Factory Architecture: The Spatial Reification of Labor

Author: Myrto Klimi
Date:28.11.2022
Supervisor: Filip Geerts
Chair: Borders & Territories
Course: Graduation Studio - Theory Seminar
Programme: MSc Architecture, Urbanism and Building Sciences

While architecture theory of the past century often viewed modernity and within it modern architecture as a vehicle of progress and growth, starting in the utopianism of the 1960's, the neo-marxist approaches and degrowth theories of the 70s and critical history and theory of today, the role of the architect, the expansion of the domains in which architecture operates and its agency to restructure the status quo has been re-emerging topics in the architectural discourse. Drawing on various fields such as geography and cultural studies, a renewed interest in imagining alternatives to late capitalism and global neoliberalism has manifested, as new conditions have emerged.

To the issues posed by the problem of the industrial city, which became reduced to a technological product and architecture in turn to a plain link in the production chain, nowadays further dimensions are added through global division of labor, and within that the outsourcing of labor and environmental issues in developing countries and the effects of industrialization, consumerism and growth on climate change. While a level of awareness and sensitivity has formed with movements aiming at slowing down, various forms of environmental activism, a pressure for ethical and local sourcing and production of goods, bringing clean and sustainable production back to the city, seeking- a so called work-life balance, these demands only concern one end of the growing divide brought by capitalism. While architects constantly claim to have optimistic and innocent intentions, with their ability to imagine utopias of social reform, they are still entrapped in the belief that endless formal and technological innovation in architecture will be the means to revolutionize society. Architecture has finally become a branding tool, a means to claim corporate social responsibility by producing supposedly sustainable images, only contributing to the maintenance of neo-liberal socio economic contradictions. Considering the vast capital required to produce architecture and the often conflicting interests of client and user, attempting to offer solutions through technological innovation and superficial image production proves to be a comfortable way of depoliticizing architecture in a system that seems to be inescapable and unchangeable.

In that context, reinterpreting the work of theorists such as Tafuri, can prove useful to bring the link between politics and the production of architecture and its territories of impact in the foreground of the architectural discourse again. As Virillio, based on Tafuri, claims, political aim always manifests itself in the built environment in the shape of particular architectural projects.[1] It is important to conceptualize space as shaping socioeconomic processes. According to neo-marxist work, space and society are dialectically linked. Space does not possess ontological status prior to the actions that shape it. It is not a pre-existing stage upon which life performs. Instead, it is actively produced by the activities of various social actors and in turn structures the activities of those actors.[2]

This relation of spatial order and capitalism has been explored by Harvey, according to whom contemporary globalization is the product of specific geographically grounded processes, meaning that capitalism operates as a spatial system. As stated by Lefebvre, the creation of space is essential to the reproduction of capital and capitalist social relations because in order for accumulation to take place, capital must produce specific sorts of landscapes. Harvey claims that the "spatial fix" hypothesis, which describes capitalism's need to address its inner crises through territorial enlargement and rearrangement, is the best way to understand globalization. One of the fundamental contradictions of capitalism is that it must fix space in order to overcome it, only to have to destroy it at a later point in history.[3] For Harvey capitalism survival depends on geographic expansion through these "spatial fixes", pre requiring significant advancements in transportation and communication. The form of expansion then depends on whether the search is focused on finding new customers, labor markets, resources or investment options. Labor shortages and surpluses of capital can be solved either by moving capital to regions of cheap labor or by importing this labor. As a result migration currents are produced where there is a surplus of wage labor and a scarcity of capital.

---

1 Aureli, *The City as a Project*.

2 Herod, 'Workers, Space, and Labor Geography'.

3 Harvey, 'Globalization and the "Spatial Fix"'.

The labor force, even if it is migratory, is embedded in the region much as capital is fixed in the built environment and immersed in the soil, forming landscapes of capital accumulation. Workers may have radically different perceptions of how capitalism is spatially arranged while capitalists chase profit. Their social practice may be restricted by this spatial embeddedness, which becomes entrapment. Workers political praxis is an attempt to reshape capitalist geography. An effort to transform capitalist geography is made through workers' political activity. Mass unionism emerged in the 19th and 20th centuries as a result of the division between wage-earning labor and family life. People who worked together and lived close to industries and mines strengthened their shared identities. From the smallest scale to the genuinely global one, social conflict directly entails spatial struggle. In essence, the capital-labor relationship is spatial by nature.

