*Empires of Coal: Fueling China's Entry into the Modern World Orde*r, *1860-1920.* Shellen Xiao, Wu. Stanford: Stanford University Press, 2015. ISBN: 9780804792844

In recent years, "China in the world" has become a new buzz word in both research works and innovative curricula. This new theme calls for research not on how China simply interacted with the outside world, but rather how China was interwoven into the emerging global network, both a material one and a conceptual one. Shellen Xiao Wu's book is such an accomplishment: it intriguingly narrates the history of how the late Qing actively joined the global trends in the nineteenth century, "when the rise of science and industrialization destabilized global systems and caused widespread unrest and changes in ruling regimes around the world" (195). Beginning with a German geologist's travels to China and concluding with a Chinese scholar's trip to Europe, this book places the Chinese history of coal in a global setting and within a web of people's perceptions. What changed during China' participation in this global development was both the emerging exploitation of coal in pursuing industrialization and the view of natural resource management as a key path to the wealth and power of a country. This transformation of worldview was by no means unique to China; it was part of a global trend that most countries experienced.

Historians and sociologists agree that the nineteenth to the twentieth century witnessed such a transitional period of international relationships. While nationalism, modernity, and imperialism continued to be the overarching themes that scholars who study this period would want to address, more recent works turn their attention from major political events to everyday life and the story of "things." As Wu says in her book, "markers of the 20th century, …1911, 1927, 1949…do not necessarily define the lives of those who lived through China's recent past"(196). As sugar is proven to be an important indicator of imperial expansion (Mintz, 1985) and as the recent work on cotton (Riello, 2013) redefines people's concepts of global economy, Wu joins this group of scholars to take coal as a way to rethink China's entering into the new world orders. Wu also places her argument into the heated discussion about West and East interaction since the nineteenth century. By articulating the active participation of the Qing government in the exploitation of coal, and by complicating the power shared among foreign engineers and the two countries, this book further "break(s) down the binary constructs of East versus West, colonizers versus colonized, to emphasize the global circulation of trade and culture" (10).

Reading the book as a historian in Chinese history, the refreshed historical picture of the late Qing government presented in this book attracts me. Benjamin Elman, in his 2003 article "Naval Warfare and the Refraction of China's Self-Strengthening Reforms into Scientific and Technological Failure, 1865–1895," issued a call to rethink the assumption that the self-strengthening movement was an unsuccessful one. This argument arrived at the same ground of the newly brought up question of how to interpret the collapse of the Qing Dynasty: was it inevitable or was it an accident? Was it due to the incapacity of the Qing government to reform itself, thus rendering it left behind by the rest of the world? Shellen Xiao Wu's work responds to this discussion by arguing "before their downfall,

the Qing had already joined an international community of nations, which viewed control over natural resources as an irrefutable part of sovereignty power and responsibility" (31). The active attitude and positive response towards the new perception of natural resources management revealed a fact that the Qing never stopped reforming itself to better adapt to the growing global world; and in line with this, the fall of the Qing was more a result of a series of contingences.

The six chapters follow a rough chronological order to articulate the reconceptualization of the mineral resources from the 1860s to the 1920s. Wu convincingly demonstrates that the Qing government, during its last few decades, which were usually regarded as the most dysfunctional periods, was able to absorb and experience the new worldview regarding the use and exploitation of natural resources. The first chapter lays out several main historical discussions that converged in this book. The author persuasively demonstrates that the control over natural resources is pertinent to nationalism, state sovereignty, imperialist interaction, science, geology and perception of these topics.

