century the Fordist 1920s? Yes, if the crisis can be defined by the moment Henry Ford moved his operations to Dearborn, initiating decentralized residential and industrial patterns that starved Detroit of its tax base. However, identifying the trajectory of "growth" writ-large cannot alone account for Detroit's fate. It is the very unpacking of those supposedly natural forces that can best explain the conditions American cities and suburbs, past or present.

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Edward Beatty. *Technology and the Search for Progress in Modern Mexico*. Oakland: University of California Press, 2015. vii + 342 pp. ISBN 9780520284906, $34.95 (paper).

Latin Americanists may get the irony of a Stanford-trained economic historian discovering some truth in 1970s Latin American *dependency theory*. To wit, specifically the realm of technology transfers and adaptation in Mexico: its heavy reliance on imported technology for growth in the late nineteenth century and beyond and its economic proximity to the United States proved detrimental over the long run to its wider national development. Mexico proved quite able, during the modernizing Porfiriato regime (1877–1910), at taking advantage of ready-made machinery imports and technicians from the United States and Europe, and achieving some catch-up productivity gains. However, continuing and deepening lags of learned technical skills and national innovation became the indirect costs of Mexico's dependence on advanced technologies. Beatty explores this gap between adaptation and learning in Mexican technology, a classic 1970s-style paradox once termed by economic historian John H. Coatsworth as *growth against development*.[1]

Beatty's book has an unusually analytical structure for narrative history. Three chapters of detailed case studies—on sewing machines, the beer and glass bottling industries, and modernization of mineral refining—are sandwiched on the front end by two chapters on technology and on *progreso* and *atraso* (progress and backwardness)

1. John H. Coatsworth, *Growth Against Development: The Economic Impact of Railroads in Portfirian Mexico* (DeKalb: Northern Illinois University Press, 1981).

and on the other end by two chapters on *adaptation* and on *learning* through import technologies. The first two chapters sketch Mexico's larger nineteenth-century landscape of technological change. In the first half century of the nineteenth century, after independence from Spain, Mexico was mired in deep instability and economic depression; these conditions stymied technical progress, from technological imports to national industrial experiments. Mexico fell seriously behind in mechanization, modern transportation, iron production, and new power sources such as steam. Beatty vividly paints the technological atraso bemoaned by Mexican Liberals, which lit their desires for technological progreso. The Porfiriato brought rapid shifts after 1880: new machinery accounted for more than half of the country's metal imports, chiefly from Britain and the United States; thousands of skilled technicians were hired to install and run them; and there was a surge of registered patents from abroad. Mexico also experienced a revolutionary transportation transformation via new railways and a rapid diffusion of steam engines and modern metallurgy. In short, Mexico was able to use what Alexander Gerschenkron, the iconic economic historian of development, termed the *advantages of backwardness*[2]—quickly tapping technologies previously developed elsewhere to leap forward. However, it must be asked: What was the longer benefit?

The three case studies delve into this question. The first is sewing machines, a readily affordable innovation, as with the popular Singer models. Mexico imported some 328,000 units during the Porfiriato, acquired by 2.6 percent of the population, thus building a new domestic garment workshop sector. Cultural or labor resistance was minimal. However, very few *backward linkages* occurred, for example, in Mexicans' capacities to innovate or even repair these fairly simple imported gadgets.

The second case, the beer and glass bottling industries, represented a major capital investment and modernized consumer goods. By the 1890s, major Mexican *cervecerias* (breweries) were founded in Monterrey, Chihuahua, Toluca, Guadalajara, among other cities, which were protected by tariffs, displaced both imported bottled beer and traditional consumption of fresh *pulque* (native agave beer). The demand for mass production of bottles was met after 1900 by the of introduction of imported ready-built automated Owens glass and bottle plants, mainly out of Toledo, Ohio, in partnerships led by rising Mexican beer magnates, such as the Garzas's Vidriera Monterrey. *Infant industry* obstacles of scale and technical cost problems were overcome involving fuels and local raw materials such as silicates.

2. Alexander Gerschenkron, *Economic Backwardness in Historical Perspective: A Book of Essays* (Cambridge, MA: Belnap/Harvard University Press, 1962).

