

AFD Ep 458 Links and Notes - 1IR: Watch City [Bill/Rachel] - Recording Feb 5, 2023

[Bill] Our recent 3-part series on the Boston Associates discusses their systematic and well-financed importation of First Industrial Revolution capitalism to Massachusetts, beginning in the town of Waltham, where they established their first power loom mills and machine production companies. While they eventually outgrew Waltham and moved on to establish new towns like Lowell and Lawrence, Waltham's role in the Industrial Revolution was far from over. As the First Industrial Revolution was about to turn into the Second Industrial Revolution with the arrival of the American Civil War, a new company established itself in Waltham, based off core tenets of Massachusetts industrial processes, and that arrival would completely reshape Waltham in the rest of the 19th century.

- https://en.wikipedia.org/wiki/Pocket_watch#History
 - Pocket watches were a luxury item for several centuries until 1857 when the American Watch Company of Waltham, Massachusetts (later nicknamed Watch City) developed a mass-production watch with interchangeable parts (for cheap and quick repair) called the Waltham Model 57.
 - This had been, after a couple decades of efforts in the region, directly adapted from the Armory System of mass-produced interchangeable parts for gun manufacturing in the United States and especially Massachusetts, which we covered in our episode about that, [#380 from June 2021](#). In both cases, the piecemeal cottage industry systems were replaced with factory production lines. As with the weapons production, the watch company had to develop its own machine tools to make and maintain the specialized machines for this watch component production and assembly, and this further contributed to the growth of the emerging and leading American machine tools sector so that other industries could follow suit with mass production of their own things, besides guns and watches.
https://en.wikipedia.org/wiki/American_system_of_watch_manufacturing
 - The factory – which produced watches from 1857 to 1950 – still exists today, as housing. Part of Newton, my city, was off-loaded to Waltham because so many factory workers lived in one particular border neighborhood. The area including the factory is now a national historic district.) By 1865, the company was producing 60,000 per year, destroying the traditional Swiss watch industry's global market edge and forcing them to pivot to specializing in ultra-high-end luxury production (presumably with matching marketing efforts).
- https://en.wikipedia.org/wiki/Waltham_Watch_Company
 - (Ironically the company ended up opening a factory in Switzerland in the 1950s before actually being bought out in 1968 by a Swiss company.)
 - Two huge mid-19th century forces provided a massive demand for mass-produced affordable pocketwatches in the United States: the formation of a massive Union Army to wage the Civil War, whose hundreds of thousands of soldiers were eager to own watches and finally made the wages to be able to, AND the explosive growth of the cross-country railroad industry in the 1850s, 1860s, and beyond, which required and popularized precise, reliable, and consistent timekeeping technology across vast distances for the first time.
 - [Rachel] More on railroads and watches:
https://en.wikipedia.org/wiki/Railroad_chronometer Railroad chronometers were timepieces kept and maintained by critical railroad personnel (e.g. engineers, conductors, switchyard controllers, etc.) to ensure that two trains weren't on the same stretch of track at the same time. Standards were established from the initial long-distance railroad boom of the 1850s

and '60s, but differed from company to company. Each company hired a "time inspector", who decided which watches were suitable for use as chronometers. As watchmaking technology improved, standards also improved, with older timepieces rendered obsolete. In 1887, the American Railroad Association met and established a fairly standardized set of requirements, but not all companies adopted them. The Waltham Watch Company was used for railroad chronometers as early as the 1860s.

