

PREFACE

When I began this project in 1998, I sought to challenge conventional narratives of “the nuclear age” as a technological and a geopolitical rupture. According to those narratives, splitting the atom promulgated a new world order that replaced imperialism with “the bomb.” But it was clear that colonialism remained central to the nuclear order’s technological and geopolitical success. Even a short list of atomic test sites makes the point: Bikini Atoll, Semipalatinsk, Australian Aboriginal lands, the Sahara, French Polynesia. Yet these spectacular displays told just part of that story.

The history of uranium production, rarely addressed in any depth, suggested that imperialism was much more deeply and lastingly woven into the fabric of the nuclear age. Congolese uranium powered the Hiroshima bomb. Uranium in the Commonwealth helped Britain maintain nuclear relations with the United States after the war. France mined uranium in its African colonies. Uranium also played a key role in more recently established colonial relationships, such as that between South Africa and Namibia. Examples abounded: East Germany and the Soviet Union, Adivasi lands in India, First Nation lands in Canada, and on and on.

What, I wondered, had global nuclear development meant for local communities in the so-called third and fourth worlds? How did it reflect and shape relationships between “developing nations” and “nuclear powers”? To keep the project manageable as I set out to explore this history, I limited myself to Western imperial relationships. Because I wanted to learn from the people who worked in or lived near the mines, I chose places where conducting oral interviews and field research was feasible. In addition to Gabon, Madagascar, Namibia, and South Africa, my initial sites included the Navajo Nation and Australia’s Northern Territory.

As my research continued, I concluded that a single book covering all these places would be too unwieldy. The evidence I'd collected in Gabon, Madagascar, Namibia, and South Africa had begun to coalesce around an argument that addressed not only the power of nuclear things, but also the positions of African nations in transnational technological systems and the complex challenges faced by African workers who participated in those systems. Still, my geographic coverage was limited. Violence around uranium sites and other political tensions meant that neither Niger nor the Democratic Republic of Congo was conducive to archival research or fieldwork on this topic. I could therefore address them only in the limited way made possible by secondary literature and documentation available in US and European archives.

My work was strongly shaped by my collaboration with Bruce Struminger, a medical doctor with an interest in anthropology who worked at the Indian Health Service in Shiprock, New Mexico. Together we filmed a series of interviews with people who'd worked at uranium mines in Namibia, South Africa, and the Navajo Nation. I owe him a very special acknowledgment for teaching me about occupational health research and for being part of this project, off and on, for four years.

I am deeply grateful to the many people who shared their histories in Gabon, France, Madagascar, Namibia, South Africa, and the UK. Particularly generous with their help, their memories, and their insights were those mentioned in the appendix (not always by name, by their choice), especially Georges Heurtebize. I also thank Jacques Blanc, Robert Bodu, Bernard Keiffer, Jozua Ellis, Paul Fitzsimons, Rob Heard, Alison O'Gorman, Juste Mambangu, Charles Scorer, David Salisbury, Annie Sugier, and Mike Travis for facilitating my access to uranium mines, plants, and other nuclear sites. Staff members at the CRIIRAD, the Institute for Science and International Security, the Laka Foundation, the OECD, Sherpa, the South African History Archive, TradeTech, and the World Nuclear Association kindly provided data, illustrations, and other information. I also thank the many librarians, archivists, and others who smoothed my way.

None of this research would have been possible without generous funding. I was the fortunate recipient of two fellowships and a collaborative research grant from the National Endowment for the Humanities, two grants from the National Science Foundation (awards SES-0848568 and SES-0237661), a Frederick Burkhardt Fellowship from the American

Council for Learned Societies, fellowships from the University of Michigan's Eisenberg Institute for Historical Studies and the Stanford Humanities Center, and a grant from Stanford University's Office of Technology Licensing. Any opinions, findings, and conclusions or recommendations expressed in this material are mine and do not necessarily reflect the views of the National Science Foundation (or any other funding agency). I especially appreciate the good guidance of NEH and NSF program officers through the application and grant management process. Margy Avery of the MIT Press patiently nurtured the book for many years, cheerfully advising me on structure, style, and other matters.

Research assistants—many of them excellent scholars in their own right—helped me cope with the scope of this project. I extend thanks to David Backer, Millington Bergeson-Lockwood, Letitia Calitz, Michelle Escobar, Anne Fellingner, Andy Ivaska, Adriana Kale Johnston, Matt Raw, Emmerentia van Rensburg, Tasha Rijke-Epstein, and Nafisa Essop Sheik. Clapperton Mavhunga and Sezin Topçu proved to be especially gifted researchers. So did Dan Hirschman, who also commented on drafts and offered essential help in the final weeks.