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The third case study is the cyanide silver and gold processing, which renewed Mexico's technologically moribund mining industry, a sector with key export prospects. Here, scientific refining advances lay entirely in the hands of foreigners—British and North Americans—who experimented notably in the MacArthur-Forrest laboratory in Mexico City with the application of chemical techniques to more complex Mexican silver ores. By 1910, breakthroughs raised Mexican gold exports by twenty-five times, and silver by four times, sparking a boom in export earnings. Yet, while thousands of Mexicans were employed in modern mines, nearly all of the capital investment, machinery, companies, and skilled engineers and managers remained foreign, and indeed foreign firms largely replaced or de-nationalized older Mexican firms.

Chapter 7, "Obstacles to Adoption," begins the analysis of the factors that may have slowed or impaired new technology use, such as Mexico's shortages of coal and water; inefficiency or inappropriate design of capital goods; and tendency of scale imports to monopolize or crowd out competitors. Chapter 8, "Constraint to Learning," specifies the obstacle as missed opportunities for social learning. Mexico barely *assimilated* the embedded technologies and lost local expertise (as in mining), and the technology gap so widened that neither traditional tinkering skills nor technical school programs (well developed by the late Porfiriato) could overcome it. Knowledge networks remained overwhelmingly confined to new immigrants (from Europe, the United States, etc.) and foreign residents, and pro-import government policies reinforced the slow learning curve. Mexico's majority of *campesinos* (rural peasants) were bypassed by most technological change. Beatty's concluding chapter takes a long view of Mexico's *persistent* technological *dependence* on others in the twentieth century, established in the nineteenth century, was barely affected by mid-century import substituting industrialism or Mexico's later concerted national scientific policies. It is a flashback to the *structuralist* UN Economic Commission on Latin America (CEPAL) manifestos of mid-twentieth century Latin America, focused on the contradictory constraints of technology and industrialization in unequal global contexts.

This may be a hard book to judge, depending on a reader's vantage, though few can dispute the historical role of technology in modern development. Narrative historians may find some of the writing tedious and repetitive, a drawback of the book's layered structure. Despite the nuanced new research on adaptations, some readers may question what is new (or perhaps inherently biased) in the meta-narrative of Mexican so-called backwardness. More scientific *new economic historians* may lament the absence of explicitly testable

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economic, cliometric, or institutional theories of technological change. Comparativists may yearn for alternative, or even counterfactual, examples, namely, the why Japan but not Mexico puzzle? What other paths were open for Mexico to catch-up with a continuously accelerating global revolution in technology? Were social factors, such as Mexico's internalized *colonial heritage* caste and class inequalities, as much as proximity to a scientific metropole, also barriers to technological diffusion and agency? Do places further from the Rio Grande reveal more *learning by doing*, as suggested, for example, by the case of railways in Chile? Was technological autonomy feasible in activities associated with deeply Mexican consumption styles (such as tortilla factories) or unique resources (such as henequen or tequila industries)? Aging *dependistas* (followers of 1970s dependency theory), if such mythical beasts exist, might wonder overall about abstracting the forms and impact of technology from larger patterns of export trades, economic liberalism, foreign investment, postcolonial social structures, and the global *division of labor*. In other words, are there more holistic approaches to the problems of technological lag? Beatty's valuable book on this crucial topic raises bigger questions than it resolves

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Anne Balay. *Steel Closets: Voices of Gay, Lesbian, and Transgender Steelworkers*. Chapel Hill: University of North Carolina Press, 2014. xi + 172 pp. ISBN 978-1-4696-1400-7, $34.95 (cloth); ISBN 978-1-4696-1401-4, $16.19 (e-book).

Two of the questions that concern scholars dealing with queer studies are how to resolve the paradox of visibility and how to come up with an anchored definition of queer identity. Since Jacques Foucault redirected us to the creation of the homosexual as an agency, the complex interrelation between culture and society has exposed profound contradictions in terms of appearance versus essence and public versus private. As Elisa Glick convincingly argues, these tensions emerge and intensify with the capitalist modes of production and the mores of modernity.[1]

1. Elisa Glick, *Materializing Queer Desire* (Albany: State University of New York Press, 2009), p. 5.