In this relationship "reification" stemming from the latin words *res* and *facere*, meaning thing and to make, respectively[4], is a helpful notion to grasp the ever persistent labor issue. Reification, taken literally, is the process through which a notion turns into a thing, or a non-object turns into an object. Based on Marx, Lukács views reification as a social process that causes workers to perceive themselves as commodities and then as objects, an abstract and generic form. In such context, the factory's architecture becomes an object that tracks the forces reifying labor by fixing or embedding it in space. In other words it translates the reality of production into a tangible form. The paradigm of the factory and its landscape, built on production and strengthened by labor, forms a tool creating a system of interactions outside its enclosure: the entire socio economic and political reality.[5]

Capitalist powers have used architecture as a technological response to worker unrest and revolution.[6] The dialectical logic between struggle and growth, architecture and revolution becomes tangible when examining early factories like those designed by Ford architect Albert Kahn or factory-towns like Pullman´s as totalizing spaces for the control and exploitation of workers. Such designs embodied, together with pragmatism and efficiency, promises made by the industrialists improved living and working conditions. Thinkers and architects imagined alternative scenarios for the working class, drawing on *phalanstère* ideas, as a rejection to the industrial metropolis of the nineteenth century. In order to preserve the social balance threatened by revolution and increase productivity and profits through welfare and control, capitalists and other conservative forces, represented by paternalistic reformists, did adopt some of these utopian thinkers' technological recommendations.[7]

One of the earliest examples was Claude Nicolas Ledoux's Salines Royales (Royal Saltworks) at Arc-et-Senans. Heavily salinated springs beneath the Jura mountains had long provided a source of salt, from which an important source of royal revenue, the salt tax could be extracted, and was thus imposed on all with the exception of the aristocracy. The powerful tax collectors, the Farmers-General, requested a modernized Royal Factory closer to the forest of Chaux, a vast source of fuel, since it was cheaper to bring the salt water to the works than the wood to the factory.[8] Unconsciously, Ledoux moved the production of salt to the secondary industrial sector, from the extractive sector it used to belong until then[9] and led to a substantial improvement of workers' health.
To assure a high-quality, mass-produced product, a logical geometry emerged[10]. The plan consists of ten major buildings. In the middle is the Director's house, which served as a virtual rather than actual control point of the works, housing the administration and the supervisors. Ledoux called it the 'temple de surveillance' and Foucault compared it to a "watching machine"[11]. The saltworks itself are located on each side of the director's home. The Chaux saltworks provided workers with spacious

[4] White, 'Reification in the Modern World'.
[5] Marullo, 'The City as a Project - Generic and Typical Plan'.
[6] Marullo, 'The City as a Project - Generic and Typical Plan'.
[7] Muñoz Sanz, 'Networked Utopia'.
[8] Gruson, 'Claude Nicolas Ledoux, Visionary Architecture and Social Utopia'.
[9] Gruson, 'Claude Nicolas Ledoux, Visionary Architecture and Social Utopia'.
[10] 'Ledoux's Visionary Architecture and Social Utopia'.
[11] Gruson, 'Claude Nicolas Ledoux, Visionary Architecture and Social Utopia'.

housing, including bathrooms and vegetable gardens, separating the workers houses from toxic and inflammable processes, as well as including a chapel to provide for the workers' physical and moral well-being[12]. The complete plan, made during Ledoux's imprisonment during the french revolution included the building of an ideal city forming a perfect circle.

