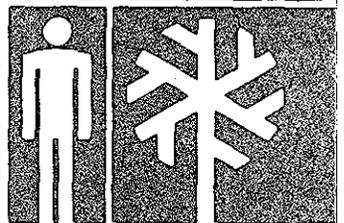


historic structure report
historical data / base map
may 1978

D-1304

SPRINGFIELD ARMORY

NATIONAL HISTORIC SITE / MASSACHUSETTS



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HISTORIC STRUCTURE REPORT
HISTORICAL DATA
AND
HISTORICAL BASE MAP
SPRINGFIELD ARMORY NATIONAL HISTORIC SITE
MASSACHUSETTS

by
John Albright

DENVER SERVICE CENTER
HISTORIC PRESERVATION DIVISION
NATIONAL PARK SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR
DENVER, COLORADO

May 1978

The United States Armory is first among the most prominent points of interest in Springfield and the citizens have always taken great pride in this great national institution in their midst. To all visitors, the Armory buildings are the first to claim attention. As one approaches the city from any distance, the arsenal, the largest building in the city and the tower with its tall flag staff with Old Glory flying in the breeze, is the most conspicuous sight in view.

--Edward A. Hall, 1907

In short, the town has moulded the Armory and has by the Armory been moulded in turn. To divorce them would be to sacrifice their joint history.

--Derwent Whittlesey, 1920

TABLE OF CONTENTS

PREFACE	vii
CHRONOLOGY OF SIGNIFICANT EVENTS	viii
CHAPTER I: THE ESTABLISHMENT OF THE SPRINGFIELD ARMORY	1
CHAPTER II: ROSWELL LEE'S "GRAND NATIONAL ARMORY"	5
CHAPTER III: THE SUPERINTENDENCY OF JAMES W. RIPLEY: "PERMANENCY AND ARCHITECTURAL PERFECTION"	19
A. The Early Years	19
B. The Building Years	25
C. The Armory in 1851	33
D. The Final Ripley Years	39
CHAPTER IV: THE EVOLUTION OF THE SPRINGFIELD ARMORY: "HARMONY PREVAILS"	47
A. 1854 to 1864	48
B. 1864 to 1884	50
C. 1865 to 1882	57
D. 1885 to 1900	70
E. 1901 to the Present	76
CHAPTER V: STRUCTURAL DATA AND HISTORICAL REFERENCES	91
A. Building No. 1	91
B. Building No. 10	94
C. Building No. 13	96
D. Miscellaneous Structures	98
E. Nomenclature	98
F. Planning and Development	100
G. Collections Conservation and Management	101
CHAPTER VI: RECOMMENDATIONS FOR ADDITIONAL RESEARCH	102
A. Historic Resource Study	102
B. Historic Furnishing Study	102
APPENDIX A: TITLE AND JURISDICTION OF THE SPRINGFIELD ARMORY	103
APPENDIX B: AN 1884 VIEW OF THE SPRINGFIELD ARMORY	112
APPENDIX C: A REPORT OF EXAMINATION OF THE TREES AT SPRINGFIELD ARMORY, NOVEMBER 26, 1913	125

APPENDIX D: "THE SPRINGFIELD ARMORY. CHAPTER 9. SUMMARY AND PROSPECTUS," EXTRACT FROM DERWENT WHITTLESEY, Ph.D., DISSERTATION--"SPRINGFIELD ARMORY" 141

BIBLIOGRAPHY 145

LIST OF ILLUSTRATIONS

1.	"General View," 1852	42
2.	"Quarters of the Commanding Officer," 1852	44
3.	"The New Arsenal," 1852	44
4.	"Springfield, Massachusetts, From the Longmeadow Road," 1855 . . .	49
5.	"The Hill Shops and Arsenal . . . 1864"	56
6.	"View of Springfield," 1875	63
7.	Monument Along the Entrance Road	66
8.	"Commanding Officer's Quarters," circa 1876	68
9.	West End of Springfield Armory, circa 1880	68
10.	"The Arsenal Building and Gateway, from State Street," 1884 . . .	71
11.	"The Commandant's Quarters," circa 1884	72
12.	"A Room in the Arsenal," 1884	72
13.	"United States Armory--State Street Entrance," 1886	73
14.	Aerial Photograph of Springfield Armory, 1932	84
15.	Quarters No. 1, 1950	86
16.	Buildings Nos. 1, 18, 23, circa 1949	93
17.	The Driveway to Building No. 1	93
18.	The Master Armorer's Quarters, 1932	95
19.	The Main Arsenal Prior to 1899	97
20.	The Gatehouse at Gate 2, 1932	99

LIST OF MAPS

1. Armory Hill About 1820	3
2. "Map of U.S. Land and Buildings," 1821	9
3. "Elevations and Sections," 1821	11
4. Springfield Armory, 1824	13
5. "Armory Hill," circa 1830	15
6. Springfield Armory, 1851 (Smith and Jones)	34
7. U.S. Armory Grounds, 1851 (Butler)	37
8. "Topographical Plan," 1864	51
9. "Springfield Armory," 1875	61
10. "Topographical Plan," 1877	65
11. Springfield Armory, 1882	69
12. The Armory, 1889	77
13. "Plan of Main Grounds of Armory," 1904	79
14. "Plan of Main Grounds, Springfield Armory," 1910	81
15. Springfield Armory, 1955	85
16. Springfield Armory, 1964	89
Historic Base Map, 1977	151

PREFACE

This study consists of a historic structure report's historical data section and a historical base map. The data for both reports are combined in one narrative. This arrangement is dictated by the history of Springfield Armory. The Armory developed over the years since 1776 in a manner blending construction of buildings, formal landscaping, and extensive terrain modification. Hence the data necessary for both the structure report and the base map belong together and are presented together. Illustrations showing the development of the Armory are placed within the narrative as appropriate and not grouped at the back of the study, as is more routine. Only the portion of the Armory on the hill, today's national historic site, is examined in this study; the water shops are not included.

This is the initial research document prepared by the National Park Service for the site, although an earlier "Evaluation Under the Provision of Historic Preservation Act of 1966" was accomplished in August 1967. This excellent survey of the Armory identified the major historic structures, included photographs of the most significant structures, and provided an outline history of the site. This later study enlarges upon that evaluation.

As an initial document for a new park, this study provides some data for interpretation, pending the completion of a historic resource study. These facts, for the most part, are included as appendixes and will provide some information for an interim interpretation program at the park.

Most of the data for this study came from three locations: The U.S. National Archives, the U.S. Army Military History Research Collection, and Springfield, Massachusetts. The composition of these collections is described in the bibliography. At the National Archives, Dr. Elaine Everly has been as helpful on this project as she has been on others in the past. Likewise John Slonaker, of the Army's Military History Research Collection at Carlisle Barracks, Pennsylvania, has located many documents concerning Springfield Armory and provided much sound advice on the research, as he has done on other projects. At Springfield, Ellen Cote, on the staff of the local history portion of the city library, and Curator Tom Wallace, at the Springfield Armory, focused much time and energy on the gathering of data for this study and deserve hearty thanks for their efforts.

CHRONOLOGY OF SIGNIFICANT EVENTS

SPRINGFIELD ARMORY

- 1777 Springfield serves as an arsenal and workshop during the Revolutionary War.
- 1794 A National Armory is established by federal law at Springfield, Massachusetts.
- 1801 The federal government gets the deed to the land at the Armory site.
- 1815 Roswell Lee, a colonel, assumes command as civilian superintendent, and declares his belief in a "Grand National Armory."
- 1820 A map of this date shows the Armory to have ten shops and fourteen dwellings. The square already exists.
- 1823 The 1823 inspection report notes that the Armory presents "a handsome and regular appearance."
- 1824 Armory Square receives the name "Green" on the map.
- 1833 New dwelling houses are begun for the master armorer and paymaster at the west end of the Green. (These are Buildings 10 and 17.)
- 1833 Roswell Lee, Springfield's first great superintendent, dies.
- 1840 Evaluation of Springfield Armory is \$209,161, and a total of 87 buildings: 46 shops, 8 storehouses, 33 dwellings.
- 1841 Major James W. Ripley assumes command and remains an active-duty military officer. Ripley begins a drive to improve efficiency at the plant.
- 1843 Ripley begins an expansion of grounds prior to his building program.
- 1845 Work begins on the Commanding Officer's Quarters (Building 1). Extensive landscaping begins as well.
- 1847 Work begins on the Main Arsenal (Building 13). Building 1 is complete. Grading continues. Plans begin for a permanent fence.

- 1850 Most of the major construction and grading have been completed. The fence, some landscaping, and some grading remain to be done. The Green becomes "Tower Hill" about this time.
- 1853 The inspection report that year takes note of Ripley's improvements citing a quality of "permancy and architectural perfection" at the site.
- 1854 Ripley departs.
- 1864 The iron fence is completed, the last of the Ripley projects. Tower Hill becomes "Union Square" either this year or the next.
- 1875 The main gate is moved from its original location to the corner of State and Byers Streets.
- 1876 The gun display from the Centennial exposition at Philadelphia is shipped to Springfield Armory, now called the National Armory.
- 1877-1882 During this period the Master Armorer's Quarters are moved to their present location. Monument is emplaced south of the Paymaster's Quarters.
- 1895 Building 17, the Paymaster's Quarters, is moved away from its location south of the Main Arsenal.
- 1897 Water-powered elevator is installed in the Main Arsenal.
- 1899 Union Square, so called as late as 1884, is labeled "Armory Square" on a map.
- 1902 Greenhouses appear in gardens associated with Commanding Officer's Quarters.
- 1908 Gatehouse, Building 33, is constructed at State and Byers Streets; Gate No. 2 is now on site of original gatehouse.
- 1913 Sprinkler system is installed in Main Arsenal.
- 1937 Master Armorer's Quarters repaired as WPA project. Building 18, Garage, is constructed.
- 1940 Loading dock put into tower base, Main Arsenal.
- 1958 Greenhouses removed about this time.
- 1968 Playing fields cut into grounds near Main Arsenal and Commanding Officer's Quarters.

CHAPTER I: THE ESTABLISHMENT OF THE SPRINGFIELD ARMORY

Springfield Armory's long history began with the American Revolution. By 1777, on the sandy plain overlooking the Connecticut River village of Springfield, an arsenal for storage of weapons and a "laboratory"--actually, a workshop--functioned there.¹ The unusually level plain ended in a somewhat abrupt bluff, long the site of springs, and was thus separated from the town on the banks of the Connecticut River valley below. The bluff was then, and remains today, a prominent feature in Springfield's terrain.

Unwanted by farmers,² more easily defensible than any surrounding areas, and located with the growing cluster of firearms manufactories near the Connecticut River, the site on which the Armory began its development, could hardly have been more appropriate. The hill site has been occupied constantly since 1777 by some sort of armory or arsenal activity. It has been a constant factor in the life of the city as well as the sole occupant of the site. Its presence on the commanding slope overlooking Springfield and its stylistic impact on the city's public buildings are seen at the first glance of the modern city and the Armory,³ and is formally recognized in the seal of the city of Springfield, which shows the Armory's Main Arsenal.

Until 1794 the operations at the Armory were minimal and the buildings small and few in number. It was not until 1794 that a National Armory was formally established, "per Act of Congress," at Springfield, Massachusetts.⁴ State militia, not federal troops, defended the site when it was attacked in 1786 during the short-lived Shay's Rebellion. Between 1776 and 1794, arms manufacturing and gunsmithing had developed into a prominent industry in the

1. James A. Huston, *The Sinews of War: Army Logistics 1775-1953* (Washington, D.C.: Office of the Chief of Military History, U.S. Army, 1966), p. 33; see also Derwent S. Whittlesey, "The Springfield Armory" (Ph.D. dissertation, University of Chicago, 1920) Chapter I, for a discussion of early Springfield Armory history. The dissertation copy used was apparently a final draft and is on file at Springfield Armory.

2. Whittlesey, "Springfield Armory," p. 3.

3. "Armory" was generally capitalized in both official and private documents and will be so presented in this study. "Armory" referred to the entire complex: hill shops, water shops, and middle water shops.

4. "Springfield Armory and Arsenal, Massachusetts," Record Group 94, "Historical Information Relating to Military Posts and Other Installations, ca. 1700-1900," Microcopy M661, roll 7, 1972, National Archives, Washington, D.C.

Connecticut valley, and Springfield's potential as a site for a permanent national arms manufacturing center had been recognized.

It was, in fact, the only location that Secretary [of War Henry] Knox thought was completely satisfactory; moreover, a number of gunsmiths, working individually on whatever state or federal jobs they could get, already had settled there.⁵

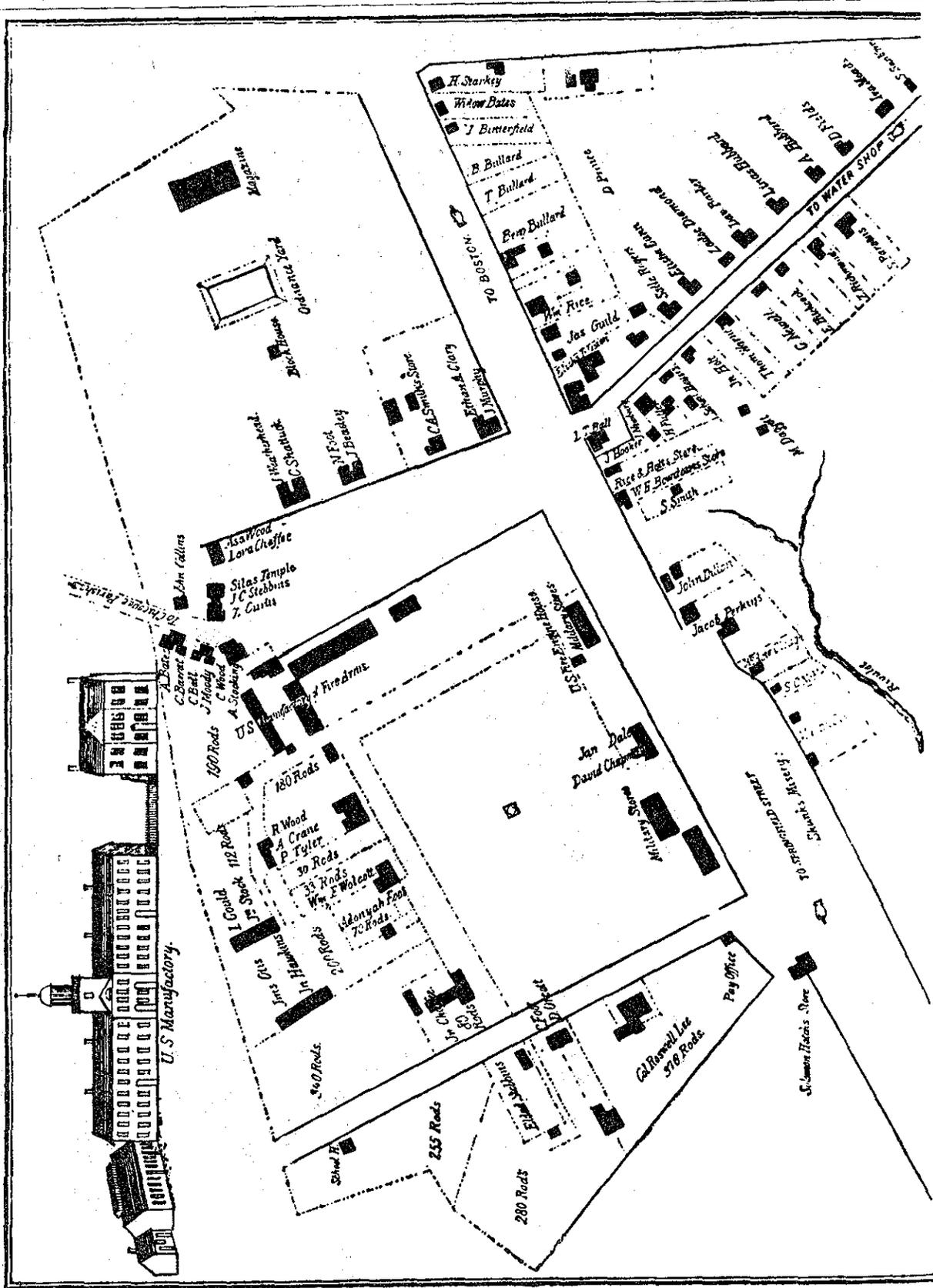
However, the federal establishment of Springfield Armory in 1794 remained curiously incomplete for seven more years. During that period, while manufacturing went on and while the site that housed the small federal complex continued to serve as a municipal training field for the local militia, the town of Springfield still owned the land. The fire of January 23, 1801, which destroyed the filling and stocking shop, established a need for replacing the burned facilities. This brought about reconstruction plans that resulted in the realization that the national government should, after all, own the land its armory stood upon. Thus, the town and the federal government regularized the marriage of grounds and buildings. On August 24, 1801, "the Inhabitants of the Town of Springfield" conveyed "30 acres, 2 roods and 14 rods" to the United States.⁶ With the consummation of this transaction, Uncle Sam no longer sat as a squatter at Springfield.

Work continued during the first and second decades of the nineteenth century, and to meet changing production demands, buildings were constructed, modified, or removed. The first graphic evidence of the site and its rather complex collection of structures was on an 1820 map,⁷ and a few complementing sketches of various buildings. The map reveals that a major industrial site lay on the brow of the bluff (probably already known as "Armory Hill") overlooking Springfield. The "U.S. Manufactory" shown on the map was comprised of

5. Huston, *Sinews of War*, pp. 93-94.

6. Hampshire County, Massachusetts, records, liber 40, folio 216, as cited in James B. McCrellis, *Military Reservations, National Military Parks, and National Cemeteries. Titles and Records*, prepared in the Judge Advocate's Office (Washington, D.C.: Government Printing Office, 1898); the statement of title and jurisdiction in the McCrellis work is included in Appendix A. A rood is 1/4 acre; a rod is 16.5 feet or 5.029 meters.

7. The map carries the caption "Armory Hill About 1810" and came from the files of the Springfield Armory Museum. A copy on file at the local history collection of the city of Springfield Library carries an all ink inscription "1807." Neither is correct, since the map shows the phrase "Col. Roswell Lee" next to the commandant's house, now gone. Since Lee assumed command in mid-1815, and his home was begun after that, the map is of that date or later. In 1816 Congress authorized six new arsenals (Huston, *Sinews*, p. 114). It dates between 1815 and 1821, the date of the next known map. So until a better date is found, Map 1 carries 1820 as its date.



Map 1. Armory Hill About 1820 (see footnote 7).

at least ten shop buildings and fourteen residences that averaged more than two occupants per dwelling.

The square--known today as "Armory Square"--was already delineated in 1820 although the west end of the complex held none of the major structures that were to later exist--the imposing Main Arsenal and the equally impressive Commanding Officer's Quarters. There were three dwellings (and their out-houses), the pay office, and the Armory schoolhouse. Most significant for the future of the site and for the shape of the Armory complex as it developed, was that the parade ground had already been delineated; its major outlines would not change.

CHAPTER II: ROSWELL LEE'S "GRAND NATIONAL ARMORY"

Colonel Roswell Lee, who took command of the Armory in mid-1815 and soon became Mr. Roswell Lee serving as a civilian superintendent,¹ inherited an industrial area large for its day. During the War of 1812 the "U.S. Manufactory" of arms at Springfield and produced an average of about 10,000 muskets per year.²

The buildings and grounds covered over 50 acres in 1815, and a certain formality of design showed itself in the open square. A prominent flagpole (sometimes still called "Liberty Pole") rose at its center, surrounded by substantial brick workshops, and wooden and brick dwelling houses for some of the workers. Shortly after his assumption of command, Roswell Lee recognized the budding grandeur of the site and announced his hopes for it. In a letter discussing Springfield Armory and Harpers Ferry he noted good qualities of both, but added, in bold printing showing in stark relief against the cursive script, that Springfield Armory alone was "the most eligible to stand for a GRAND NATIONAL ARMORY."³

Lee was in the vanguard of those who perceived that the Springfield Armory was a complex that had to be developed as a unity to demonstrate the evolving greatness of the nation. During the various Armory administrations that followed, this theme remained constant despite the different personalities involved and diverse approaches each new commander took. Lee's comment on the "Grand National Armory" presaged this mystique, and while Roswell Lee's successors would apply it differently, each did act in accordance with the concept.⁴ In fact their application of this central theme is essentially the story of the site.

1. Whittlesey, "Springfield Armory," pp. 7-8.

2. Huston, *Sinews of War*, p. 106.

3. Whittlesey, "Springfield Armory," p. 120.

4. A few words about names are in order. It is generally accepted today that an "armory" is a facility for the storage of weapons and instruments of war and for training, and an arsenal often a manufacturing site for them. When Franklin Roosevelt called for the United States to become an "arsenal of democracy," he used arsenal as meaning manufactory. But today the words have little overall difference. It was not always this way. Roswell Lee's predecessor argued that an arsenal was a place for storing arms and an armory a place for manufacturing them (see Whittlesey, "Springfield Armory," pp. 90-91). It is in this context that the site at Springfield remained (continued)

Roswell Lee's Grand National Armory is shown in detail on a series of maps dating from 1821.⁵ The central point of the complex was the "Liberty Pole," located in about the same place as the flagpole is now. None of the existing structures were yet on that part of the site that was destined to become the Springfield Armory National Historic Site. The commanding officer's quarters were at the location now occupied by the Main Arsenal (Building 13); two other residences, the schoolhouse and the pay office, completed the collection of structures at the west end of the plain (the part of the historic site that overlooks the town and that is bounded by the bluff).

A subsequent view of the site is provided by the following 1823 inspection report, completed two years after the map. It appeared in the American State Papers and described a campuslike, sylvan scene.

At Springfield, in the County of Hampden, and Commonwealth of Massachusetts, the United States have an extensive establishment for the manufacture of arms. The original site of this manufactory has also a military post, which is a perfectly level elevated plat, situated about half a mile east of the village [of Springfield], from which there is a gradual ascent, flanked on the north by a deep ravine, [remnants of which remain north of the Commanding Officer's Quarters] and on the south by a less considerable one, [mostly obliterated by landscaping: just south of the Main

4. (continued) always an armory, whether it was called "the Armory at Springfield," "The National Armory," or any of its other titles. Somewhere in the name was always "armory," never arsenal. And within the complex those buildings used exclusively for housing arms bore the name "arsenal." Since "armory," meaning manufacturing complex, and "arsenal," meaning storage site, were used consistently throughout Springfield's history, they are so used in this work.

5. "Armory at Springfield, Mass. Elevations & Sections of the buildings at scale 80':1"; Map of the land and buildings of the U.S. Armory at the Lower Water Shops; scale 8 rods: 1"--at the Upper & Middle Water Shops;--of the part situated on the Hill. Ground plan of the buildings at the Water Shops. Author, R. Park. Date [1821]," RG 77, "Office of the Chief of Engineers, Miscellaneous 1-2," NA. This lengthy citation refers to the entire set. The two maps of interest currently carry the appropriate titles and are Maps 2 and 3 of this study. The date of these maps, while not seriously disputed, is not completely settled either. But, at least they postdate September 1821. During the lengthy "Ripley-Stearns" dispute, which is described later in this study, the original builder, in a letter published on February 1, 1844, reported that the "building was commenced in October 1820 and finished in September 1821" (scrapbook at Springfield Armory Museum). So, until additional evidence is forthcoming, the date for these maps stands at late 1821.

Arsenal] with an extensive plain spreading in the rear, the adjacent parts being uncovered, fronting on the brow of the declivity, and commanding an extensive and beautifully variegated landscape.

Following that description, the author of the report--an inspector from the Ordnance Office in the War Department--discussed the buildings and their arrangement, closing with a phrase now becoming familiar.

The aforesaid buildings are arranged northerly of the great State road leading to Boston, bordering on a large flat square piece of ground, fenced [not the current fence] and set out with trees, around which is a road about 60 feet wide, leading to several dwelling houses occupied by the officers and workmen; the whole assuming a handsome and regular appearance.

* * *

On the whole, it is believed that there is not a situation in the United States where arms can be made for a less sum, and where so many important advantages combine, as renders this station eligible for a grand National establishment.⁶

Lee's vision, captured by the official War Department report, was the immutable core of Springfield Armory's development. It was the essential element that determined the "handsome and regular appearance" of the "grand National establishment" and that was the constant factor, even as buildings came and went and as the concept of landscaping changed through the years. Strength, solidity, and an aura of national might would always show in its features. It was from these components that the Armory's mystique arose, and which still exists.

The immediate future saw some major site development. Early in the spring of 1824 a fire struck, and Roswell Lee's response, when faced with the burned remains, was to rebuild with brick structures.⁷ An 1824 map shows little overall change; presumably, it was prepared prior to the new spurt of construction activity. Although this map reveals little that is new, it does

6. U.S., Congress, House, Committee on Military Affairs, *Armory at Springfield*, 17th Cong., 2nd sess., no. 246, March 23, 1823, pp. 538-39. The use of "grand National establishment" again probably reflects Roswell Lee's considerable influence on the writer of the report. In the context of its use above, it doubtless refers to the feeling among many involved with arms production that the Springfield's roomy site permitted for greater expansion than did the somewhat more crowded Harpers Ferry arms manufacturing center.

7. Whittlesey, "Springfield Armory," p. 139.

Mass.

MASS

Title:

Armory at Springfield, Mass.

Elevations & Sections of the
buildings at - scale 80' : 1"

Map of the land & buildings of
the U.S. Armory at the Lower Water
Shops, scale 8 rods : 1"

- at the Upper & Middle Water
Shops;

- of the part situated on the Hill,
Groundplan of the buildings
at the Water Shops.

Author:
P. Park

Date: [1821]

No. of Sheets: 5. (Nos. 1-5).

Letr. of Col., S. A. Cheney, Jan. 20,
1928, rel. to land at Springfield, Mass.
Armory, authorized for disposal by Act
of Congress, Mar. 4, 1927. with map:

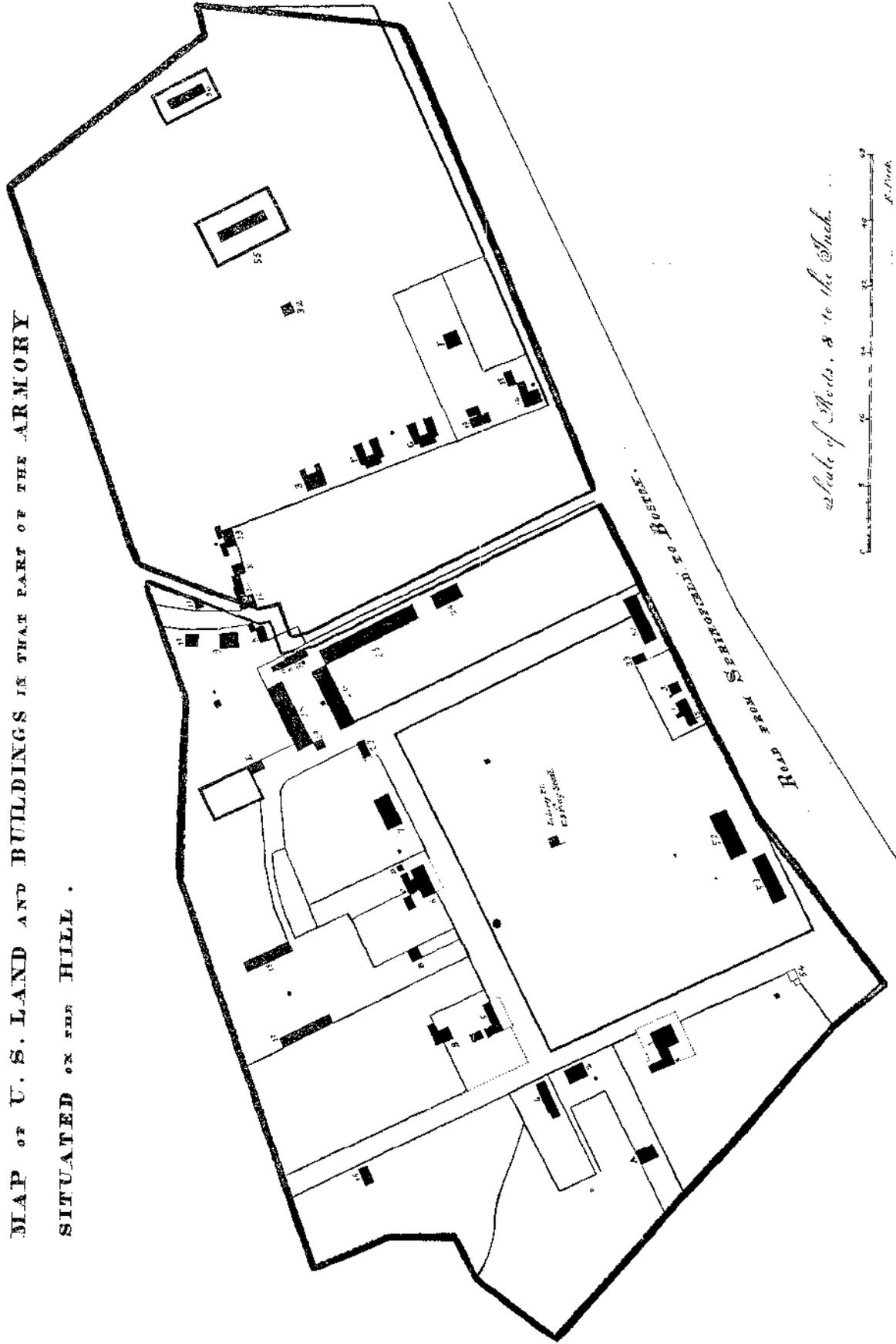
6. Lands at Springfield, Mass. Armory.

Inset: Location plan. (This plan
prepared for the Q.M. Gen. by direction of
the C. of E., from survey made Dec. 18-23,
1927 and from data available in the
Springfield City Engrs. Office.
Sp. C. of E. 600.93 (Springfield Armory,
Mass.) 1/6. ah.

