigations of this time frame and its excesses require diverse points of entry, whether directly ethnographic or not, into expert areas of knowledge production.

When setting the groundwork for future research on communities living near the Brazilian nuclear reactors in Angra dos Reis, for example, I found it useful to delve into

archives at the U.S. Department of Energy (DOE) as well as the National Archives, both of which contain documents related to U.S. Atomic Energy Commission (AEC) reports about Brazil during the Cold War. Newspaper archives, declassified materials, legal cases, and library collections also figure prominently in this preliminary work. The range of documents I secured in these domains, as well as a productive collaboration with one of my graduate students working in Kazakhstan with Soviet-era documents, led to an exploration of U.S. Cold War science around low-level ionizing radiation, including its denigration of Soviet genetics research (Goldstein and Stawkowski in press). Yet nuclear-era contamination and its variegated toxicities and effects on humans also make it wholly necessary to speak to people locally, since they are the only ones who have witnessed and become victims of these ongoing Cold War events. Perhaps the only way to approach the subjectivities of contemporary communities living in contaminated danger zones is to carry out some sort of ethnographic work. Amplifying local voices through intimate, long-term, and in-depth ethnographic research seems more necessary than ever before. In sum, a wide range of sources is required to enter productively into specific conversations taking place in a range of discipline-bound journals, each addressing small bits of larger questions.

Only one of the three books I explore here would claim to be part of the anthropological tradition: Barbara Rose Johnston and Holly Barker's *Consequential Damages of Nuclear War: The Rongelap Report*. This book is a collaborative effort of two anthropologists who have together and singularly already made important contributions to this field. As reflected in the pages of this volume, both have worked tirelessly to forward the legal claims of Marshall Islanders contaminated by U.S. nuclear testing in the Pacific during the 1950s and beyond. The book takes the form of a legal brief that enables the Marshallese to speak intimately about their devastation. Their stories reflect the perspectives of the residents of Rongelap (an atoll belonging to the Marshall Islands), who, in 1954, became victims of the Bikini Island nuclear test accident. *Consequential Damages* is already a vital document of the nuclear age and was useful to the Marshall Islanders in forwarding their complaint against the U.S. government.

In the second book, *Plutopia: Nuclear Families, Atomic Cities and the Great Soviet and American Plutonium Disasters*, Kate Brown, a historian with a well-honed knack for the ethnographic, brings the depth of her knowledge of the Soviet Union and archival intelligence to historical and contemporary communities of nuclear-complex workers living on opposite sides of the Cold War. She tells the tale of two plutonium manufacturing cities, one in the United States and one in the former Soviet Union: Richland, Washington, and Ozersk, in the Ural Mountains. Joseph Stalin, afraid to lose the nuclear race, made Ozersk in the image of the

Richland area's Hanford project. Both cities are full of secrets and even today reveal elements of Cold War socialities. Ozersk remains a closed dominion within the Chelyabinsk Oblast of Russia, and so Brown was never able to enter the city. Instead, she sought out some of the victims of the Soviet project, among them, workers from the Maiak plutonium production plant and community members contaminated by the highly toxic pollution that the plant dumped into the Techa River. Today, the Maiak plant processes waste and recycling materials from Russia's other nuclear power stations.

Kristin Iversen, author of the third book, *Full Body Burden: Growing Up in the Nuclear Shadow of Rocky Flats*, is an English professor skilled in the craft of writing and investigative journalism. In this exceptional personal memoir, Iversen brings critical political and historical reflection on the Cold War to life. Iversen grew up in the "shadow of Rocky Flats," the plutonium trigger-production facility (for nuclear bombs) at the foot of the Rocky Mountains and a mere 12 miles from the university town of Boulder, Colorado, sometimes referred to as "the People's Republic of Boulder" in reference to its left-leaning political history. As a creative writer pursuing the genre of memoir, Iversen takes advantage of her literary freedom, exploring the memory and meaning of some of her own distant-past experiences and conversations. But she does this only after speaking to a broad range of experts and delving deeply into archival sources. *Full Body Burden* tells the story of how the Rocky Flats plutonium button-production complex created various sorts of radioactive contamination and, later, illnesses among the people she knew. She also describes how the facility became the target of sustained antinuclear and anti-war activism in the 1980s, inspiring her own political awakening. Iversen's memoir additionally shares a great deal about the interpersonal dynamics within her own family—dynamics that, incidentally, seem oddly parallel to the secretive sociality encouraged by a 1960s Cold War setting.