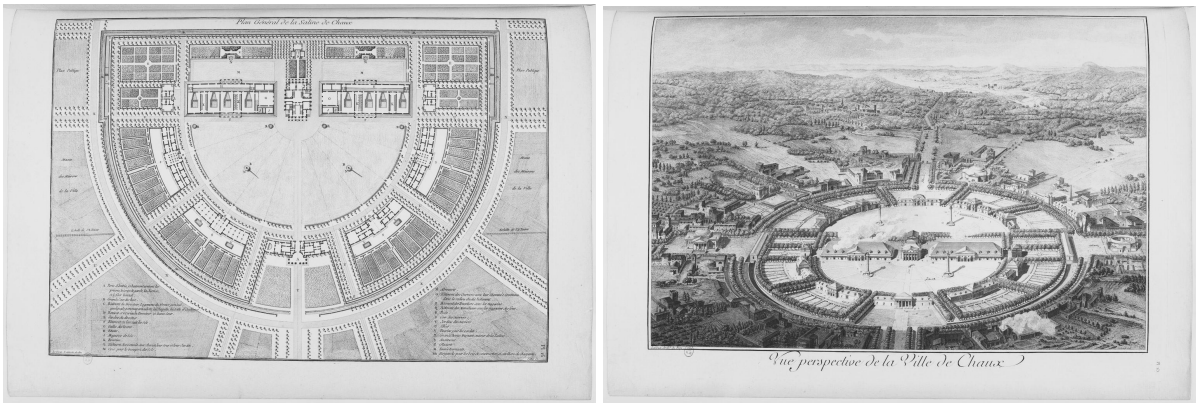


Figure 1: Left: General plan of Chaux Saltworks. Right: View of the ideal city of Chaux.

New Lanark of 1785 was shaped as a "philanthropic" project around a cotton-spinning mill, by employing 795 children from the nearby orphanages of Glasgow and only 362 adults, in the essence of the new factory system that was replacing skilled with unskilled labor[13]. Built in a remote river gorge, an ideal location for water power, a village was created around the mill, in Palladian-inspired architecture lining the millstream[14]. The factory was later bought by Robert Owen, who instituted a series of radical reforms in management, as well as social and educational to maximize efficiency and to improve the living conditions and the morals of his workers.[15] Owen and Dale are considered to be one of the first to combine welfare and philanthropy, for the standards of the time indeed, with maximization of profit.

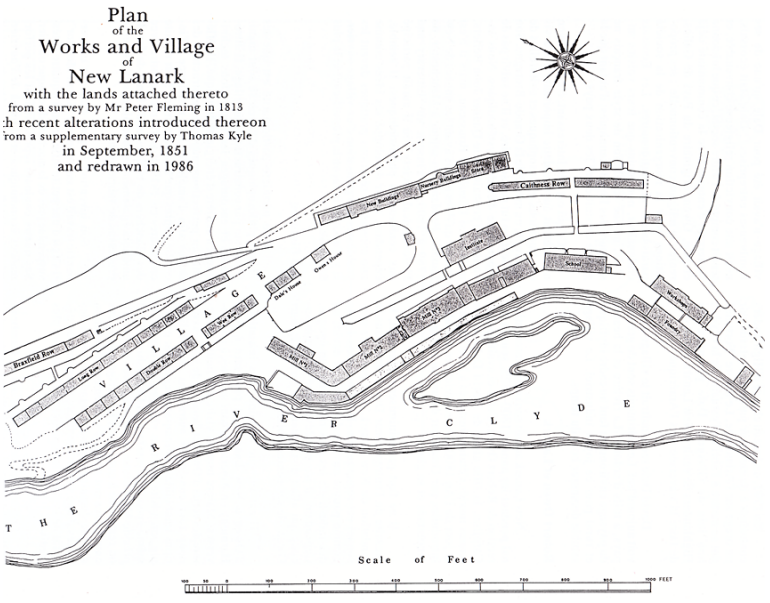
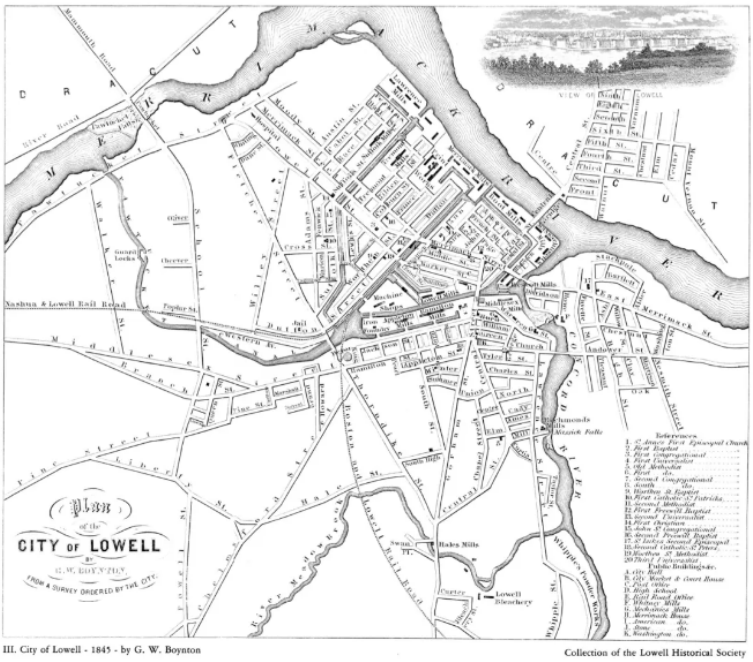