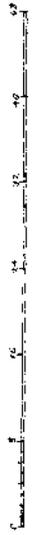
No. 6 in RG-77K

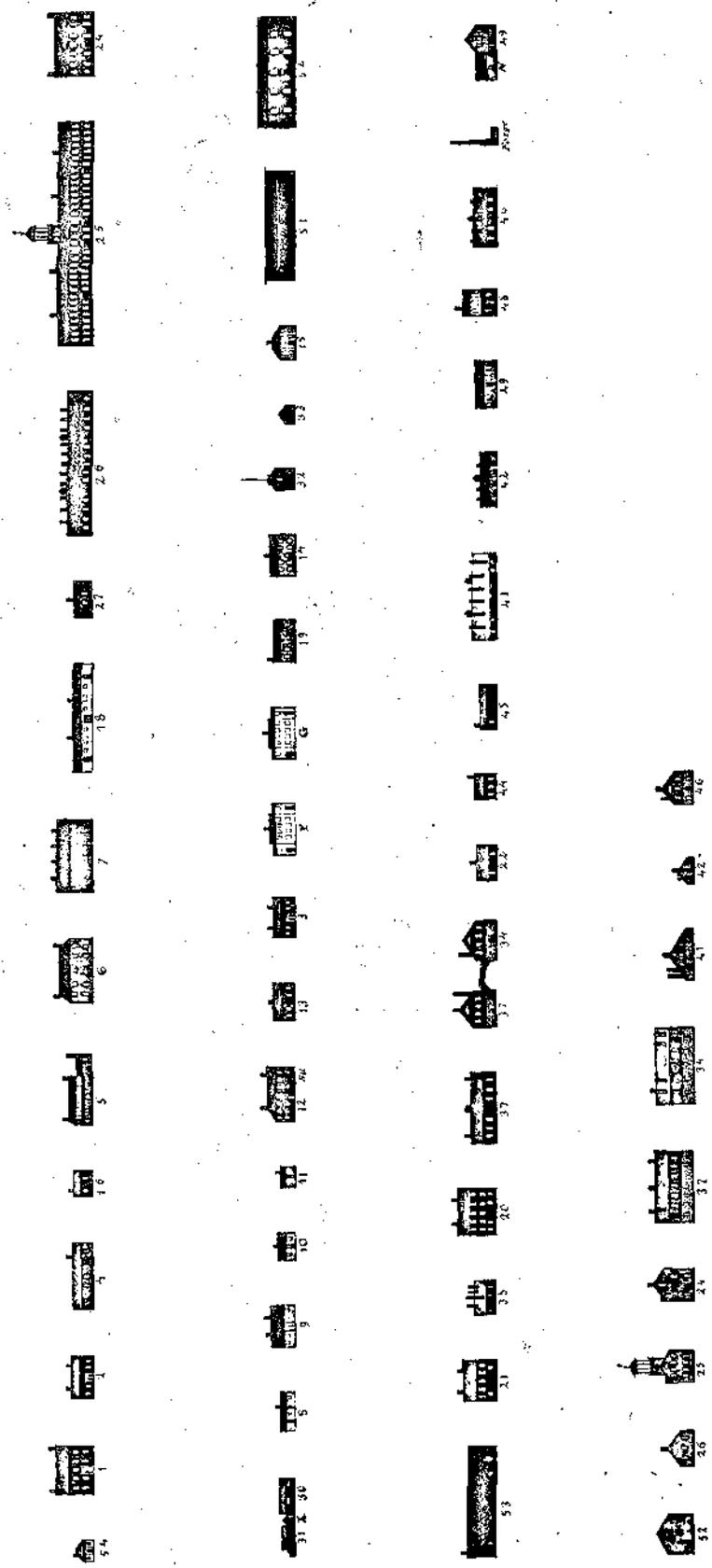
SUGGESTED INDEX CARD

MAP OF U. S. LAND AND BUILDINGS IN THAT PART OF THE ARMORY
SITUATED ON THE HILL .



Scale of Feet, 8 to the Inch.





ELEVATIONS AND SECTIONS OF THE BUILDINGS AT THE
 U. S. ARMORY, SPRINGFIELD, MASS. R. Dink.

Sheet of Part - 80 to the Truck.



provide a clear view of the armory grounds and buildings at the time. No structures in existence now had yet been built, but the outline of Armory Square shows clearly, labeled as the "Green"--apparently the first formal title applied to the plot.⁸ The outline of the square is essentially what it is today. In the center--actually just a bit north of center--sat the Liberty Pole (it is not in the exact center of the square, and that is somewhat surprising). It is in the same general area that all of the flagpoles have been located for more than 150 years.

About 1825, Roswell Lee began to address landscaping problems as well. The flat plain on which the hill shops and the Green sat was bounded, both along State Street on the south and on the west along what would become Byers Street, by a bluff. The area remained wet all year along the top and bottom edges of the bluffs. On the bluff itself, numerous springs added to the wetness, and "springtime erosion of the sand produced unsightly gullies."⁹ Lee worked to ease the problem by grading and draining where necessary. His efforts proved less than totally successful because some of the land was privately owned. The gullies on the northwest corner of the Armory (to the north and west sides of where the Commanding Officer's Quarters now stand) kept eroding. But the initial large-scale attempt at draining the field had been made. More such efforts would come later.¹⁰

Changes also manifest themselves on today's national historic site. As seen on the map entitled "Armory Hill," additional lands have come into the Armory's control, specifically some of the land in the northwest ravine.¹¹ The schoolhouse, on the north, now has an ell. The commanding officer's

8. The central grassed area typical to most forts was generally called a "parade." It is doubtful if such was ever the case at Springfield, which was much more an industrial site with military overtones than a military site with industrial aspects. The organization of buildings and grounds always focused on the manufacturing mission of the complex. That the site manufactured weapons for the Army and was, for most of its institutional life, commanded and staffed partially by ordnance officers does not mean it was a military post. Its essential character began as a storage and manufacturing center and remained so until its closure in 1968.

9. Whittlesey, "Springfield, Armory," p. 146.

10. *Ibid.*

11. This map, like many others within this study, has been taken from the files of the Springfield Armory Museum. Drawn by 2nd Lieutenant T. B. Linnard of the 2nd U.S. Artillery and dated 1830-31, the map is rich in detail. Thomas Beasley Linnard, a military academy graduate, was brevetted 2nd lieutenant in the 2nd Artillery on July 1, 1830, and died as a brevet major on April 24, 1851, after having been brevetted twice for gallantry against the "Fla Inds" in the Seminole War. He is probably the creator of this map (see Francis B. Heitman, *Historical Register and Dictionary of the* (continued)

quarters show no change from their 1824 outline, but to the west of the "frame dwelling houses" various ancillary structures are now present. One, labeled "P," is the Proofhouse, Loading Room, and Inspection Room. The Paymaster's Office, labeled "U" and located near the present Byers and State Streets entrance, remains the same as in 1824.

The major change, which is immediately apparent, is that landscaping appears on this map, the earliest map yet discovered which shows landscaping. The motif is formal, with the square bounded by evenly spaced trees placed in a row. The Armory grounds along State Street have a neat row of evenly spaced trees (probably emplaced after the 1825 grading made the slope more gentle). Within Armory Square are four parallel rows of trees with an east-west orientation. These rows meet a perpendicular row of trees on a north-south axis. Within the north-south row of trees a different symbol appears on the map, no doubt denoting a flagpole or liberty pole. Since this circa 1831 map shows no new appellation for the square, it presumably retains the title Green, and the pole the name "Liberty Pole." Overall, the complex of buildings lacked the formality that they would obtain as new structures arose in the future. Yet the 1831 map reveals a "handsome and regular appearance," and, in the main, a balanced and formal regularity blending structures in straight lines and parallel rows of trees in straight lines. Few of the buildings shown in the 1831 map exist today--and none on the site of the portion comprising today's park. Yet the style and the design concept on the 1831 map remains very much alive now, and functioned as a consistent factor throughout the developments to follow. This was Roswell Lee's contribution to the Armory. His successor once removed, Lieutenant Colonel James W. Ripley, initiated much of the construction which remains today, and would earn a virtually undisputed historical preeminence among the superintendents of the Armory. But dynamic and imaginative as he was, Ripley worked from a strong design foundation laid by Roswell Lee. Under Lee the square became a reality and landscaping began on a large scale. The orderly rows of trees that mirrored the orderly rows of buildings existed because Roswell Lee put them there. Ripley's work might not have moved in the dramatic and imposing way it did had he not inherited Roswell Lee's conception of what a "grand National armory" should be.

Lee's final imprint on the physical aspects of the armory came in the year of his death, 1833. That year he initiated the construction of two substantial and graceful residences, flanking each side of the commanding officer's quarters (now the site of the Main Arsenal) and facing the long (east-west) axis of the Green. Lee designated the north building as the master armorer's residence, and the south for the paymaster.¹² The two

11. (continued) *United States Army*, 2 vols. (1903; reprint ed., Urbana: University of Illinois Press, 1965), 1:634; it is not known what the "No 2" which precedes "Armory Hill" refers to on the map, unless the Water Shops appeared as Map No. 1 in a series as was the case of the 1821 maps.

12. The designations by name show on both 1864 and 1877 maps, cited in full later in this narrative.

structures, mirror-image twins and classic Greek Revival style residences, remained for the rest of the century as imposing and stately balancing pieces at the west end of the Green.¹³

Ripley received the Armory almost unchanged from Lee's tenure, although another superintendent's tenure came between the two. Lee had died at Springfield on August 26, 1833,¹⁴ and was succeeded by an Andrew Jackson political appointee, John Robb.

Robb's superintendency was unmarked by any great strides forward, save for painting some of the buildings.¹⁵ One of Springfield Armory's chronicles described the 1834 paint job:

A picturesque outlay in paint transformed the buildings on the hill to 'ordnance colors' which may be assumed to be the individual salmon shade still retained [in 1920] by the older buildings in Armory square--a distinct architectural asset, in their setting of green or white according to the season with the contrast of blue sky.¹⁶

Robb's administration saw a continued development of a tradition of excellence in arms manufacturing as well as routine maintenance of buildings. However, repairs proved necessary, as an inspector from the War Department discovered in the fall of 1835. He reported that "the dwelling houses are not in good repair, several requiring small sums of money to be applied to that object."¹⁷ Small sums only were spent, if the poor conditions of the buildings only a few years later were reported accurately.

Even at that time, the Armory at Springfield included a considerable number of structures. The evaluation of the property in Robb's last full year as superintendent, 1840, stood at \$209,161, not an unconsiderable sum for the day. There were 86 buildings in all of which 46 shops, 8 storehouses, 21 "quarters paying rent," and 4 "rent free" quarters.¹⁸

James Ripley inherited a large establishment, functioning well, but not in tip-top shape. Before the first year of his superintendency had passed,

13. A more detailed description and history of the buildings will emerge in the succeeding chapters.

14. Whittlesey, "Springfield Armory," p. 166.

15. Whittlesey, "Springfield Armory," p. 176.

16. *Ibid.*, pp. 172-73.

17. Report of Inspection, October 31, to November 4, 1835, by Lt. Col. George M. Talcott, RG 156, Entry 1003, NA.

18. Whittlesey, "Springfield Armory," p. 173.

he put his mark on the site, and during the thirteen years of his command at the Armory he would direct the construction of most of which remains today around Armory Square.

CHAPTER III: THE SUPERINTENDENCY OF JAMES W. RIPLEY: "PERMANENCY AND ARCHITECTURAL PERFECTION"

A. The Early Years

On April 16, 1841, Major James W. Ripley took command of the United States Armory at Springfield. He remained until 1854, and during thirteen years as superintendent, he directed a revitalization of the manufacturing operations concurrently with a major construction program. Neither the technology nor the architecture of the Armory remained static during his tour in office.

Connecticut born, West Point bred, a veteran of 1814 and of the Seminole Wars, afterward Chief of Ordnance during the Civil War, Ripley expressed in his personality the quintessence of military precision and discipline, vigorous, assertive, stubborn, he undertook vast measures, carried them through, and stood by them when they afterward needed defence.¹

Another writer poured an equal amount of praise on Ripley and summed up his major accomplishments as well.

Lieut-Col James W. Ripley was a thorough, practical, energetic officer, under whose administration the Armory, as regards its efficiency, received an impetus so wholesome and judicious, that its results will be perceived as long as arms are manufactured. The Main Arsenal, the superintendent's house, and the long storehouse were erected, the iron fence around the grounds commenced, the grounds beautified and otherwise improved during his administration.²

Ripley's large view of what the U.S. National Armory at Springfield could and should become resulted in changes even more dramatic than Roswell Lee's significant improvements earlier in the century. Lee's work had brought about the definition of the core of the complex, the Green. Lee had also begun a process of locating buildings in a balanced and formal way. Even in the year of his death, 1833, Roswell Lee had initiated the construction of mirror-image homes for the master armorer and the paymaster flanking his own quarters. These substantial Greek Revival brick homes formed the key elements of Ripley's

1. Whittlesey, "Springfield Armory," p. 179.

2. Albert Harleigh Kirkham, "United States Armory: the Arsenal, Water-Shops, Superintendents, Arms Statistics, and Anecdotes," *King's Handbook of Springfield* [1884], p. 253.

design plan for the complex. Ripley devised a grand concept of lands and buildings (a notable achievement in itself) on a site already aesthetically organized by Roswell Lee. Thus, he built upon a visual concept created by his predecessor. In a sense, Ripley carried on Lee's work all the while expanding the magnitude of Lee's view and in constructing storehouses, shops, and dwellings created a stately and majestic federal establishment. The Armory at Springfield had a much different plan when Ripley left than when he arrived.

Major Ripley reported his arrival at Springfield in a typically straightforward manner.

Springfield Armory

April 17th 1841

Sir, I arrived at this place on the evening of the 15th inst. and on the following day entered on the discharge of the duties assigned to me by your instructions of the 2nd of April.

Jas. W. Ripley
Maj. of Ordnance

Col. George Bomford
Ordnance Department
Washington, D.C.³

Presumably, the Armory was functioning well enough upon Ripley's arrival, and while the buildings needed some repairs, Springfield Armory appeared neat and clean. The officer who was sent from the office of the Chief of Ordnance at the War Department to inspect the Armory in 1841 reported that

the police of the place is unobjectionable. There is an abundance of open space about the buildings, the ground is easily drained and care is taken to keep things very clean.⁴

However, problems existed, too. Lieutenant Colonel Talcott reported that the "Superintendent's House requires to be slated and furbished up." Likewise many of the wooden dwellings were "very old and require[d] extensive repairs."⁵

3. Derwent F. Whittlesey, compiler, "Extracts from Original Sources Made for the Purpose of Writing a Thesis on 'A History of Springfield Armory,'" 7 vols. (original typed manuscript, Springfield City Library, Springfield, Massachusetts), 6:75 (hereafter cited as "Extracts").

4. Report of Inspector, Lt. Col. George Talcott, December 16-23, 1841, RG 156, Entry, 1003, NA.

5. *Ibid.*

Ripley also noted some deficiencies. In 1841, a few months after taking command, the energetic major asked for \$1,500 for "Improving grounds," noting that

little has been done for many years in the way of improving the grounds about the armory, and their appearance is anything but creditable to the establishment. They require to be extensively renewed, shade trees planted, gullies and holes filled in.⁶

Ripley's request for money to improve the grounds meant little, for the Ordnance Department soon found itself facing an austere budget, reflecting a parsimonious Congress. In addition, Talcott's comments in his 1841 inspection report, that the "ground is easily drained," came in December in plenty of time for Ripley's October 29 plea to reach Washington and Talcott. So James Ripley's first attempt to beautify the grounds came to naught. But it was just as well, for Springfield Armory's *cause célèbre* was about to manifest itself, and it was to focus on the new military superintendent.

The great dispute rested on a three-part foundation. A long-festering dispute over the question of whether a military or a civilian superintendent better administered the Armory formed one part of the controversy about to arise. Religion provided a second element. Ripley had come from command of Kennebec Arsenal (to the east in Massachusetts) and many of his Irish immigrant (and Roman Catholic) workers had followed. This interjection of Catholics into Protestant Springfield had not rested comfortably with the local populace. Finally, the actions of the Armory's new commander produced some immediate economic effects in the town, and when this third element began to show itself, the other two coalesced and the fight was on.⁷

The controversy started because of a shortage of funds. In May 1842 the Ordnance Department suggested to Ripley that he close the shops and renovate the facilities with funds on hand for that purpose. The major kept some shops open but did discharge forty workers. In August Ripley shut down the entire plant for repairs. By November the facilities reopened, with Major

6. Ripley to Col. George Bomford, Chief Ordnance, October 29, 1841, as cited in Whittlesey, "Extracts," 6:69.

7. Whittlesey, "Springfield Armory," pp. 181-90, contains the clearest view of the many convolutions of events and arguments otherwise known as the Ripley-Stearns dispute; other relevant works are Thomas Wallace, "Portrait of an Ordnance Officer" (Springfield: Springfield Armory Museum, n.d.), available at the museum, and Edward A. Hall, "The Catholic Lot on the Armory Grounds" (printed address, first delivered to the Connecticut Valley Historical Association on January 15, 1907); this is on file at the Springfield City Library in the Genealogy and Local History collections.

Ripley now "commandant," and no longer "superintendent,"⁸ One question of the three had been settled--the Armory would be run by a military officer, now carrying the title of commandant. That alone would have been enough to rankle local sensibilities. But the new commandant, firmly ensconced in his position, moved toward much needed efficiency and reopened the plant without those less-than-productive workers and troublemakers who had come to the plant during the preceding years of civilian superintendency.

Ripley's action began a chain of events that brought a second protagonist into the action. A local real estate developer and builder, Charles Stearns, was developing land near the Armory, and when the houses of the workers fired by Ripley came up for sale, Stearns saw a potentially profitable market go into a mild depression.

Stearns was apparently as determined to stop Ripley's actions as Ripley was to continue them. The two yielded nothing over the years to come, and each, supported by strong partisans, engaged in a feud that carried on for all of Ripley's tenure at Springfield.

The anti-Ripley faction wasted little time. In December 1842 and January 1843, three fires broke out in Armory buildings; two were arson. In January Stearns traveled to Washington to intercede with the War Department and stop Ripley's reforms, as well as to lobby for the return of a civilian superintendency to Springfield Armory. Presumably, a civilian superintendent would have restored the halcyon days of the recent past, before Ripley's efficiency program ended a situation where

many workers either had been at the armory so long or were so confident of their political pull they no longer felt it necessary to put in a real day's work for the taxpayer's checks they drew. The whole situation was one in which local politicians considered the armory their personal plum.⁹

Little resulted from Stearns' first Washington visit. In mid-April of 1843 a mass meeting of Stearns' supporters complained of Ripley's reforms, and of the intrusions of the Irish-Catholics into the town. The focus of their discontents rested on Commandant Ripley of Springfield Armory.

By July the Stearns faction had become agitated enough to send him to Washington again. There, his efforts resulted in an investigation of Ripley's reforms by Secretary of War James M. Porter. The Secretary heard the complaints of the Stearns faction and reports from Ripley's supporters. Porter's investigations exonerated Ripley, and the Secretary of War decided the dispute in

8. War Department Regulation of October 1, 1842, Document no. 207, as cited in Whittlesey, "Springfield Armory," p. 182; by 1844 all arsenals and the Armory would have military commanders. Huston, *Sinews of War*, p. 115.

9. Wallace, "Portrait of an Ordnance Officer," p. 3.

Ripley's favor. For the moment, Stearns retreated. But the two would meet again the next year.

The remainder of 1843, however, passed calmly enough. And between rounds in the Ripley-Stearns fight a visitor appeared at Springfield Armory. The Reverend James Abbott described the Armory at some length commenting on buildings and grounds.

The principal buildings of the armory are situated upon another plain, which extends back from this elevated land [downtown Springfield] at the distance of perhaps half a mile from the river. The buildings are very large and handsome and are arranged around the sides of a spacious square which is ornamental with walks and rows of trees. The effect is one of appearing like the buildings of a college. There was one edifice in the center of the principal front of the square which had a cupola upon it, as if it were a chapel. This was the office and counting house. The other buildings were shops and storehouses.

On one side was a long row of houses which were used for the residences of the officers and others connected with the armory. From this central square, streets diverged in every direction over the plain which were bordered in small, but very neat and pleasant houses for the workmen. These houses were ornamented with trees and shrubbery and surrounded with pleasant yards and gardens. The whole scene presented, on every side, a very pleasant prospect to the view.¹⁰

The scene did indeed present a serene and campuslike view, as it had almost from the beginning of Springfield Armory's history. Although the Reverend Abbott did not perceive that much needed to be done to the Armory in the way of physical improvements, James Ripley did, and he moved to correct the abuses not long after Abbott's visits.

The major's first action came at his own home. The commandant's quarters had been inspected in 1843 and were found to require complete reconstruction.¹¹

10. "Marco Paul's Travels and Adventures: The Springfield Armory," dated 1843, as quoted in Christopher L. Dvarecka, "History of Springfield Armory," U.S., Congress, House, *Congressional Record*, 89th Cong., March 14-17 and 21, 1966, pt. 5:5832. The parson's comment, "rows of trees," proves that the formal approach to landscaping existed in 1843. Before too much longer, the motif had changed to a more relaxed and informal arrangement of trees, but the exact date of the transition is unknown.

11. Whittlesey, "Springfield Armory," p. 181.

Ripley had decided to concentrate his improvements on the hill area, as opposed to the water shops, at this time, and as his first step, tore the commandant's quarters down. Stearns, who had had a hand in building Colonel Lee's house, responded with fury. Apparently, Stearns saw the tearing down of the house as a ploy by Ripley to put a blot on Stearns integrity. Along with Ripley's actions affecting the house came moves to improve

the hill grounds. In brief these plans comprised the purchase of additional lands on the north and west of the government buildings on the hill, grading and planting the tract, laying out roads around margins of it, fencing the remaining ground and construction of new buildings on a comprehensive scale.¹²

The renewed dispute soon brought old allies back together and, as before, saw lengthy attacks by each side upon the other appearing in Springfield's *Daily Post* and *Republican* newspapers.¹³ Stearns trotted out the original builder, one S. Sanborn, and in a letter to the editor, he had Sanborn describe the house and testify to its solidity, inferring that Ripley had no reason to tear it down.¹⁴ An undaunted Ripley pressed on with his program. By early 1845 the site of the new commandant's quarters had been selected and the excavations for the cellar begun. Ripley continued to purchase lands near the shops (land in and near today's park).

Inevitably, Stearns moved to block the commandant's ambitious plans. His method contained a timely element of irony. It concerned that new element in Springfield society that arrived with Major Ripley--the Irish Catholics. The Catholic infusion from Kennebec Arsenal into Protestant Springfield had been a major element in the early stages of the Ripley-Stearns dispute. Charles Stearns must have enjoyed a sense of quiet satisfaction when, for a very moderate price, he offered a choice spot of land to the Catholic congregation as the site for a new church. Because the site for the Catholic church lay in the identical area that Ripley had hoped to use for the expansion of the Armory, Stearns felt that he had blocked the major's expansion plans--and with the added satisfaction of having used Ripley's own people against him.

But the major, as Stearns should have expected, made a courtermove. Laying claim to a major portion of the street leading to the "Catholic lot," as the site was now called, Ripley built a fence across most of the street, effectively blocking off access for teams and wagons. Stearns and his supporters (it was presumed) tore the fence down. Ripley rebuilt it, and again it came down. Sometime, amidst the erections and dismantlings of the fence,

12. *Ibid.*, p. 189.

13. Hall, "The Catholic Lot," p. 218.

14. Charles Stearns to Editor [*Daily Post? Republican?*], February 1, 1844, in newspaper scrapbook, Springfield Armory Museum, p. 9.

Ripley pressed charges against Stearns for criminal trespass and Stearns stood trial in federal court. Acquitted, he sued Ripley for trespass and won. By the time the legal actions had been executed, however, the Catholic congregation had decided that the status of pawn in the battle of wills between Springfield's two most determined fighters was hardly pleasant. Casting their lot with the man who provided their sustenance, they sold the Catholic lot to the government and began their church at a new location.¹⁵

Within a year Ripley would be investigated by a military court of inquiry but exonerated. By 1848 he would be promoted to lieutenant colonel, an award for exceptional Mexican War services.¹⁶ The feud remained, but the work went on throughout Ripley's tenure.¹⁷ To appreciate the scope of that work, it is necessary to return to 1845.

B. The Building Years

The major effort began in 1845 and continued to 1854, the year of Ripley's departure. But even before 1845, Major Ripley had laid the foundation for future development by drafting plans and by his efforts to convince his Washington superiors of the need for new construction. As early as 1842, for example, the commandant had requested a new set of quarters to house the commanding officer of the facility, arguing that

The Paymasters, Master Armorers and the four houses for the Clerks have all been built since 1834 and are of more modern construction than the present quarters for the Supt. The latter occupies the most central and conspicuous place and should be at least equal in point of architecture with any of the Public Houses.¹⁸

The major's concern that the "central and conspicuous" quarters blend architecturally with the other major dwellings demonstrates how important aesthetic considerations were to him. It is remarkable that James Ripley, living with the never-quiet dispute with Stearns, and conceiving and executing his design for grandeur at Springfield, could also manage to find time and energy to increase the efficiency of the industrial plant as dramatically as he had changed the physical plant and terrain.

15. Hall, "The Catholic Lot," pp. 221-23.

16. Wallace, "Portrait," pp. 2-4.

17. Hall, in "The Catholic Lot," p. 218, compared Shay's Rebellion, another controversy involving the Armory, to the Ripley-Stearns dispute. Quite aptly he called the rebellion "a stately minuet as compared to the long series of ructions as to whether the United States Armory should be under civil or military control."

18. Whittlesey, "Extracts," 6:66.

By early June 1845, much had begun. Two outbuildings associated with the old commanding officer's quarters had been moved "to the north side of the square and fitted for tenements." The cellar for the new commandant's quarters had been dug, and the land had been purchased from the Catholic congregation in April. The extensive grading at the site had started.¹⁹ That same year a 30,000 gallon cistern had been excavated between the new and old commanding officers' quarters (the brick-lined structure was topped with an iron cap. The cap remained in place until at least 1920).²⁰

By the fall of 1845, construction had begun on the new home for Springfield Armory's commander. The work could continue until at least mid-1847.²¹ As the new structure rose, the major looked west and north of it, to the ravine and slopes owned by a local railroad. Ripley's grounds improvements--at this site, grading--impinged on the railroad's reservoirs and fountains there and the railroad threatened to seek an injunction against the major.²² Ripley responded by planning to purchase the tract.

The next year was one of the busiest in the history of Springfield Armory to that time. War with Mexico came and with it increased production at the Armory. From July 1846 until July 1847, Springfield produced "14,300 muskets complete, spare parts equal to 1,000 muskets, tools, and other items."²³ The pace of building and plant expansion kept up with the vigorous manufacturing. Beginning in 1846 the city widened State Street and realigned it slightly, facilitating grading and adding a little land to the Armory. With this land and the land on the major slope--the west end of the Armory--in government ownership by 1847, plans for a fence began.²⁴

Although 1847 marked the end of Ripley's expansion of the Armory as far as land purchases were concerned, a major construction project was initiated, the Main Arsenal (Building 13). Cellar excavations for the Main Arsenal began

19. *Ibid.*, 6:27.

20. Whittlesey, "Springfield Armory," p. 196.

21. Purchase orders, Form 15, found in Record Group 217 and dated March and June 1847 testify to this.

22. "Geo Bliss, Pres W[estern] Railroad Corporation" to Ripley, October 30, 1845, cited in Whittlesey, "Extracts," 6:23.

23. Huston, *Sinews of War*, p. 195.

24. Whittlesey, "Springfield Armory," p. 195.

early that spring, probably as soon as the ground thawed enough to permit it.²⁵ Besides the excavations for the Main Arsenal, the grounds continued to undergo change. A new wooden fence bounded the newly acquired lands. A road along the north side of the square was opened, and grading accomplished. Portions of the grounds just graded were "turfed," the phrase probably referring to planting grass seed.²⁶

The Armory must have presented an unusually active appearance in 1847. The plant's staff remained busy and at full complement, making weapons for the Army engaged in the war with Mexico. Wagons and teams plied the grounds of the Armory, carrying soil from excavations in and around the arsenal (now Building 13) and the commandant's quarters (now Building 1). Crews worked on the grounds as well, laying walks and roads; filling in gullies; terracing the west slope; planting trees, shrubs, and grass.

Surviving records suggest that the commanding officer's quarters required most "finishing up" and exterior work by 1847. Purchase orders for "slating" and "Orcutt's patent lightning conductors" are typical of items involving the structure late that spring and early in the summer.²⁷

Nearby, work progressed on the new arsenal (now Building 13), and was probably started in late spring, with the building's impressive dimensions apparent by late 1847.²⁸ Its length, 198 feet, and width, 60 feet, combined with its position between the master armorer's and the paymaster's houses to make this building one of the most imposing in the entire complex. While it

25. A bill submitted to Major Ripley dated June 30, 1847, noted use of "2 Horses & Waggon, Carting Loam 37 1/2 days @ \$2.75 From Cellar of New Arsenal \$103.13" (RG 217, NA, copy at SPAR). Some speculation concerning building at Springfield Armory is warranted at this point in the story. Could it be that Major Ripley, carrying his vision of grandeur and efficiency for the Army, shrewdly took advantage of the obvious needs of the army fighting the Mexican War to execute his plan for Springfield? With large orders coming in for armaments, surely the commander of the national armory was in an excellent position to seek funds for plant improvement. Possibly the spurt of building at Springfield had no connection to increased governmental spending for ordnance and weapons manufactured at Springfield; probably it did.

26. U.S., Congress, Senate, "Springfield Armory--Commanded by Major Ripley," 30th Cong., 2nd sess., Executive Document 14, p. 350.

27. Record Group 217, Form 15, purchase order, Springfield Armory, NA; dates of the various purchase orders, all on file at the Springfield Armory Museum, are March 24, June 24, June 28, and June 30. They generally use the phrase "commanding officer's quarters," or an abbreviation of that phrase. It is safe to assume that both that phrase and "commandant's quarters" were in common use.

28. Whittlesey, "Springfield Armory," p. 196.

would not be finished for about three years, it already showed promise of being a visual focal point at the Armory.

