

Joshua B. Freeman. *Behemoth: A History of the Factory and the Making of the Modern World*. New York: W. W. Norton & Company, 2018. xviii + 427 pp. \$27.95, cloth, ISBN 978-0-393-24631-5.

Reviewed by Lindy Biggs (Auburn University)

Published on H-Sci-Med-Tech (June, 2019)

Commissioned by Dominic J. Berry (London School of Economics and Political Science)

Untitled [Lindy Biggs on *Behemoth: A History of the Factory and the Making of the Modern World*]

Acres of plastic waste polluting land and water, tons of discarded electronics, miles of textiles going to waste in overflowing landfills—too much cheap throwaway stuff is the unfortunate legacy of the Industrial Revolution and the giant factory. And the influence of the factory does not stop there: the American factory of the early twentieth century heavily influenced modern architecture; and the management of the factory shaped office practice and even schools—the school bell and other disciplinary strategies are direct descendants of the factory.

The twenty-first century has witnessed the Chinese creating the largest factories in history, employing hundreds of thousands of workers, to produce almost everything we buy. At the same time, American and European factories have shut their doors, ending an era of abundant work for middle-class lives. How did this happen? Joshua B. Freeman's *Behemoth: A History of the Factory and the Making of the Modern World* will give you as good an answer as any you will find.

This is a grand sweep of the factory's history that is based on the work of many scholars. This is not, however, a dull survey of factory literature. The author uses a dizzying number of sources, and though he relies heavily on secondary sources, he

has an eye for the significant fact and the interesting detail as well as his own insightful analysis and commentary. Despite a long and seemingly comprehensive literature on factory history, Freeman has asked a new question: "Why big?" In the subtitle he also makes a big claim: "The History of the Factory and the Making of the Modern World."

Freeman begins this massive history where every other scholar does, and must: eighteenth-century industrial England. While providing a general survey of the growth of the textile industry, he notes that even then observers wondered why the factories had to be so large, because there was a size beyond which economies of scale did not apply. The chapter ends with Friedrich Engels's expression of the Faustian bargain that becomes obvious with all careful studies of industrialization: "Precisely that quality of large-scale industry which in present society produces all misery and all trade crises is the very quality which under a different social organization will destroy that same misery and these disastrous fluctuations" (p. 42).

From early English industry, the book follows a predictable course. Chapter 2 covers the familiar history of the utopian visions for the factories of New England, in particular the mills of Lowell,

Massachusetts. Responding to criticisms of the poverty and degradation of England's mill towns and to the dearth of workers in rural New England, the owners of the Lowell mills recruited young women from surrounding farms and built safe and healthy dormitories for them. Famous for the praise of European visitors, Lowell's star shone for only a short time. After the 1840s when immigrant workers replaced young New Englanders, the utopian vision faded away until American factories began to look like their grimy predecessors in England. The utopian vision no longer mattered to Americans who were enjoying increasing prosperity, and by the end of the century the United States outstripped Britain in manufacturing output.

Chapter 3 turns to the celebration of technology and industry that emerged at the end of the nineteenth century. Technological enthusiasm can be seen in the international expositions, the art, and the literature of the period. Turn-of-the-century America experienced political discord, but there was unanimity when it came to the value of the machine. The large machines—the railroad, large steam engines, steel works, and larger than ever factories—were viewed with awe. Freeman makes an interesting contrast between the early cotton mills—the first large factories—and the large steel mills of the turn of the century. Cotton mills were large in order to hold numerous machines and legions of workers. Steel mills were even larger to hold huge equipment and raw materials but few workers.

Steel symbolized the early twentieth century. It was the material of the coming modernity. It built skyscrapers, ships, and rails. Freeman quotes a 1910 study: "There is a glamor about the making of steel" (p. 99). The iron and steel industries also became the sites of intense labor conflict, creating two new classes. Larger than ever amounts of capital were required to build a steel mill, which meant that the men who owned and controlled them were some of the wealthiest in the country. Their power became a mighty challenge to labor,

especially as steel mills grew to be the largest factories in the world. Freeman tells us that "by the start of the twentieth century, the factory-based corporate-controlled Industrial Revolution had radically changed society" (p. 111).

Chapter 4 moves from steel to automobiles and the influence of Henry Ford. Ford enters this story at a time when the American public had embraced the machine and craved mobility. The success of the Model T, originally built in a small shop, quickly led Ford to build large factories in Detroit, Michigan. Using methods developed in the arms and packing industries, Ford engineers developed and then perfected the assembly line, which allowed the company to manufacture cars at increasing speeds and lower prices. The chapter follows the course of innovations in machine technology and industrial architecture. The Ford Motor Company and Fordism influenced spheres well beyond manufacturing. Margaret Bourke White, Charles Sheeler, and Diego Rivera made the Ford factories famous through their photography and paintings. Charlie Chaplin satirized Fordism in his *Modern Times* (1936).

Freeman uses the giant auto factories and their subsidiaries like tire factories to lead into the story of the early twentieth-century labor movement. The success of "the unionized giant factory helped create what many Americans look back at as a golden era of shared prosperity" (p. 162). By 1945 one in three nonagricultural workers were union members; "the giant factory had been placed under the roof of house of labor" (p. 168).