Figure 2: Plan of New Lanark, 1851.

[12] Hesson, 'Factory as Model Early Versions - Industrial Buildings'.
[13] Hargan, 'The Utopian Cotton-Spinning Factory of New Lanark'.
[14] Donnachie and Hewitt, *Historic New Lanark*.
[15] Hargan, 'The Utopian Cotton-Spinning Factory of New Lanark'.

A further cotton-mill town was planned by Lowell encompassing greater ideas on creating an intellectually and morally uplifting community, which would satisfy the needs of American society at large, and in this way help form the economic basis of an American capitalist utopia.[16] The utopian character of Lowells town was used as a marketing tool to introduce a particular workforce. Lowell wished to recruit his younger women living and working on the farms in the area. To attract these workers Lowell advertised the intellectually stimulating, culturally vibrant, and moral upright way of life that characterized the community.[17] The company controlled the rhythms of life in town, adjusting them to the needs of the production process.



Ill. City of Lowell - 1845 - by G. W. Boynton Collection of the Lowell Historical Society

Figure 3: Plan of Lowell Company Town, 1845.

In 1880 George Pullman also began to construct an ideal community on the outskirts of Chicago. Pullman desired to create a town contrasting the horrible conditions of the industrial cities at the time.[18] His model community relocated the workers from the slums they previously lived in, improving their living conditions, while saving money by accommodating workers near their place of work. Focused on profit, Pullman also recognized that treating workers better would increase loyalty, hard work, and prevent unionization.[19] The town contained some public buildings, including a library and theater and a wide range of shops to cover the needs of the town's residents. The residences were equipped with commodities such as natural gas and running water, some even had bathrooms.

Workers had to rent instead of owning their homes, which, like the shops, were also owned by the Pullman company. In that way, a monopoly over the lives of their employees was created, leading to workers being in debts that prevented them from leaving the town.[20]

Solon Beman, laid out neighborhoods with a great deal of open space. Different forms of housing were designed according to the status of the users, with the poorest workers, who were better-paid than the rest at the time, relegated to row-houses in the margins, more skilled workers having semi-detached homes, and managers living in mansions near the factory gate and visitors entrance, so that they

[16] Duggal, 'The Company Town'.
[17] Ziegler, 'Narratives and Transformations'.
[18] Baxter, 'The Paradox of a Capitalist Utopia'.
[19] Baxter, 'The Paradox of a Capitalist Utopia'.
[20] Duggal, 'The Company Town'.

would never have to cross the workers' areas[21]. The municipal government in the town was also under the control of the Pullman company. "Inspectors" would report on the workers, their activities, affiliations, and opinions[22]. Pullman's company town became a symbol of paternalism, especially after the 1894 strike of Pullman workers that led to some of the heaviest violence in U.S. labor history[23].