Yet another structure was begun in 1847, the iron fence. The fence served both utilitarian and symbolic purposes, and its construction reflected the events and circumstances of Ripley's tenure at Springfield Armory. In his administration, threats upon the Army establishment had been levied from time to time, and assaults against the facilities had occurred at least twice (with the arson cases of 1845). The major obviously had to ensure that the United States property at the site was protected. This Major Ripley had done by erecting picket or board fences along the Armory boundaries. They provided some protection, of course, but hardly served to complement Ripley's vision of grandeur for the site. What was needed was a fence both functional and in keeping with the grandeurs of the ever enlarging military and industrial site on Armory Hill. Ripley had blended practical needs and aesthetic ones since his arrival, and he had received no little criticism for this approach. For example,

the embellishments of the new arsenal and the Commandant's quarters [had] caused reference to be made to his 'spacious repositories' and his 'magnificent mansion.'²⁹

Some of the land Ripley had purchased could never be used for buildings, roads, or storage throughout his Springfield Armory career. Some of these purchases could be defended on practical grounds. On the land to the west of the new arsenal, for example, springs occurred almost all the time, and the area's steepness increased the downward flow of water, causing easily and frequently cut gullies on the slope. With this land purchased and then graded, the gullying was eased considerably, protecting the new arsenal and the commandant's house near the edge of the bluff. Thus, Major Ripley could argue that the work had to be done. Yet he must also have taken considerable satisfaction from the aesthetic elements of solving the problem of gullying on the slope, providing more room for trees and grass to enhance the new buildings.

Any arguments Ripley might have brought out to buttress some of his other aesthetically oriented actions might not have been so strong. While his extensive planting of shade trees and laying of flagstone walks, for example, could not easily be justified as utilitarian, these actions which came along with Ripley's grand building projects from 1845 to 1850 did at least follow a precedent.

But with the fence, other overtones came into play. The tensions that existed in the Protestant town of Springfield in regard to Ripley's Roman Catholic employees made it wise for the commander to consider the merits of erecting a substantial fence. Obviously, security for the mass of arms stored at Springfield Armory would likewise always remain a major consideration.

29. *Ibid.*, pp. 197-98.

There would have to be a sturdy and effective fence erected, Ripley and others must have reasoned. But could the mission of protection blend with the aesthetic demands of the site, which was rapidly becoming more beautiful as the Ripley buildings went up, the trees were planted, and the open areas seeded?

Ripley's answer to this question and his response to the challenges posed by the need for adequate fencing fit exactly with his actions to date at Springfield. He began to implement the plan for fencing in 1847. On August 16 Commandant Ripley leased a nearby quarry and began drawing stone for the foundation of an iron picket fence. Initial efforts went into the fence along State Street, a major thoroughfare. The stone base consisted of strong red sandstone, native bedrock from Longmeadow, about four or five miles from Armory Hill. The pickets--or perhaps as more appropriately named in metal fences, pales--rose to nine feet to form an impressive, solid, and martial-looking fence for the Springfield Armory.³⁰

Two forms of paling, round with spear heads and slightly lobed with pikes beads, alternate. The gates are more intricately patterned, with oval center sections surrounded by lacy ironwork enclosing the palings. The alternating spear and pike motif is carried across the gate crestings. Square sandstone posts with glyphs below molded cornices capped by low square blocks support the gates.³¹

However, the design for the pickets took longer than the construction of the stone base, and the actual casting of the pales did not come immediately. In fact, not until May 1852 did the patterns for the pales and gate receive Ripley's approval.³² From then until the Civil War, the casting of fence poles came in two spurts, and Ripley did not get to see the entire fence completed during his tenure.

The five-year period beginning with 1845 had seen a considerable amount of change on Armory Hill. The square had been planted, buildings erected, and the fence that still surrounds the facility begun. By June 1849, the changes and plant improvements began to appear in official reports. The War Department's *Annual Report* noted that "the new arsenal is rapidly progressing. The walls nearly ready for roofing."³³ The routine Ordnance Department inspection report for 1849 also proclaimed that

30. *Ibid.*

31. Sarles, *Evaluation*, p. 29.

32. *Ibid.*, p. 198.

33. U.S., Congress, Senate, "Springfield Armory--Commanded by Major Ripley," 30th Cong., 2nd sess., 1847-1848, Executive Document 14, p. 350.

the condition of the Armory at this place is commendably prosperous and reflects great credit upon the Comd Officer. The opposition that formerly prevailed against some of the workmen toward what was called "Military rules" has, it appears entirely passed away and has been replaced by good will and confidence.

* * *

The public grounds are all [drained? word unclear] and much improved in appearance. An excellent system of police being established through[out] them as through[out] the shops and other buildings.³⁴

Colonel Craig's report also addressed the new arsenal, describing the building in its last stages of construction.

A large storehouse for arms is now ready for reception of the Gun Racks, which are being prepared, and will soon be in a condition to receive the Arms. The building is of very imposing appearance, well imagined and judiciously planned and located. It is 200 feet by 68 ft. is three stories high, and built throughout in the best manner. A clock has just been placed in the tower of this building.³⁵

Throughout this period of intense construction at the Armory, some buildings came down, among them the old commandant's quarters at the site of the new arsenal. Most of these structures had come into federal ownership as houses on plots of land purchased for the Armory's expansion. Workers at the Armory often moved into them, and they served as dwellings until they became too costly to maintain. At that time the buildings would come down, and any good materials in them would be used at the Armory or sold. This happened during the period of active building at the Armory between 1845 and 1850 and, like the new buildings themselves and the landscaping, helped to transform the Armory at Springfield considerably.³⁶

The 1850 portion on Springfield Armory in the Secretary of War's annual report summed up the considerable grading and grounds improvements at the site that had taken place in the preceding four years.

The grading and embankments have been continued north of the new storehouse [Building 28] and west of

34. Report of Inspection, June 15, 1849, RG 156, Entry 1003, NA.

35. *Ibid.*

36. Whittlesey, "Extracts," 6:19-20.

the new arsenal. About 80,000 cubic yards of earth have been removed, for filling ravines and forming embankments, north and south of the new storehouse.

A road has been graded and gravelled from the steam shop, parallel with the filing and finishing shops, [in the area now part of Springfield Technical College] to the east arsenal; length 790 feet, width 11 1/2 feet.

A walk has been completed across the south side of the square, parallel with and north of the arsenals; length 941 feet; width 5 feet.

A large culvert has been completed on the east side of the new arsenal and parallel with it; [probably at the rear of Building 13] also four smaller culverts; the whole to conduct the water from the new arsenal and adjacent grounds. Total length 2,142 feet.

About 9,000 superficial yards of sodding have been laid around the new arsenal and on the embankments north of the new storehouse.

Sixty rods of high board fence have been built on the southwest corner of the government land, and 38 1/2 rods of picket fence built, and repaired, for enclosing the new arsenal.

The new arsenal, too, merited mention in the 1850 report. As of early 1850 the exterior had been finished and inside work was well under way.

The tower and roof of the new arsenal have been finished; the cellar paved; exterior of the walls oiled; and the building secured by good copper electrical conductors. The lathing and plastering of this building have been completed, amounting to 9,000 superficial yards. The arsenal is now ready for the racks, which are in rapid progress.³⁷

The rest of 1850 and early 1851 saw more of the finishing-up work being completed. The iron fence had not yet been begun, and work would go on until 1864. Indeed, for most of Ripley's remaining years at Springfield Armory there would be no iron pales. On June 8, 1850, Ripley began the process of making the iron pales when he asked "Messrs Cyrus Alger & Co. of Boston"

37. U.S., Congress, Senate, "Springfield Armory--Commanded by Lt. Col. Ripley," 31st Cong., 1st sess., 1849-1850, Executive Document 14, pp. 362-63.

for terms on casting the iron pales for the new fence.³⁸ But the work would not commence for a great while.

Along with attention to fence pales, the commanding officer tidied up the property lines a bit in 1850 and 1851, and by purchasing a "spring of water" settled a dispute with the Western Railroad that had surfaced as the big construction project had begun.³⁹ A few minor landscaping actions also needed finishing, along with other "finishing up" projects on the grounds. By midyear 1850, Ripley reported that

about 46,000 cubic yards of earth have been removed for filling ravines north of the New Store House and nearly 600 superficial yards of sodding have been laid.

The side walks on the North, South, & West of the Square have been paved with flagging stone, consuming 17,205 superficial feet.

* * *

Street lamps have been erected around the principal square.

The large reservoir north of the Machine Shop is so far completed as to admit to being filled with water. It will contain over 200,000 gallons, affording an abundant supply of water in case of fire.⁴⁰

About that time paving with flagging stone of some walks associated with shops began. Along the flagstone walks recently constructed around the square, workmen laid "a gutter of brick and cement" on those sidewalks bordering the "north and west sides of the public square," a distance of 590 yards.⁴¹

Simultaneously, the interior work on the new arsenal proceeded. The gun racks for the second floor were completed in 1850. These racks could hold 92,176 muskets, and almost immediately, Armory workers brought in 66,981 percussion muskets from the east arsenal for storage.⁴² As carpenters built

38. Whittlesey, "Extracts," 6:118.

39. U.S., Congress, Senate, "Report of the Chief of Ordnance," in Annual Report for the War Department for the Fiscal Year Ended June 30, 1851, p. 456; Whittlesey, "Extracts," 7:113.

40. Whittlesey, "Extracts," 7:117.

41. Chief of Ordnance Report, 1851, p. 456.

42. Whittlesey, "Extracts," 7:116.

racks for the third floor, painters continued interior work in 1850 and 1851.⁴³ In June 1851 the work on the gun racks on the third floor was "in progress and advancing toward completion."⁴⁴ So, by late 1851 the major buildings that remain today had been built and much of the grounds design had been accomplished.

Two maps appeared that year, one bearing the date 1851 and a more detailed topographical and site map dated "Nov 1851." The appearance of these two documents in 1851 could hardly have been accidental. No doubt the major changes which had been accomplished by then merited changes in existing maps. The more detailed map may have been prepared for use by the staff at Springfield Armory, since it appears to be so drawn that it would facilitate checking of parcels of land, building sites, and locations. These maps provide the earliest view of Springfield Armory as changed by direction of Lieutenant Colonel James W. Ripley. They merit careful examination.

C. The Armory in 1851

The two 1851 maps show a great deal about the newly enlarged industrial site.⁴⁵ In fact, their overall impact may be more instructive than the many individual pieces of information they contain. A formal and spacious complex is displayed on Map 7 illustrating, for the first time, the Ripley improvements.⁴⁶ The buildings and grounds blend to compose an impressive complex. What is displayed on the map is the "system of improvement" as Ripley himself called it: not one building and not an isolated piece of landscaping over in a corner of the grounds, but a "system of improvements." (A major part of Ripley's "system of improvements" concerned manufacturing efficiency at the Armory. That portion of the history of Springfield Armory, however, is not covered in this study.) The 1851 maps present primarily the modern dimensions of Springfield Armory National Historic Site. Even though two dwellings shown on these maps are no longer there, the two largest structures remain prominent today, and the 1851 site very much resembles the 1977 site.

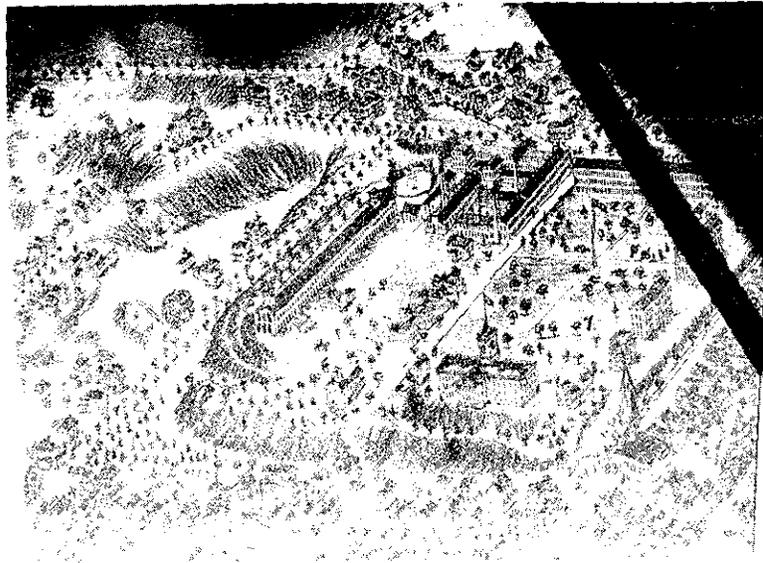
The map entitled "Springfield Armory in 1851," by Smith and Jones (Map 6), carries a new title for what earlier maps call the Green. It is now "Tower Hill," undoubtedly inspired by the tower on the new arsenal. Tower Hill, it can be seen, is divided into four sections by walkways about where they are today. Parallel with the long axis of Tower Hill are four parallel rows of trees in a highly formal landscaping arrangement. This arrangement follows that shown on the 1831 map. But in those portions of the park which came into the Armory during Ripley's tenure, the landscaping is quite different.

43. *Ibid.*, 6:2.

44. *Ibid.*, 7:108.

45. Map 6 shows the section of the Smith and Jones 1851 map of Springfield, Massachusetts, that includes the Armory.

46. Map 7, the Butler 1851 map, shows the Armory in detail.



Map 6. Springfield Armory, 1851, as shown on "Map of Springfield, Massachusetts, Surveyed and Drawn by Marcus Smith and H.A. Jones," published by M. Drips, No. 103 State Street, N.Y., 1851.

The grounds west of the square, on which the new arsenal and commanding officer's quarters sit, have much more natural and informal arrangements of trees. This information might well reflect the naturalistic and informal concepts of landscaping then developing and strongly contrasted with the formal gardens which, prior to this time, had had prominence in landscape design. So in the formality and orderliness of the parallel rows of trees on Tower Hill, Ripley carried out the aesthetic concepts of his predecessors, principally Roswell Lee. In the naturalistic arrangements west and north, he reflected the more fashionable ideas of his time. The two different arrangements show in striking clarity on the 1851 Smith and Jones map.

The buildings are shown clearly, and for the first time, the exact title for the two dwellings flanking the new arsenal is known. The south building is clearly marked "Paymaster's Quarters," and the north dwelling becomes, by default, the Master Armorer's Quarters (Building 10). The new "Commanding Officer's Quarters" are shown behind (that is, to the north of) the former site for the commandant's quarters. A circle adjacent to the new quarters may delineate the location of the rose arbor, remnants of which still survive today. Another larger circle is drawn on the map, south of the quarters, which indicates the circular driveway. Both the rose arbor circle and the driveway are bordered by a walk. A final decorative touch to the landscaping is the set of four rectangles showing to the north of the residence. These are either formal gardens or farming plots. The main Armory entrance is at the point where the road that runs in front of the Main Arsenal joins State Street. (Note: The new arsenal eventually became known as the Main Arsenal. This structure title may have been in common usage by the Civil War. This is used hereafter to preclude ambiguity in structure references.)

The November 1851 map (Map 7) provides more detail than does Map 6. It appears that this map resulted from a thorough survey conducted in 1851, but had additional data drawn in during the succeeding years.⁴⁷ The detail itself is not a matter of question.

47. The exact dating of this map is difficult. This difficulty arises because of the similarity of the numbers "1" and "7" by the individual who lettered the map. The far right edge of the map contains the legend with the notation, "Nov 1851." The "1" of the date, however, looks suspiciously similar to the "7" as used throughout the map. Examination of the map reveals dates up to 16 August 1870, providing that it was sporadically, at least, kept current as new parcels of land came into the government's lands. Two items on the map combined to bring enough weight of evidence to bear on the situation to make the date "1851." First, there is the note of few inches to the left of the legend and title indicating that the survey was as of the magnetic declination of 1851. Second, there is a penciled notation in the lower left corner of the map opposite the last entry, dated "18 March 1851" or "1851." The penciled notation clearly says "1851." Probably an earlier user had to face the question as this researcher, and after deciding in favor of "1851," so noted it. At any rate, the date of 1851 is assigned, and the question resolved for this report. Others are free to reexamine the decision.

The immediately obvious difference between the two maps is that Map 7 (Butler) is drawn to scale and contains careful measurements. The circle in front of the Commanding Officer's Quarters is measured as "73. ft"; what might be a fountain appears in the middle of this circle. The walks associated with the Commanding Officer's Quarters and the Main Arsenal show clearly, as do two areas flanking the tower of the arsenal. They could well be parking areas for wagons loading or unloading weapons.

North of Building 1, the Commanding Officer's Quarters, the contours of the ravine are illustrated, and the method used suggests outlines of the grading of the precipice. Unfortunately, the contours of the land west of (behind) the Main Arsenal do not show, probably because of the large number of small land parcels the map maker decided to show. The delineation of those land parcels is a unique feature of the map in that it provides a graphic portrayal of the growth of the Armory grounds over the years, and the major growth that occurred during Ripley's tenure. This list of land parcels added to the Armory that appears in the bottom left corner of the map contains twenty-nine entries. Seventeen of them are additions which came during Ripley's period of command. One item of particular interest is Entry 14, that portion of land immediately west of the Commanding Officer's Quarters, marked "Fenwick \$400 Cath Lot." This is the "Catholic Lot" that figured so prominently in the Ripley-Stearns dispute.

The Paymaster's Quarters on the south and the Master Armorer's Quarters on the north are drawn in some detail, revealing a few minor differences in the rear portions of the buildings. Essentially, however, the two buildings were the same in 1851.

The Main Arsenal is measured at 198 feet across the front, but no other information is given. An interesting relationship exists between the arsenal tower, in the middle of the building, and the walkway on the square. This walkway, which cuts the square from east to west, predated the erection of the arsenal and was obviously centered on the small structure at its east terminus, the office (or headquarters) of the Armory. Thus a difficult aesthetic problem began. It showed itself when the arsenal went up. The Main Arsenal had to be erected equidistant from the Paymaster's Quarters and Master Armorer's Quarters. To do otherwise would have been to introduce an imbalance into the grouping of the three buildings. Neither Ripley, nor any other responsible individual, would do that without good reason. So the arsenal was placed between the two buildings. This retained the important element of balance among the three buildings that sat with such majesty at the west end of the square. However, it introduced a slightly jarring element of offset and uneven design since the walkway did not hit the building in the middle, but slightly to the north. This disequilibrium, so obvious on the map, must have been slightly less so on the ground, since the shade trees planted in the square would have blocked the view of anyone standing at the east end of the walk and looking west toward the Main Arsenal. If such direct line of site were possible, it would be easy to see that the west end of the walkway does



U.S. ARMY GUNNERY SCHOOL

WORTHINGTON ST

MAGAZINE ST

RAVINE ST

LINCOLN ST

STATE ST

SPRING ST

PEARL ST

not meet the exact middle of the arsenal. So the imperative of balance in the placement of the arsenal, dominating the west end of the square, simply outweighed the need for balance and regularity in the layout of the walkways across the square.

Other elements of interest appear on the November 1851 map. Walkways encircling the Commanding Officer's Quarters appear, as does a walkway that traverses the area beyond the west end of the park. This sidewalk runs from a point north of the Master Armorer's Quarters, passing in front of all three west end buildings to the main Armory entrance on the south at State Street.

In the circle in front of the Commanding Officer's Quarters a smaller, dark circle appears in the center. Not labeled, it could be almost anything. Quite probably it indicated a fountain or a tree formerly planted in the center.

D. The Final Ripley Years

The years from 1852 to 1854, Ripley's final ones as superintendent, witnessed the final touches of grading and finishing-up tasks on the new buildings. Portions of the new iron fence went up as well. Ripley also sought to straighten up the boundaries to permit "the U. States to interpose a road all around the public grounds."⁴⁸ His last two years were characterized by less dramatic events and actions than the period immediately preceding them.

By mid-1852, the fence foundations along State and Byers streets had been laid, and in May the patterns for the pickets had been approved.⁴⁹ About that time the system of using Ordnance Department scrap iron, including old cannon, for casting material had begun. The material was centralized at New London, Connecticut, and Newport, Rhode Island, and at Portsmouth, New Hampshire, and was provided to the firm who contracted to cast the fence rails. Then, the newly cast pickets underwent inspection by the master armorer of Watertown (Massachusetts) Arsenal before their shipment to Springfield.⁵⁰ Ripley--probably anxious to protect the newly constructed buildings and freshly graded, planted, and seeded grounds--urged

the whole work forward with as much expedition as is compatible with the durability and the permanent character of the structure.⁵¹

48. Report of Inspector, October 20, 1852, RG 156, Entry 1003, NA.

49. Whittlesey, "Extracts," 7:103.

50. Whittlesey, "Springfield Armory," p. 198; see also, Cyrus Alger and Co. to Commanding Officer, Springfield Armory, March 16, 1853, in Whittlesey, "Extracts," 7:198.

51. Whittlesey, "Extracts," 7:103.

But only the fence along State Street was completed. By the time the fence reached the Byers Steet-State Street corner,

the War Department had been overtaken by a new bit of legislative penury, and the remainder of the fencing had to be postponed until a subsequent administration.⁵²

One similarly linear project, the laying of a gas line around the square, had been accomplished by June 1852. Ripley reported that the gas lines had been laid around the "principal square," and added that with

little additional labor & expense the offices, shops and other buildings can be furnished with the fixtures necessary for lighting them.⁵³

Around the same time--the exact date is difficult to determine--Commandant Ripley extended pipe to the three principal quarters at the west end of the square to provide the Commanding Officer's Quarters, Master Armorer's Quarters, and Paymaster's Quarters with running water. At the same time, and as part of the whole construction and improvement package, the commanding officer was able to direct the painting of the "public buildings" on the hill, "the Comdg Off's quarters among them."⁵⁴

While the work of laying the gas and water lines proceeded, interior work on the Main Arsenal ended with the completion of the rifle racks on the third floor. By June 30, 1852, they had been "partially filled with arms."⁵⁵

Ripley's final two years in command of the U.S. Armory at Springfield saw recognition of his substantial contributions to the site. The 1853 report which followed the annual inspection (conducted in September) noted that "all of the buildings, are in good condition," except those at the water shops. The inspector went on in his report to describe the overall effect of Ripley's improvements. In doing this he not only evaluated the progress under Ripley, but restated that mystique of grandeur that had existed at Springfield Armory almost from its earliest days. The inspector, Lieutenant Colonel R. S. Baker, wrote that

the exterior of nearly all the brick buildings have been painted an uniform color, the grounds have been further improved by grading and the front fence on the city main

52. Whittlesey, "Springfield Armory," p. 198.

53. Whittlesey, "Extracts," 7:103.

54. *Ibid.*, 7:84.

55. *Ibid.*, 7:102.

street has been finished. The necessary repairs have been made to the buildings machines, tools etc, so that the establishment nears an appearance of completeness, and a state of excellent police and preservation.

But Baker had hardly begun. He justified Ripley's improvements at Springfield as he continued:

In its plan, construction, and arrangement, it should be such, as to convey the impression of the power of the country to supply an important means for the effective defence, independent of foreign, or private, aid, and like other of our governmental constructs, it should possess both qualities of permanency and architectural perfection.

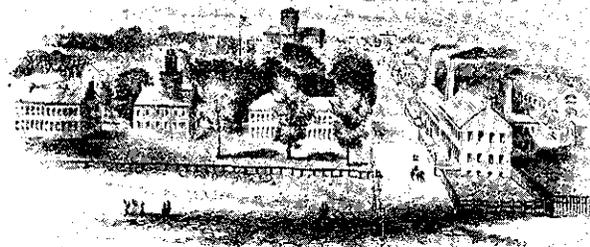
Plans, looking to the future greatness consequently increased wants of the country should be adopted for this armory, and executed with skill, and liberal economy.

As an important national manufactory, this Armory, its character, its facilities, for fabricating arms, and its products, are not less honorable to the country than useful, and in every view connected with public pride, and utility, it demands the liberal support of the government.⁵⁶

An earlier visit to the Armory in 1852 by a writer for *Harper's New Monthly Magazine*, (Jacob Abbott), resulted in an elegant description that must have brought a great deal of pleasure to Lieutenant Colonel Ripley. Abbott's prose, a mid-victorian literary style that treated overstatement as the norm, presented the image of the Springfield Armory that both Roswell Lee and James Ripley had endeavored to create. The article first dealt with the Armory grounds:

The Armory Grounds [see Illustration 1]. On reaching the summit of the ascent, the visitor finds himself upon an extended plain, with streets of beautiful rural residences on every hand, and in the center a vast public square occupied and surrounded by the buildings of the Armory. These buildings are spacious and elegant in their construction, and are arranged in a very picturesque and symmetrical manner within the square, and along the streets that surround it. The grounds are shaded with trees; the dwellings are adorned with gardens and shrubbery. Broad and neatly kept walks, some gravelled, others paved, extend across the green or along the line of the buildings, opening charming

56. Report of Inspector, October 3, 1853, RG 156, Entry 1003, NA.



GENERAL VIEW.

Illustration 1. "General View," from the 1852 *Harper's New Monthly Magazine* article. The building sporting the large tower in the top center of the illustration is the New Arsenal. The perspective is somewhat misleading, since it shows the main part of the New Arsenal as smaller than actual and overemphasizes the tower, which is not nearly as big as this illustration suggests.

vistas in every direction. All is quiet and still. Here and there a solitary pedestrian is seen moving at a distance upon the sidewalk, or disappearing among the trees at the end of an avenue; and perhaps the carriage of some party of strangers stands waiting at a gate. The visitor who comes upon this scene on a calm summer morning, is enchanted by the rural beauty that surrounds him, and by the air of silence and repose which reigns over it all. He hears the distant barking of a dog, the voices of children at play, or the subdued thundering of the railway-train crossing the river over its wooden viaduct, for down the valley--and other similar rural sounds coming from a distance through the calm morning air--but all around him and near him is still. Can it be possible, he asks, that such a scene of tranquility and loveliness can be the outward form and embodiment of a vast machinery incessantly employed in the production of engines of carnage and death?⁵⁷

The description continued with the Commanding Officer's Quarters. The house, Abbott wrote,

stands on the west side of the square, opposite to the end of the avenue which is seen directly before the observer in the view. It occupies a very delightful and commanding situation on the brow of the hill, having a view of the Armory buildings and grounds upon one side, and overlooking the town and valley of the Connecticut on the other. [see Illustration 2.]

He continued with a description of the arsenals:

A little to the south of the entrance to the Commanding Officer's house, stands a large edifice, called the New Arsenal. It is the building with the large square tower--seen in the view in the middle distance, and the centre of the picture. The building is used for storage of the muskets during the interval that elapses from the finishing of them to the time when they are sent away to the various permanent arsenals established by the government in different parts of the country or issued to the troops. Besides this new edifice there are two or three other buildings which are used for the storage of finished muskets called the Old Arsenals. They stand in a line on the south side of the square, and may be seen on the left hand, in the view. These buildings, all together, will contain about five hundred thousand muskets. The New

57. Jacob Abbott, "The Armory at Springfield," *Harper's New Monthly Magazine*, Number XXVI, July 1853, vol. V, p. 146.

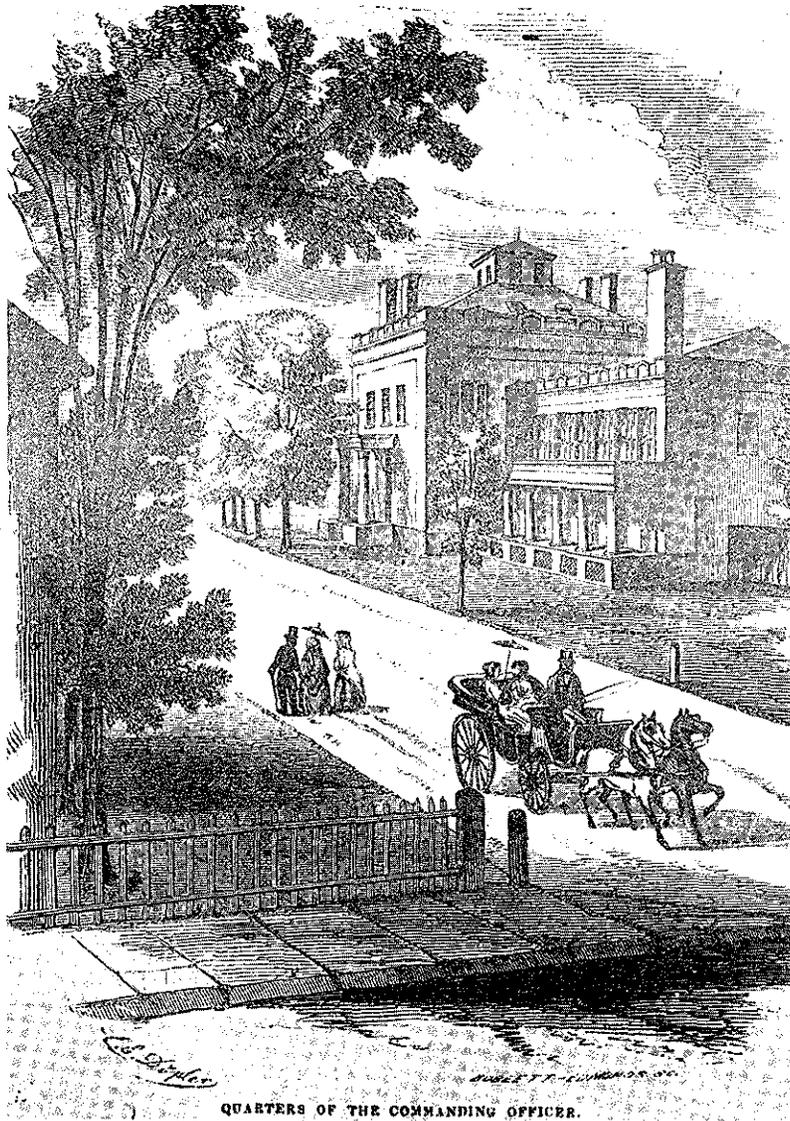


Illustration 2. "Quarters of the Commanding Officer," from the 1852 *Harper's New Monthly Magazine* article.

