

BOOK REVIEW

J. Justin Castro and James A. Garza (eds), *Technocratic Visions: Engineers, Technology, and Society in Mexico*

Pittsburgh: University of Pittsburgh Press, 2022. Pp. 282. ISBN: 978-0-8229-4748-6. \$55.00 (cloth).

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Technocratic Visions is a much-needed volume on the history of engineering and the building of modern Mexico. It is as much a contribution on the local and innovative responses to the country's rough, large territory; exuberant natural resources; and cultural diversity, as it is about the idealistic institutions and convulsive politics that have shaped its national history. In the opening lines, J. Justin Castro states that the book is 'about experts, technology and networks in Mexico' (p. 3), with chapters that roughly cover the period from the mid-nineteenth century to the mid-twentieth. This is a rather modest statement. During this eventful century, the country transitioned from being involved in one of the earliest social revolutions of the past century, through a post-Second World War period of sustained economic growth – the so called 'Mexican miracle' – to being one of the first economies to implement the neoliberal structural adjustments of the 1980s. Such a dramatic historical arc has not gone unnoticed by recent works on the history of economics, politics and science and technology, with notable monographs by Christy Thornton (*Revolution in Development*, 2021), Diana Montañó (*Electrifying Mexico*, 2021) and Eric Zolov (*The Last Good Neighbor*, 2020), to name just a few. The present volume belongs to this larger cohort of books, which relies on newly available sources and original approaches in transnational history.

One of the volume's major virtues is that it provides a cohesive collection that speaks of a country's struggle to reign over the forces of modernization amidst other conflicting tensions, both domestic and foreign. The latter figures prominently in many of the chapters, as Mexico's economy during this period co-evolved with the diminishing presence of the European powers, to gradually become an uneasy ally of the United States. Mexico's economic and technological dependency meant that local engineers – many of them trained abroad – played the additional role of negotiators of the country's sovereignty against foreign powers, a subject that gets detailed and original treatment in several chapters.

A second virtue of this collection is its appeal to those interested in the technologies of the modern state. The case studies are grounded on the abrupt and diverse conditions of the country's territory and highlight the contradictions of local experts relying on supposedly universal practices and knowledge, while designing and building adaptations and effects for political and economic legitimation. In doing so, the chapters introduce us to an army of innovators, experts, entrepreneurs and politicians dealing with sewage systems, highways, dams and airways and the engineering specialities that evolved in close relation with the country's resources and changing needs. In all these senses,

Technocratic Visions is of interest not only to Latin American scholars, but also to global historians of technology and modernization.

Individual contributions start with its title and introduction, written by J. Justin Castro. He reappropriates the terms ‘technocrat’ and ‘technocracy’ to infuse them with their original meaning, rooted in the liberal professions of the nineteenth century. By refusing to use these terms in the often deprecatory meaning ascribed in the region – synonymous with the Latin American economic reformers of the 1980s and 1990s – Castro acknowledges the profound transformations brought about by technological fixes for social and political problems. The introduction also provides a substantial framework and a comprehensive review of the specialized literature on the history of technology and the social history of the country.

The case studies offer rich narratives of equally colossal achievements and disappointments. The first chapters deal with the rise of civil engineering, the training of experts in both Europe and the United States and the creation of the profession as a political force linked to the Porfirian state and its demise. Marcela Saldaña Solís’s piece on the building of local architectural and engineering expertise, Lucero Morales and Francisco Escamilla’s on construction technologies and material experimentation, Rocío Gomez’s on the evolving safety in the mining industry and James A. Garza’s on the ‘crown jewel’ of that era, the Gran Canal del Desagüe (Mexico City’s gigantic floodwater and sewage system), demonstrate the value of the history of technology to provide refreshing insights into the well-studied Porfirian era; these essays also lay the ground of the political and technological transition to the revolutionary conflict at the start of the twentieth century. An interlocking contribution by the late Juan José Saldaña offers a broad account of the connection between science, education and the Mexican state; though non-specialists will surely find it useful, it will be less so for those more familiar with Latin American history of science.

As the chapters enter the post-revolutionary and post-war periods, the emphasis shifts to modern communications, and the increasingly close and complicated relation with the United States. Castro’s insightful account of Mexican scientific diplomacy in the United States as part of Carranza’s government campaign to maintain peace around shared ‘progressive values’; Jayson Maurice Porter’s complementary chapter on the construction of highways as a prerequisite of modern war during the United States’s punitive expedition against Villa’s forces, also in alliance with Carranza; and Pete Solano’s insightful account of the aviation programme in Mexico offer multi-layered accounts of the relation between two asymmetric allies, and illustrate how US technologies co-evolved with those of other, less industrialized countries. The book closes with a compelling, though nightmarish, *longue durée* narrative of Mexico City’s urban expertise by Matthew Vitz, a piece that masterfully threads the modernist imaginaries of the decades of the ‘Mexican miracle’, with the growth of local political authority around large construction projects aimed to face growing demographic demands. Almost predictably, the chapter and the book arrive at the final collapse, both of the one-party political system and of some of the emblematic buildings built in the post-war era, as a consequence of the catastrophic earthquake of 19 September 1985.

Technocratic Visions appeals to a wide readership. It offers a textured introduction to this important player in global history and provides a welcome canvas for the histories of science and technology now being written in Mexico and elsewhere in Latin America.