Chapter two discusses German geologist Ferdinand von Richthofen's travels and observations of geological conditions in China. As the first person to document the natural resources in China, Richthofen's records paved the way for both the articulation of imperial request and the formation of nationalism based on these resources. This chapter alone serves well for a world history class, or a background reading for "China in the world" course. It tells a European history centering on Germany and the development of geology; it also highlights the negotiation, collaboration and tension among imperial nations in their expansion to other parts of the world. Starting from Chapter three, the author moves to examine the afterlife of Richthofen's travel. In her close examination of different approaches to the introduction of geology through translation, Wu argues that sociologists used these 19th century geology works as a novel opportunity to spatially reconceptualize China: from a Sino-centric worldview to an international perspective. By detailing the communication and misunderstandings between Chinese literati and Western missionaries in their translation work, Wu presents an intriguing world that both parties strived to create an environment for science to flourish in China.

Chapter four furthers this discussion of cultural space for science by introducing the actual people: engineers. By exploring the power shared by the German government, foreign engineers and their Chinese employer, this chapter reveals a picture of the concept of engineering, which included "both the technical skills of mining and its close relationship with the logistic of empire"(128). This chapter therefore reaffirms the importance that the state played in the exploitation of coal. The role of the state in the management of natural resources continues in Chapter five, which turns to the legal regulations that were issued by the government during its last few years. Not only did the Qing government engage in extending its power to the underground and separating it from surface rights, but the provincial elites and merchants also devoted themselves to the movement of buying back the mineral resources. Though these efforts seemed like superficial proclamations, these movements marked a reawakening concept of natural resources as a key part of sovereignty. Chapter four and five are of particular interest to someone who studies Chinese history, no matter whether the Qing history of the self-

strengthening movement, or early modern history that centers on the state and society relationship.

Chapter six focuses on the pioneers of Chinese engineers and those who wrote on geology. As Wu argues, geology served as a key metaphor in the late Qing and early Republican era political debates over nation-state. This action of seeking indigenous roots of Chinese geology joined other main cultural and social movements around the same time in claiming for independence.

One theme that connects all chapters is the role played by geology and the discourse of science in the development of industrialization and a new world order into which the early twentieth century China strived to enter. Science was intricately linked to the imperial expansion of most of the western countries, and at the same time also paved the way for the discourses of independence and nationalism in China. The close ties between energy, scientific exploitation, state management, and a promise of wealth and power to a country continues today. Scientific discoveries of new energy remain on the top of the research programs funded every year by the NSF and the DOE in both the United States and China; engineers occupy most of the seats in the Chinese central government and constitute the majority of think tanks in the US; natural resources, both domestic and international, animate a number of diplomatic situations, including the US's emphasis on the Middle East and the controversies in the South China Sea.

Shellen Wu is also willing to reveal the close connections between what happened in the late nineteenth century with what is going on in contemporary China, where coal is unarguably the most important and also most controversial energy. The picture Wu paints about the Qing dynasty constantly reminds readers of currently ongoing problems: struggles between private and state enterprise in the management of coal, the environmental and labor crisis caused by the over exploitation of coal, and the global collaborations in controlling energies. As a historian who always encounters questions regarding modern connections in all levels of history courses, I find this book a quite promising starting point to embark on such discussions of energy, state policy and globalization.

For Chinese and world history courses, this work sheds new light on the role of imperialism, especially the expansion of Germany, the Self-Strengthening Movement, the Rights Recovery Movement, and the history of geology. Its emphasis on science and natural resources could also add to the perspectives one could offer to the class, especially to a class of students from different majors and to those who are keen to explore contemporary energy issues.

While appealingly providing both big picture questions and rich details regarding the late Qing history and German imperialism, this book also opens the door for more questions--a shared characteristic of all thought-provoking monographs. Questions that arise while reading include: How could one evaluate the influence of coal mining projects on Chinese labor? How to understand the Great Geology Survey with similar practices of categorizing knowledge in China and other countries around the same time? What was

the impact of the geology books on the perception of spatial relationships and geopolitics within China? How did people in the early twentieth century address the concerns of ecology and environmental protection? While any attempt to answer these questions goes beyond the scope of this book, their almost inevitable occurrence predicts the active discussions that could potentially come from the reading of this book.

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