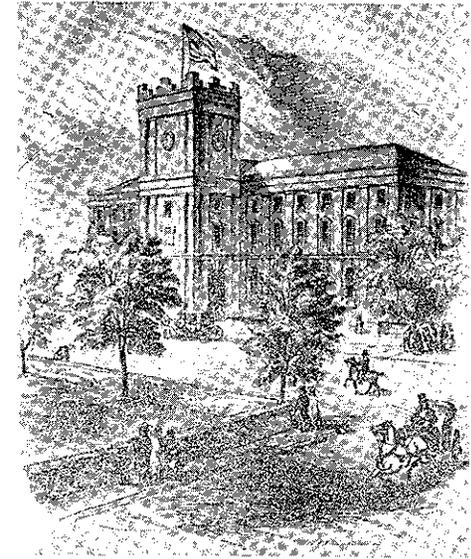


Illustration 3. "The New Arsenal," from the 1852 *Harper's New Monthly Magazine* article.

Arsenal, alone, is intended to contain three hundred thousand.⁵⁸

Much later in the article, more attention was given to the Main Arsenal (referred to at that time as the New Arsenal):

The Arsenal. The New Arsenal [see Illustration 3], which has already been alluded to in the description of the Arsenal grounds, is a very stately edifice. It is two hundred feet long, seventy feet wide, and fifty feet high. It is divided into three stories, each of which is calculated to contain one hundred thousand muskets, making three hundred thousand in all. The musket when stored in this arsenal are arranged in racks set up for the purpose along the immense halls, where they stand upright in rows, with the glittering bayonets shooting up, as it were, above. The visitors who go into the arsenal walk up and down the aisles which separate the ranges of racks, admiring the symmetry and splendor of the display.

The Arsenal has another charm for visitors besides the beauty of the spectacle which the interior presents--and that is the magnificane [sic] panorama of the surrounding country, which is seen from the summit of the tower. This tower, which occupies the centre of the building, is about ninety feet high--and as it is about thirty feet square, the deck at the top furnishes space for a large party of visitors to stand and survey the surrounding country. Nothing can be imagined more enchanting than the view presented from this position in the month of June. The Armory grounds upon one side, and the streets of the town upon the other lies, as it were, at the feet of the spectator, while in the distance the broad and luxuriant valley of the Connecticut is spread out to view, with its villages, its fields, its groves, its bridges, its winding railways, and its serpentine and beautiful streams.⁵⁹

Besides describing the buildings and grounds, Abbott's article contained a description of the manufacturing process at the plant. The illustrations in the article showed a campuslike scene at Springfield Armory, with trees, grass, and buildings in balanced and comfortable relation to each other.

Jacob Abbott's narrative provided an excellent summary of Ripley's accomplishments. Lieutenant Colonel James Ripley had taken over an establishment whose basic plan had been conceived by the energetic and competent Major

58. *Ibid.*, pp. 146-47.

59. *Ibid.*, pp. 159-60.

Roswell Lee. Ripley had expanded on Lee's concept of buildings surrounding the open square, and not only reinforced that appreciation of the relationship of space, landscape vistas, and buildings but had improved the technical and manufacturing processes at the site as well.

In 1854 Ripley placed the last aesthetic touches of his tenure on the Armory; he had the entire site freshly painted and landscaped, the most complete such project accomplished since he had taken command thirteen years earlier. Ripley had accomplished a great deal when, on August 5, 1854, President Franklin Pierce signed the law removing military officers from command at National Armories. As instructed by the War Department, he quickly turned command of the facility over to the master armorer, a civilian, and quickly departed.⁶⁰

The Armory contained all the major buildings that the National Park Service would gain responsibility for over 120 years later. No major construction took place after Ripley's administration in that portion of the Armory which is now a national historic site. The subsequent history of the site is the narration of minor changes which include the removal of the two buildings flanking the Main Arsenal, and the modernization and erection of outbuildings. But the major configuration of the 1854 complex and of the 1977 complex are identical.

60. Whittlesey, "Springfield Armory," p. 207; Ripley turned over command on August 16, 1854. Whittlesey, "Extracts," 7:80.

CHAPTER IV: THE EVOLUTION OF THE SPRINGFIELD ARMORY: "HARMONY PREVAILS"

Although there were no major construction projects between the end of the Ripley administration and the present, Springfield Armory hardly remained static. Major technological changes occurred and thousands of workers and soldiers came and went. The Armory met the challenge of ordnance manufacturing for the Spanish-American War and for the Philippine Insurrection which followed, and as the military establishment changed with the coming of the twentieth century, it provided new rifles, machine guns, and spare parts. Its shops manufactured weapons and parts for use in World Wars I and II, as well as the wars in Korea and Vietnam.

Except for that portion of the Armory which would eventually become a national historic site, the physical changes were not profound--save for the moving of two buildings. No major structures were erected to change the commanding relationship of the Main Arsenal, either to the square it fronted or the slope it overwatched. Nor did anything but elms, maples, oaks, and fruit trees rise to compete for prominence with the quarters of the commanding officer.

An inspector summed up the tranquil scene not long after Colonel Ripley departed:

Proper police and discipline is enforced, and harmony prevails. Buildings are in good preservation, Machinery and Tools are of the best Kind, and Stores are well taken care of.¹

Of course, almost any situation would appear tranquil and harmonious following the never quite quiescent Ripley-Stearns dispute which had dominated the years of Ripley's command.

The changes that did occur, and that did bring easily recognizable change, numbered only four. The first change was the completion of the fence in the early 1860s. The second, the movement of the Master Armorer's Quarters (Building 10), came between 1877 and 1882. The third, the relocation of the main gate, took place about the same time. The final major development, which came in 1895, was the movement of Building 17, the Paymaster's Quarters. Some other modifications occurred between 1854 and 1974, including some additional grading on the slope west of the Main Arsenal. These changes are considered in the following discussion, accompanied by documenting maps and photographs.

1. Report of Inspector, September 28, 1857, RG 156, Entry 1003, NA.

A. 1854 to 1864

In the years immediately following James Ripley's departure, his successor, a civilian named James Whitney, took over the task of finishing the grading and fencing of the grounds and supervised the completion of many of Ripley's projects.

By June 1855 interest in completing the iron fence resumed, and the foundry at Chicopee, just north of Springfield, requested the patterns for the pales.²

There were several other interrelated problems and projects. Land acquisition was continued on a limited scale and a few parcels of land were purchased "so that the outlines of the public land" on the hill could lay in a "more convenient form."³ However, this resulted in more ungraded slopes which worsened the problem of water runoff on the west slope. Grading was therefore initiated to solve that long-standing difficulty. Superintendent Whitney later reported that the ground downhill behind the Main Arsenal, "having been repeatedly broken and much injured by the springs which issued from the hillside and the actions of frost and snow, [was replaced in 1856-1857 by a] regular and gradual slope."⁴ In conjunction with the grading project, both during and after, Armory workers planted trees and "extended and improved" hedges. The slope on the hillside was planted with seventy-five new trees, completing that segment of the landscaping project.

Work continued on the fence; stone foundations for it were installed, first along Byers Street and then along Pearl. Simultaneously, culverts were laid "fronting upon East Pearl Street to carry off waste water, and to protect the grounds and fence from injury." By mid-1860 the section of the fence fronting on Byers Street was complete, and the Pearl Street segment had been started.⁵ When the last picket in the iron fence was installed in 1862, the

2. Whittlesey, "Extracts," 7:59.

3. Report of Inspector, October 16, 1856, RG 156, Entry 1003, NA.

4. Whittlesey, "Springfield Armory," p. 213; The appropriation from Congress for the work had been approved late in the summer of 1856 and Whitney was notified September 8, 1856. Whittlesey, "Extracts," 7:48.

5. "Springfield Armory," in report of the Ordnance Department, *Secretary of War Report*, 1860, vol. II, (Washington, D.C., 1860), pp. 971-72; Much of the drive to continue the iron fence came from former superintendent Ripley. Lieutenant Colonel Ripley was the officer from the Office of the Chief of Ordnance who inspected Springfield Armory early in April 1859. Ripley and his fellow officers could not fail to see the war clouds gathering on the horizon, and no doubt they realized that the security of Springfield's vast supply of weapons depended upon a good fence as well as vigilant guarding. Ripley's (continued)

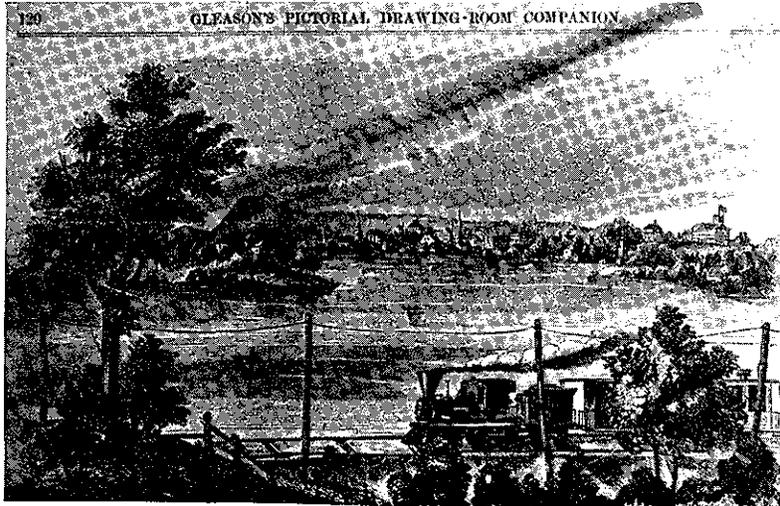


Illustration 4. "Springfield, Massachusetts, From the Longmeadow Road," 1855, from *Gleason's Pictorial Drawing-Room Companion*, p. 120, no date, in the collections of Springfield City Library. The New Arsenal, Paymaster's Quarters and Commanding Officer's Quarters show clearly on the Armory--or Tower--Hill overlooking Springfield and the Connecticut River, at the right of the picture.

hill shops were at last completely encircled.⁶ Although the fence acted as a physical barrier and thus provided some protection for the site, overall security was shown to be insufficient when the Main Arsenal became the object of an abortive sabotage attempt.

Described as "a puerile attempt to destroy the Main Arsenal," the action came in 1864. A guard noticed two strangers in the tower of the Main Arsenal, and after watching them depart, spied a bundle in the tower. Investigation showed it to be a bomb which had failed to explode, or had been stopped from exploding; it is not clear which of the two circumstances applied. The tower might have been damaged if the bomb had exploded, but the building's mission of housing guns would hardly have been affected. Springfield Armory's major chronicler wrote that "it is not easy to see what harm it could have done the Union cause, even if it had gone off."⁷ The Confederate forces who had destroyed the Harper's Ferry Armory had to content themselves with a near-miss at Springfield. It was the only time that tranquil Springfield was ever the object of direct aggression.

B. 1864 to 1884

A turning point in the documentation of the evolution of Springfield Armory occurred in 1864. The civil engineering and surveying firm of Shedd and Edson prepared a "Topographical Plan" of the armory site.⁸ This established the practice of carefully recording changes in the Armory by means of

5. (continued) 1859 report dealt with the problem at some length. He wrote: "As the street on the north side of the Armory grounds will soon be opened, it becomes necessary to provide for the erection of an iron fence in continuation of and to correspond with that now [surrounding?] the other sides of the grounds. 2713 linear feet are required. The means taken to procure that already erected were so successful, and so advantageous to the government that I would respectfully suggest their adoption in obtaining castings for this addition" (Report of Inspection, April 19, 1859, RG 156, Entry 1003, NA). Ripley continues, outlining his earlier-employed technique of utilizing old castings and cannon as raw materials for the fence pales. Ripley, the inspector, no doubt enjoyed the role of supporter to the plans and ideas of Ripley, the superintendent.

6. "Historical Record, Springfield Armory," sheet 3 of "systems" section dated 1930; on file at the Springfield Armory Museum. Dvarecka, in "Springfield Armory," Congressional Record, March 1966, p. 6036, dates the completion of the fence about "the close of the Civil War."

7. Whittlesey, "Springfield Armory," p. 231, contains both quotations regarding the incident.

8. Map 8, "Topographical Plan of the Springfield Armory, Springfield Mass. April 1864. Scale 100 feet to an Inch. Shedd & Edson, Civil Engineers and Surveyors 42 Court St. Boston," photograph 11086-SA, Springfield Armory Museum files.

maps, plans, photographs, and illustrations. Because of this, the changes from 1864 to the modern era can be examined in detail, and broad, diffuse patterns are more easily recognized. This change in documentation provided an important tool for historical analysis: surviving photographs have been examined in conjunction with the carefully surveyed maps and plans to provide a more consistent and cohesive record of the Armory's history than was possible for its earlier periods.⁹

The first manifestation of the new collection of documents and graphics is the mutually reinforcing 1864 map and photograph. Taken together, they reveal a great deal. Immediately apparent on the Shedd & Edson map is the outline of the grounds. That part of the Armory which is now a historic site is clearly and completely outlined. Bordering the boundaries are evenly spaced, straight lines of trees. Along State, Byers, and Pearl Streets the fence shows as a continuous line, its martial character somewhat softened by the trees. The Armory's main gate opens onto State Street, and is marked by a sentry box on the west side. Another entrance appears at the corner of Byers and Pearl, the exit for a road beginning at the circle in front of the "Supt's Qtrs." Local history maintains that the portion of the slope traversed by the road served as a hay field. This may be accurate since the land remains as moist now as always despite past and present drainage attempts; it could have been used for little else. The entrance at Byers and Pearl would not have remained in use for long as a major thoroughfare since any wagons, carriages, or other traffic would have passed in front of the "Supt's Qtrs," a circumstance that few superintendents would long suffer.

As one proceeds from the outer boundary to the interior of the Armory, the most striking quality is the glorious abandon showing in the landscaping. What had been regular and evenly spaced with precision before Ripley's improvements were instituted became something quite the opposite. The grading, which had been recently finished when the photograph was taken, left the slopes almost precipitous behind the superintendent's quarters, but far more gentle and gradual toward the south and west. The trees appear scattered about almost as if mother nature herself had emplaced them; the same effect is seen in the square. It is here that the transition from regularly spaced trees in parallel rows to the naturalistic scattering occurs. The remnants of the columns and rows of trees can be easily traced by placing a straightedge lengthwise on the map at the square. Four parallel rows still remain in scattered sections, although their regularity is camouflaged by other trees in the square that were not so carefully positioned. The exceptions to the naturalistic design show along interior roads, where orderly rows of trees, methodically spaced, still exist.

Gardens, too, show clearly, especially the formal arrangements of the plots north of the superintendent's quarters. The superintendent's quarters also has an associative feature, a circle filled with trees just adjacent to the

9. See Illustration 5, "The Hill Shops and Arsenal . . . 1864," for example.

northeast corner of the building. This circle separates the quarters from an "Ice House," between it and the garden. The circle and the geometrically trimmed hedges in one section of the garden suggest that the landscaping near the superintendent's quarters reflected careful planning, and the same appears true for the master armorer's residence nearby and the paymaster's on the opposite side of the arsenal. These hedges form a boundary for the yard around each structure. Yet only the master armorer's house has an "Ice House." This ice house, like the one near the superintendent's quarters, is octagonal.¹⁰

The main building, previously called the "New Arsenal" is now entitled simply "Arsenal." The tower on the building merits specific labeling, giving testimony to its prominence at the Armory.

The 1864 topographic plan reveals graphically what had been the subject of countless documentary comments: grading and drainage. In fact the three-foot interval contour lines so carefully drawn on the 1864 map illuminate what the site looked like until modifications in the late 1960s took place on the grounds at the rear of the Main Arsenal. The water pipes, drains, and sewers also show.

Examination of the 1864 map reveals that while one drain carried water to State Street just north of the entrance gate, the major drainage systems joined at the Byers and Pearl Streets entrance. One drain began at the seventy-one-foot level, near the Federal and Pearl Streets corner of the Armory, and ran parallel to the street to the Byers and Pearl Streets entrance. The trace of the remaining portion of the drain is not so simply seen or understood. Immediately apparent is a drain running parallel with Byers Street which connects with the Pearl Street line at the Byers and Pearl Streets entrance. Not so apparent is the direction of flow. Did the water flow from the corner of State and Byers--from the middle of State Street--all the way to Byers and Pearl? If it did, then this infers that the drain connected with bigger drains at both ends, something barely probable.

A possible explanation, which will serve until refuted, places all of the drains in one system. One arm of the system begins in the complex of gardens near the superintendent's quarters, and parallels the street in front of the arsenal. It exits the Armory at the State Street entrance. The map shows as much, but goes no further with the drain. If the drain (which does not show on the map) did continue and turned west, parallel to State Street until the State and Byers Street corner, and then connected to the Byers Street line (which does show on the map), the system would be a complete one, with downhill sloping the entire way. This explanation fits in well with the report of

10. The offices of paymaster and master armorer jockeyed for privacy for much of the nineteenth century. For much of the period the paymaster enjoyed the highest stakes. Yet in 1864 the Paymaster's Quarters had no ice house while the Master Armorer's Quarters did. Possibly the year 1864 saw the master armorer's office in a rare position of supremacy.

1860 that the "total length of culverts constructed upon the armory grounds and at the water shops amounts to some seven hundred lineal yards."¹¹

Other water systems are also shown on the map. They are not as easily determined as they could be, since they tend to blend with the grid lines and other lines on the map. Some, however, are readily apparent. A water line connects the wing of the superintendent's quarters to the circle in front. This is probably the cistern built in June 1845. Before the water line enters the superintendent's quarters, it branches, with a line running toward the road in front of the Main Arsenal. This line parallels the road and passes in front of the Master Armorer's Quarters and then the Main Arsenal and Paymaster's Quarters, turns about there, crosses the road, and enters the structure marked "Fire Engine." Three lines radiate from this one, each to one of three areas immediately behind the Main Arsenal, possibly ending in hydrants for fire fighting or lawn watering. Another line runs to the Paymaster's Quarters on the State Street side of that structure. Although no entrance line shows at the Master Armorer's Quarters, the pipes had been laid in 1852 and the omission is possibly an error on the part of the mapmaker.

The 1864 topographic plan contains a great amount of information about the site. In addition, it shows the Armory at the conclusion of the Ripley improvements, with the grading and fencing complete. It is thus a most important piece of documentation in the Springfield story and forms the foundation for the historic base map along with a similar 1877 map.

The 1864 illustration of the site (Illustration 5) gives a three-dimensional appreciation of the information on the map. Most of the information is self-evident, but a few points merit discussion

The trees appear to be primarily maples, elms, and spruce (this is an informal appraisal based on one photograph). However, a report in 1909 (reproduced as Appendix 3) specifically noted older maples and elms, which correlates to such trees being planted around the 1860s. The 1909 report, in discussing the older maples, calls them "soft maple," better known today as silver maple. While not confirmed, it appears that silver maple, elm, and spruce were among the predominant species used in the landscaping of the Armory.

Other qualities which existed at the site show as well. The neatly spaced rows of trees along the streets are easily identified, as are the informal clusters on the square and on the hill behind the Main Arsenal. The hedges which appear on the map in relation to the quarters flanking the Main Arsenal are quite obvious. The ground building, or "sentry box" as the 1864 topographic plan calls it, appears in the elevation at the main gate at State Street. The picture shows that this gate was, indeed, the main gate. No other entrance rivals it for size or merits a sentry box (or gatehouse).

11. U.S., Congress, House, "Report of the Chief of Ordnance," 1860, in Annual Reports of the War Department for the Fiscal Year Ending June 30, 1860, p. 972.

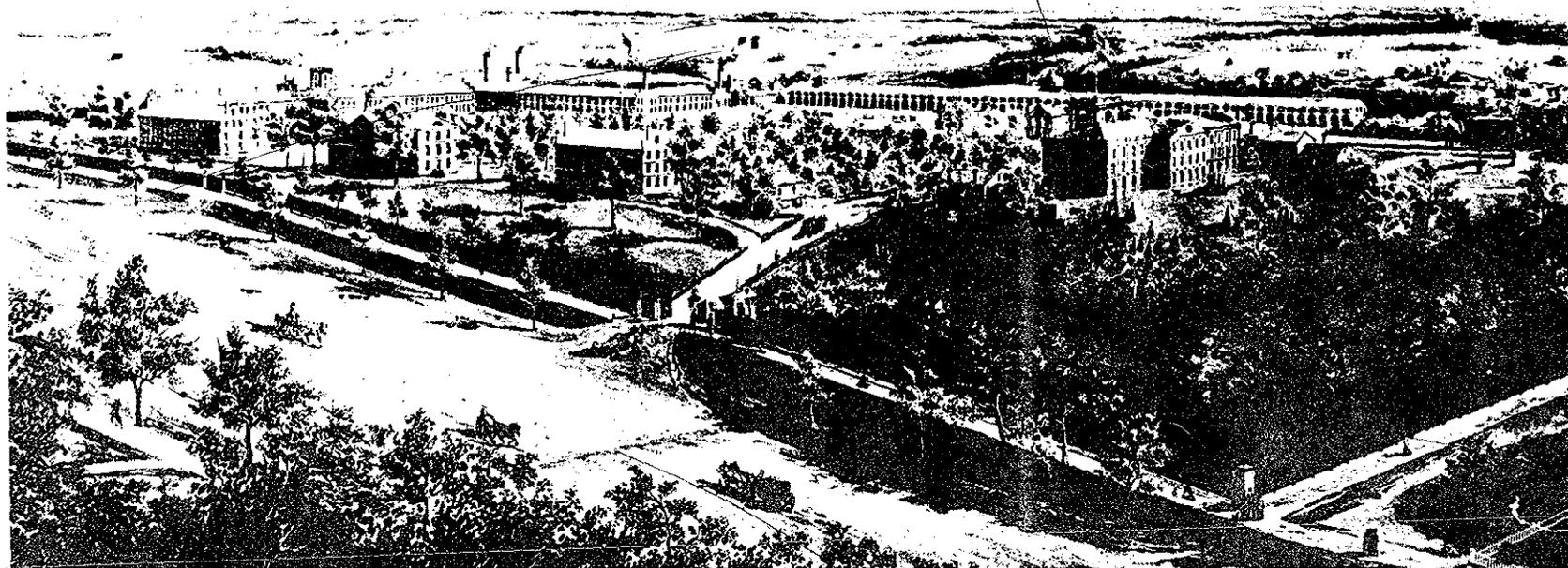


Illustration 5. "The Hill Shops and Arsenal . . . 1864,"
Springfield Armory Negative X-1299SA, on file at Springfield
Armory Museum.

These two 1864 documents, the topographic plan and the drawing, combine to show Springfield Armory at its most glorious moment: the Ripley improvements freshly constructed, landscaping likewise just completed, and the busy site the sole remaining national armory belonging to the United States.¹²

C. 1865 to 1882

The seventeen years between 1865 and 1882 witnessed changes on the Armory grounds and in the surrounding neighborhoods. The neighborhood development brought honor, in a way, to Roswell Lee and James Ripley, and to their appreciation of open space, landscaping, and symmetry of building placement. The changes at the Armory, while less dramatic than the urban growth surrounding it, further complemented the prominence of the Main Arsenal on the hill overlooking Springfield.

Nothing as identifiable as Roswell Lee's designs or James Ripley's building program took place on the Armory grounds, of course. But the quadrangle took a new name. It had begun as the Green, and later had been called Tower Square. By 1865, however, the name "Union Square," had taken over.¹³ The names for the main square at the Armory had changed with the times. The initial title, the Green, fit well with the colonial and early national heritage of New England, when many towns and villages formed around a green of some sort. The name "Tower Hill" appeared when the tower of the Main Arsenal was completed, complementing the effect of the smaller tower on the headquarters at the other end of the square. Then, with the Civil War, came the appropriate new title Union Square.

About the time that Tower Hill was becoming Union Square, certain events just outside the walls began unfolding. The areas which bounded the Armory's serene and campuslike vistas had been either farm land or only lightly developed. Near the end of the Civil War, the quiet, almost rural setting came under the scrutiny of real estate developers. At roughly the same time, the land between downtown Springfield and the Armory, marked today by churches, two cathedrals, museums, and the public library, began to take on the character that the area shows now. The developments bounded the Armory and reflected the careful mix of architectural and landscaping considerations evident in one form or another at Springfield Armory.

12. Harper's Ferry Arsenal had been destroyed by Confederate troops early in the War of the Rebellion leaving Springfield's predominance in the manufacture of arms unchallenged for the remainder of the nineteenth century.

13. Michael Frisch, *Town Into City: Springfield, Massachusetts, and the Meaning of Community, 1840-1880* (Cambridge, Massachusetts: Harvard University Press, 1972), p. 89; This citation is the "Map of Springfield, Mass., Published by Samuel Bowles and Co.," in 1865. It appears to be the earliest use of "Union Square," although it is possible that the name emerged during the earlier years of the Civil War. Later in the same book, p. 144, an 1873 map, "Map of the City of Springfield, Mass., published by Clark W. Bryan and Co., 1873," carries the same designation for the quadrangle.

Among the first of the majestic structures, St. Michael's Cathedral began to rise during the last years of the Civil War and was consecrated in 1866.¹⁴ Other churches soon followed, their varying styles, large sizes, and verdant lawns forming a unity of neighborhood character even though their individual designs differed significantly. Before too many more years, the Congregationalists and the Episcopalians joined the Roman Catholics in the area between Armory Hill and downtown Springfield.

Court Square, with its churches and public buildings, formed the downtown end of the rising complex of public buildings and churches. Armory Hill, with the Main Arsenal as its prominent landmark, formed the other. The churches-- and the library built somewhat later--matched the Main Arsenal and Court Square buildings in size and in the portrayal of an architectural message:

Most of the new churches were located on the bluff or slope of the hill overlooking the flats downtown. Five of the major projects, in fact, involved a move directly uphill from old locations [and toward the Armory]. In part this represented a desire, especially among wealthier congregations, to move closer to the homes of prominent members [in the developments on top of the hill close to the Armory], and to enjoy the status and prestige that such a location could imply.

* * *

As it happened, the churches and other public buildings in this area were transforming it, rather than embracing its previously residential, almost exclusive character; State Street, near Chestnut and Maple, was fast becoming as it is today, a quieter and more specialized part of the communities center, a focus of public activity. The city's unusual topography, which made land so close to the commercial heart seem so much further removed in character. Thus allowed the church builders the unique opportunity to 'flee' the materialistic city at the same time they celebrated and contributed to its expanding urbanity.¹⁵

While the churches filled in the area between the Armory and downtown's Court Square, and in so doing forged a chain of public buildings and landscaped vistas connecting the two, the residential areas surrounding the Armory on top of the hill experienced growth even as it slackened in other Springfield areas, especially in the early 1870s.¹⁶

14. Frisch, *Springfield*, pp. 148-49.

15. *Ibid.*

16. *Ibid.*, p. 135.

Continued growth of housing around the Armory was not, however, the hallmark of the development. The unique quality was the *character* of the development. Like the vision which guided Roswell Lee and James Ripley in producing a planned and carefully designed neighborhood, the developers of this "sandy, barren plain, dominated by scrub oak and pine" first planned and then succeeded in producing a residential area of grace and beauty.¹⁷

Like the development on the west side of the Armory which brought the churches and other public buildings to match those on the hill, this particular residential development began in the late 1860s and early 1870s and continued sporadically for the next thirty years. It began at the time that the freshly graded and landscaped west end of the Armory looked its best, with the trees planted in 1864 somewhat larger after a few year's growth, the aesthetic unity of the iron fence paralleling State, Byers, and Pearl Streets evident, and the group of buildings on the hill still intact. The builders had not failed to appreciate the example set at the Armory.

The development near the Armory (some of which still survives today) began along State Street, east of the Armory, and

came on a scale unprecedented in Springfield, but the form was somewhat different and more portentous. North of State Street, men like George Tapley, James Thompson, Tilly Haynes and especially the two McKnight brothers began between 1869 and 1873 what was to be almost twenty years of comprehensive neighborhood development.

* * *

Styles were coordinated, trees planted, sidewalks and drains built, and other steps taken toward establishing ordered and unified neighborhoods.¹⁸

With early success in the venture, the development grew, and prominent residents of Springfield flocked to the beautiful neighborhood, which earned the title of "The Gold Coast."

Six of the city's mayors lived there, as did the presidents of Massachusetts Mutual, Monarch, and Springfield Fire and Marine Insurance Companies.

* * *

17. Wayne Phaneuf, "McKnight Knew Greatness," *Daily News*, Springfield, Massachusetts, May 14, 1976.

18. Frisch, *Springfield*, pp. 138-39.

The McKnight brothers laid out wide streets and large lots. Not everybody could buy in. Clauses in the sale agreements excluded 'undesireable residents.'¹⁹

The pattern which emerged at Springfield was the opposite of that in the usual New England mill towns. The factory was beautiful, not ugly. The wealthy did not seek the suburbs far removed from the noise and smells of industry; rather, they focused on the town's main "factory," the Armory. In the layout of their public buildings, churches, and homes, Springfield's citizens centered on the Armory, both physically and aesthetically. Whether definite proof can be established that the orderly mix of grounds, trees, and buildings at the Armory caused the same considerations to apply to the city as it developed after the Civil War is somewhat doubtful. Cause and effect in history usually don't fall into such neat and obvious niches. Yet the careful grouping of buildings on the hill, and the ever neat grounds had been in the eye of the city's citizens since the beginning of the century. It is not unrealistic to suppose that Springfield Armory's "architectural permancy and perfection" provided some part of the vision realized by the city in the neighborhoods around the Armory.

If in other New England towns "the factory system produced unparalleled ugliness and squalor," the factory called Springfield Armory did not. Some of the credit for this must go to Roswell Lee and James Ripley.²⁰

Meanwhile, on the hill, some alterations had occurred. These changes began appearing on maps in the 1870s. The first was a map included in the annual report of the Secretary of War for 1875.²¹ It showed that the main entrance no longer lay on State Street, and that a new road had been cut on an angle from near the Paymaster's Quarters to the corner of State and Byers Streets. This remains today. Also, the pool at the base of the hill along Pearl Street now included a fountain.