Broadly speaking, the authors of these books explore how politics, science, media, and Cold War secrecy create expert and lay knowledge systems. Each author seeks to get closer to recognizing how local populations now comprehend the reverberations of the Cold War era, including radiation contamination. Ethnographic methods are seen as a way of getting closer to "the truth," even though the three texts are stylistically very different. Four interlocking themes emerge from these case studies: (1) the pattern of governmental secrecy during the Cold War period; (2) the production of scientific uncertainty around nuclear-era contamination; (3) the long- and short-term health effects of radiation contamination; and (4) the sense that some human subjects have been sacrificed by government, corporate, and scientific interests.

Johnston and Barker's *Consequential Damages of Nuclear War* is written with extraordinary clarity. The book

won the New Millennium Award (2012) from the American Anthropological Association's Society for Medical Anthropology, which recognized it as one of "the most significant and potentially influential contributions to medical anthropology," a great honor in an esteemed area of the discipline. The authors' collaboration is not only exemplary; it is also complementary. Barker was a Peace Corps volunteer and an assistant to the Marshallese ambassador in Washington, DC, for nearly two decades. Her publications include *Bravo for the Marshallese: Regaining Control in a Post-Nuclear, Post-Colonial World*, now in its second edition (2013). Johnston too is an expert on nuclear issues. She edited *Life and Death Matters: Human Rights and the Environment at the End of the Millennium*, also in its second edition (2011), as well as *Half-Lives & Half-Truths: Confronting the Radioactive Legacies of the Cold War* (2007). More recently, she has contributed regularly to the *Bulletin of the Atomic Scientists* (e.g., Johnston 2011). By all accounts, Johnston is an expert at locating hard-to-access information about nuclear-era scientific experimentation—for instance, the documents she uncovered in the context of the anthropological debates about the professional career of geneticist James V. Neel (Johnston 2001) were useful to everyone involved. Her more recent book makes good use of her expertise. In short, both authors understand how the process of declassification works and have pursued difficult-to-find documents through the Freedom of Information Act (FOIA).

In clear collaboration with the Marshallese themselves, Johnston and Barker's book doubles as an expert witness report and was used at the Nuclear Claims Tribunal (NCT) in September 2001. It documents how the U.S. nuclear weapons testing program affected Marshallese livelihoods and general well-being. The book draws the reader into the tragic details of how the Marshallese came to understand the nuclear era, contamination, and its effects on their bodies. The U.S. government became the colonial administrator of the islands after the Second World War, and it used the region to test its largest nuclear bombs. From 1946 to 1958, 67 atomic and thermonuclear bombs were detonated with a yield equivalent to 1.6 Hiroshima bombs per day (Barker 2012). The Marshallese were asked for and had given consent for these tests (at the hands of quite obvious coercion), not knowing the kind of devastation that would transpire. But the Bikini test was, indeed, a "mistake"—a blast that went terribly wrong and made everything that followed even less predictable.

The Rongelap community received near-lethal doses of radiation when, on March 1, 1954, a 15-megaton hydrogen bomb was tested. As the wind shifted, a radioactive cloud blew directly toward some of the inhabited atolls, communities whose livelihoods were bound up with the land and who had no warning of danger. The voices of the Marshallese construct a moving and detailed description of what happened to them on that day, how they were treated

in the ensuing weeks and years, how their land, livelihoods, and social identity were affected, and, tragically, how they became stigmatized by neighboring communities who perceive their genetic futures as dangerously compromised. Moreover, AEC medical researchers used their bodies to better understand the consequences of radiation exposure, and additional communities and individuals of the Marshall Islands were chosen as control subjects. All were monitored, not for the sake of health provisioning but, instead, as human subjects—experimental providers of insights into bioscientific understandings of dosage and radiation effects. The epilogue to *Consequential Damages* provides insight into what eventually happened in the broader context, that is, how the Marshallese, scientists, the legal system, and the U.S. government came to interpret the events of 1954 and what followed.