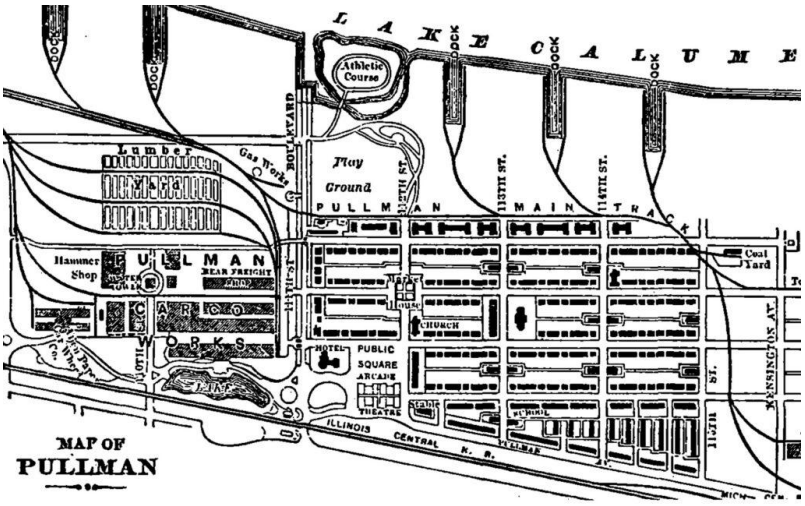


Figure 4: Plan of Pullman Company Town, 1884.

Henry Ford was another businessman known for his attempts to create ideal company towns, by decentralizing his production creating Village Industries, moving the factories away from high land prices and close to pools of cheap labor. Ford also presented himself as philanthropic, by educating workers and enhancing their living conditions. His well known $5 a day plan was developed on a similar profit-oriented logic as Pullman. In exchange for a higher wage, workers had to live according to Ford's moral principles.[24] Ford's Sociological Department was responsible for turning his immigrant workers into Americans.[25] Ford also attempted to export the American model town in the Amazon River Basin, creating Fordlândia.[26]

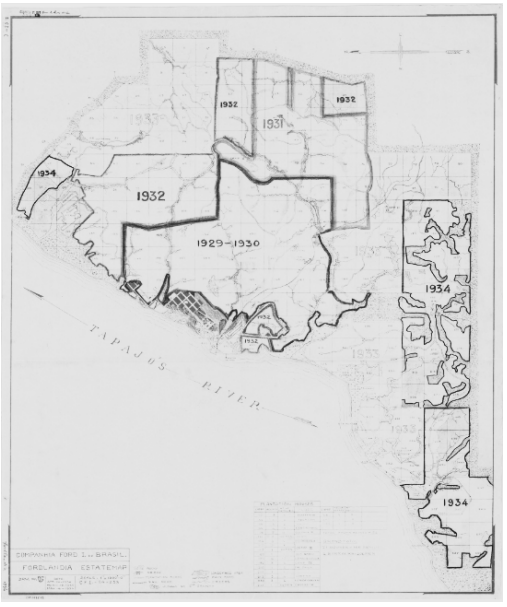


Figure 5: Estate Map of Fordlandia , 1936.

[21] Baxter, 'The Paradox of a Capitalist Utopia'.
[22] Partyka, 'The Bosses' Utopia'.
[23] Beetsky, 'To What Will Pullman Be a Monument?'.
[24] Partyka, 'The Bosses' Utopia'.
[25] Partyka, 'The Bosses' Utopia'.
[26] 'Fordlandia, the Utopian City Built by Henry Ford in Brazil (Today in Ruins)'.