Other maps and illustrations of that era show the change as well (for example, see Illustration 6). The 1875 drawing--Illustration 6--indicates that a gatehouse or sentry box also stood at the new gate. The gate along

19. Phaneuf, "McKnight Knew Greatness."

20. James Marston Fitch, *American Building 1: The Historical Forces that Shaped It*, rev. ed. (New York: Schocken Books, 1973), p. 51; The whole relationship of Springfield Armory and the city merits far more detailed and critical examination than either time or funds available will allow here. The need for additional research bearing on the question is discussed in the "Recommendations for Additional Research" section of this study.

21. U.S., Congress, House, "Report of the Chief of Ordnance, October 9, 1875," in Annual Report of the War Department for the Fiscal Year Ended June 30, 1876, p. 37ff.

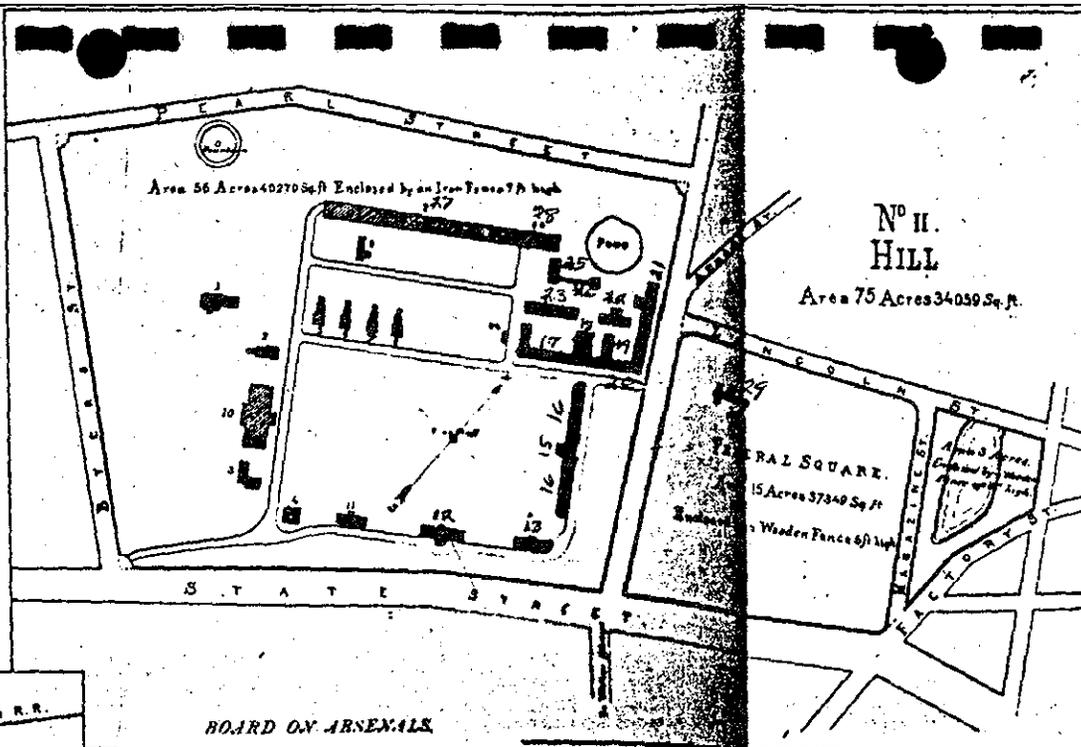
SPRINGFIELD ARMORY

Scale:

TOTAL AREA 96 ACRES 27176 Sq. ft.

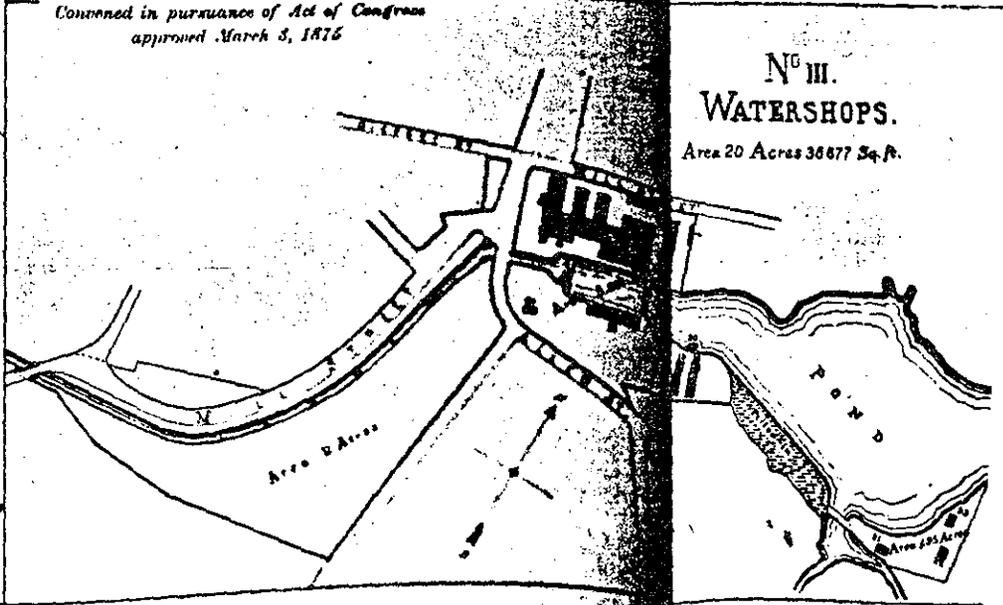
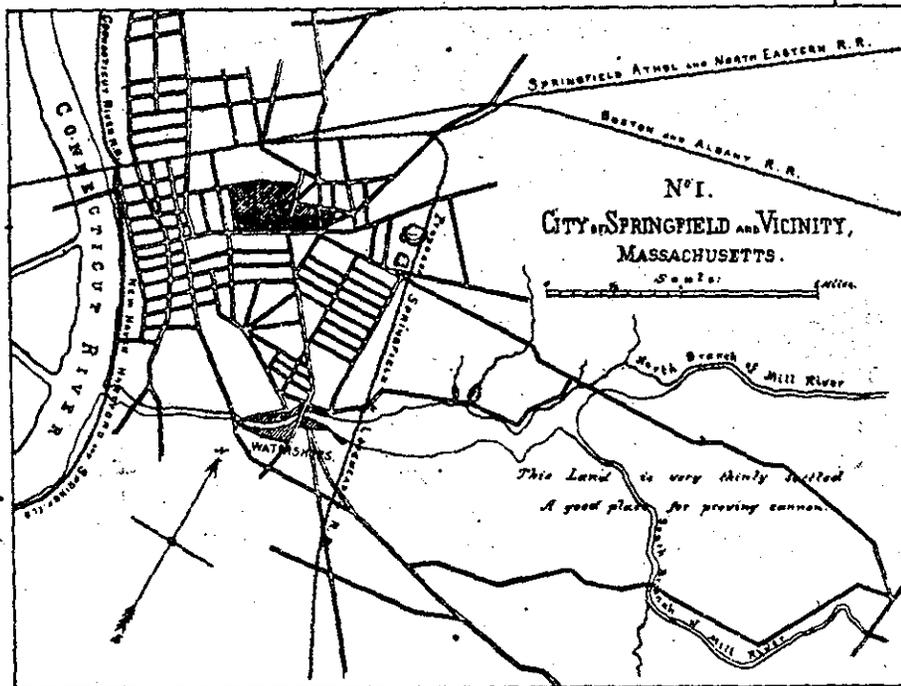
HILL: WATERSHOPS.

- | | | | |
|------------------------------|-----------------------------|--------------------------|-------------------|
| 1 Comd Officers Quarters | 15 Office | 1 Finishing Shop | 13 Carpenter Shop |
| 2 Master Armorer | 16 Milling Shop | 2 Forging & Rolling Shop | 14 Paint do. |
| 3 Pay Master | 17 Filing & Polishing Shop | 3 Machine Shop | 15 Proof House |
| 4 Officers Quarters | 18 Engine & Boiler Room | 4 Engine & Boiler Room | 16 Annealing Shop |
| 5 | 19 Cartridge Shop | 5 Inspecting Room | 17 |
| 6 Officers & Clerks Quarters | 20 Machine Shop | 6 Cannon Foundry | 18 Coal House |
| 7 | 21 Shaking & Carpenter Shop | 7 Grinding Room | 19 |
| 8 | 22 Dry House & Paint Shop | 8 Milling & Buffing | 20 Firing House |
| 9 Dwelling | 23 Forge Shop | 9 Rolling & Forging | 21 Chronoscope |
| 10 | 24 Steam Fire Engine | 10 Office | 22 Magazine |
| 11 | 25 Barn | 11 Boiler Room | 23 Ice House |
| 12 Arsenal | 26 Pig & Paint Shop | 12 Store House | 24 Tank House |
| 13 | 27 Store House | | |
| 14 Store House | 28 Stable | | |



BOARD ON ARSENALS

Convened in pursuance of Act of Congress approved March 3, 1876



Map 9. "Springfield Armory," 1875, from Secretary of War report, 1876 (see footnote 21).

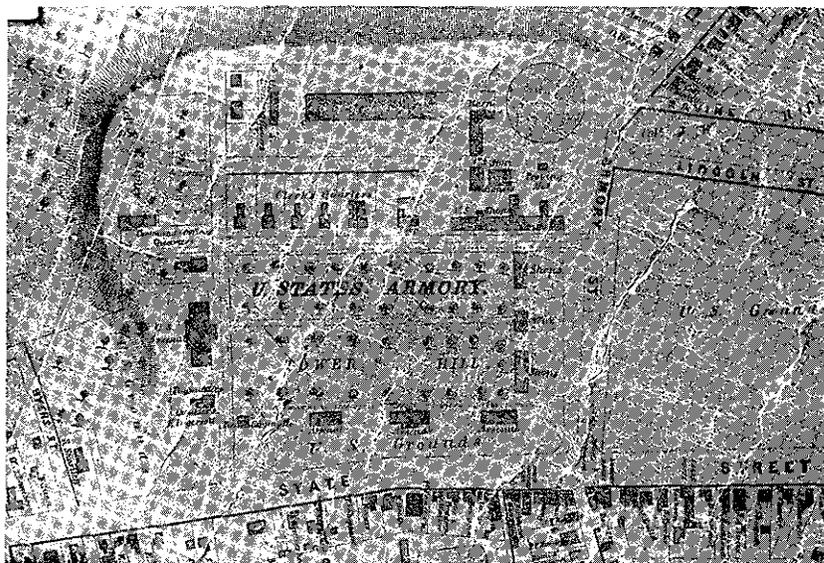


Illustration 6. "View of Springfield, Mass., 1875, Published by Whitney and Adams, Corner of Main and State Street, Springfield," from the "Springfield City Library" Collections.

State Street had been closed, and the area of the gates replaced by regular iron fence pales, although a small pedestrian gate was retained and still exists.²²

Little remained of the rows of trees, if Illustration 6 is accurate. However, without maintenance, the natural cycle of trees probably would have eliminated the majority of them anyway by 1875. The grading and landscaping design implemented in the 1840s, 1850s, and early 1860s had not only kept the original neat rows intact, but had resulted in additional trees being planted to break up the older arrangement. Therefore, the 1875 picture is probably accurate.

Other developments at Springfield Armory which had occurred by 1877 appear on another topographic plan, also in Shedd and Edson.²³ All the buildings remained intact but one, the paymaster's house, which had undergone some changes, while its counterpart on the other side of the Main Arsenal had not. Probably the paymaster had the upper hand at the moment and had been able to bring about what appears to be a significant upgrading of his dwelling. The Commanding Officer's Quarters did not yet have its front porch in 1877. To the rear of the Commanding Officer's Quarters, the fountain near Pearl Street shown on the 1864 map had a companion fountain uphill which drained into it.

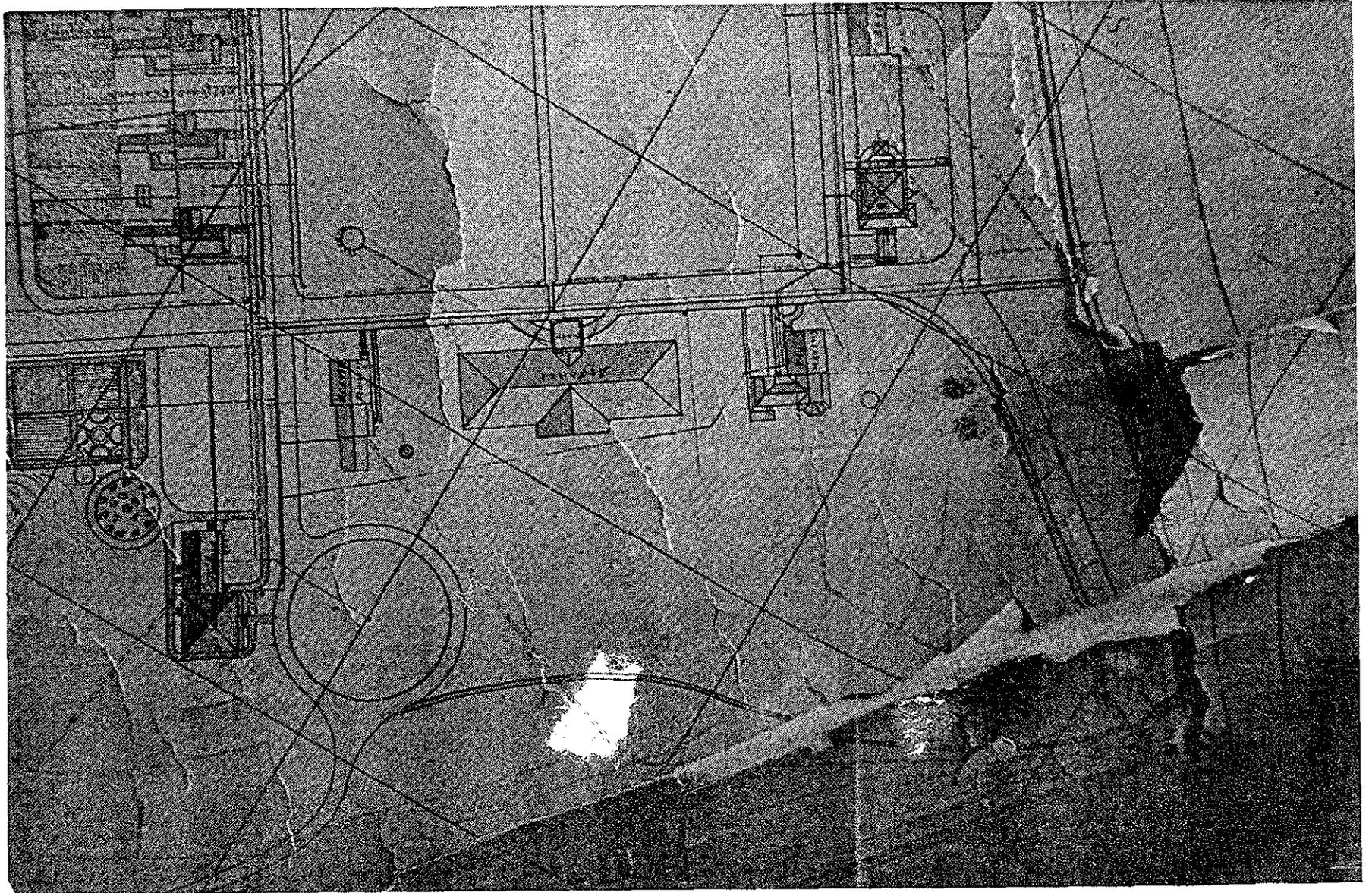
The most significant change, however, was not an alteration, but an addition. On the slope along the road which led to the new entrance at Byers and State Streets, a monument had been built. A later photograph (Illustration 7) showed it to be a stone monument with ivy covering, and including cannons and cannon balls. Given the date of its erection, circa 1876, it could have been either a Centennial or a Civil War memorial, or both.

Another change, on the 1877 map, and one not so apparent, is that the Master Armorer's Quarters now have a water pipe leading to them. None is shown on the 1864 plan. This could mean that sometime between 1864 and 1877 water pipes were laid to the Master Armorer's Quarters, or it could mean that an oversight on the earlier map was corrected on the later one; this is the probable explanation.

No other major changes in the water lines appear, although an explanation for the same confusion concerning the drain lines might have been applied by

22. The date 1875 for the change is not a capricious one and, while it may miss the mark by a year or two, was arrived at by a process of weighing the evidence. The two 1875 documents discussed above both show the new road in place. But, 1875, 1876, and 1877 city directories show the original road and entrance. Certainly the change came close to 1875. That date will stand until additional evidence can resolve that question.

23. "Topographical Plan of the U.S. Armory. Springfield, Mass. Feb 1877. Scale 100 feet to an inch. Shedd & Edson, Engineers, Boston, Mass," Springfield Armory Museum.



Map 10. "Topographical Plan of U.S. Armory. Springfield, Mass.
Feb. 1877. Shedd & Edson, Engineers, Mass." Springfield Armory
Museum.



UNITED STATES ARMY—SPRINGFIELD

Illustration 7. Monument Along the Entrance Road. The monument first appeared on an 1877 map. This photograph, however, must have been taken after the Paymaster's House had been moved in 1895.

the time the 1877 plan was drawn. Correspondence between the Board of Water Commissioners and the city mention both public and private water lines existing along the streets bounding the Armory. Possibly the drains exiting near the old State Street entrance did connect to drains along State Street, and then reentered the Armory grounds near the new gate at Byers and State Streets.²⁴

A new entrance shows clearly, as does the attendant gatehouse. This, however, is not the same gatehouse that survives today.

By 1876, Springfield Armory claimed a new title along with its recently acquired gun collection. Documents mentioning the Armory by this date frequently call it "The National Armory." The title is an interesting one. Until the Civil War Harper's Ferry manufactured weapons and could have been classed as an armory. But early in that conflict the rebel forces attacked and destroyed the armory there, leaving Springfield Armory as the sole federal manufactory for small arms. It remained the only national center of its type until the early years of the twentieth century. At that time, the title Springfield Armory returned to common use.

Around this time--either late 1876 or early 1877--some of the guns and allied displays from the Philadelphia Exposition of 1876 came to Springfield to form a nucleus for a museum at the Armory. This collection of arms would, after many years, be housed in the Main Arsenal as it is today.²⁵

Sometime between 1877 and 1882, the Master Armorer's Quarters were moved. The exact date is not yet known, but the 1877 Shedd and Edson topographic plan shows the building in its original location while the 1882 *Atlas of Springfield City* shows it in its present location. The 1882 map shows few other changes. The only obvious changes are the different configuration of the gardens and grounds associated with the Commanding Officer's Quarters, and the square outline of what had shown on other maps as a hexagonal or octagonal gatehouse. This structure, at the New Byers and State Street corner, is probably shown incorrectly on this map. Later evidence suggests that the building did not change during the nineteenth century. That evidence includes an 1884 article enhanced by a series of well-detailed drawings.²⁶ The first

24. Springfield Armory Correspondence, RG 156, Entry 1367, File 195, NA; This file contains letters mentioning the water systems along Pearl, Byers, and State.

25. Whittlesey, "Springfield Armory," pp. 234-35; The year 1876 proved to be important for the architectural history of Springfield Armory as well. That year the Ordnance Department published a collection of measured drawings of officer's quarters at arsenals and the national armory. Drawings of the Commanding Officer's Quarters and Master Armorer's Quarters are included and discussed in the buildings section of this report.

26. Kirkham, "United States Armory," pp. 245-46.

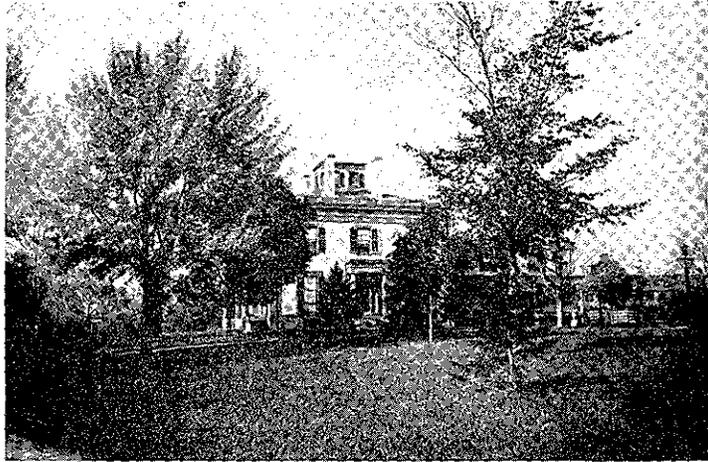


Illustration 8. "Commanding Officer's Quarters," circa 1876. This Spring or Summer scene shows the quarters prior to the new porch installation which was in place by the 1880s.

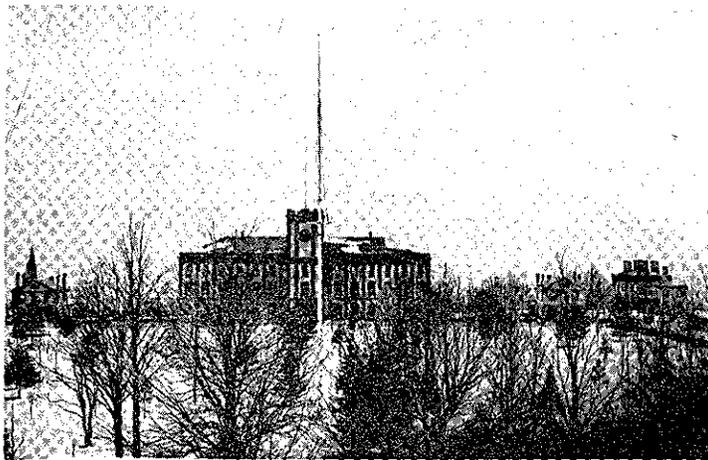


Illustration 9. West End of Springfield Armory, circa 1880, showing the complex at the west end as it looked until Building 10, the Master Armorer's Quarters, was moved around 1880. The tower of St. Mathew's Cathedral to the rear narrows the date of this picture to the period 1864 to 1880. Photograph courtesy of Springfield City Library.



Map 11. Springfield Armory, 1882, appearing in *Atlas of Springfield City, Massachusetts*. Compiled from Recent and Actual Surveys and Records Under the Direction of the Publishers. Geo H. Walker and Son, 81 Milk Street, Boston, Mass., 1882. Courtesy of Springfield Library.

illustration, "The Arsenal Building and Gateway, from State Street," includes a view of the Main Arsenal and the Paymaster's Quarters as well as an octagonal gatehouse. The predominant trees appear to be spruces, and the two items set out as display items in the yard appear to be artillery caissons.

Another drawing, "The Commandant's Quarters" shows both the recently emplaced porch on the structure as well as the landscaping associated with it. The young, maturing trees--probably elms--blend with the shrubbery around the house in a tasteful relationship which strongly suggests a professional's touch of landscape design.

A third picture, "A Room In The Main Arsenal," showing four gun racks, and the opening stanza of Longfellow's poem about Springfield Armory, helps convey some of that mystique first manifested by Roswell Lee's phase, "a grand national armory." Albert Harleigh Kirkham's prose of 1884 illustrates how strong the thread of grandeur and stately proportions still was. "'Beautiful for situation,' indeed can be said of the city of Springfield," he wrote,

and, the Main Arsenal having been erected upon almost the highest point of land within the limits of the city, the view from its top, or bell-deck is in many respects surpassed by few, if any, in New England.²⁷

Later in the article he commented on the square and the west end buildings:

Upon your right is Union Square proper, with its trees-- a great variety--its beautiful, velvety turf, and battery of half-dozen twelve-pounders, one of which is used for the sunrise and sunset gun. A few yards from the corner where you turn to the south-east, towards State Street, is the commandant's quarters; passing which south-east-erly, you come to the main arsenal, having almost completed the circuit of Union Square. The arsenal is capable, with its basement of storing nearly a half-million stand of arms. . . .²⁸

Kirkham also noted that "\$6,225,000 had been expended for land, buildings, improvements, etc" by 1884.²⁹

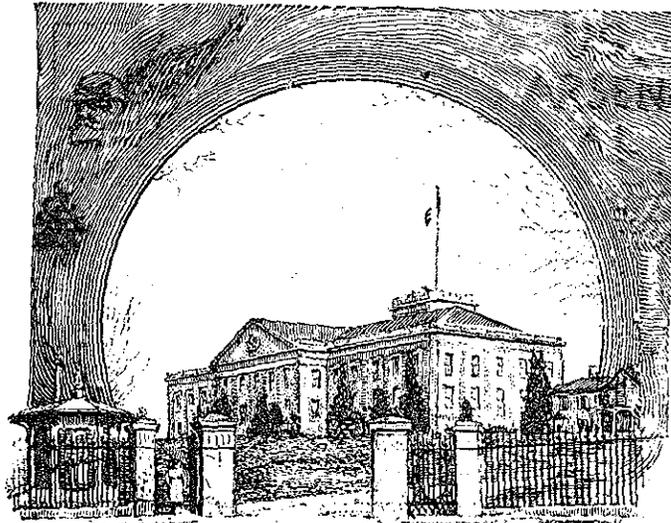
D. 1885 to 1900

The period from 1885 to 1900 saw mostly modernization of facilities such as lighting and water. However, these modern qualities had not been extended

27. *Ibid.*, p. 246.

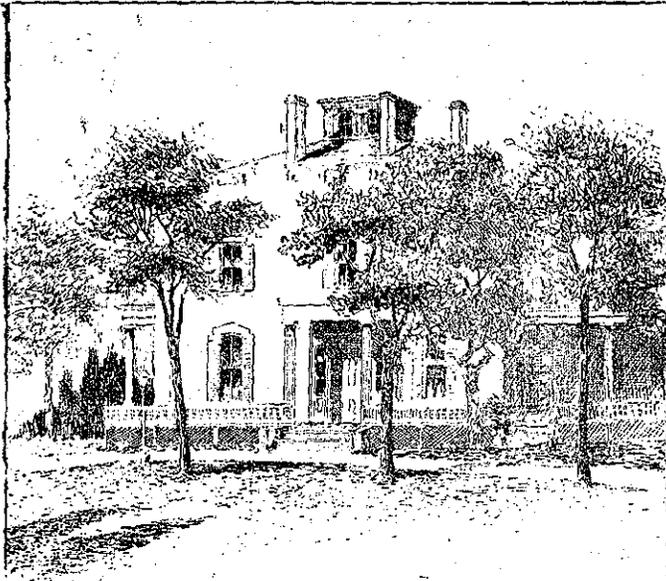
28. *Ibid.*, pp. 264-65.

29. *Ibid.*, p. 248.



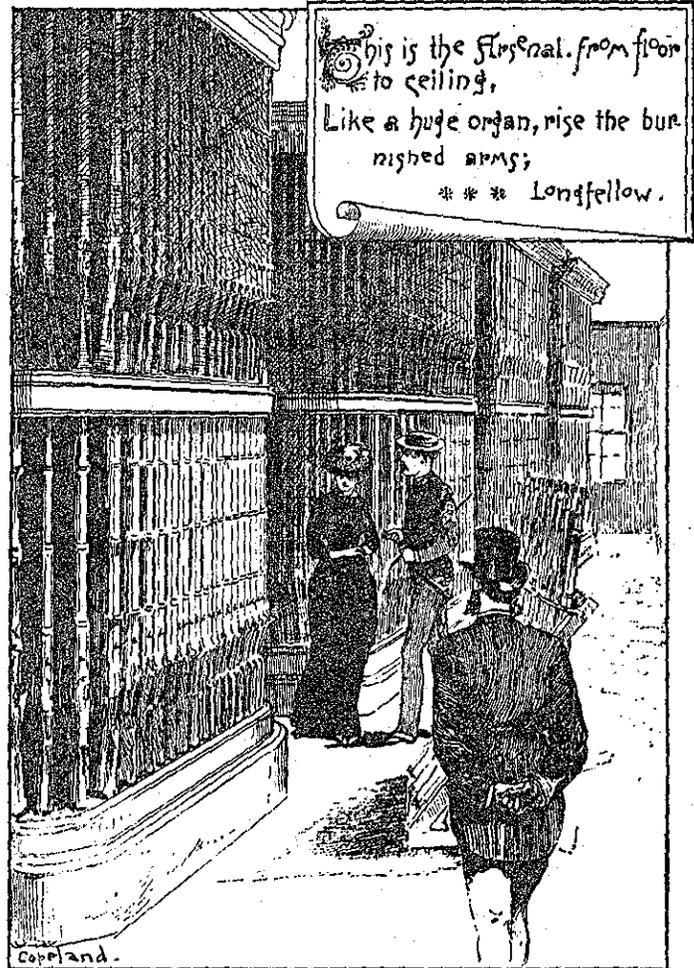
The Arsenal Building and Gateway, from State Street.

Illustration 10. "The Arsenal Building and Gateway, from State Street," showing the gatehouse, New Arsenal, and Paymaster's Quarters, 1884. From page 245, "United States Armory," *King's Handbook of Springfield*.



The Commandant's Quarters.

Illustration 11. "The Commandant's Quarters," circa 1884, from page 261, "United States Army," in *King's Handbook of Springfield.*



This is the Arsenal, from floor
to ceiling,
Like a huge organ, rise the bur-
nished arms;
*** Longfellow.

A ROOM IN THE MAIN ARSENAL.

Illustration 12. "A Room in the Arsenal," 1884, from page 247, "United States Army," *King's Handbook of Springfield.*

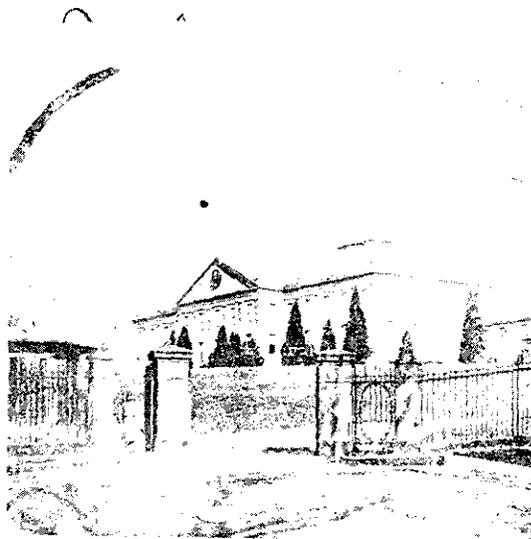


Illustration 13. "United States Armory--State Street Entrance--About 1886 Showing Sentry At The Gate," from the City of Springfield Library Collections. This photograph might have been the basis of the drawing of the same scene in *King's Handbook* (see Illustration 10). The detail, including the presence of the two caissons, appears identical. If it is the same scene, the date should be "about 1884."

as far as the quarters at the west end of the Armory. The inspection report for 1892 noted that "the post is still lighted by gas," although the machinery in the water shops had been converted to electricity.

