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Sarah E.M. University of Nevada Press, 2018**

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Mining the Borderlands: Industry, Capital, and the Emergence of Engineers in the Southwest Territories, 1855-1910

Sarah E.M. Grossman. Reno, Nevada: University of Nevada Press, 2018.

In *Mining the Borderlands: Industry, Capital, and the Emergence of Engineers in the Southwest Territories, 1855-1910*, distinguished scholar Sarah E.M. Grossman examines the early history of commercial mining along the United States-Mexico border. She brings her extensive knowledge of the region, and a forensic detective's thirst for the truth to the task. Her mission is to understand precisely how much, and in what specific ways, various commercial mining ventures in the desert Southwest, contributed, not just to the economic development of the region, but, moreover, to the development of improvements in mining techniques, engineering methods, equipment, efficiency, working conditions, mining education, and, in her view, most importantly, popular culture in the United States and Mexico.

The book opens with an engaging introduction where Grossman further refines its central focus. Through brilliant comparisons between conditions in the Southwest, and, among other locations, those in the California gold fields, around Virginia City, on Pike's Peak, and in the Yukon, she argues that while other strikes were undeniably flashier in their, seemingly instant, socioeconomic and sociopolitical impact, it is the slow, steady, intermingling of people, ideas, and cultures which allowed mining in the region, mostly, to avoid the boom and bust roller coaster more famous areas, invariably, rode. Additionally, focusing on more plentiful base metals, like copper, allowed for more sustainable profits which were often put not only into mining-related improvements, but also into making nearby settlements into sustainable communities rather than showy boomtown. Indeed, Grossman argues that this type of thinking

will keep mining viable in the 21st century, both as an industry and as a symbol of the hopes and dreams that form the heart of popular culture.

Mining the Borderlands: Industry, Capital, and the Emergence of Engineers in the Southwest Territories, 1855-1910 contains six chapters, each, nominally centering on differing aspects of the region, mining, and/or mining education. Practically speaking, ideas, insights, and connections come together, and branch off like so many mineshafts. Differences between mining in the region and doing so elsewhere are expertly explored. These include an almost absence of the “lone prospector” of popular lore, shorter working hours due to intense heat, and how many corporate mining operations allowed their workers to keep bits of precious metals that emerged alongside the more desirable base metals, like copper.

The evolution of mining education receives much thought-provoking attention. Specifically, the formalization of such training, and its fairly swift movement from eastern universities like MIT and Cornell, where many Gold Rush-era engineers, such as John Mackey began, westward to schools like the Missouri School of Mines, and Colorado School of Mines once firsthand knowledge of terrain overtook theory as paramount in instruction. Grossman makes much of the fact that many early mining engineers, including those serving as teaching faculty, possessed little formal education themselves. Tensions between engineers with and without post-secondary training are expertly chronicled. Likewise, the impact of them on the mining industry, the Southwest, and the national lives of the United States and Mexico receive much astute discussion. Particularly, the fact that a significantly higher proportion of college trained engineers built their respective careers in lesser known mining districts in the Southwest as opposed to Virginia City or the Yukon, confirms, for Grossman, the calming, civilizing power of Higher Education, as well as its ability to bring people together more so than everyday

experience. Numerous examples of both types are spotlighted brilliantly. However, they appear and disappear quickly enough as to blur together to those unfamiliar with the subject. Even readers with some knowledge would likely appreciate a succinct chart or listing of such information.

The history of several prominent copper mines receives expert analysis. The Ray Consolidated Mines in New Mexico appear to appeal greatly to Grossman, as their leadership, profitability, and eventual overexpansion culminating in a foolhardy failed attempt to buy the neighboring Clifton and Copper Queen Mines simultaneously illustrate for Grossman, the one major weakness of mining in the Southwest, that is the temptation to attempt to do too much too quickly.

Certain aspects of *Mining the Borderlands: Industry, Capital, and the Emergence of Engineers in the Southwest Territories, 1855-1910* may prove somewhat difficult to keep straight. Nevertheless, its appeal to lovers of Southwestern history, mining history, and popular culture will likely prove crystal clear.

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