The book bluntly digests and makes sense of declassified documents that eventually emerged and became public. The authors quite reasonably argue that there is clear evidence of government complicity in keeping secret a great deal of the information that could have eased the pain and suffering of this Marshallese community. The book also reveals the ways in which certain forms of medical treatment were denied to Marshall Islanders even as they were simultaneously enrolled as control subjects (see also Goldstein 2012; Lindee 1994). Much of the scientific research that took place at this time and that contradicted the AEC findings were cast aside, considered methodologically problematic, or labeled as ideological products of Soviet science (Goldstein and Stawkowski in press). The resulting scientific uncertainty (see Button 2010) surrounding this disaster left people not only wondering about the causes of their illnesses but also tied them up in the court system. More surrealistically, we learn that the Marshall Islands still have no oncologist or reliable cancer treatment center available. And they need one.

Brown's *Plutopia*, a comparative history of the Hanford Nuclear Production Complex and its suburbs and the Maiak nuclear complex and its proximate "closed" city of Ozersk, has already been widely reviewed in a broad spectrum of professional journals, including *American Historical Review*, *Foreign Affairs*, and *Nature*. According to Brown, the twin cities that are her subjects have much in common: Residents in each city grew accustomed to the elevated consumer and middle-class privilege that accompanied the industrial and nuclear production race that characterized the Cold War. The eventual formation of upwardly mobile, privileged communities created residents that became incapable of profound critique, either of the government or of their employers. At Hanford, this led to the flouting of safety regulations and the censoring of information about serious accidents; dangerous emissions of plutonium and other radioactive products entered into the atmosphere and the Columbia River. At Hanford, complicity

extended to government officials, scientists, corporate leaders, and even workers.

Like the Hanford Complex, the Maiak plant was also constructed under duress, which, in that case, was reinforced with generations of forced labor and prisoners. Eventually, elite scientists were effectively lured to the plant with the stick of Stalinist purpose and the carrot of wealth and privilege. An accident at Maiak that took place in 1957 is referred to as the "Chernobyl before Chernobyl," and the region's Techa River is recognized as one of the most contaminated areas on the planet. Both Richland and Ozersk are terribly damaged landscapes. Areas near the Maiak plant, for example, are uninhabitable. Soviet leadership kept the contamination secret and ignored the people who live there. Yet residents of both communities claim to be suffering from the effects of radioactive contamination that were never properly acknowledged or remediated. In fact, although in both cases evidence of genetic effects seems apparent, the causality of such effects remains controversial (Goldstein and Stawkowski in press). Both of these cities grew to maturity during the Cold War, and their residents lived within the state of concealment established by each system at that time.

The glaring misrepresentation that initiated these projects and later became a form of collective misrecognition of the dangers these facilities have caused is present even today among some residents in both locations. Risk, it seems, became an evolving category; at first, radiation dangers were dismissed, later diminished, and then disputed. The cities share a plutonium past and a range of antidemocratic characteristics that Brown contextualizes with great skill. Large swaths of land near these complexes have in both cases been brutally and silently sacrificed (see Kuletz 1998); Brown argues convincingly that this is also true for the people living in these zones, which puts her work in dialogue with the other two books I discuss in this review.

*Plutopia* is elegantly written and honest; it speaks frankly about the devastation done to individuals, communities, and generations of workers contaminated during the long nuclear race. It also shows how resilient the debates about contamination and harm have become, that is, how neither side has managed to come clean in the present. There is something fantastically bold in suggesting this comparison of two cities and emphasizing the parallels in these two cases. Brown's brief but transparent interview with victim survivors living in these two regions effectively transmits a certain ethnographic sense of being there and brings her splendid historical and archival research to contemporary life.

Iverson's *Full Body Burden* was published just as the memory of Rocky Flats as a production plant manufacturing triggers for nuclear bombs was fading away. The book has quickly gained publicity through reviews in the *New York Times* and the *Atlantic* as well as radio interviews

with the author on NPR's *Fresh Air* and on BBC's *World Outlook*. As a resident of Boulder, Colorado, I am not entirely sure Iversen's book will puncture the current collective amnesia, despite the attention it is receiving: Many people living in the vicinity have forgotten that plutonium is one of the most toxic materials on the planet and has a half-life of 24,000 years. The remediation of the area around the plant turned it into a wildlife refuge but left unknown quantities of plutonium in the soil. Jefferson County, Colorado, recently won the right to build a private highway right through the area that would connect up with metropolitan Denver. But according to some radiation experts, the road-building project would stir up plutonium in a region of the closed site that had at one time been considered too toxic to remediate.