The Bata Shoe Company towns of the 1930s are another case analogous to the Fordist Industrial Cities, that included social rationalization supported by a vision of organizing human life and labor as a response to revolution. The headquarters in Zlin, built in the 1930s' Czechoslovakia, used as a model town to be exported in other countries in Europe, the Americas and Asia, representing the epitome of private capitalist urban planning. Essentially, the Baťa program was founded on the utopian idea that the technological scheme changing the production method could be translated to other realms of society.[27] In addition to social programs and other services, sophisticated methods of supervising and disciplining employees were used to control the workers, which in the eyes of critics represented modern capitalist tyranny.[28] The Bata towns became a living model of the "new world" and the new lifestyle created by large industrial organizations.

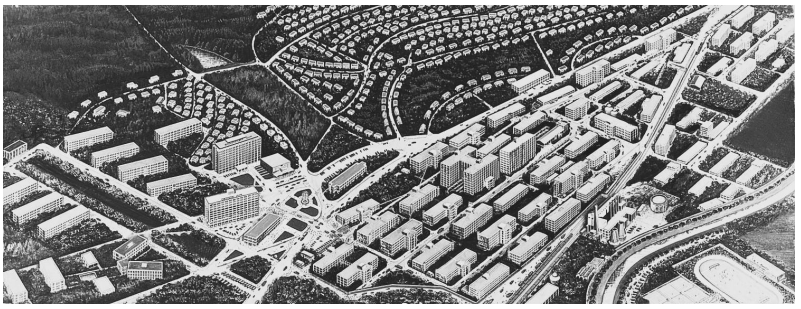


Figure 6: Bata Company town - Plans to extend the city of Zlín

The examples mentioned show how the economic rational perspective of profit and efficiency was pursued through expansion in the domain of society, morals, discipline and control. Planning was used to structure workers' activities in all aspects to ensure undisturbed and enhanced productivity. The involvement of architects testifies for the recognition that optimization of the production process depends on the welfare and consciousness of the worker. While the company town model was rendered unnecessary with time, the efforts to control the social aspect with planning moved inside the factory enclosure, which was seen as a living organism in search for stability. Richard Rogers Immos microprocessor factory, focused on flexibility, scalability, maximal efficiency, while recognizing social spaces. The climax of this approach is visible in the Apple Campus of Foster and Partners, interestingly resembling LeDoux's ideal version of the Saltworks[29]. The ring accommodating 12,000 workers includes services in a scale and quantity that create an autarkic world, in a beautiful garden setting, with maximized control capability, secured by a sense of belonging and commitment, an identity for the worker strengthening the ties with the company.

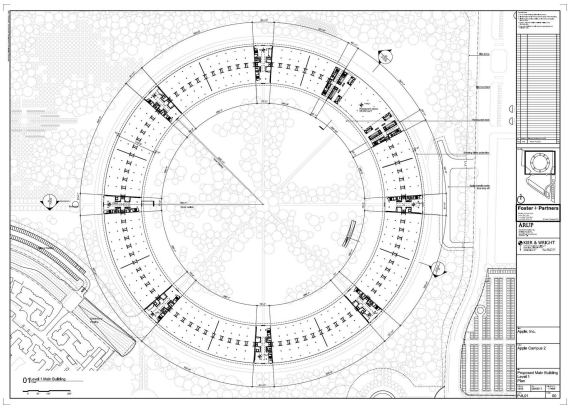


Figure 7: Plan of the Apple Campus

[27] Muñoz Sanz, 'Networked Utopia'.

[28] The Utopian Industrial City: The Case of the Baťa City of Zlín (Republic of Czechoslovakia) Martin Jemelka and Ondřej Ševeček

[29] Goodwin, 'Factory, Utopia'.

With the off-shoring of production in developing countries, corporations could avoid strict labor-laws and environmental constraints. In the West emerged the “campus” the “tower”, as the new factory of the service economy, and the “box”[30], as an expansion of the fordist empty factory into the realm of offices, storage, retail etc., what Rem Koolhas calls the “typical plan”. The divide between the places where products are designed and consumed and where they are manufactured, is a divide of labor. Paternalism today has taken the form of what is called corporate social responsibility, meaning initiatives that help enterprises “to integrate social, environmental, ethical human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders”.[31] Architects trying to secure their business have resorted to a new extravagant formalism of iconic signature projects to give a facade to another generic, typical, or so called flexible and adaptive building, a perfect tool for speculation, while only amplifying the exploitation of architectural workers themselves.

