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Eden Medina, **Cybernetic Revolutionaries: Technology and Politics in Allende's Chile**, Cambridge, MA: MIT Press, 2011, 324 pp., $25.00 (paperback).

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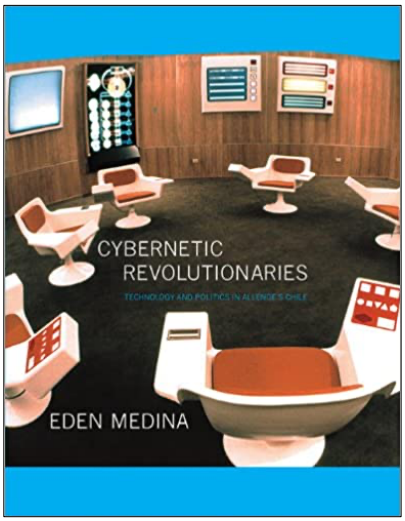

One look at the Instagram hashtag #protestaschile, and you will see eyes. Drawings of eyes, posters, marker on bodies, and blindfolds all show one eye that is injured, mutilated, attacked. It is a symbol of revolution and resistance, and a response to the government with which the people are so dissatisfied. Contemporary observers of new media cannot ignore the protests in Chile that began in October 2019. This review seeks to refresh our analysis of the current Chilean situation by reviewing a significant but also significantly overlooked careful Chilean history of technology and politics, namely, Eden Medina's ***Cybernetic Revolutionaries: Technology and Politics in Allende's Chile***.

In *Cybernetic Revolutionaries*, science and technology studies scholar Eden Medina presents an analytical history of a unique historical moment in Latin American politics and technology. The Latin American region has long been passed over in media and technology scholarship, and Medina unearths a particular case where this technology is not only innovative but constitutes a distinctive intersection in democratic socialism and transnational revolution. In November 1970, Salvador Allende became the president of Chile and, together with his political party Popular Unity, aspired to peacefully usher Chile into an era of socialist rule. As the Allende administration began, engineer Fernando Flores sought out Stafford Beer, a British cyberneticist who wanted to bring his ideas for technological organization to life. The political and social ideology of Allende's Chilean socialism intersected with Beer's theories and practices of management cybernetics. This unprecedented partnership sparked an ambitious political and technological project: Proyecto Cybersyn. Cybersyn was an idealized networked system that aimed to use existing inactive telex machines, among other components, in Chile while implementing socialist ideals in its design logic.

Medina takes great care to illuminate the relationship between technology and politics, and management cybernetics and democratic socialism in particular, using Project Cybersyn, examining their mutual relationship, where cybernetics helped to advance the socialist agenda, and the political goals of Allende's socialism proved a testbed for innovative organizational ideas. Beer's ideas of cybernetics drew on ideas from Norbert Wiener, where the "focus was not on creating more advanced machines but rather on using existing computer technologies to develop more advanced systems of organization" (p. 29). This idea of management cybernetics appealed to the Chilean socialist government, as they were seeking to cultivate system stability in the midst of rocky attempts to bring about structural change that would lead to genuine democratic socialism.

Project Cybersyn faced many obstacles from its conception in 1971 to its ultimate deterioration in 1973 with the fall of Allende. In dealing with the scarcity of resources available in Chile, partially due to the U.S. blockade, the Project Cybersyn team was forced to be innovative in their design and execution of the proposed network. The economic status of the country was volatile, and the shift to a new type of political government was a difficult transition, therefore "under Popular Unity, technologies thus became political instruments" (p. 66). The project celebrated a major milestone when its telex network was able to service the country during El Paro de Octubre, a truck owner strike that threw the country's production chain into economic crisis. This helped the government survive and proved the power of cybernetic technology. However, when the project became public knowledge, international media misconstrued the project and its implications far beyond its local context. This misrepresentation of Project Cybersyn played into the preexisting fears of an all-powerful state. The project also faced internal diverging debates and questions about the limits of its own political ideology. Medina demonstrates that "ironically, the Chilean political context that had led to the creation of Project Cybersyn also created the most difficult challenges that the Cybersyn technologists faced" (p. 139).