In this gripping memoir, Iversen describes the lives of her family, neighbors, and friends she grew up with, some of whom worked at the plant. She worked there briefly as well and eventually began to wonder about the high rates of cancer, leukemia, and thyroid illness among people she knew. Her own political awakening eventually took her on an investigative journey that examined two serious fires that occurred at the plant, one in 1957 and the other in 1969, both of which are described—and at some level fictionalized—in *Full Body Burden*. Iversen was not present at the 1957 fire, since it preceded her own personal experience, but through her telling, she reminds us that our own information about that event is rather thin. This is because the DOE and the plant's operators at Dow Chemical Company never shared (with the media or the public) what they knew about the dangerous radiation leaks that occurred at the time. Iversen boldly suggests that while the event was never referred to as one that had reached "criticality," some of the more controversial research on the level of strontium-90 and cesium-135 found in the Denver area years later points to that possibility. During the 1969 fire, the FBI and the Environmental Protection Agency became deeply involved in Rocky Flats, by that time in the hands of another subcontracting corporation—Rockwell.

Similar to the government–corporate partnership structure at Hanford, the history of Rocky Flats is littered with safety violations, accidents, worker exposures, cover-ups, and the maligning of reputations of scientists who attempted to carry out research that would expose the dangers emanating from the plant more generally. Given the recently approved highway through Rocky Flats that is predicted to dislodge plutonium and make it airborne in unknown quantities once again, one could read Iversen's book as an important antidote to collective amnesia.

### **Ethnography and toxic uncertainty**

In tracing the environmental dangers that have been left behind by Cold War nuclear weapons testing and production,

ethnography is a common element to histories that speak back fiercely to the official story. The books I discuss here do different things, and yet each distinctly illuminates what are becoming known as familiar and overlapping aspects of the Cold War. These books use a range of methods, and they are aware that it is necessary to be exacting; each has employed the full arsenal of information available for these sorts of mature projects: archival records, interviews with survivors and other surviving experts who played a role in science or policy development, and, finally, some form of ethnographic contact with living people.

All three of these books emphasize that a variety of populations became "living laboratories" for cold-hearted experimentation by governments that had more information about the effects of toxic nuclear materials than they were willing to share. It is also clear that scientists, workers, and residents who attempted to speak to issues of safety or of public health were quickly delegitimized. These projects also all recognize that the secrecy and control of scientific knowledge that characterized the Cold War helped to create a post–Cold War atmosphere that at some level discourages the study of a broader range of contemporary illnesses that might be traceable to past contamination, or similarly discourages litigation using public health concerns against the government or its corporate partners from this era.

*Consequential Damages of Nuclear War* delivers ethnographic legal depositions that speak out against these trends and are put into action in an important legal case. The presentation of Marshallese voices speaking to the countless abuses they suffered through the years, more than had ever been recognized by official sources, ought to immediately command an audience beyond our own discipline. The book reveals in painstaking detail the abuses of Cold War nuclear testing and its irreversible devastation. *Plutopia* links the voices of a few poignantly rendered present-day survivors to the archival materials available on the two sites it examines, thereby bringing history to life in enduring ways and raising new questions about the aftereffects of Cold War plutonium production. The ethnographic aspects of the book are less developed than the historical aspects, but Brown's ability to connect the two is admirable and her journey into the present is a plucky move for a historian. Both of these books deliver the urgency of a still-relevant Boasian salvage anthropology in their conscientious collection of people's narratives of illness, abnormal births, and trails of uncertainty that create new questions about contamination and toxicity stemming from this time frame. And, finally, *Full Body Burden* creates a narrative that brings the project of memoir and autoethnography to these questions in ways that make ethnography appealing to a broad reading audience that finds comfort in the kinds of intimacy and inner subjectivity this kind of writing can deliver. Because Iversen's memoir seeks to illuminate not just

her own family's insertion into Cold War secrets but also the toxic effects of these broader government and corporate secrets in the present, this work also edges productively into ethnographic territory.

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