- Typical standards of the early 1900s:
 - only American-made watches may be used (depending on availability of spare parts)
 - only open-faced dials, with the stem at 12 o'clock
 - minimum of 17 functional jewels in the movement
 - maximum variation of 30 seconds (approximately 4 seconds daily) per weekly check
 - watch adjusted to at least five positions: Face up and face down (the positions a watch might commonly take when laid on a flat surface); then crown up, crown pointing left, and crown pointing right (the positions a watch might commonly take in a pocket). Occasionally a sixth position, crown pointing down, would be included.
 - adjusted for severe temperature variance and isochronism (variance in spring tension)
 - indication of time with bold legible Arabic numerals, outer minute division, second dial, heavy hands,
 - lever used to set the time (no risk of inadvertently setting the watch to an erroneous time, when winding the watch with the stem)
 - anti-magnetic protection (after the advent of diesel-electric locomotives)
- Starting with Webb C. Ball of the Ball Watch Company in 1883, the Time Signal service from the United States Naval Observatory was used to maintain accuracy of railroad standard watches.
- [Bill] Defense contracts era: European armies contracted for Waltham to make them the mechanized time fuses to control the burst of artillery shells. When the US entered the war, the US War Department ordered them as well. There was little competition interested in these contracts and eventually Waltham ran out of capacity and by the end of the war the mismanaged company was in a huge mess and was forced into restructuring by creditors once the flow of defense spending ended suddenly.
 - Another irony for the company is that the First World War led directly to the collapse in popularity of the pocket watch in favor of the wristwatch, which was better for trench warfare. And then also with the decline in vests in men's fashion, they weren't likely to make much of a comeback.
- [Rachel] Watchmakers' Strike of 1924:
 - Waltham was slow to modernize and they continued to produce high-grade pocket watches, lacking the machinery to produce wristwatch parts. In 1923, once again on the brink of disaster, Waltham underwent a massive restructuring, bringing in a new chief executive, F. C. Dumaine. Dumaine integrated departments and focussed on modernizing their product. This included manufacturing small, new wristwatches at a smaller price-point, a 180 from their high-end pocket watch

manufacturing. In addition, he cut executive pay and eliminated private secretaries, creating a secretarial pool instead. At that time, factory worker wages weren't cut, and Waltham slowly paid down their debts.

- However, in order to further increase profitability, a general worker pay cut of 10-40% was proposed. Workers from the Finishing Department first put down their tools and walked off the job on August 11, 1924 in the wake of an announced 10% cut. The next day, 200 workers from the Finishing and Setting-Up Departments stayed home. Within 3 days, the entire Waltham site was involved in a company-wide work stoppage, the first in the company's history. During the strike, small-scale, department-level worker organization was abandoned and a new company-wide organization called the Watchmakers Protective Association was formed.
- Plant Superintendent I. E. Boucher refused to recognize the organized workers and demanded to meet only with individual workers to discuss wages. He also declared that all striking workers were terminated and that they would have to re-apply for their jobs to come back to work. By Day 3, 2000 out of a total 2900 workers had walked off the job and took to the streets to speak out against the pay cut, marching through Waltham to a rally held at a city park. The only department still working was the Machine Department, whose employees were part of a separate AFL-affiliated union, and were waiting for permission from their national organization to join in on the strike. By the second week, packing clerks and stenographers had joined in sympathy strikes, effectively stopping all operations at the Waltham plant. As August ended, the stalemate showed no signs of stopping, and workers who had the means to move started traveling to Elgin, Illinois and Lancaster, Pennsylvania to work for Waltham's competitors.
- In September, the workers proposed a pay cut for men making more than \$40/wk and women making more than \$20/wk, which would spare the lowest-paid workers. The company was expected to accept the offer, and a celebration was held on Saturday, September 27. However, the company refused the proposal, and the celebration turned into a riot that raged until early Sunday morning and saw a mob storming the company's gates.
- As the strike stretched into October, the Massachusetts State Board of Conciliation made a proposal for a 5% wage cut as justified for all workers earning more than \$18 a week. Neither side liked this proposal, with the company still preferring their blanket 10% cut, and the strikers held a meeting where they outright rejected the board's proposal.
- While the strike lasted through January 1925, the company was able to maintain operations through the use of strikebreakers, primarily new hires. An agreement was made on January 6, 1925 to end the strike. As part of the agreement, the company remained an open shop, but they did recognize the Watchmakers Protective Association.
<https://www.jstor.org/stable/41823513?seq=2> Monthly Labor Review Vol. 20, No. 2 (FEBRUARY, 1925), pp. 205-209
- [Bill] WWII: they resumed artillery fuse production. Again followed by bankruptcy afterwards.
- [Rachel] The National Association of Watch and Clock Collectors (NAWCC) has a lot of photos on their website. NAWCC had a seminar in 2002 titled "Boston: Cradle of Industrial Watchmaking". Photos of Waltham watches exhibited during the seminar are

available on archive.org

<https://web.archive.org/web/20160303230825/http://www.awco.org/Seminar2002/>

<https://clintgeller.com/2017/08/15/the-2002-nawcc-national-seminar-boston-cradle-of-industrial-watchmaking/>