The water supply system was also unchanged as late as 1892:

The water supply is procured on the reservation and raised to large tanks on top of public buildings, and distributed throughout by force of gravity.³⁰

The respect which many inspectors felt for Springfield Armory was manifested in a statement by the inspector general, Colonel R. P. Hughe, in forwarding to his superiors the routine report which discussed the gas lighting and water supply. Phrased in an indignant tone, the inspector general noted that

the guard at this great establishment has been reduced to a system of watchmen, tending to destroy all military bearing and discipline in this detachment.³¹

The "great establishment" also received some attention in a local picture book that year. Like the article in *King's Handbook* eight years earlier, this one took note of the territory adjacent to the Armory:

The United States Armory possesses the crown of the hill just off State Street on the north and hedges its wide expanse of grounds in on every side by a high, black painted iron fence that lends the place quite an air of mystery. Within are the many acres of well-kept grounds thickly set with shade trees.

* * *

On the lawns are a number of cannon and mortars, which for some reason or another do not seem very warlike, although they certainly do awaken a feeling of respect.

The same book described the areas surrounding the Armory, noting both the development along State Street and that east of the Armory:

State Street is the chief avenue of connection between the business center and the residence portion of the city. It is a street shadowed by many well-grown trees and is distinguished by the number of churches which look out from the foliage that half hides them. The Church of the Unity is worthy of special notice by the simple grace of its architecture, the breadth of handsome lawn which grades up

30. Report of Inspection, June 16, 1892, Colonel R. P. Hughe, RG 156, Entry 1003, NA.

31. *Ibid.*

in a gentle sweep from the street to its door and fire elms surrounding. Opposite, is the City Library, an institution of great vitality and helpfulness, and ranking in serviceability among the finest libraries in the land. In fact, no library in this state outside Boston circulates as many books as this does.

Beyond the library is the big Catholic Cathedral fronting a broad level of lawn, and a little farther up the gradually rising street is the handsome brownstone church of the First Baptist Society. It has a character all its own, and though its entrances are odd and its towers quaint, its design is harmonious and attractive.

The rich and heavy victorian prose continues, describing the development east of the Armory which had begun in the late 1860s and accelerated into the following decades:

To the east of the armory is the Springfield Highland section. A few years ago it was a region of sandy plains occupied by only a few scattered farmhouses. Now there are miles of handsomely appointed streets, lined on either side by pleasant modern houses, ranging from modest cottages to costly villas, all with well-kept lawns and few out of sight of the fountains playing in the little parks at the intersection of the streets. Each house has a strip of clear lawn in front and on either side, and in the space behind enough ground for a bit of a garden if the owner is inclined in that direction. He at least indulges in a few fruit trees. On the borders of this district you are rarely during working hours, out of hearing of the carpenter's hammering as they put together another dwelling to add to the lives of houses already built and occupied. There is still left an interposing of grass-grown lots where flourish an occasional apple tree and the inevitable 'For Sale' signs.³²

That same year, 1892, a name change came to Springfield Armory. Officially the "National Armory at Springfield," since late Civil War days, the manufacturing site became "Springfield Armory."³³ This name has carried on to the present.

Following 1892 the manufacturing and administrative process at the Armory rolled along, but the grounds and buildings, except for the Paymaster's Quarters, saw much more routine maintenance than modification. In 1895 the

32. Charles Forbes Warner, *Picturesque Hampden* (Northampton, Massachusetts: Picturesque Publishing Company, 1891), p. 23.

33. Dvarecka, "History," p. 6038.

main portion--the front section--of the paymaster's house was moved to join the line of quarters along the north side of the road flanking the quadrangle, Union Square.³⁴ This put the Main Arsenal alone at the west end of the quadrangle and increased its dominant effect on the lowlands below.

Also in 1895, one of the museums which would become part of the four-museum complex around "the Quadrangle," was built. This was the George Walter Vincent Smith Art Museum, featuring construction of "Italianate brick and Terra Cotta." Within four years the present science museum had been built as well.³⁵ The museums joined the churches in the area, and the city library (since replaced by another building on the same site) in the complex of large public buildings adjacent to the Armory.

An 1899 map (Map 12) showed the isolated Main Arsenal with a new road cut behind it. The road had probably been built sometime between the publication of the 1882 map, which does not show it, and this particular one. The west end of Armory Square looked then much as it does today.

E. 1901 to the Present

The first fifteen years of the twentieth century witnessed a great deal of modernization at Springfield Armory. The files show numerous letters concerning installation and modification of various sewer, water, gas, and electric lines.³⁶ Among other things, these files reveal that the internal water system was changed somewhat when "spring water was abandoned and city water used" in the Commanding Officer's Quarters and the hospital (formerly the Master Armorer's Quarters) by July 1, 1902. They also show that by the same date Springfield Armory was protected by thirteen fire hydrants, "not including fire standpipes."

The water system inspection in 1902 documents the existence of other buildings, mentioning "2 greenhouses."³⁷ These greenhouses appeared on a map for the first time in 1904. Called "Root and Propagating Houses," they both carry the Number 24. The Main Arsenal shows on this map as Number 13 and the Commanding Officer's Quarters as Number 1.

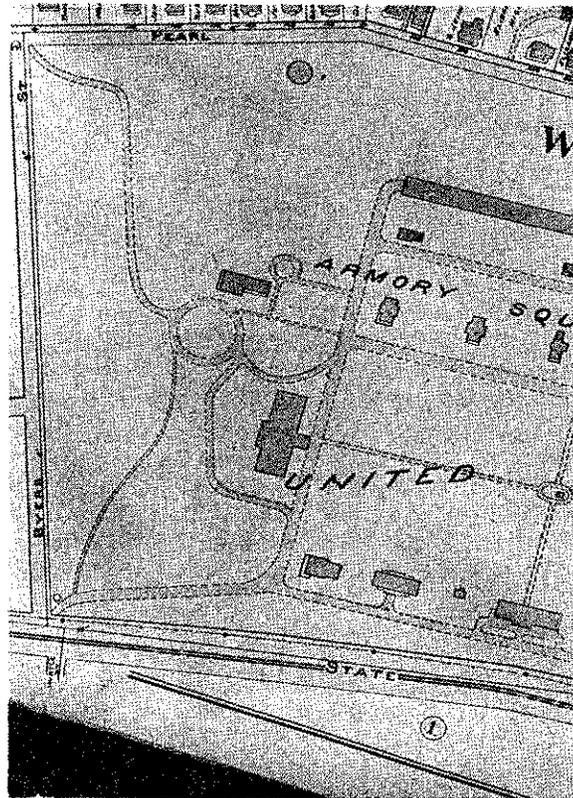
Other items of interest on the 1904 map--updated in 1905 and 1909--are the water, sewer, and gas lines. Many appear to be the same lines which first

34. Whittlesey, "Extracts," 1:66.

35. The four museums are discussed in a booklet (no author cited) entitled *The Quadrangle*, produced by the Springfield Library and Museum Association, 220 State Street, Springfield, Massachusetts, 01103.

36. See particularly Ordnance Department, Commanding Officer, Springfield Armory, Springfield Massachusetts, Central Correspondence, 1900-1915, Record Group 156, Entry 1367, Files 68 and 95, NA.

37. Inspection Report, May 21-22, 1903, RG 156, Entry 1367, File 95, NA.



Map 12. The Armory, 1899, from *Atlas of the City of Springfield, Massachusetts*, C.J. Richards and Company, Cartographers, Springfield, Massachusetts, 1899.

were shown on the 1864 and 1877 maps (Maps 8 and 10). A new road and walkway associated with the Main Arsenal show as well. The continued use of spring water, with lines marked "spring water" on the 1904 map give graphic evidence that the transition for the nineteenth to the twentieth centuries did not come all at once.

By 1906 many of the buildings on the hill had most of the modern amenities. The "officers quarters, storehouses, barracks, Etc" were heated by a steam-plant. At the same time an "Electric Light Plant" and "Gas Generator" served the buildings lining Armory Square.³⁸ About this time work was completed on an eight-inch water pipe from the Armory to connect "with the City Water Main on State Street nearly opposite the entrance on the Armory Grounds."³⁹

In 1908 a new gatehouse, officially "Gate-house Number 2 (Byers Street)" was constructed. That building is Building No. 33 today.⁴⁰ This gatehouse replaced the original octagonal structure built in that location about 1875 or 1876.

Electric light poles of the "United Electric Light Co." lined one side of the Armory by 1910 (see Map 14), and what were apparently lights owned by the Armory illuminated the Pearl Street side of the grounds. Some of these were modified to "iron-base, gooseneck poles" for arc lights in 1915.⁴¹

In the surrounding community, the early years of the twentieth century saw the present Springfield City Library rise along State Street, downhill from the Armory. A Vermont marble structure in the "style of the Italian Renaissance," it was completed in 1912.⁴²

No other major developments changed the scene at the west end of Armory Square through the 1930s. The manufacturing innovations, challenges, and responses of World War I came and went with no major effect on the site. The Springfield mystique surfaced again, however, in 1928 in an unsigned editorial in *Army Ordnance*.

Springfield Armory in this and other related aspects holds a high place. It acts in close cooperation with commercial

38. Springfield Armory Correspondence, RG 156, Entry 1367, File 68, NA.

39. The matter was approved following a May 17, 1905, request from Springfield Armory to the Board of Water Commissioners; Springfield Armory Correspondence, RG 156, Entry 1367, File 95, NA.

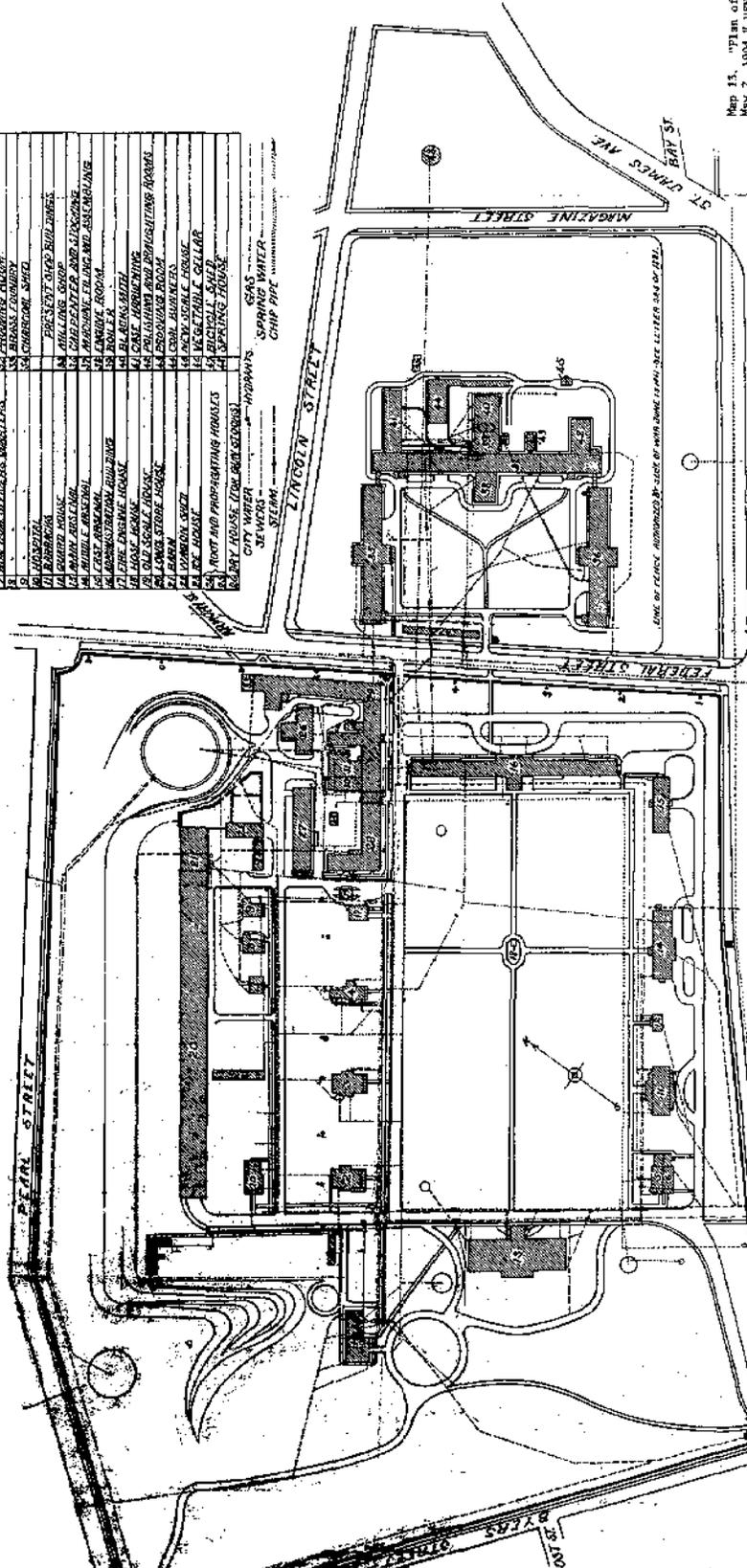
40. Historical Record, Springfield Armory, Massachusetts, June 30, 1930.

41. Springfield Armory to city of Springfield (letter), April 24, 1915, RG 156, Entry 1367, File 95, NA.

42. *The Quadrangle*, p. 19.

LEGEND

1	BLACKSMITH AND CARP WORKSHOPS
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Map 15. "Plan of Main Grounds of Armory, May 2, 1904." USA E1003, FILE 95.

PLAN OF MAIN GROUNDS OF SPRINGFIELD ARMORY

SHOWS LOCATION OF BUILDINGS, ROADS, STREETS, AND OTHER FEATURES. PLANNED CHANGES TO DATE 10, 1904.

SPRINGFIELD ARMORY, MAY 2, 1904.

PREPARED BY: [Signature]

CHECKED BY: [Signature]

APPROVED BY: [Signature]

CHIEF OF DRAWINGS

REVISIONS

NO.	DATE	DESCRIPTION
1	MAY 22, 1904	ISSUED
2	MAY 22, 1904	ISSUED
3	MAY 22, 1904	ISSUED
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8	MAY 22, 1904	ISSUED
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10	MAY 22, 1904	ISSUED

CLASS 19 DIVISION 12 DRAWING 50 FILE

arms and ammunition companies. Its roster of military personnel contains, as in the past, the names of officers who are renowned for their knowledge of the art. It possesses a corps of civilian employees whose life work and that of their fathers before them is exemplified in the character of workmanship which is one of Springfield's glories.

Guardian of our peace and homeland may Springfield, old but ever young, continue with added glory her century and a half of service--adding as it does to the assurance that war will remain all the more remote and we shall continue to have

Peace! and no longer from its brazen portals
The Blast of war's great organ shake the skies
And beautiful as songs of the immortals
The holy melodies of love arise.⁴³

The mystique obviously could not show in the 1932 aerial photograph of the Armory, but all the extant structures did. The greenhouses appear, but seem to be larger than usual, and the northernmost greenhouse appears to have lost one of the wings shown on the 1910 map. A tennis court on the west side of the Main Arsenal is in place, but the Commanding Officer's Garage (Building 18) is not. With the exception of the greenhouses being present and the garage being absent, the west end of the Armory in the 1932 photograph is remarkably similar to the scene today. Even the cross-shaped rose trellis near the northeast corner of the Commanding Officer's Quarters is present.

The garage (Building 18), the most modern structure in today's park, was built in 1937 at a cost of \$982.00. This was probably accomplished as part of the WPA program (which saw Building 10 repaired, as well). The garage was 21.5 feet square and bore the label "Garage For Quarters No. 1."⁴⁴

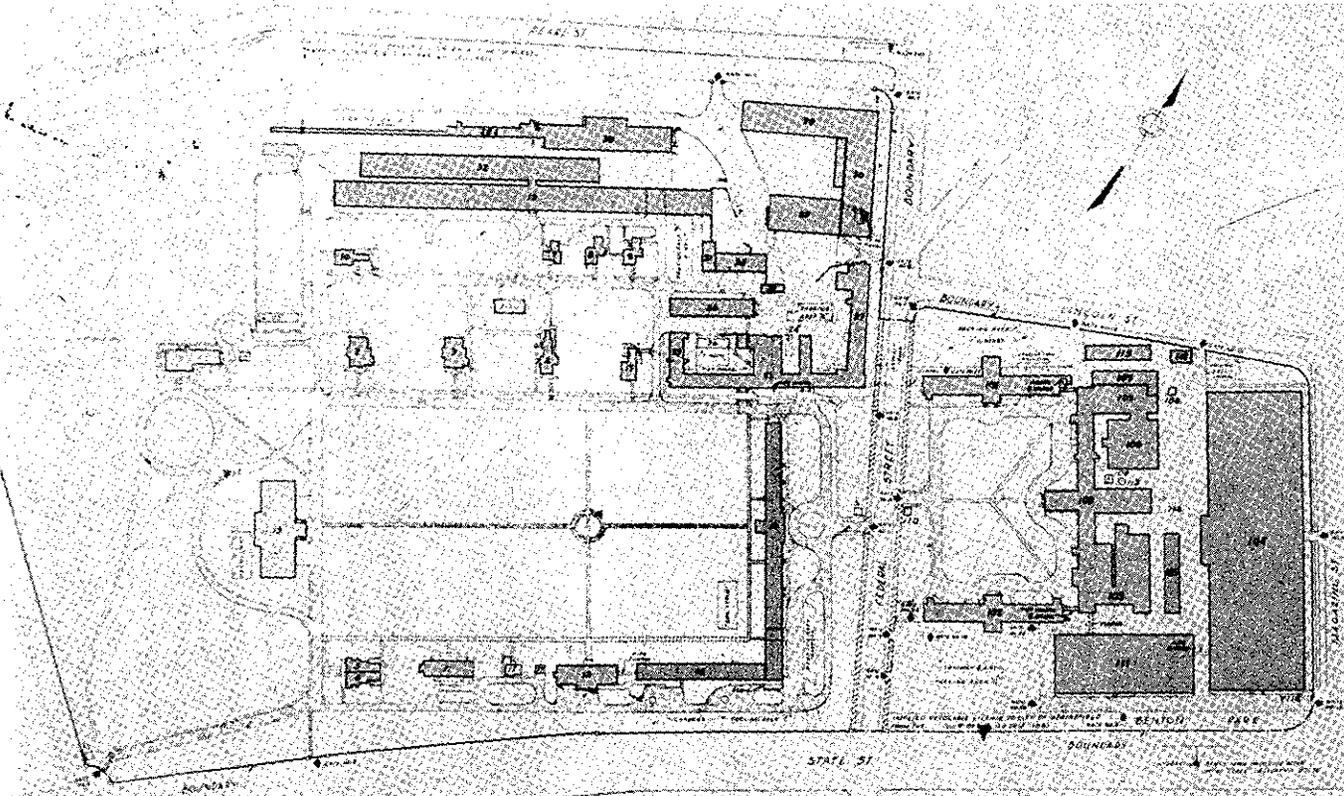
The 1932 photograph and a 1955 map (Map 15) show the same scene. Virtually nothing is different. All of the buildings existing in 1932 still remained in 1955. A pool located near the northwest corner of the Main Arsenal appeared on both, but more clearly on the 1955 map. A 1950 photograph of "Quarters No. 1," showed part of the pool (see Illustration 15). Having been built five years after the 1932 photograph was taken, Building 18 appears only on the 1955 map.

43. *Army Ordnance*, "Springfield Armory" issue, July-August 1928, p. 48, unsigned editorial; it is little wonder that the editorial was unsigned.

44. "Historical Data of Buildings, Land, and Facilities at Hillshops, Watershops, Railhead, and Quablin Reservoir, Springfield Armory, USA, 30 June 1955, revised January 1965" (chart on file at Springfield Armory).



Illustration 14. Aerial Photograph of Springfield Armory, 1932, from Springfield Armory Museum files.



LEGEND

Buildings East of Pleasant St, Buildings West of State St

1. MAIN ENTRANCE	16. STOREHOUSE
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PLOT PLAN OF EXISTING FACILITIES

SCALE 0 50 100 200 300 400 FT.

TSA 2

Map 15. Springfield Armory, 1955, from Springfield Armory Museum files.

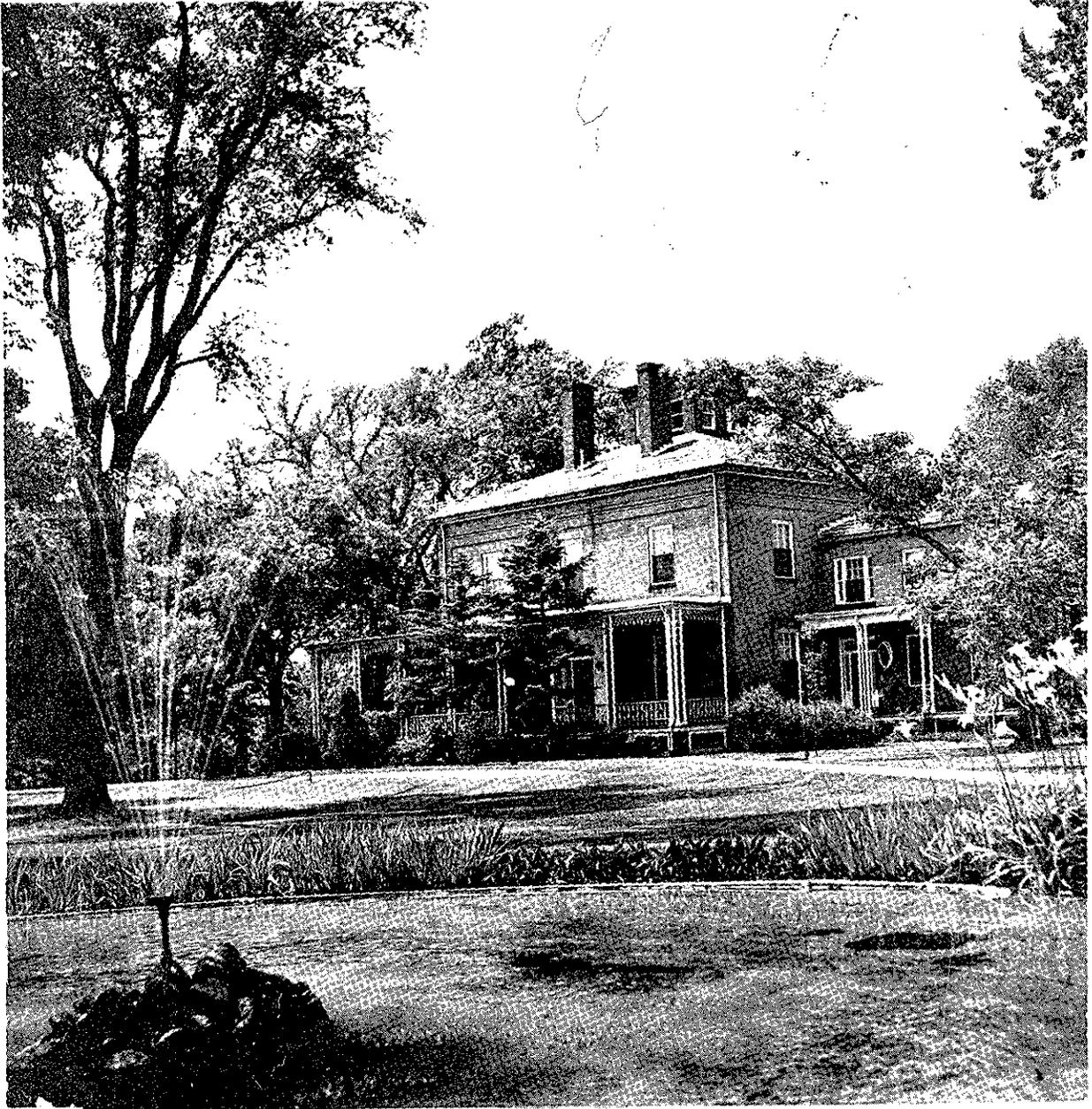


Illustration 15. Quarters No. 1 (the Commanding Officer's Quarters), 1950. The pool in the foreground is the one shown in both Illustration 14, the 1932 photograph, and in Map 15, the 1955 map. From Springfield Armory files, SA-9897.

By 1964 (Map 16) things had changed slightly. The two greenhouses were gone (local recollections put the date of their destruction at 1958). The pool and fountain near the northwest corner of the Main Arsenal had been removed as well. The landscaping design, however, does not appear particularly different when compared with the 1932 photograph.

The 1964 map is more detailed, something that is obvious at the first glance. Each tree or group of trees is marked by common and scientific names. The landscape foliage design as of 1964 is revealed as precisely as possible. The details show how the concepts of tree placement have changed since 1831. Armory Square of 1964 has a relatively sparse grouping of trees compared to the closely grouped and regular lines of trees on the Green in 1831. The formal gardens of the Commanding Officer's Quarters, so obvious in the 1864 and 1877 Shedd and Edson plans had given way to a line of "Bartlett," "Anjou," and "Russett" pear trees, and a field of grass by 1964. The west end of the Armory, then, had essentially reached the point in 1964 where we now find it today.

There remained one change. In 1968 the city of Springfield school system carved out three practice football areas in the flat land in and around the Main Arsenal. Two fields went in just west of the Main Arsenal and Building 1, and one went where the gardens had been. That was the last major alteration to the grounds and buildings at the west end of Armory square.

CHAPTER V: STRUCTURES DATA AND HISTORICAL REFERENCES

Springfield Armory was the object of a study conducted by a team of five National Park Service professionals from August 6-10, 1967. Roy E. Appleman, Chief of the Branch of Park History Studies, served as the coordinator. Dr. Ernest Allen Connally, Chief of the Office of Archeology and Historic Preservation, and Russell V. Keune, Acting Keeper of the National Register, assisted in the team's work at Springfield. The field team consisted of Frank B. Sarles, a historian, and Denys P. Myers, an architectural historian.

The work of this group resulted in a report entitled *Springfield Armory: Evaluation Under Provision of Historic Preservation Act of 1966*, published by the Office of Archeology and Historic Preservation, National Park Service, in August 1967. This report, which may have been the first produced under the provisions of the 1966 act, contained a general description of the site, a brief historical narrative, and descriptions (including some history) of the buildings examined, and blended historical and architectural qualities.

The buildings examined included Building 1, the Commanding Officer's Quarters; Building 10, the Master Armorer's Quarters; and Building 13, the Main Arsenal. In order to avoid duplication of effort, these portions of the 1967 report are reproduced here, with any additional material which has surfaced in the interim added in an "additional data" essay following each report. Appropriate photographs are integrated into the report as required.

A. Building No. 1

As related earlier, the Commanding Officer's Quarters were built under Major Ripley's direction in 1845-46 to replace the earlier structure on the site of the present Building No. 13. When in 1846 the controversies in which the aggressive Ripley had become embroiled resulted in the institution of a military court of inquiry to investigate his conduct, one of the thirteen charges related to his construction of such elaborate quarters.

An excellent example of the Greek Revival style, Ripley's "palace" is a two-storied brick house 50 by 44 feet, with a 52 by 27 feet service ell parallel with the three-bayed entrance facade. The hipped roof of the main block is surmounted by a brick cupola supported on the interior partitions, which are also constructed of brick. The generous scale allows for two west drawing rooms, 18 by 21 feet; a vestibule, 10-1/2-foot wide hall and square study in the center; and a 16-1/2 by 18 feet reception room, stair hall, and dining room 16-1/2 by 18-1/2 feet, in the east portion of the main block. The first floor ceiling height is approximately 14 feet. The interior trim is extremely simple, the only enrichment of the plaster cornices consisting of a band of guttae in the hall. The plan of the second floor is essentially similar to the first floor layout. The first-floor mantelpieces are later replacements

dating from about 1900. The second-floor mantelpieces are original simple marble examples. The original six-over-six-light cupola windows have been altered to one-over-one-light sash. The paneled wooden roof parapets were removed about 1870, when an iron snow rail was substituted. A bay window was added to the dining room. The rectangular transom of the main entrance was altered to an elliptical fanlight, and the sidelights and transom fitted with leaded glass about 1900. Around 1870 the most conspicuous exterior alteration occurred, when the original distyle Doric entrance portico, Doric west porch, and ell porch were removed and the present delicate cast-iron porches were built.¹

Additional Data

The source material which has surfaced since the 1967 *Evaluation* does not disagree to any great degree with that report. Purchase orders (mentioned in Chapter III of this study) show that construction on the house continued into at least the summer of 1847. This would enlarge the construction dates to span the 1845 to 1847 period, of course. But this is hardly of major consequence to the history of the house. Another less than vital correction to be made is the date of the present porch. The detailed drawings of the Commanding Officer's Quarters and the Master Armorer's Quarters, executed in 1876, show the original porch still in position (these drawings will be utilized in the Architectural Data Section of this report, as will interior photographs of the structure taken at about the turn of the century.) The 1877 Shedd and Edson topographical plan tends to confirm this. So the present front porch postdates 1876. The illustration in *King's Handbook*, dated 1884, also shows the older porch. Therefore, the present porch postdates 1884. The 1930 "Historical Record" provides some appreciation of the size and magnificence of the structure, and it is quoted in part below.

7400 sq. ft.; steam heat; electric lighting; water and sewer connections; 9 awnings; 5 bath and 3 laundry tubs; 10 fire-places; 5 steam radiators; 1 gas range; 7 water closets; 42 window shades; date of completion 1845 [should be 1847]; original cost \$24,900; appraised value, \$60,000.²

A final consideration concerns the gardens associated with the Commanding Officer's Quarters. Photographs taken from Springfield Armory Museum files and labeled "before 1950 when gardens were tended" show trimmed hedges and semiformal gardens lining the driveway to the rear of the Commanding Officer's Quarters. They remain only in part today. The rose arbor shown in the photographs (Illustrations 16 and 17) remains today, but in poor condition.

