



Germán Vergara. *Fueling Mexico: Energy and Environment, 1850-1950.* Studies in Environment and History Series. Cambridge: Cambridge University Press, 2021. 300 pp. \$99.99, cloth, ISBN 978-1-108-92397-2.

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When students learn about Mexican history from the mid-nineteenth to the twentieth century, two episodes demand most of the study: Porfirio Díaz's dictatorship and the Mexican Revolution. On just a few occasions, the discussion centers on nonhuman agents. Germán Vergara's *Fueling Mexico: Energy and Environment, 1850-1950* is an invitation to take a step away from this narrative.

Vergara joins a growing group of scholars in the expanding field of Mexico's twentieth-century environmental history. Among this scholarship figure monographs by Angus Wright, Luis Aboites, Alejandro Tortolero, Christopher Boyer, Emily Walkid, Anna Alexander, Mikael Wolfe, and Matthew Vitz. *Fueling Mexico* describes how and why Mexico, in a hundred years, transitioned from being an agricultural country that depended on muscle, water, and wood energy into a rapidly fossil fuel-based industrializing nation. In this sense, *Fueling Mexico* pairs with Diana Montaña's analysis of the links between hydroelectricity and late nineteenth-century Mexico's modernist political subjectivity in *Electrifying Mexico: Technology and the Transformation of a Modern City* (2021) and Myrna Santiago's *The Ecology of Oil: Environment, Labor, and the Mexican Revolution, 1900-1938* (2009), a foundational work on class

conflict, political culture, and oil extraction in revolutionary Mexico.

In accordance with previous scholarship on how worldwide transitions to fossil fuel energy also drove environmental, social, and economic change in the twentieth century, Vergara analyzes how these changes took form in the Mexican ecological, political, and economic context. He concludes that, unlike the national growth that the Mexican state and industrial elites expected to achieve by fostering the transition to fossil fuels, the shift "resulted in a paradox of perennial scarcity amidst energy abundance: every new influx of fossil energy into the economy encouraged new applications" (p. 3).

Fueling Mexico explains this paradox in five chronological chapters covering Mexico's energy history from roughly 1850 to 1950. The first two chapters reveal the solar energy regime and the late nineteenth-century wood crisis. Vergara provides an overview of the relationship between economic and political institutions and cultural practices in mid-nineteenth-century Mexico to show how the country was based on what he calls a "solar energy regime" in which the society subsisted "within the energy constraints of the sun's cycles and rhythms" (p. 16). In the solar regime, water and wind were subordinate energy sources.

This changed by the 1860s when acquiring a steam engine in Mexico had become a common process for entrepreneurs and municipal authorities. Two decades later, the steam engines, mining, population growth, and agricultural clearance provoked a full-blown wood crisis that the state and Mexican elites faced with the adoption of coal to mitigate the problem without interrupting industrial progress.

The final three chapters discuss how Mexican state officials and entrepreneurs were convinced that coal would be the base for industrial prowess and the essential matter that would solve Mexico's "fuel problem"—its lack of cheap and abundant energy. However, unlike in Europe or the United States, coal was never a household fuel nor did it become the bedrock of the industry in Mexico. Instead, coal acted as an "energy bridge" between the nineteenth century's wood- and water-based industrialization and the twentieth century's oil-powered industrial model. Although by the late 1930s Mexico was consuming most of its oil production, Vergara shows that it was not an uncontested energy source, as waterpower slowed oil takeover in the country. That situation entirely changed by the mid-twentieth century, when fossil fuels powered Mexican society, and by doing so, they also increased the wealth gap between the rapidly industrializing North and the agrarian South. The breach, Vergara argues, was a "process exacerbated by the differing access these regions had to fossil fuels" (p. 177). Despite *Fueling Mexico's* five chronological chapters, in practice, the narrative splits into three overlapping accounts of energy use: Mexico's solar energy regime until the mid-nineteenth century, with coal as an energy bridge, which gave way, lastly, to the reign of oil in the mid-twentieth century.

Fueling Mexico accomplishes four features of major significance in very engaging writing. In the first place, it fuels the nascent scholarship on the histories of energy of Mexico and Latin America. Although there are plenty of works on energy his-

tory for the United States and Europe, that is not the case for the Latin American region. Not only is the time frame distinct for these histories, but the political, economic, social, and ecological contexts are also substantially different in the United States, Europe, and Latin America. As Vergara emphasizes, these circumstances determined other processes of energy consumption, which takes us to the second significant contribution. Vergara manages to present regional histories of energy in Mexico that, nonetheless, are well contextualized within global trends. Every chapter of *Fueling Mexico* transcends the nation-state level of analysis to incorporate both global processes like the coal-based industrial revolution in the mid-nineteenth-century United States and local trends like Monterrey's industrialization in the 1890s. The archival research in public and private, local, national, and international archives in Monterrey, Veracruz, Estado de México, Chihuahua, Mexico City, Berlin, Austin, and San Diego supports *Fueling Mexico's* regionally grounded transnational energy history of Mexico.

Vergara also uses a different periodization for Mexico's history, one that transcends human agency. Instead of discussing *porfiriato*, the Mexican Revolution, cardenismo (as influential as it was in Mexico's oily identity), and the Mexican Miracle, Vergara argues that from the standpoint of energy, the 1880s marked the real turning point in Mexico's modern history when specific industries began using coal as fuel. This periodization of Mexico's history gives way to *Fueling Mexico's* fourth prominent feature. Vergara grounds turning points in the history of Mexico in less symbolic moments in the historiography due to his analysis of all forms of energy instead of focusing on one specific type. In Vergara's words, "by focusing on energy, the book deliberately downplays certain actors and events typically featured in modern Mexican history, instead directing attention to underexamined figures and moments" (p. 5).

Vergara grounds Mexican energy history on the various stages of transition that characterized the coexistence of different energy sources in the country. He examines coal-powered industrialization in regions where it was readily available, like Monterrey due to its proximity to Coahuila. Other ecological contexts with no vicinity to coal sources prolonged the use of muscle, water, and wood energy well into the twentieth century. However, since continuities are as relevant as changes in history, I would have appreciated more explicit references throughout the book to those places where the solar energy regime prevailed. More direct mentions of twentieth-century agrarian regions in Mexico would have served two purposes.

They would have emphasized the concurrent use of different forms of energy in the twentieth century, and they would have eradicated the transitional nature that permeates to some degree in the book's narrative. Yet this omission does not invalidate *Fueling Mexico's* overarching argument.

Vergara's refreshing analysis makes it suitable for graduate-level seminars on environmental history, Latin American and Mexican history, and science and technology studies. *Fueling Mexico* is, unquestionably, a major contribution to the historiography of Mexico's environmental history and groundwork for Latin American energy history.

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