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**Published on** H-LatAm (February, 2017)  
**Commissioned by** Casey M. Lurtz

The beginning of Brazilian development has long been a story of mimesis, British influence, French inspiration, or emulation of the spectacular growth exhibited by the United States through the 1800s. Teresa Cribelli’s *Industrial Forests and Mechanical Marvels: Modernization in Nineteenth-Century Brazil* offers a rich counter to histories that take the Brazilian Empire as a derivative case. The book stands against several commonplace assumptions in the field: that modernizing ideas in Brazil were late to come; were of external, notably British, provenance; and remained uncomfortably “out of place” amid the trappings of a slave society. Cribelli uncovers vibrant discussions on agricultural improvement and selective mechanical innovation that put Brazilians on a par with, rather than in the rearguard of, similar debates in other societies. Focusing on “perspectives on modernization” (p. 7), this book sheds light on technological change as much as on the social frictions it elicited. By examining cultural and economic debates, it demonstrates that, far from copying foreign models, Brazilians carefully weighed and adapted available options in the context of an emergent economic nationalism.

In the main, Cribelli scours the *apedidos* or paid letters section of the *Jornal do Commercio*, Brazil’s top newspaper in the nineteenth century. As the platform that sustained robust opinion wars among stakeholders in different initiatives, this largely anonymous correspondence proves to be an excellent way of surveying the pros and cons of modernizing projects. To complement this documentary base, Cribelli summons images from national and world fairs’ catalogs and cartoons from illustrated weeklies as well as articles from *O Auxiliador da Indústria Nacional* (the journal of imperial Brazil’s top improvement society, the Sociedade Auxiliadora da Indústria Nacional), select material from the Agriculture Ministry, provincial presidents’ annual reports to local legislatures, and an intriguing though too briefly discussed record of all applications for agricultural patents in Brazil from 1850 to 1889. Even though the book focuses on ideas and debates, the narrative periodically returns to the trajectories of Frederico Burlamaque and André Rebouças, two modernizers who make the argument come alive and who will no doubt spark readers’ curiosity.

The book is divided into six chapters. After an introductory chapter providing historical background, the second chapter explores the lexicon of Brazilian “modernization.” Rather than waste time discussing “modernization” itself, Cribelli devotes attention to “industry” and *aperfeiçoar*, two keywords that according to her capture the peculiar nature of Brazilian innovation. In Brazil, “industry” shed its eighteenth-century French connotations linking it to the skill and craft necessary for manufacturing but it also stayed clear of signifying factory-style economic production as it did in Britain. In practice, Cribelli suggests, “industry” referred to the “savoir-faire” necessary for Brazilian agriculture and was used to speak about a medley of economic sectors including commerce, transport, and even botany (pp. 47-48, 51). Cribelli shows that, as the closest equivalent of “improvement” in other societies, *aperfeiçoar* (literally, to perfect) in turn became the bedrock of Brazil’s conservative modernization. In their dual search for technological advancement and the preservation of social order, the businessmen, landhold-
ers, and engineers of this deeply hierarchical slave society were convinced of the need to “perfect, not radically transform, their society” (p. 36).

The remaining chapters of the book are devoted to particular debates that confirm the centrality of *aperfeiçoar* as a philosophical beacon of the Brazilian Empire’s development. As a clear sign that overall consensus on the gradual or partial nature of change did not imply agreement on the means such change should take, Cribelli surveys Brazilians’ inventive prowess as national exhibits and international fairs showcased Brazilian forest products with ostensible agro-industrial potential. In addition to searching for alternative sources of paper, fuel, and construction materials, as part of a burgeoning dream of Brazilian self-reliance reformers also hammered out ways to improve the production of agricultural goods. In the “calculated revolution” they envisioned (p. 120), such archaic practices as slash-and-burn would give way to more efficient techniques involving mechanical plows. But, as Cribelli’s analysis of the debates on these new technologies suggests, this was easier said than done. Cribelli shows that even roads and railroads were subject to contention as their advocates clashed over which should take precedence. This particular debate illustrates one of the book’s signature achievements: by aggregating debates it makes it clear that, rather than pose obstacles, public discussions generated a sort of synergy. In this case, for instance, it took less than a decade for both roads and rails to materialize and even complement one another. A belief in macadamized paths as a better alternative to trains led to the construction, from 1854 to 1861, of the União e Indústria Road linking Minas Gerais to Petrópolis, where products and travelers alike could then take the Pedro II railway to Rio de Janeiro.

In one of the most interesting parts near the end of the book, Cribelli examines how technological and economic innovation upended many of Rio de Janeiro’s hierarchies. New urban trolleys called into question the traditional wagons of the capital’s busy but narrow streets. Cribelli shows that there were also institutions associated with these changes that proved to have a profound if only gradual impact on Brazil’s economic growth. Private establishments, for example, began to take in poor and orphaned children as apprentices especially after the 1871 Free Womb Law (or Law of Free Birth) as a way to promote a transition to free wage labor. Factory schools, railroad workshops, and other institutions served as training grounds for a new generation of skilled workers and native-born engineers. This rise of a Brazilian-trained cadre of engineers and factory hands reinforces the book’s overall understanding of the polemics of modernization through “an explicitly Brazilian perspective … rather than through the lens of foreign influence” (p. 7).

There is, however, one minor qualm with Cribelli’s emphasis on Brazil’s particular brand of development. By focusing on Brazilians as the lead drivers of a homegrown modernization, the book misses an opportunity to consider how foreigners decisively partook in and co-produced the Brazilian Empire’s fledgling economic nationalism. In effect, resident foreigners in Brazil often went native and became important stakeholders in the debates at the center of this study as well as in those on immigration and inland steam navigation. They married well into Brazilian society and were active members in the Sociedade Auxiliadora while overseas correspondents contributed to its journal with relative frequency. In addition to their membership in foreign associations, lettered elites in Brazil benefited from the connections between Brazilian cultural establishments and their pen pals abroad—not to mention that two of the top booksellers at the Court were German and French. The international composition of these business, scientific, and friendship networks call into question the more discreet Linnean-inspired intellectual genealogy that Cribelli identifies as an origin point for an economic-nationalist search for new Brazilian products and for greater self-sufficiency. With this in mind, perhaps it would be more fruitful to conceive the strivings of Brazilian modernization neither as efforts to imitate foreign models nor as the life-spring of native-born inventions but as the product of Brazil’s employment in and interaction with the world.

Beyond offering any tangential criticism of an ostensibly Brazilian perspective, I find that Cribelli succeeds in illustrating how Brazilian society was abuzz with polemics and plans related to improvement. The book deserves merit for assembling an otherwise disperse catalog of proposals and for staking out a position against normative approaches in its conviction that “Brazil’s failures at diversifying agricultural production can tell us as much as its successes” (p. 33). *Industrial Forests and Mechanical Marvels* offers a salutary counterweight to views of Brazil as an underdeveloped, dependent, or strictly seigneurial polity. Incidentally, this study serves as a timely reminder of an intellectually and culturally robust...
past vis à vis the recent downturns that have dampened the image of Brazil as a burgeoning economic powerhouse in the region and on the global stage. In closing, the book presents a roadmap for future research that will be of special use to graduate students initiating work on Brazilian history. More importantly, this work is a welcome addition to courses on Brazil in the United States, where students may now be introduced to the Brazilian Empire not as a backward slave society but as a hotbed of technological ingenuity.

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