If we are willing in any way to restructure the system of reification and exploitation of both the factory worker and the architect, now subjected to an equal level of alienation should we consider the delimited emptiness of Kahn’s architecture, its genericness and reproducibility as technical background to be a means to reform the system from within as Fransesco Marullo suggests in “The City As A Project”? Or would we consider alternative and contrasting ideas, like William Morris attempted in his text ”A Factory As It Might Be”?

[30] Tali and Eran, *New Industrial Urbanism*.

[31] Muñoz Sanz, ‘Networked Utopia’.

Bibliography

Aureli, Pier Vittorio. *The City as a Project*. Accessed 28 November 2022. https://ruby-press.com/shop/the-city-as-a-project/.

Baxter, Jane Eva. 'The Paradox of a Capitalist Utopia: Visionary Ideals and Lived Experience in the Pullman Community 1880—1900'. *International Journal of Historical Archaeology* 16, no. 4 (2012): 651–65.

Beetsky, Aaron. 'To What Will Pullman Be a Monument? | Architect Magazine', 20 March 2015. https://www.architectmagazine.com/design/culture/to-what-will-pullman-be-a-monument_o.

Donnachie, Ian, and George Hewitt. *Historic New Lanark: The Dale and Owen Industrial Community since 1785*. *Historic New Lanark*. Edinburgh University Press, 2022. https://doi.org/10.1515/9781474407823.

Duggal, Rishi. 'The Company Town'. ArcGIS StoryMaps, 22 April 2021. https://storymaps.arcgis.com/stories/ff177b33f7eb4a7d806c795c73766bf6.

'Fordlandia, the Utopian City Built by Henry Ford in Brazil (Today in Ruins)', 16 July 2022. https://www.domusweb.it/en/from-the-archive/2020/06/16/fordlandia-the-utopia-built-by-henry-ford-in-brazil-today-in-ruins.html.

Gartman, David. 'Reification of Consumer Products: A General History Illustrated by the Case of the American Automobile'. In *Sociological Theory*, 2:167–85. American Sociological Association, 1986. https://www.jstor.org/stable/201886?origin=crossref.

Goodwin, Dennis. 'Factory, Utopia: The Works of Claude-Nicolas Ledoux', April 2020. https://dennisgoodw.in/ledoux/.

Gruson, Luc. 'Claude Nicolas Ledoux, Visionary Architecture and Social Utopia'. In *International Conference of Territorial Intelligence*, 299–307. Besançon, France, 2008. https://hal.archives-ouvertes.fr/hal-00767259.

Hargan, Jim. 'The Utopian Cotton-Spinning Factory of New Lanark'. British Heritage, 13 July 2016. http://britishheritage.com/cotton-spinning-factory-new-lanark.

Harvey, David. 'Globalization and the "Spatial Fix"'. In *In: Geographische Revue : Zeitschrift Für Literatur Und Diskussion*, 3:S. 23-30. Potsdam: Universität Potsdam. Accessed 28 November 2022. https://nbn-resolving.org/urn:nbn:de:kobv:517-opus-24366.

Herod, Andrew. 'Workers, Space, and Labor Geography'. *International Labor and Working-Class History*, no. 64 (2003): 112–38.

Hesson, Robert. 'Factory as Model Early Versions - Industrial Buildings'. Northern Architecture, 3 June 2022. https://www.northernarchitecture.us/industrial-buildings/factory-as-model-early-versions.html.

Holland, Charles. 'Factory Cities of the Future'. Accessed 28 November 2022. https://www.ribaj.com/culture/utopic-charles-holland-ideal-city.

Hyde, Charles K. *Assembly-Line Architecture: Albert Kahn and Evolution of the U.S. Auto Factory, 1905-1940*. Society of Industrial Archeology, 1996.