Aside from the 1864 and 1877 topographical plans, this is the only solid evidence yet for the existence of formal gardens associated with the Commanding

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1. Sarles, *Evaluation*, pp. 20-21.
 2. Historical Record, Springfield Armory, sheet 1.

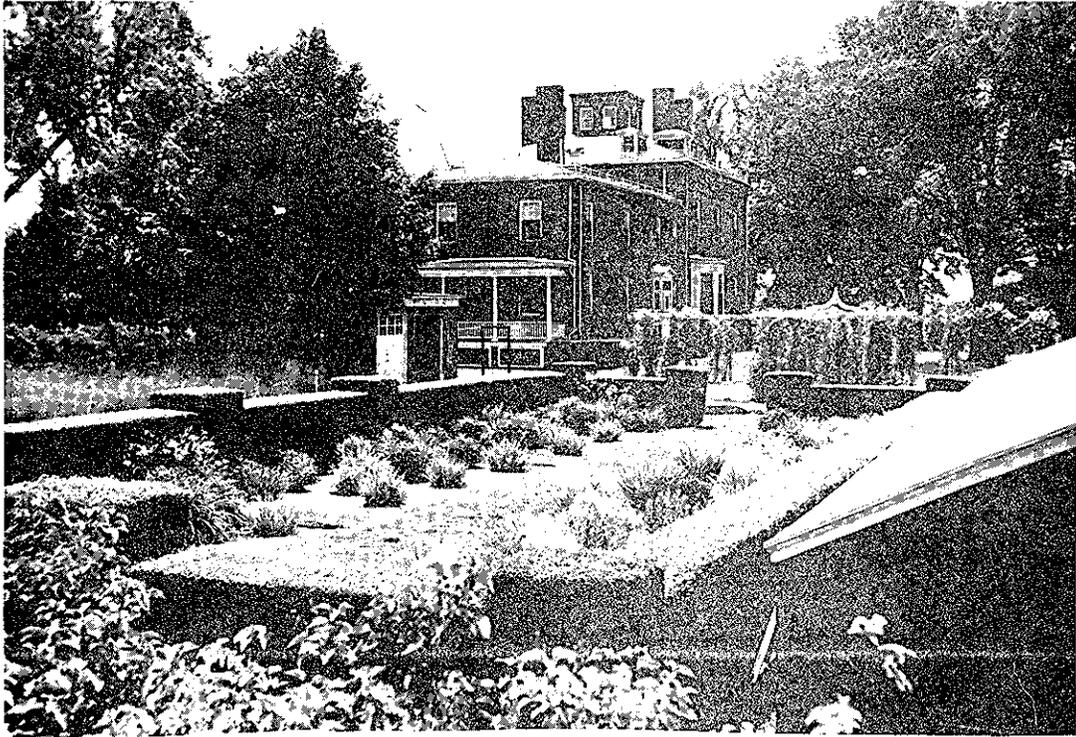


Illustration 16. The rear of Building No. 1, front of Building No. 18 (Garage) and front of Building No. 23 (Greenhouse) circa 1949. The inscription on this photograph reads "before 1950 when gardens were tended." From Springfield Armory Museum files 9897A.

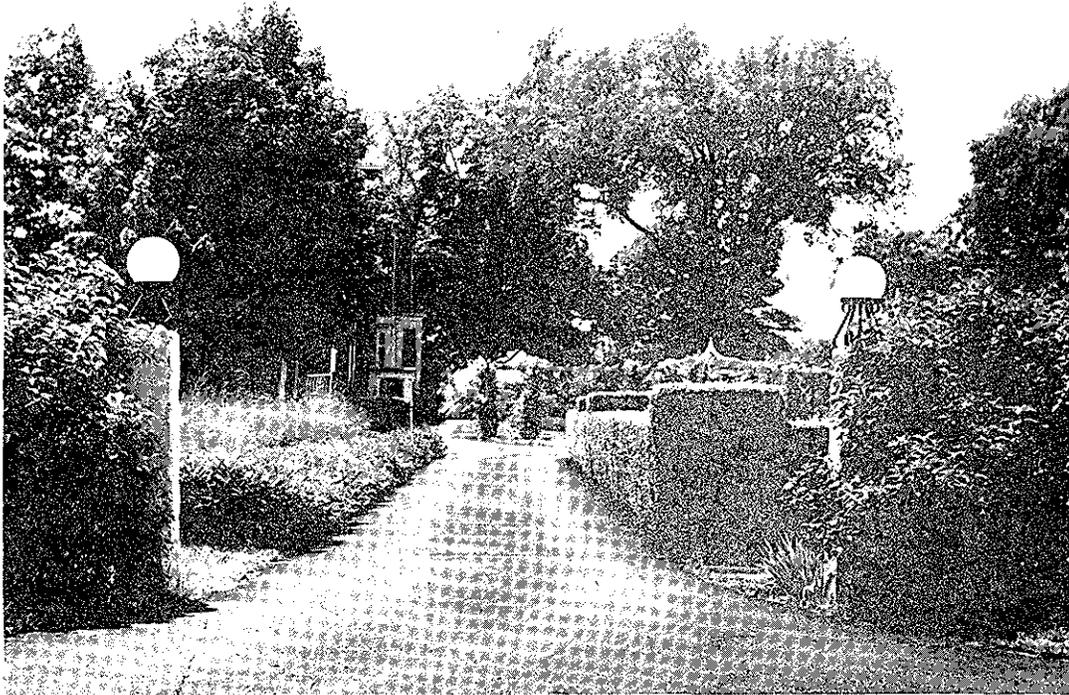


Illustration 17. The driveway to Building No. 1. This photograph is marked exactly as Illustration 16.

Officer's Quarters. Obviously, the gardens shown in Illustrations 16 and 17 are south of the greenhouse. Whatever existed north of the greenhouse, circa 1944, is still unknown.

B. Building No. 10

Two brick houses built in 1833 have virtually unaltered exteriors. Building No. 10, now officer's quarters, was earlier used as a hospital. A Greek Revival building of two stories with three-bay pedimented front and slate-covered gabled roof, it measures 40 feet 5 inches by 32 feet 5 inches with a two-story ell, 29 feet 5 inches by 17 feet 3 inches. The windows have six-over-six-light sash. The front gable has a semielliptical window. The second story of the rear porch is not original. The notably attractive features, in addition to the good proportions and workmanship, are the Ionic entrance portico and the carved ball trim under the eaves. The interior has simple trim, plaster cornices, and a side hall plan.³

Additional Data

Little needs to be added to the data above or in Chapter II of this study. Roswell Lee apparently had to overcome many objections to construct this structure as well as one for the paymaster. Permission came in 1832, and the next year construction began.⁴ Construction of these two, plus two other dwellings, continued through that year and the next. The inspector's report for 1835 included a comment on them which is surprising in view of the successful and continuing career of the buildings into the 1960s.

The new Houses and pay office recently built for the Master Armorer & Paymaster have good walls and roofs--
The finish of their interior is below mediocrity as regards materials and workmanship.⁵

Some work apparently carried over into 1837, since the inspector that year commented on what today is called a "cost overrun." The "4 Brick Dwelling Houses" estimated to cost \$10,000, had run up to \$15,319.61 and only three were finished nearly.⁶ (Is this yet another instance of Springfield Armory passing on its heritage to the present?)

It is still unknown as to why and exactly when the management of the Armory moved the Master Armorer's Quarters. The date of the move fell between

3. Sarles, *Evaluation*, p. 30.

4. Whittlesey, "Springfield Armory," p. 151.

5. Report of Inspector, October 13-November 4, 1835, RG 156, Entry 1003, NA.

6. Report of Inspector, September 9-13, 1837, RG 156, Entry 1003, NA.



Illustration 18. The Master Armorer's Quarters, 1932, from Springfield Armory files.

1877 and 1882, but exactly when during that five-year span has not yet been determined.

The repairs made to the structure by the WPA around 1937 produced some changes to be discussed in detail in the Architectural Data Section of this report. Likewise, the detailed 1876 drawings of the structure will be part of that report.

C. Building No. 13

The Main Arsenal, probably the best known of the Armory buildings, was begun in mid-1847 and completed three years later at a cost of \$86,066. It is a featured motif on the official seal of the City of Springfield, adopted two years after the Main Arsenal was completed. During the Civil War, the building was the scene of an abortive sabotage attempt by Confederate agents, who placed a bomb in the tower.

The imposing scale of Main Arsenal grandly dominates the west end of the Parade. The architectural character is more formal and unified than that of any other building considered, not even excepting the Commanding Officer's Quarters. The 2-1/2 feet-thick brick walls are strongly articulated by first floor piers and, above a string course, two-story-high pilasters. The Main Arsenal's 15-bay facades measure 199 feet across with a massive tower 24 by 30 feet facing the Parade and a pedimented pavilion 12 by 69 feet on the west side. The ends of the building are 69 feet deep. The tower rises two full stories about the cornice line of the slate-covered hipped roof and bears three clock faces, the fourth being in the west pediment. A mast-sized flagpole rises from the center of the tower roof behind a battlemented parapet. The round-arched first floor windows have stone panels beneath them and are surrounded by stone rusticated architraves. The rectangular second floor windows, hung with twelve-over-twelve-light sash, have simpler stone architraves with pediment-shaped lintels. The third floor windows are similar, with rectangular stone architraves and flat lintels. A wooden paneled parapet surmounts the roof. The only significant exterior alteration, except for the addition of two cement loading docks and a fire escape, has been the removal of the wooden one-story tetrastyle Greek Doric portico from the west pavilion. The structural system of the open plan interior is supported by cast-iron Doric columns 13 feet on center through the basement and remarkably light cross-plan cast-iron posts 13 feet on center on the first and second floors. The third floor is completely unobstructed. The most remarkable feature of the interior is the magnificent visually unsupported open wooden stairway which spirals in a sweeping curve 131 risers to the uppermost chamber of the tower.⁷

Additional Data

From the beginning the arsenal served as a weapons storehouse. It continued in that capacity for most of its military life. As a storehouse--

7. Sarles, *Evaluation*, pp. 23-25.

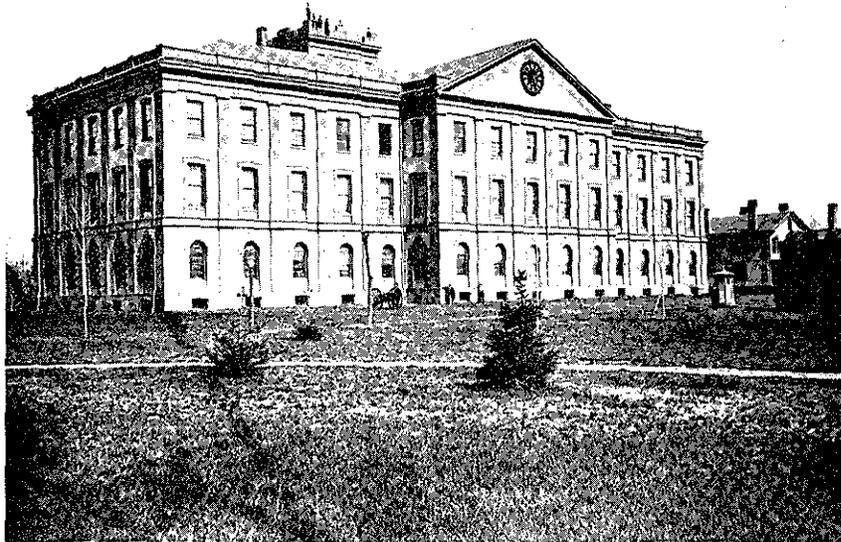


Illustration 19. The Main Arsenal (Building No. 13) prior to 1899. Note the sentry box placed to view the rear of Buildings No. 13 and 17 (the Paymaster's Quarters) and the front of Building No. 1 (the Commanding Officer's Quarters).

classically an arsenal--it underwent some modifications. In 1897 a hydraulic elevator "capable of carrying a load of 1,200 pounds to the third floor" was placed in the building, adding "greatly to the value of the building as a storehouse."⁸ Within eight years the water supply to the elevator, "heretofore insufficient," had been augmented by a new pipe.⁹

During December 1912 and the first three months of 1913, water sprinklers were emplaced in the Main Arsenal. Building No. 14, another arsenal, also received water sprinklers at the same time.¹⁰

The next major change occurred in 1941 when the present elevator was installed and the platform built into the base of the tower. The building, while continuing as a storage facility, also served as an office for the ordnance department's "Field Service." By 1950, part of the ordnance district's regional office also moved to the building, which received the museum collection it houses today.¹¹

D. Miscellaneous Structures

1. Building No. 18

Building No. 18, the Garage for Building No. 1, is discussed in Chapter IV.

2. Building No. 33

Like Building No. 18, Building No. 33 is discussed in Chapter IV. The 1930 "Historical Record" (Sheet 53) describes the Gatehouse for Gate 2.

108 sq ft; built 1908; slate roof, cement floor; brick foundation; no heat; electric light; 14 x 12; \$1,000 value; Cost \$498.00.

E. Nomenclature

Since Springfield Armory has a two hundred year history, it is a site which has a heritage of different names for the same sites. It might be wise to consider naming the sites and structures which are frequently discussed

8. U.S., Congress, House, "Report of the Chief of Ordnance," in Annual Report of the War Department for the Fiscal Year Ended June 30, 1897, p. 19.

9. U.S., Congress, House, "Report of the Chief of Ordnance," in Annual Report of the War Department for the Fiscal Year Ended June 30, 1905, p. 58.

10. Contract, December 16, 1912, in Springfield Armory Museum files.

11. Interview, Thomas Wallace, by John Albright, April 28, 1976, copy on file, Denver Service Center, National Park Service.

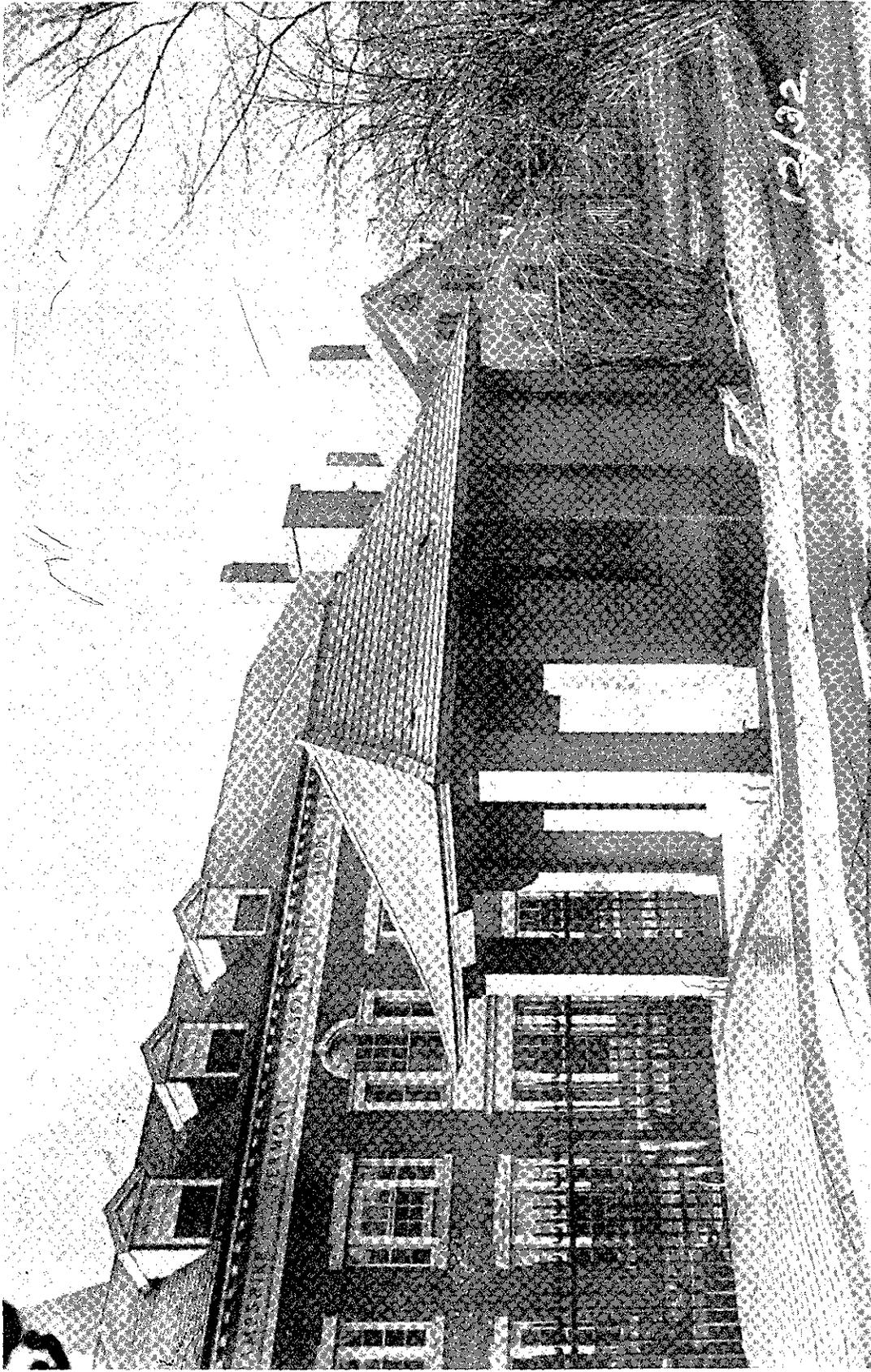


Illustration 20. The Gatehouse at Gate 2, 1952.

in order to avoid any confusion. (Different titles for the same sites or buildings have already appeared in some recent National Park Service documents.) With this in mind, the following are submitted for consideration:

Building No. 1, the Commanding Officer's Quarters
Building No. 13, the Arsenal
Building No. 10, the Master Armorer's Quarters
Building No. 18, the Garage for the Commanding Officer's Quarters
Building No. 33, the Gatehouse
The campus can be called Armory Square.

Since Springfield Armory was not a military fort by a manufacturing center, the central grassed area should probably not be called "the Parade" as has been the practice. Nor should Building No. 1 be called the "Commandant's Quarters." It was so called only for a brief period in the late nineteenth century, and connotes a dwelling for a superintendent of a military school, something Springfield Armory was not.

F. Planning and Development

This study traces not only the development of Springfield Armory, but shows the strong and continued relationship that the Armory and the city have shared since the Revolutionary War. As Derwent Whittlesey wrote in his 1920 history of the site,

the town has moulded the Armory and has by the Armory been moulded in turn. To divorce them would be to sacrifice their joint history.¹²

With "their joint history" as a major quality of the site, it follows that the National Park Service should no more damage that aspect of the heritage of the site than it should capriciously change an existing historic structure (which, of course, it would not do). To do otherwise would not keep intact the resource as received by the Park Service, nor would it be sound historic preservation.

One method of keeping the relationship of city and Armory intact is to plan for development, interpretation, and overall management of the park as a part of the city in which it exists. With the city actively encouraging preservation of its monumental structures near the Armory, this becomes imperative. And it provides an exciting prospect for an integrated series of cultural and public sites serving the visiting public. For a small city like Springfield to have so many important assets is unusual. It is more unusual for the Park Service to be presented with such a clear opportunity to plan and develop an urban historic site which is so deeply at the heart of not only the city's past but its present. To respond to this unique opportunity the Park Service will have to initiate close and continuing contacts with those planning

12. Whittlesey, "Springfield Armory," Chapter 9; see Appendix D.

for the development and management of the city's cultural and public resources. To do less would be "to sacrifice their joint history."

G. Collections Conservation and Management

The heart of the museum at the arsenal is the gun collection. This collection is being administered by a curator and is not addressed in this study. Other materials merit some attention, however.

The museum collection contains documents and photographs which should be surveyed by the appropriate professionals (librarians, curators, and archivists). Following this appraisal of the scope of the collection and associated conservation and management needs, the necessary steps to care for the collection and make it available to researchers can be taken. It is likely that the photographic files alone will demand considerable work before they are ready for use. Since current planning included alternatives making the armory museum a research center, a plan to care for and to manage the documentary resources at a park should probably be written and implemented as soon as possible following the survey of the collection. Ultimately, the gun collection and supporting documents and photographs might be integrated into a system which allows ease of management, control, and conservation as well as some sort of cross-referencing for researchers.

CHAPTER VI: RECOMMENDATIONS FOR ADDITIONAL RESEARCH

A. Historic Resource Study

This combination grounds study and historic structure report will suffice for immediate planning, development, and management needs. But a thorough historic resource study needs to be completed for Springfield Armory to provide data for long-range management, development, and interpretation. At a minimum, this study should examine the manufacturing process at Springfield Armory and how it developed during the plant's history. The relationship of the Armory to national history and to the development of the city of Springfield also needs to be covered. The study should be initiated as soon as preliminary planning has reached a point where the general tone of the interpretive message at the park is determined. With the interpretive message known, the resource study can address the needs of the interpretive planners as well as others involved in planning and management.

B. Historic Furnishing Study

Should decisions be made which would result in the furnishing of either the Commanding Officer's Quarters or the Master Armorer's Quarters, an appropriate historic furnishing study will have to be made. This is not of the highest priority, and should be done only if one or both of the buildings are restored.

APPENDIX A
TITLE AND JURISDICTION OF THE SPRINGFIELD ARMORY

This data is taken from pages 105-111 of James B. McCrellis, *Military Reservations, National Military Parks, and National Cemeteries, Title and Jurisdiction*, prepared in the Judge Advocate General's office (Washington, D.C.: Government Printing Office, 1898). This book is in the collections of the U.S. Army Military History Research Collection, Carlisle Barracks, Pennsylvania.

SPRINGFIELD ARMORY.

This reservation is situated at Springfield in Hampden County. The title is as follows:

1. Deed from Nathaniel Patton and wife to the United States, dated June 22, 1795, conveying 1 acre and 2 roods of land with privilege of erecting a dam, etc. Deed recorded in office of the Registry of Deeds for Hampshire County, June 23, 1795.

2. Deed from John Ashley and wife to the United States, dated September 19, 1798, conveying 1 acre and 136 rods of land with the privilege of erecting a dam, etc. Deed recorded in office of Registry of Deeds for Hampshire County, September 19, 1798.

3. Deed from the Inhabitants of the Town of Springfield to the United States, dated August 24, 1801, conveying 30 acres 2 roods and 14 rods. Deed recorded in Liber 40, folio 216, of the deed records of Hampshire County.

4. Deed from Jonathan Dwight et al. to the United States, dated October 16, 1807, conveying 139 perches of land. Deed record in Liber 47, folio 516, of the deed records of Hampshire County.

5. Deed from James Byers to the United States, dated January 9, 1809, conveying lot in Springfield; area not given. Deed recorded in Liber 47, folio 618, of the deed records of Hampshire County.

6. Deed from John Ashley to the United States, dated January 10, 1809, conveying 117 rods of land. Deed recorded in Liber 49, pages 72, etc., of the deed records of Hampshire County.

7. Deed from Gerald Warner to the United States, dated March 2, 1809, conveying 7 acres and 95 rods. Deed recorded in Liber 50, folio 156, of the deed records of Hampshire County.

8. Deed from the Town of Springfield to the United States, dated September 2, 1808, conveying 127 rods of land. Deed recorded in Liber 49, folio 310, of the deed records of Hampshire County.

9. Deed from Daniel Ashley and wife to the United States, dated April 17, 1809, conveying 15 acres. Deed recorded in Liber 50, folio 297, of the deed records of Hampshire County.

10. Deed from Jonathan Dwight, jr., to the United States, dated June 10, 1809, conveying 5 acres. Deed recorded in Liber 50, folio 330, of the deed records of Hampshire County.

11. Deed from Jacob Bliss to the United States, dated December 13, 1809, conveying 60 rods of land. Deed recorded in Liber 47, folio 686, of the deed records of Hampshire County.

12. Deed from William Carlisle to the United States, dated January 26, 1811, conveying 6 acres and 79 rods of land. Deed recorded in Liber 51, folio 595, of the deed records of Hampshire County.

13. Deed from Trustees of the School Funds in Town of Springfield to the United States, dated May 9, 1812, conveying 16 acres 2 rods and 39 rods of land. Deed recorded in Liber 49, folio 640, etc., of the deed records of Hampshire County.

14. Deed from James Byers and wife to the United States, dated May 13, 1812, conveying 72 rods of land. Deed recorded in Liber 53, folio 619, of the deed records of Hampshire County.

15. Deed from James Carew and wife to the United States, dated May 13, 1812, conveying a lot in Springfield. Deed recorded in Liber 53, folio 617, of the deed records of Hampshire County.

16. Deed from Calvin Barret and wife to the United States, dated May 13, 1812, conveying a lot in Springfield. Deed recorded in Liber 53, folio 618, of the deed records of Hampshire County.

17. Deed from Obed Wright and wife to the United States, dated May 14, 1812, conveying 17 rods of land. Deed recorded in Liber 53, folio 620, of the deed records of Hampshire County.

18. Deed from Josiah Comstock and wife to the United States, dated May 16, 1812, conveying 35 rods, etc., of land. Deed recorded in Liber 53, folio 621, of the deed records of Hampshire County.

19. Deed from William Wood, Jr., and wife to the United States, dated May 26, 1812, conveying a lot in Springfield. Deed recorded in Liber 53, folio 622, of the deed records of Hampshire County.

20. Deed from Er Cooley and wife to the United States, dated May 28, 1812, conveying a lot in Springfield. Deed recorded in Liber 53, folio 623, of the deed records of Hampshire County.

21. Deed from Lemuel Wheeler to the United States, dated June 4, 1812, conveying 0.59 acre. Deed recorded in Liber 53, folio 642, of the deed records of Hampshire County.

22. Deed from George Blake and wife to the United States, dated June 5, 1817, conveying 3 acres and 3 rods. Deed recorded in Liber 62, folio 252, of the deed records of Hampshire County.

23. Deed from the Trustees of the School Funds, etc., to the United States, dated September 30, 1817, conveying two tracts in Springfield. Deed recorded in Liber 61, folio 210, of the deed records of Hampshire County.

24. Deed from John Ashley to the United States, dated May 27, 1819, conveying 80 square rods and bed of river. Deed recorded in Liber 64, folio 311, of the deed records of Hampshire County.

25. Deed from Samuel Warner and wife et al. to the United States, dated August 8, 1822, conveying 5 acres and 95 rods. Deed recorded in the office of the Registry of Deeds in Hampden County, September 21, 1822.

26. Deed from William Carlisle to the United States, dated June 24, 1824, conveying 2 acres 1 rood and 87 rods. Deed recorded in Liber 71, folio 549, of the deed records of Hampden County.

27. Deed from Thaddeus Ferro to the United States, dated June 24, 1824, containing 2 acres and 69 rods of land. Deed recorded in Liber 71, folio 548, of the deed records of Hampden County.

28. Deed from Lemuel Charter to the United States, dated April 21, 1825, conveying 2 acres and 92 rods. Deed recorded in Liber 74, folio 633, of the deed records of Hampden County.

29. Deed from Solomon Hatch to the United States, dated September 14, 1825, conveying 40 rods of land and right of way, etc. Deed recorded in Liber 75, folio 186, of the deed records of Hampden County.

30. Deed from Abiram Morgan to the United States, dated December 20, 1827, conveying a spring of water, etc. Deed recorded in Liber 77, folio 724, of the deed records of Hampden County.

31. Deed from Jonathan Dwight, Jr., and wife to the United States, dated July 3, 1830, conveying 550 acres. Deed recorded in Liber 82, folio 179, of the deed records of Hampden County.

32. Deed from Homer J. Wood and wife to the United States, dated February 22, 1845, conveying a lot in Springfield. Deed recorded in Liber 128, folio 74, of the deed records of Hampden County.

33. Deed from Walter H. Bowdoin and wife to the United States, dated May 24, 1845, conveying a lot in Springfield. Deed recorded in Liber 127, folio 311, of the deed records of Hampden County.

34. Deed from Samuel Currier and wife to the United States, dated May 26, 1845, conveying 23 rods of land, with reservations, etc. Deed recorded in Liber 128, folio 177, of the deed records of Hampden County.

35. Deed from George Bliss and wife to the United States, dated May 26, 1845, conveying a lot in Springfield. Deed recorded in Liber 128, folio 176, of the deed records of Hampden County.

36. Deed from Persis Taylor to the United States, dated May 31, 1845, conveying 6 rods of land. Deed recorded in Liber 129, folio 435, of the deed records of Hampden County.

37. Deed from Benedick Penewick to the United States, dated October 15, 1845, conveying a lot in Springfield. Deed recorded in Liber 130, folio 447, of the deed records of Hampden County.

38. Deed from William Sheldon to the United States, dated October 23, 1845, conveying lots in Springfield. Deed recorded in Liber 131, folio 118, of the deed records of Hampden County.

39. Deed from James Brewer to the United States, dated July 15, 1845, conveying 12 acres and water privileges. Deed recorded in Liber 133, folio 126, of the deed records of Hampden County.

40. Deed from the Inhabitants of Springfield to the United States, dated October 12, 1846, conveying by way of exchange of certain lands by authority of an act of Congress approved March 3, 1845. Deed recorded in Liber 132, folio 336, of the deed records of Hampden County.

41. Deed from James M. Crook to the United States, dated October 2, 1846, conveying lots 9 and 10; also a strip 3 feet wide adjoining the same; also a strip 3 feet wide on Sumner Street. Deed recorded in Liber 135, folio 410, of the deed records of Hampden County.

42. Deed from James M. Crook to the United States, dated October 2, 1846, conveying by release all interest in Summer Street. Deed recorded in Liber 132, folio 336, of the deed records of Hampden County.

43. Deed from James Brewer to the United States, dated October 19, 1846, conveying by way of release all interest in certain roads. Deed recorded in Liber 133, folio 212, of the deed records of Hampden County.

44. Deed from James Brewer to the United States, dated October 19, 1846, conveying a lot in Springfield. Deed recorded in Liber 136, folio 159, of the deed records of Hampden County.

45. Deed from Samuel Dale and wife to the United States, dated November 16, 1846, conveying a lot in Springfield. Deed recorded in Liber 132, folio 426, of the deed records of Hampden County.

