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## The Watershops (1794-1968)



UPPER WATER SHOPS IN 1830:

### ***Watershops Improvements and Operations, 1794-1843***

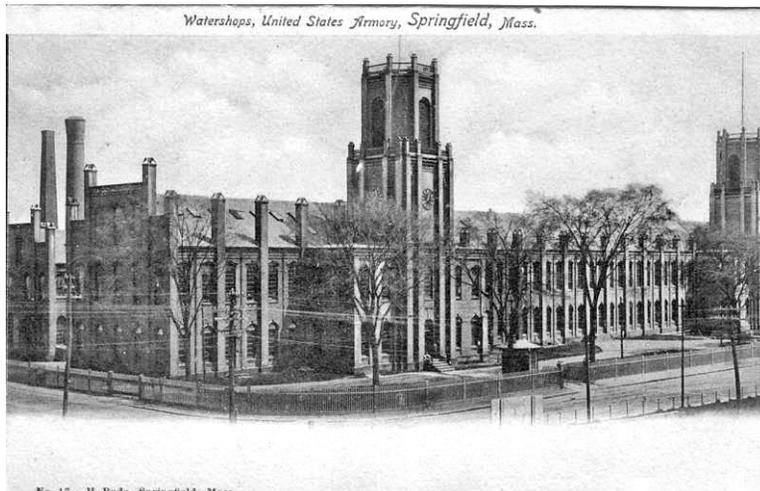
The creation of Springfield Armory in 1794 required a power source, greater than hand-powered machinery could provide, to shape large amounts of iron and wood into shoulder arms. Only water power met the Army's needs. A series of water-powered shops were soon built a mile south of the Hillshops along the Mill River, a tributary flowing into the larger Connecticut River through the south end of Springfield. Along the Mill River, an expanding complex of workshops was built for water-powered metal grinding, polishing, and barrel making. By 1798, there were two buildings completed.

Following shop fires in 1801 and 1805, nearly all the wooden buildings, with their dry oil-soaked floors, were replaced with stone and brick structures. About that time, the number and size of many shops increased and constructed the new Upper Watershops grew to supplement the Lower and the Middle Watershops. After two more major fires in 1824 and 1825, more rebuilding occurred in brick and stone and more water-powered mechanized operations were added. Thereafter, fires were rare.

Using iron water wheels to harness the dependable current of the Mill River, trip hammers, grindstones, and polishing discs shaped iron and steel. Soon, the three complexes along the river, the Lower, the Middle, and the Upper Watershops were

shaping wooden gun stocks, locks, forgings, and barrels and sending them to the Hillshops for hand-shaping, assembly, finishing, and storage..

### ***Steampower with Consolidated Operations and Civil War Expansion***



**The Watershops about a hundred years ago. The site remains an active industrial site under private ownership. In the late 1980's, damage from a chemical fire caused much of the second story to be removed.**

**Text & images: Springfield Armory NHS, US NPS**

#### ***1843-1865***

Between 1830 and 1854, the two Lower Watershops were gradually closed and their operations merged into an enlarged Upper Watershops. Consolidating water-powered operation eliminated the inefficiencies of scattered operations that previously hampered manufacturing. The dam height was also raised and greater power was soon available as steam power was added for those times of low water flow in the summer and winter.

These improvements were made just in time for the great demands of the Civil War. Starting in 1861, Springfield Armory increased production ten-fold and alone produced nearly half the rifle muskets used by the Union Army.

#### ***Improved Power Systems, post-Civil War to the M1 and beyond, 1866-1968***

By the late 19<sup>th</sup> century, efficient water turbines powered the Watershops alongside larger steam engines as the Armory entered the 20<sup>th</sup> Century. Electrical power, added about then, allowed individually-powered machines to add greater productive flexibility. In the years just before the Second World War, the entire Armory was modernized for massive production of the M1 “Garand” Rifle that would become the mainstay of American infantry. After the war, Watershop operations produced new American rifles and machine guns for the Armory continued until the Armory closed in 1968.

Today, the Watershops are listed on the National Register of Historic Places and a privately-owned manufacturing site. Through a partnership with the owner and the NPS, visitors are invited to drive a mile south to view the exterior of this important part of Armory history.

#### ***Bibliography***

**FORGE OF INNOVATION: An Industrial History of the Springfield Armory, 1794-1968**, by Michael S. Raber, Patrick M. Malone, Robert B. Gordon, and Carolyn C. Cooper. Edited by Richard Colton, Springfield Armory NHS, US NPS, Eastern National, 2008, pp.117-131.