The material in these first four chapters will be familiar to anyone moderately well read in American history, especially technology and labor history. They are a finely written summary of an extensive literature. To others, this is an excellent introduction to that literature with abundant footnotes to lead readers to more in-depth work. These chapters only modestly address the major thesis of the book, that the factory made the modern world. The factory surely has a role, but in the British and

American cases, we might ask about the role of politics, cultural mixing, religion, and universal education along with the factory. Is the factory more important than these other influences?

The following three chapters move into less familiar territory, and they address the book's thesis more directly. Chapter 5 takes us to the Soviet Union and its rapid and difficult industrialization. Soviet leaders were desperate to catch up with the West and sought out the builders of twentieth-century American factories to advise them. Ford engineers, the industrial architect Albert Kahn, and many more had a direct hand in the creation of Soviet factories. When American advisors visited Soviet plants they found the slogan "To catch up with and surpass America" (p. 170); the giant factory provided the path to progress, civilization, and modernity. The author asks important questions about the adoption of the American factory: How did the direct transfer of American capitalist production strategies fit into a workers' state? Did the dehumanizing assembly of the auto industry fit into a workplace theoretically run by workers? Did the tools of capitalism even belong in the Soviet Union? Despite seeming contradictions, the Soviet Union embraced Taylorism (scientific management) and Fordism, both defended by Leon Trotsky when he said that the main goal was to abolish poverty and that "the monotony of labor is compensated for by its reduced duration and its increased easiness" (p. 182).

If the rise of the factory in England and the United States seems to follow a steady course of capitalism, the Soviet story is one of rapid and sometimes brutal imposition of a radical idea onto a traditional peasantry as the means to a very large end: industrialization, modernization, national defense, and socialism. Here we can clearly see Freeman's thesis developing: that the factory did, indeed, make the modern Soviet Union. "The giant Soviet factories were conceived of not only as a way to industrialize and protect the country but also as instruments of culturalization, which

would create men and women capable of operating these behemoths and building socialism" (p. 205).

Chapter 6, on the Cold War and mass production, looks at the simultaneous decline in American manufacturing and the growth of Soviet industry. After World War II, American industry moved away from the giant factory realizing that the large factory had reached limits of profitability and the growth of unionism made it harder to control workers in the large factory: ironically, the larger the factory, the easier for unionists to shut it down. During the 1970s and 1980s, America began to de-industrialize. Manufacturing in the country declined, large steel mills were closed, and work was increasingly mechanized.

In contrast, the Soviet Union continued to build ever-larger factories. Giant industrial cities to produce vital supplies as well as "new men and women" were built across Eastern Europe. By the 1980s, the communist governments realized too late that the giant factories and industrial cities made possible the organization of new political structures, with the Polish Solidarity movement the showcase.

Chapter 7 moves to Asia to examine China and Vietnam. The Chinese story, more than any other, demonstrates the thesis that the factory shaped the modern world, at least in some places. The Chinese factories of Foxconn and other electronics companies, which grew in the 1980s, are the largest in history, some with more than three hundred thousand workers. After 2000, Western companies began to build manufacturing operations in China. Like the Soviets, the Chinese saw industrialization as the path to modernity. China initially followed the Soviet example but abandoned it in the effort to achieve a Marxist ideal: attention to the relations of production was important. "Who ruled the factory made all the difference" (p. 178). In China the factory would be the core of a workers' city. The factory would be a social institution, serving the needs of the community.

Freeman wonders why Chinese factories have to be so big. The large size is not required for the production process; in fact, when outsiders are allowed in they often see what amounts to smaller factories side by side under one roof. The size is a reflection of a dramatic change in the industrial world. From the beginning of factory production until the 1970s, companies designed and manufactured their own goods, from automobiles to clothing. The global recession of the 1970s along with the growth of discount stores like Walmart and Target in the 1980s changed the relationship of branding and production. Companies began to seek out cheap labor and found it outside of traditional manufacturing. Today retailers, designers, and marketers depend on others to manufacture their branded goods. The giant Asian factories, with large numbers of cheap workers, serve the production needs of designers and sellers. Apple is an example: Foxconn factories can produce hundreds of thousands of a few standard items each day. The fact that large numbers of workers live in dormitories on factory grounds means that they can be quickly mobilized when large orders come in or when Apple changes a design feature at the last minute.

The author concludes by suggesting that “the giant factory was central to both capitalist and socialist development, not only economically but socially, culturally, and politically as well” (p. 319). That the factory is an essential component of modern life is clear, but as David Noble once asked me, was it the only way? And is the giant factory of Asia essential to modernity? I would have liked to see some of this speculation rather than the almost technological imperative that we are presented with—in other words, that the progression of the factory from the early British mills to the Asian giants was a straight and unquestioning path. Furthermore, there is little discussion of other factors that played a role in modernity: culture, religion, politics, war, and not least other technologies. A discussion of the interaction of the factory with these other factors would have been very interest-

ing. The primary contribution of the factory is mass consumption, and may we hope for more to our modern life than mass consumption of cheap throwaway goods.

No book answers all questions, but this well-written and compelling one has gone a long way in answering one of the big questions of modern life: how did the factory come to exert such enormous influence?

If there is additional discussion of this review, you may access it through the network, at <https://networks.h-net.org/h-sci-med-tech>

Citation: Lindy Biggs. Review of Freeman, Joshua B. *Behemoth: A History of the Factory and the Making of the Modern World*. H-Sci-Med-Tech, H-Net Reviews. June, 2019.

URL: <https://www.h-net.org/reviews/showrev.php?id=53195>



This work is licensed under a Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 United States License.