Medina came across this story "trying to understand how nations outside the political and economic centers of the world use computers" (p. xii), specifically in Latin America. Through primary and secondary interviews, archival documents from the project, and secondary sources such as technical writings, photographs, and articles, she constructs a narrative that offers both human stories and technological analysis. As scholarship on media and technology in Latin America is sparse, her work fits into a growing field developed by scholars such as Lina del Castillo and Julia Rodriguez on technology as a lens, as well as Emmanuel Adler, Peter Evans, and Paulo Bastos Tigre on computer development in Latin America. Through her research, Medina questions the conventional Western school of thought about the value of technological successes and failures. Medina's flexibility to follow the story rather than stick to the general study of computers in Latin America is commendable, but what is more notable is her acknowledgement that she hopes "that the history presented in this book will illustrate the value of asking such questions" (p. xii).

Medina's work demands careful interpretation in "the deep conceptual similarities between Beer's work in management cybernetics and Popular Unity's approach to democratic socialism" (p. 40). These conceptual similarities were, in part, blinding the team to its practical realities. Even though Medina is careful to make this argument, both the historical materials and the analysis at times suggest that conceptual similarities can be just that—too conceptual. In practice, the proposed network design may have been too interdependent on the political and social goals of the Chilean socialists to be realized, although other outside factors also accelerated the downfall of Allende. While the conceptual goals of Chilean socialism and management cybernetics may have been aligned, this relationship's limited role in its design and implementation of the technology deserves further research and analysis. In her conclusion, Medina does address the possibility that the project was overly idealistic in its design logic, noting that its practical implementation was not connected to the real problems facing the country at the time. However, her analysis does not dwell on how limited design logics can illuminate this and other "failed" projects. She argues, rightly so, that detail exposes the nonintuitive relationship with technology and politics, and it is this very fact that, almost ironically, renders her argument wanting even more sociocultural details. Her argument depends on the conceptual similarity, even as it critiques, but the richness of history relies on practices.

Medina helps the reader see how this case study illuminates neglected or overlooked case studies around the world, including, as I note in the following, present-day political Chilean protests.

The Chilean people have been gathering in the streets in protest against their government since October 2019, waving flags and carrying banners of a singular mutilated eye, a symbol of unity and an emblem marking the government's brutality against the protests. The localized flavors of this social movement rely heavily on a new generation of networked communication technologies such as Instagram to spread information and inspiration. The current situation lacks a sophisticated history of technology and politics. While the people in this revolt are employing imported technologies from Western democracies, their specific usage surprises and modifies the imported design logics, thus creating a networked movement directed against Chilean state that is, in name, democratic and, in practice, divisive. In both Medina's work and the present situation, the Chilean government is neglecting the realities of local social institutions, and there may be no field as well positioned to develop this work than the still-too-small field of Latin American science and technology studies.

The book has been in circulation for almost a decade, but all too often without proper credit, as the 2014 fiasco with Evgeny Morozov's writeup in *The New Yorker* suggests. My call here is to recognize that, despite its minor shortcomings, Medina's history of the Project Cybersyn offers crucial insight into the history of technology, politics, and government outside of the Western narrative. It has relied on a transnational team from its conception and employs innovative and forward-thinking design solutions. Its goals are not just for technological progress; they are tied to larger democratic socialist ideals. This book presents a fascinating story for anyone interested in Latin American studies, political theory, or a technological history outside of the Global North. This book is strongly humane, even as a technological history. However, those who can't get past a little technical writing might occasionally stumble. Medina's comprehensive history details her expertise in writing about both social issues and technical challenges. Although the project was never fully realized, Project Cybersyn demonstrates that even incomplete projects are still worthy of their story, a point Medina makes passionately, thoroughly, and purposefully.