Gabrielle Hecht. *Being Nuclear: Africans and the Global Uranium Trade.* Cambridge, MA: The MIT Press, 2012. ISBN: 9780262017268

In common usage and popular understanding, the term "nuclear" tends to be closely associated with power plants, bombs, radioactive medicine, and other high-visibility technologies wielded by the world's most powerful industrialized states. Poor countries are excluded from what counts as "nuclear," even though they are the source of many of the raw materials essential to nuclear technology. In her latest monograph, Gabrielle Hecht casts a much-needed critical eye on these perceptions. She argues that the history of nuclear technology must be expanded to encompass the entire uranium trade. Focusing on uranium mining in Africa, she demonstrates how the primary sector has gone underappreciated in the history of nuclear technology. Conflicts over resources, safety, development, and the very meaning of the word "nuclear" had broad effects on the global struggle over access to nuclear technology. These conflicts also left lasting scars on the communities impacted by the geopolitical contest over uranium resources; a familiar pattern of poor countries left to clean up the worst of the environmental, economic, and cultural fallout. In that sense, Hecht's work fits with a broader trend in the history of technology that seeks to highlight subaltern experiences buried within complex technological systems.

Organized into two parts, *Being Nuclear* discusses the impact of uranium mining on all levels of African society as well as global geopolitics. In Part One, "Proliferating Markets," Hecht discusses the development of markets for African uranium. Hecht skillfully demonstrates how Africa's uranium resources became the subject of contention in the postwar era, as actors with competing interests fought for control over mining, refining, and distribution. Industrialized countries sought a cheap and continuous flow of uranium to build bombs and power electric plants. Some, like France, also wanted to use uranium mining as a means of projecting power in the postcolonial era. She writes that French officials wished to establish hegemonic control over uranium mining in Africa as a means of guaranteeing the continued pre-eminence of the mother country. In that sense, *Being Nuclear* builds upon her earlier work, *The Radiance of France*, which argued that nuclear technology was essential to postwar French visions of a globally relevant techno-state. After states such as India gained nuclear weapons capability, established nuclear powers would also concern themselves with controlling the sale of uranium in the name of non-proliferation. Mine operators wanted high margins, stable relationships with clients, and minimal restrictions on the sale of their product or health and safety in the mines. African political elites in newly independent states wanted to use uranium mining to facilitate the development of their nations and to legitimize their rule. All of these actors fought over whether uranium ore should be considered "nuclear," and thus deserving of the same level of attention and regulation as atomic bombs and power reactors. African elites such as Gabonese President Omar Bongo understood the power of nuclearity to burnish their rule and raise the profile of their nations on the global stage. Non-proliferation and anti-apartheid activists seized on the nuclearity of African uranium to draw attention to their causes. On the other hand, consumers of uranium such as the operators of utilities in wealthy countries understood that they would benefit from lower prices and easier access if this material was treated as a mere "banal commodity." The continuing struggle over the production and sale of uranium is another example of how "free" markets are often anything but.

In Part Two, "Nuclear Work," Hecht explores the basic work of uranium mining and its meanings for both African miners and their employers. Uranium mining was both a blessing and a curse for African workers. Uranium mining provided steady work, relatively high wages, and limited opportunities for advancement to white and black Africans, in unequal measure. It also reinforced racial hierarchies, facilitated colonial and postcolonial exploitation, and left behind a legacy of environmental damage and unanswered questions about the risks of long-term radiation exposure. Hecht illustrates how mining firms, often working in concert with governments, systematically obscured the risks of radiation exposure for miners and their families. Many miners toiled in ignorance of the unseen dangers that surrounded them. Mining companies wished to avoid regulation, and African governments were loath to cut off a sure stream of export earnings. However, miners were more than passive victims of mining firms and exploitative governments. Some became aware of the dangers of radiation, and fought to limit their exposure. They demanded that they be compensated for their injuries, and that their families be protected from environmental contamination. They offered organized resistance in the form of protests against working conditions and support of anti-apartheid and anti-colonial political movements. Even so, the balance of power was rarely in their favor. Many died or were sickened by mysterious ailments without having received compensation. The environmental impact of uranium contamination continues to linger, even in regions where mines have been inactive for decades. *Being Nuclear* follows an important trend in technology scholarship that emphasizes the contributions of subaltern groups in facilitating (and resisting) large technical systems.

Hecht poured an enormous amount of time and effort into this project, with research stretching over a decade. She experienced considerable difficulty in accessing archival materials, many of which are still classified as secret. Even so, she was able to amass a considerable amount of documentation. She uses oral interviews as a means of adding more perspectives to the project. These range from African laborers to former company and government officials. In total, they add a great deal of human character to a topic that tends to be dominated by narrowly focused technical history. This volume will be of interest to anyone that studies nuclear technology, African development, global capitalism in the postcolonial era, resistance to apartheid, or occupational health and safety.

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