This project found an extraordinary home at the University of Michigan, and especially in the Department of History, the Program in Science, Technology, and Society, and the African studies community. From the moment I arrived, Kali Israel offered me her friendship and her vision of Ann Arbor. Susan Douglas and TR Durham made life tasty and never wavered in their encouragement. Doug Northrop helped me keep word counts and fight writing demons; he and Michelle McClellan broadened Michigan's horizons for me. Geoff Eley, Joel Howell, and Mary Kelley generously offered all manner of counsel at critical moments. The manuscript was much improved by comments from John Carson, Robyn d'Avignon, Joshua Grace, Nancy Hunt, Steve Jackson, Elise Lipkowitz, Amanda Logan, Davide Orsini, Emma Park, Derek Peterson, Liz Roberts, Stephen Sparks, Alex Stern, and other participants in the STS reading group, the African History and Anthropology Workshop, and my graduate seminar on Bodies, Technologies, and Nature in African History. I'd have been lost without Connie Hamlin, Karen Higgs-Payne, and the other wonderful staff members who keep things humming. Others who enriched my life and work in Ann Arbor include Kelly Askew, Kathryn Babayan, Charlie Bright, Kathleen Canning, Pär Cassel, Sueann Caulfield, David

Cohen, Joshua Cole, Juan Cole, Fred Cooper, Susan Crowell, Christian de Pee, Angela Dillard, Mamadou Diouf, Tirtza Even, Dario Gaggio, Dena Goodman, Steve Gutterman, Rima Hassouneh, Sue Juster, Valerie Kivelson, Terry McDonald, Gina Morantz-Sanchez, Rachel Neis, Marty Pernick, Phil Pochoda, Helmut Puff, Sonya Rose, Rebecca Scott, Scott Spector, Howard Stein, Tomi Tonomura, Penny Von Eschen, Butch Ware, and Mary Ellen Wood. Cynthia Esseichick and Sue Watts helped me keep body and soul together.

Keith Breckenridge and Catherine Burns shared their home and their community in South Africa and offered advice and critique at many key points; this project would have turned out differently without their unparalleled generosity. Nolizwi Mpandana Stofela lived with this project for more than a year, and traveled over 30,000 kilometers in the process; I will always be grateful to her, and to Cyprian Stofela and Kokwana Mpandana. Others who offered hospitality or help in (or about) Gabon, Namibia, Madagascar, and South Africa include Gretchen Bauer, Florence Bernault, Renfrew Christie, Barry Ferguson, David Fig, Jeff Guy, Verne Harris, Patricia Hayes, Werner Hillebrecht, Jonathan Hyslop, Mike Kantey, Sonya Keyser, Pier Larson, Karen Middleton, Dunbar Moodie, Julie Parle, Vololona Rabeharisoa, Jeremy Silvester, and Sandy Thompson.

The ideas in this project were also nurtured by exchanges with many other colleagues, including Itty Abraham, Warwick Anderson, Yannick Barthe, Joel Beinin, Alain Beltran, Michel Callon, Lynn Eden, Mats Fridlund, Pascal Griset, Hugh Gusterson, Toby Jones, Kairn Klieman, Arn Keeling, Cathy Kudlick, Susan Lindee, Morris Low, Joe Masco, Donna Mehos, José Manuel Mendes, Stephan Miescher, Laura Mitchell, Suzanne Moon, Ruth Oldenziel, Sara Pritchard, Peter Redfield, Richard Roberts, David Rosner, Sonja Schmid, Johan Schot, Helen Tilley, Hans Weinberger, and Luise White. Those who read portions of the manuscript at various stages and helped to improve its arguments include Soraya Boudia, Kai-Henrik Barth, Tim Burke, Rebecca Herzig, Arne Kaijser, Paul Landau, Grégoire Mallard, Chandra Mukerji, Ben Némery, Chris Sellers, Keith Shear, Bill Storey, Lynn Thomas, and Brad Weiss. I owe a special debt to colleagues who took significant time away from their own work to critique the entire draft in exacting and remarkably constructive detail: John Krige (who has offered encouragement since the earliest days of the

project), Julie Livingston, and Michelle Murphy. Michael Adas, Ken Alder, and Bill Leslie have long been generous and steadfast supporters.

My friendship with Nina Lerman has shaped my thinking and scholarship in fundamental ways. Certain conceptual aspects of this project bear the traces of a paper we wrote together over two decades ago; she has read drafts of much of my work since then, and still always finds something insightful to say. This book would be a different (and weaker) beast without the firm editorial hand of Jay Slagle. His dedication during the final months added new depth to a friendship that began with us counting cosmic rays in a college lab. Book writing requires breaks, and I thank the friends and family outside my academic orbit who helped me enjoy life outside this project: Ivan, Ginny, and Karin; Lauren, Maya, Elaine, and Don; Dori, Eli, Isaac, and Rick; Todd, Ilona, and CS; and the amazing Edwards clan, especially the children: Annie, Jesse, Maddie, and Spencer.

Janet Edwards is in a class of her own. She has offered insight in domains ranging from proposal writing to parenting, and much in between. She has flown to the rescue more times than I can count. Her wisdom and optimism will always inspire me. I dedicate this book to Janet; I could not have written it without her.

Nor could I have written it without Paul Edwards, who accompanied me up, down, and around the world for the entire duration of the project, often putting his own work on hold. He took notes, made copies, set up tents, kept things running, and maintained his faith in the project. He couldn't possibly have wanted to read so many words about uranium, but he read them anyway and made them better. By example and in his critiques, he held me to the highest standards. Most of all, he gave me courage. So did our son Luka, bringer of light and joy and hope. A special copy of this book awaits you, Luka, whenever you're ready. Just like you asked.