Speculative Cities. 'Ledoux's Visionary Architecture and Social Utopia', 1 October 2017. https://speculativecities.wordpress.com/2017/10/01/ledouxs-visionary-architecture-and-social-utopia/.

Koolhaas, Rem. "Typical Plan." In *S, M, L, XL*, 336–50. Monacelli Press, 2020.

Marullo, Francesco. "Architecture and Revolution - The Typical Plan as Index of Generic." In *The City as a Project*, 4th ed. Berlin: Ruby Press, 2020.

Marullo, Francesco. 'The City as a Project - Generic and Typical Plan', 6 April 2011. http://thecityasaproject.org/2011/04/generic/.

Matevz, Straus, and Zamfira Razvan. *The Re-Birth of the Company Town: How Corporations Are Reshaping Life, Work and Play in the CityStraus*. CreateSpace Independent Publishing Platform, 2016.

Morris, William. *Factory Work as It Is and Might Be: A Series of Four Papers*. New York Labor News Company, 1922.

Muñoz Sanz, Víctor. 'Networked Utopia : The Architecture and Urbanism of the Bata Shoe Company Satellite Cities'. Phd, E.T.S. Arquitectura (UPM), 2015. https://oa.upm.es/40750/.

Partyka, Nick. 'The Bosses' Utopia: Dystopia and the American Company Town'. Hampton Institute, 20 May 2016. https://www.hamptonthink.org/read/the-bosses-utopia-dystopia-and-the-american-company-town.

Tali, Hatuka, and Ben-Joseph Eran. *New Industrial Urbanism: Designing Places for Production*. 1st ed. Routledge, 2022. https://www.routledge.com/New-Industrial-Urbanism-Designing-Places-for-Production/Hatuka-Ben-Joseph/p/book/9780367427719.

White, Tommy. 'Reification in the Modern World'. *Student Research Submissions*, 3 May 2020. https://scholar.umw.edu/student_research/337.

Ziegler, Dana. 'Narratives and Transformations: Women of the Lowell Mills and the Mount Holyoke Seminary', 20 May 2010.https://www.academia.edu/370690/Narratives_and_Transformations_Women_of_the_Lowell_Mills_and_the_Mount_Holyoke_Seminary.

Figure Sources

Figure 1: Fabrizi, Mariabruna. 'The Ideal City of Chaux by Claude-Nicolas Ledoux (1773-1806)'. Socks, 9 November 2016. https://socks-studio.com/2016/11/09/the-ideal-city-of-chaux-by-claude-nicolas-ledoux-1773-1806/, https://socks-studio.com/2016/11/09/the-ideal-city-of-chaux-by-claude-nicolas-ledoux-1773-1806/.

Figure 2: Arnold, J.E. 'New Lanark: Une Utopie Réalisée'. *L'Archéologie Industrielle En France* 24–25 (1994): 97–105.

Figure 3: Haenraets, Jan. 'Revolution to Renaissance: The Continuing Industrial Experiment of Lowell, Massachusetts'. *Explearth* (blog), 28 January 2018. https://explearth.org/industrial-lowell-massachusetts/.

Figure 4: blog-archkuleuven. 'Map of Pullman, Illinois, 1884'. Accessed 28 November 2022. https://www.blog-archkuleuven.be/companys-town/?filter_department=28.

Figure 5: Cope, Angie. 'Fordlandia, Brazil'. *American Geographical Society Library* (blog), 14 June 2015. https://agslibraryblog.wordpress.com/2015/06/14/fordlandia-brazil/.

Figure 6: West, Anna. 'Letter from Zlín: The Czech Town Where Capitalism and Constructivism Co-Exist'. The Calvert Journal, 20 December 2022. https://www.calvertjournal.com/features/show/12407/thomas-bata-shoes-zlin-garden-city-constructivism-capitalism.

Figure 7: Basulto, David. 'More about Foster + Partner's New Apple Campus in Cupertino | ArchDaily'. archdaily, 16 August 2011. https://www.archdaily.com/160044/more-about-foster-partners-new-apple-campus-in-cupertino.