

LECTURE 6

TEXTILES, FIREARMS, AND THE ROLE OF THE STATE

A. Private sector and public sector roles in early American industrialization

1. **Leading private sector industries:**
 - Textiles
 - transportation (steamboats, canals, railroads)
 - heavy industry (iron, heavy machinery)
2. **Public sector industries:**
 - small arms (muskets, rifles, swords)
 - small arms spinoffs: machine tools
 - transportation (canals, railroads)

B. The textile industry

1. Rhode Island system (1790--
2. Waltham-Lowell system (1813--
3. Spanish Claims, Daniel Webster, and the birth of Lowell (1818-1824)

C. The small arms industry

1. Alexander Hamilton's Report on Manufactures (1790) and the establishment of national armories at Springfield, MA and Harpers Ferry, VA (1794)
2. Private contractors: Eli Whitney (1798-1824+), New Haven, CT
Simeon North (1798-1852), Middletown, CT
3. The legend of Eli Whitney and interchangeable parts
4. The Army as a catalyst of innovation:
 - Col. Decius Wadsworth (c. 1815-1821) and his successor at the Army Ordnance Bureau, Col. George Bomford (1821-1842)
 - John C. Calhoun as Secretary of War (1817-1825)

5. Early successes:

- Simeon North (c.1816)
- John H. Hall at Harpers Ferry (c. 1824-26)
- Hall and North (1832)

6. The final stage: Springfield Armory, 1835-1842-1855

- innovations at Springfield (e.g. Thomas Warner)
- private contractors and patents
- Springfield as a clearinghouse of the new technology

D. Some conclusions:

1. The long-term impact of textiles

2. The long-term impact of "armory practice"

Examples:

- a.) The London Crystal Palace Exhibition (1851) and the British Committee on the Machinery of the United States (1854-55).
 - coined the expression "American system of manufactures" as a short-hand reference to armory practice and interchangeable manufacturing.
 - visit Lowell but dismiss it as reflecting British practice.
- b.) Springfield Armory's "open door" policy and its implications
 - origins of the machine tool industry"
 - spinoffs and the emergence of technically-related industries
- c.) An example of spinoff: Sharps Rifle Company, Hartford, CT (1855-1876)
 - Sharps goes gangbusters during the Civil War, but loses government contracts in 1865 and saddled with debt. Turns toward western market, but still in trouble
 - Sharps rents space to Weed Sewing Machine Company (1873)
 - Weed buys the Sharps factory and its equipment (1876)
 - Pope Manufacturing Co. (bicycles) rents space from Weed (1880)
 - Pope buys out Weed (1890) and eventually goes into auto business

Examples of other industries/groups that borrow from armory practice:

- typewriters (Remington)
- pocket watches (Waltham)
- business machines (National Cash Register, IBM)
- railroad car builders (Wason Car Co., et al.)
- agricultural machinery builders
- cameras (Eastman)
- religious groups (Shakers)

d.) Springfield Armory and the origins mass production during the Civil War

1861 - 13,840 rifle muskets
 1862 - 102,410
 1863 - 217,784
 1864 - 276,200
 1865 - 195,341

Compare these numbers with the Ford Motor Company's production of the Model T Ford:

1910 - 20,727 Model T's
 1913 - 189,088 (the year the moving assembly line is introduced)
 1914 - 230,788
 1915 - 394,788

E. Consequences:

1. **Anticipated: mechanized production; uniformity, even interchangeability of gun parts**
2. **Unanticipated:**
 - a. **labor discord over shop floor issues (piece rates, hours of labor, regulations). Example: clock strike at Harpers Ferry (1842)**
 Work rules and labor controversies
 - b. **rapid dissemination of armory practice methods via the newly established machine tool industry (c. 1845+)**
 - c. **Implications for mass production**

U.S. Industrial Economy c. 1815-1867

PRIVATE SECTOR

PUBLIC SECTOR