46. Deed from Walter H. Bowdoin and wife to the United States, dated November 30, 1846, conveying a lot in Springfield. Deed recorded in Liber 132, folio 425, of the deed records of Hampden County.

47. Deed from Walter H. Bowdoin and wife to the United States, dated December 18, 1847, conveying 120 square rods of land in Springfield. Deed recorded in Liber 139, folio 483, of the deed records of Hampden County.

48. Deed from Walter H. Bowdoin and wife to the United States, dated December 18, 1847, conveying Lots 6 and 7 of Cottage Homestead, in Springfield, etc. Deed recorded in Liber 140, folio 231, of the deed records of Hampden County.

49. Deed from Walter H. Bowdoin and wife et al. to the United States, dated December 18, 1847, conveying Lot 8 of Cottage Homestead, in Springfield. Deed recorded in Liber 140, folio 235, of the deed records of Hampden County.

50. Deed from George T. Bond to the United States, dated February 28, 1848, conveying 3 rods of land. Deed recorded in Liber 140, folio 219, of the deed records of Hampden County.

51. Deed from James Indicott and wife et al. to the United States, dated March 31, 1848, conveying Lot 5 in Cottage Homestead, addition to Springfield. Deed recorded in Liber 141, folio 220, of the deed records of Hampden County.

52. Deed from Walter H. Bowdoin and wife to the United States, dated September 30, 1848, conveying 2 rods of land. Deed recorded in Liber 145, folio 170, of the deed records of Hampden County.

53. Deed from Reuben A. Chapman and wife to the United States, dated September 22, 1848, conveying by release, etc., a lot in Springfield. Deed recorded in Liber 133, folio 215, of the deed records of Hampden County.

54. Deed from John Mills and wife to the United States, dated September 30, 1848, conveying by release, etc., a lot in Springfield. Deed recorded in Book 142, page 610, of the deed records of Hampden County.

55. Deed from Jacob Ladd and wife to the United States, dated January 13, 1849, conveying 10 acres 3 rods and 35 $\frac{1}{2}$ rods of land. Deed recorded in Book 146, page 286, of the deed records of Hampden County.

56. Deed from Corbin O. Wood and wife et al. to the United States, dated February 1, 1849, conveying 18 acres 2 rods and 51 $\frac{3}{4}$ rods of land, etc. Deed recorded in Book 146, page 290, of the deed records of Hampden County.

57. Deed from Elisha Benton and wife to the United States, dated

February 1, 1849, conveying 7 acres and 4 rods of land, etc. Deed recorded in Book 146, page 285, of the deed records of Hampden County.

58. Deed from Laman Spencer and wife to the United States, dated February 1, 1849, conveying a tract of land in Springfield, etc. Deed recorded in Book 146, page 289, of the deed records of Hampden County.

59. Deed from Seth Thayer and wife to the United States, dated February 1, 1849, conveying a tract in Springfield. Deed recorded in Book 146, page 284, of the deed records of Hampden County.

60. Deed from Charles T. L. Warner and wife to the United States, dated February 10, 1849, conveying 3 acres 2 rods and 6 rods of land, etc. Deed recorded in Book 146, page 288, of the deed records of Hampden County.

61. Deed from James W. Crooks, Guardian, etc., to the United States, dated March 22, 1849, conveying 8 acres 3 rods and 87 rods of land, etc. Deed recorded in Book 146, page 313, etc., of the deed records of Hampden County.

62. Deed from Orrin C. Andrus to the United States, dated March 23, 1849, conveying 24 rods of land, etc. Deed recorded in Book 147, page 314, of the deed records of Hampden County.

63. Deed from Sophia Charter and husband to the United States, dated May 21, 1849, conveying 2 acres 1 rood and 33 rods of land, etc. Deed recorded in Liber 150, folio 162, of the deed records of Hampden County.

64. Deed from Roswell Shurtliff and wife to the United States, dated March 18, 1851, conveying a tract of land in Springfield, with roadway, etc. Deed recorded in Liber 159, folio 139, of the deed records of Hampden County.

65. Deed from the Trustees of the School Funds, etc., to the United States, dated August 30, 1851, conveying strip of land for a sidewalk. Deed recorded in Liber 166, folio 95, of the deed records of Hampden County.

66. Deed from Persis Taylor to the United States, dated June 1, 1852, conveying a tract of land in Springfield. Deed recorded in Liber 160, folio 300, of the deed records of Hampden County.

67. Deed from the Western Railroad Company to the United States, dated June 19, 1852, conveying certain water rights, easements, etc. Deed recorded in Liber 166, folio 96, of the deed records of Hampden County.

68. Deed from George Bliss and wife to the United States, dated July 8, 1856, conveying 4 acres and 22.92 rods of land upon condition, etc. Deed recorded in Book 183, page 372, of the deed records of Hampden County.

69. Deed from James T. Ames and wife to the United States, dated July 29, 1856, conveying a tract of land in Springfield. Deed recorded in Liber 182, folio 514, of the deed records of Hampden County.

70. Deed from Thomas Knox and wife to the United States, dated October 15, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 13, of the deed records of Hampden County.

71. Deed from Henry J. Fuller and wife to the United States, dated October 15, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 12, of the deed records of Hampden County.

72. Deed from John Ashley and wife to the United States, dated

October 17, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 114, of the deed records of Hampden County.

73. Deed from Hezekiah Burt and wife to the United States, dated October 19, 1857, conveying a tract of land to raise the height of dam, etc. Deed recorded in Book 193, page 115, of the deed records of Hampden County.

74. Deed from Harmony A. Fletcher to the United States, dated October 21, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 14, of the deed records of Hampden County.

75. Deed from R. S. Austin and wife to the United States, dated October 31, 1857, conveying certain tracts of land to raise height of dam, etc. Deed recorded in Book 193, page 8, of the deed records of Hampden County.

76. Deed from Samuel Walker and wife to the United States, dated October 31, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 16, of the deed records of Hampden County.

77. Deed from Philos B. Tyler and wife to the United States, dated November 2, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 10, of the deed records of Hampden County.

78. Deed from Charles G. Rice and wife to the United States, dated November 4, 1857, conveying the right to flow his land by raising dam 10 feet. Deed recorded in Book 193, page 14, of the deed records of Hampden County.

79. Deed from Jonathan Carlisle and wife to the United States, dated November 5, 1857, conveying tracts of land to raise height of dam, etc. Deed recorded in Book 193, page 59, of the deed records of Hampden County.

80. Deed from Samuel Aspinwall, Guardian, etc., to the United States, dated November 12, 1857, conveying tracts of land to raise height of dam, etc. Deed recorded in Book 193, page 57, of the deed records of Hampden County.

81. Deed from Elisha Benton et al. to the United States, dated December 2, 1857, conveying lands to raise height of dam, etc. Deed recorded in Book 193, page 112, of the deed records of Hampden County.

82. Deed from The City of Springfield to the United States, dated December 8, 1857, conveying all right in certain highways and release of damage by flowage, etc. Deed recorded in Book 193, page 111, of the deed records of Hampden County.

83. Deed from Seth Thayer and wife to the United States, dated December 10, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 116, of the deed records of Hampden County.

84. Deed from David F. Ashley and wife to the United States, dated December 15, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 132, of the deed records of Hampden County.

85. Deed from Daniel Gay and wife to the United States, dated December 21, 1857, conveying a tract of land to raise height of dam, etc. Deed recorded in Book 193, page 133, of the deed records of Hampden County.

86. Deed from Daniel Charter and wife to the United States, dated June 10, 1858, conveying a tract of land to raise height of dam, etc.

Deed recorded in Book 195, page 127, of the deed records of Hampden County.

87. Deed from Edward Ingersoll and wife to the United States, dated May 14, 1859, conveying 1 acre of land with privilege of erecting a Powder Magazine with right of way, etc. Deed recorded in Book 198, page 153, of the deed records of Hampden County.

88. Deed from John Ashley and wife to the United States, dated June 2, 1859, conveying 41.88 rods of land for a highway; also a right of way for a race way, etc. Deed recorded in Liber 199, folio 11, of the deed records of Hampden County.

89. Deed from Horace Kibbe and wife to the United States, dated September 3, 1860, conveying a tract of land in Springfield with conditions. Deed recorded in Book 205, page 480, of the deed records of Hampden County.

90. Deed from R. E. Ladd et al. to the United States, dated July 16, 1863, conveying a right of way and privilege of laying conduits, etc. Deed recorded in Book 221, page 212, of the deed records of Hampden County.

91. Lease for ninety-nine years, etc., from Henry S. Fuller to the United States, dated December 13, 1864, leasing a certain described tract of land in Springfield. Lease recorded in Book 239, page 369, of the deed records of Hampden County.

92. Deed from James T. Ames and wife to the United States, dated February 9, 1867, conveying a tract of land in Springfield. Deed recorded in Book 245, page 436, of the deed records of Hampden County.

93. Deed from James T. Ames and wife to the United States, dated December 3, 1868, conveying a tract of land in Springfield. Deed recorded in Book 259, page 418, of the deed records of Hampden County.

94. Deed from R. E. Ladd and wife to the United States, dated December 17, 1868, conveying a tract of land in Springfield. Deed recorded in Book 259, page 511, of the deed records of Hampden County.

95. Deed from Edward P. Chapin and wife to the United States, dated January 28, 1869, conveying a tract of land in Springfield. Deed recorded in Book 259, page 147, of the deed records of Hampden County.

96. Deed from Charles Phelps and wife to the United States, dated August 2, 1870, conveying 3 acres of land and release of other interests. Deed recorded in Book 274, page 533, of the deed records of Hampden County.

For jurisdiction see Fort Independence. See Appendix, pages 291, 292.

FORT STANDISIL

This reservation contains an area of 6.9 acres, and is situated on Saguish Head at the Northern entrance to Plymouth Harbor, 4 miles by water from the City of Plymouth, in Plymouth County. The title is as follows: Deed from Samuel Burgess et al. to the United States, dated June 10, 1870, conveying the tract embraced in reservation. Deed recorded in Book 366, page 79, of the Registry of Deeds of Plymouth County. The above purchase made by virtue of an act of Congress approved March 2, 1867.

For jurisdiction see Fort Andrew.

FORT WARREN.

This reservation contains an area of about 28 acres and includes the whole of Georges Island, in Suffolk County. It is situated near the

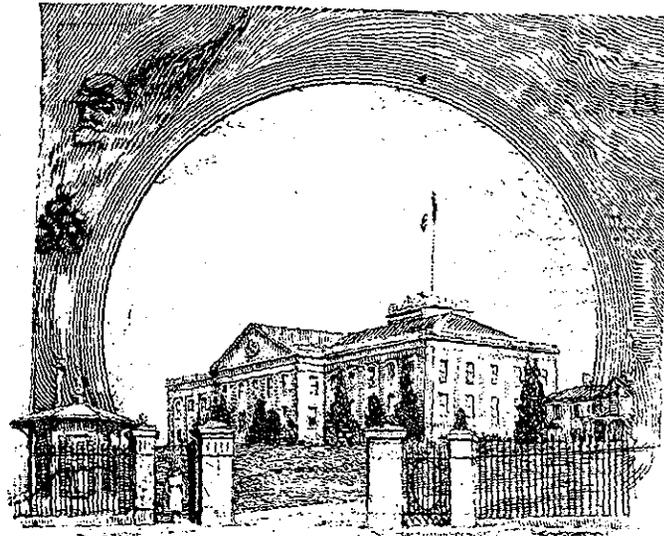
APPENDIX B
AN 1884 VIEW OF THE SPRINGFIELD ARMORY

This article, "United States Armory" by Albert Kirkham, originally published in *King's Handbook of Springfield*, is reproduced in full and provides an 1884 view of the Armory at Springfield, showing how at least one writer saw the Armory in relation to the city. Of the four historical narratives on the park currently available for use as interim interpretive sources-- the 1852 article in *New Harper's Monthly Magazine*, the Dvarecka article, the Whittlesey dissertation, and Kirkham's article--this appears to be the most immediately and easily useful. The other three sources are available at the museum.

United-States Armory.

THE ARSENALS, WATER-SHOPS, SUPERINTENDENTS, ARMS, STATISTICS, AND ANECDOTES.

GENERAL GEORGE WASHINGTON, passing through Springfield in October, 1789, on his way to Boston,—on public business,—saw, and probably approved of, the present site of the United-States Armory. “The

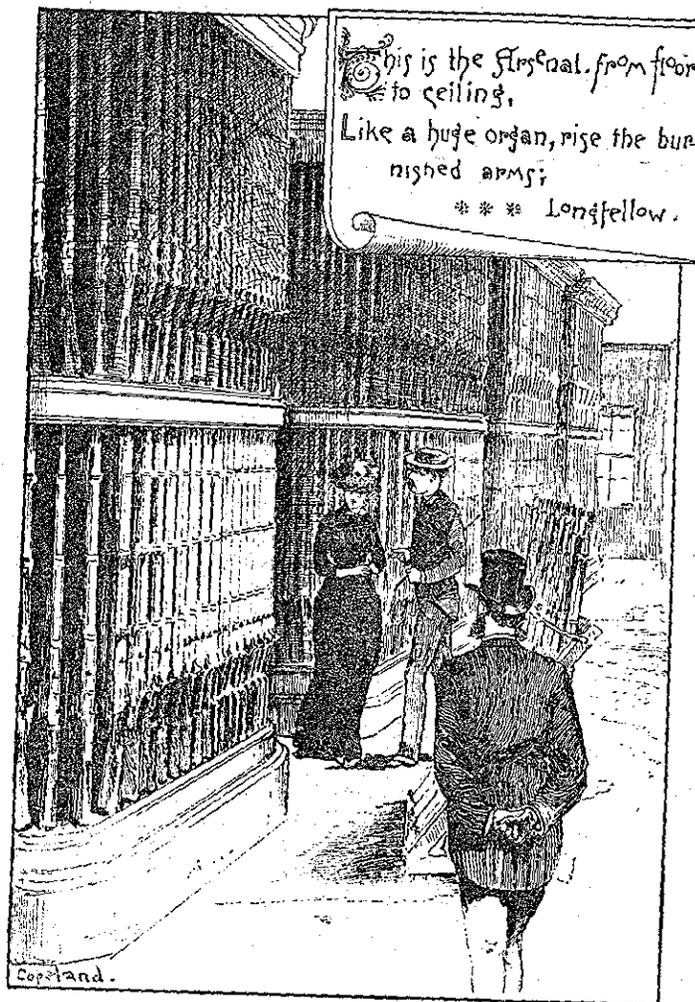


The Arsenal Building and Gateway, from State Street.

establishment of this Armory was by Act of Congress, passed in April, 1794; and in 1795 the work commenced with about forty hands.” The first deed of land to the United States, after the passage of the above Act, was recorded 1795. The United-States Government had previously pur-

chased land upon the "Hill;" and where the Water-shops are now situated, suitable buildings were constructed, and work upon small-arms fairly commenced in 1795. Before it was decided by the authorities which of the three places then being considered—Hartford, Springfield, and West Springfield—was the most desirable site for the manufacture of such ammunition, muskets, appendages, and accoutrements, as might be wanted by the United-States Government, the inhabitants of West Springfield decidedly objected to having the Armory located within their borders; and for a good reason: the most skilful mechanics in those days were discharged soldiers, deserters from the British regulars, and foreign troops who had been under British authority. — mercenaries, — all of whom were lawless and unprincipled, who defied all control; and the good people of West Springfield, most of them farmers, had visions of robbed hen-roosts, ravaged gardens, depredations committed on Sundays while they were, or would like to be, peacefully at church. Where the Water-shops now stand, there stood, previous to 1809, a powder-mill, which from accident blew up, and, the land being clear, the "upper Water-shops" were constructed; buildings erected both sides of Mill River, in which was to be executed the work requiring water-power. Previous to the completion of the "upper Water-shops," the operations of forging, drilling, boring, grinding, and polishing were done by hand. From time to time, as circumstances demanded, land, buildings, and machinery have been added, till the United-States Armory of 1883 has a world-renowned reputation, which has been earned for it by the efficiency of its successive superintendents and commandants, civil and military, their high standing morally, socially, and politically, not only in this immediate community, but over the whole country; by the skill, genius, hard work mentally and physically, and loyalty of the artificers and artisans employed; and by the liberality displayed by the government in its fostering, favoring, and sometimes partiality to, this branch of its War Department.

Arsenals. — "Beautiful for situation" indeed, can be said of the city of Springfield; and, the Main Arsenal having been erected upon almost the highest point of land within the limits of the city, the view from its top, or bell-deck, is in many respects surpassed by few, if any, in New England. Before the late civil war, there were four arsenals which were used solely for the storage of small-arms and their appendages, — three, the Middle, East, and West Arsenals, facing and but a few feet from State Street; and the new, or Main Arsenal, upon the brow of the hill which overlooks the city. In 1866, during the superintendency of Capt. George Dwight, the Middle Arsenal was converted into a workshop. This building is situated upon the highest point of land in Springfield; being 159½ feet above the average level of the Connecticut River, and 199½ feet above tide-water. Later, when Major A. B. Dyer was commandant, the East and West Arsenals were

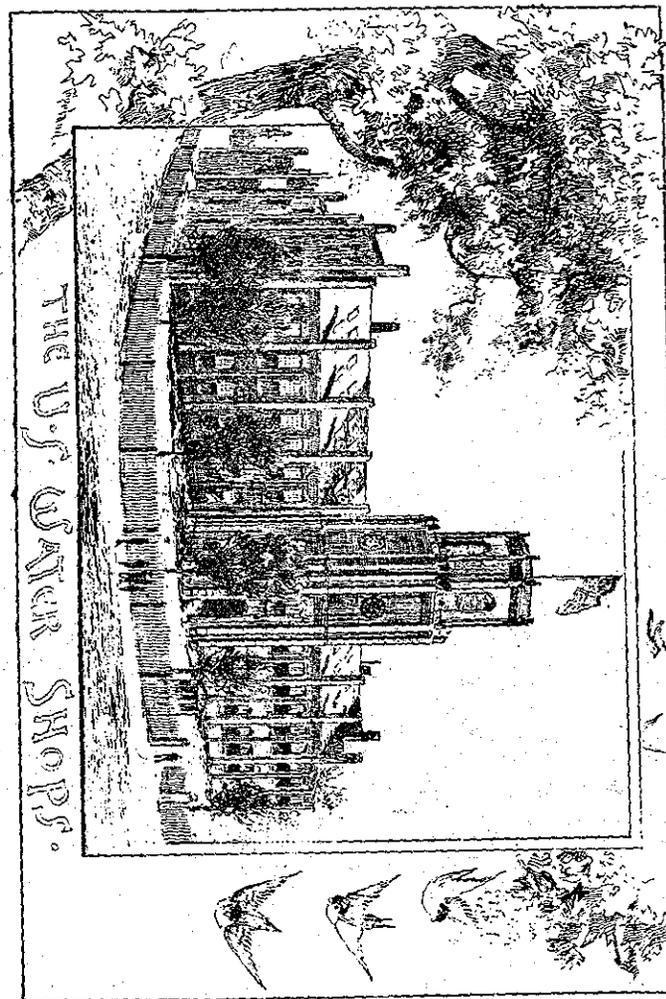


A ROOM IN THE MAIN ARSENAL.
At United-States Armory.

also used as workshops. The Main Arsenal, which was built during the superintendency of Col. James W. Ripley, and under his personal supervision, was copied to some considerable extent from the East-India House in London, England. It was begun in 1846, and finished a few years later. The building is 200 feet long by 70 wide, three stories high, with a storage capacity of about 300,000 arms. — 100,000 upon each floor. It is impossible to describe the impression which is made upon one's mind at the first view of the interior, where

"From floor to ceiling,
Like a huge organ rise the burnished arms."

As you enter the door, and pass down the "aisle" to the lower or south end of the room, 50,000 stands of arms are brought into view; retrace your steps, and by walking to the upper or north end, another 50,000 are seen; and from their peculiar arrangement in racks, or stanchions, it requires no vivid imagination to see before you one hundred regiments of infantry in brigade or division columns. In 1864 Col. T. T. S. Laidley commandant, an attempt was probably made to destroy the Main Arsenal by means of an infernal machine. Two men, just at night, asked permission to ascend the stairs to the top of the tower. The arsenal-keeper, at that time suspicious of every stranger who entered its doors, endeavored to dissuade them from the undertaking: it would be a long, tedious ascent: it was late, and not much could be seen in the then almost twilight: in fact, it would not pay for the trouble. The strangers had a ready answer to all objections: "Not go to the top of the world-renowned Springfield Arsenal when we are once in the building? Pooh! of course we will take any amount of trouble, so as not to return home and say, 'Yes, in Springfield we visited the Armory, went through its workshops, saw the muskets in the arsenal, but did not think it worth the trouble to climb to the top of the tower.' No, we will go up, then we will be satisfied." And up went the arsenal-keeper and the two strangers. The stay upon the top was short: and with, "It is late, gentlemen: it is growing dark," the keeper hurried his visitors down the stairs to the ground floor. A watchman, whose duty it was to ascend to the top deck every night before closing, found a bundle near the clock, enveloped in a newspaper. The bundle was taken down to the lower floor, and examined enough to know that it was something dangerous, and then handed over to the proper authorities. The next day it was found to be made of iron covered with some substance which made the whole appear like a lump of anthracite coal, had a fuse, was hollow, and filled with some substance unknown. With proper caution it was sawn through (this operation was done with the machine immersed in water), and the filling proved to be powder. What is left of this curiosity is now in the museum, which is in a room near the commandant's office. From a pencil memorandum

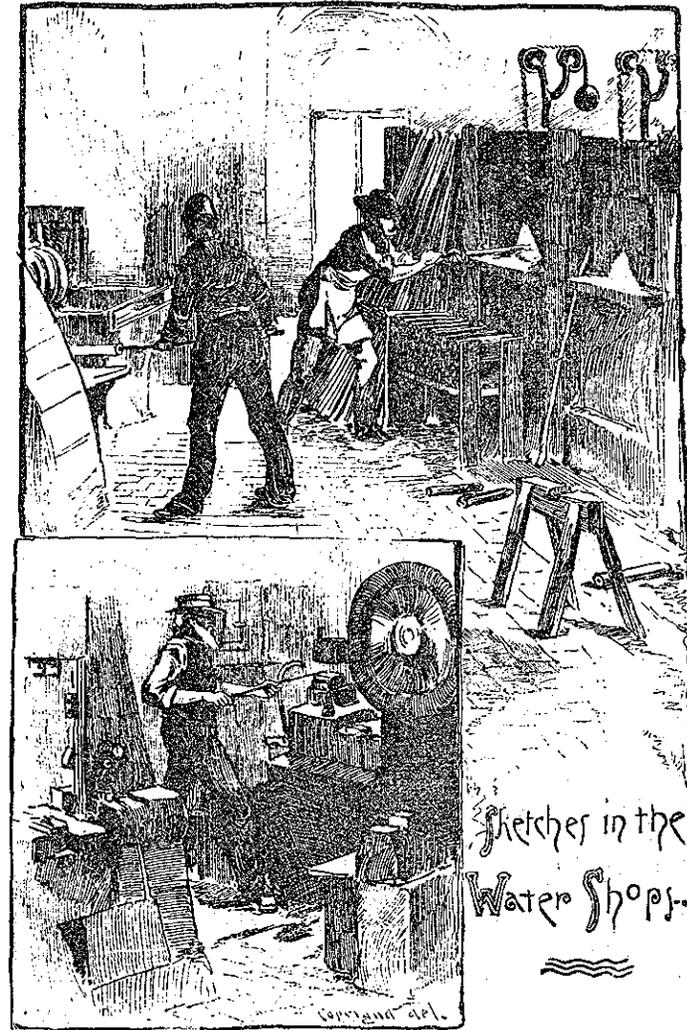


FORGING, ROLLING, BORING AND ANNEALING DEPARTMENT

Walton and Hickory Streets

found upon a piece of paper with the bundle, deciphered with the aid of a magnifying-glass, a clew was obtained from which it appeared that the strangers had come from Canada to the States.

Varieties and Qualities of Small-Arms.— From 1795, in which year the United-States Government made their first musket, to the present time, there have been fabricated from twelve to fifteen different kinds, or models, of small-arms at the Springfield Armory: such as, the King's Arm, the Queen's Arm, the French Model, the 1822, 1840, and 1842 models, all of which were "flint-lock" guns; the 1847; the 1855, or Maynard Primer Model, which was the first rifled gun made by the Government; the 1862, and the 1865, or Springfield Model, these last two being percussion-lock, and all thus far enumerated models being muzzle-loading; the 1873 breech-loading gun, etc., etc. The King's and the Queen's Arm each had a large bore or calibre: the barrel was long, and the arm completed was heavy and clumsy. The French Model had a small calibre, short barrel, light stock, and for those days, 1795-1809, was a handsome fire-arm. At the commencement of this century, the United States were at peace with the world in general; and having no particular or immediate use for the arms they were then making, and finding that if not disposed of,—the accumulation in 1809 would have been about 53,000,—they would have to stop the manufacture of them, and not being disposed to do this, used to sell from their stores; and the Indians were the purchasers in most instances. The first model made was the French: a large number of these were in use: in fact, the French furnished most of the small-arms used by the army through the war with England. The King's and the Queen's Arm were much in vogue, had a good reputation, and there were plenty of them scattered through the States, being often sold at auction in large and small quantities. The Indians were first persuaded to trade for the French Model, but soon their demand was "Small gun no good: big gun, big noise, big bullet: no boy's gun for Indian." And thereafter they would buy only those of large calibre: the King's Arm or the Queen's Arm was the gun for them. The 1822 model was the first American gun, and was at the time superior to any foreign arm. The 1840 model was the musket used in the Polk or Mexican war. The 1855, or Maynard Primer Model, was used with good results by the "regular army" on the western and north-western frontier in engagements with the Indians. Of this model, when the late war began, only about 10,000 had been made: and, as many of these had been distributed to the army, what remained in store were in use early in 1861, so that until the 1862 model could be made and put into the field, the regulars and the volunteers were provided with such arms as could be procured for them, either at home or abroad: accordingly "Enfields," "Austrians," "Belgians," flint-locks, rifles, fowling-pieces, any thing in the shape of a gun that



WELDING AND ROLLING GUN-BARRELS, AND DRAWING RAMRODS.

would carry a leaden ball when backed by powder, were in use by the soldiers of the North. The 1873 "breach-loader" is—with perhaps slight modification—the model breach-loader of the day. Thomas Blanchard's machine for turning irregular forms was introduced into the Armory in 1820, during Col. Roswell Lee's administration. An "old Armorer" distinctly remembers the following circumstance, he being at the time a fellow-boarder with Mr. Blanchard: "One Sunday we particularly noticed Mr. Blanchard, for he had in his hands a musket which he seemed to be meditating upon. This meditation was nothing new; for he was a man who said but few words, a man who communed with himself, or, rather, did a great deal of head or brain work in a quiet way. But now he had something in his hands upon which his thoughts seemed to rest, and this was uncommon. The gun was turned over and over: it was looked at from tip to breach; evidently he was thinking hard; after a long time thought became words. 'I believe that I can turn a stock like this,' and eventually he did." The first machine made to turn irregular forms was constructed and put into operation at the Upper Water-shops: shoe-lasts were the things produced. The next machine was made for the purpose of turning the stock for a musket, and proved to be just what was to be expected from the first experiment, and just what was wanted for that time, and also—what was not then thought of—the forerunner of all machines, models, or forms which are now used to make every component part of a gun "interchangeable."

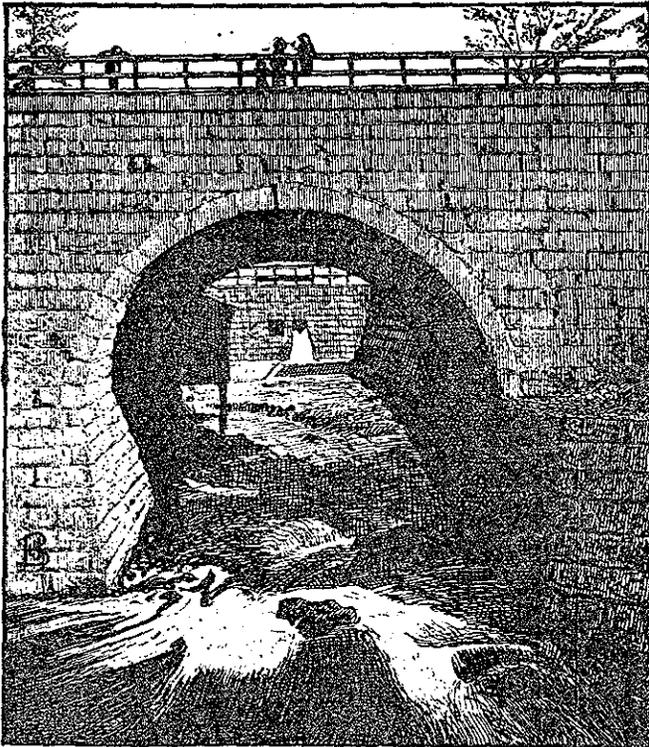
The whole number of arms made at the close of the year 1824 was 62,260; whole number made at the end of 1878, 1,751,341. The grand total, including rifles, pistols, muskets, carbines, cadet arms, etc., is now not far from 2,000,000. In 1795 there were from 40 to 50 men employed, and 245 muskets made. In 1817 there were 14,000 muskets manufactured; and—what is significant in these days of steam—it was said, "The water-privileges already owned by the United-States Government will warrant the extension to 30,000 stands annually;" the privileges alluded to being what were then, and for almost a half-century after, called "the Upper, Middle, and Lower Water-shops." In 1830 there were 200 men employed, and 13,500 guns made; and at the close of the year there were 170,000 on hand stored in the arsenals. In 1864 there were 3,400 men employed, and 276,000 arms manufactured. It was this year that the production was brought to 100 per day, twenty hours of the twenty-four being the hours of labor: day and night the "works" were running, and some months of this year the payroll amounted to the sum of \$200,000. When Fort Sumter was fired upon, about 1,000 guns per month was the production: three months after, the number was increased to 3,000 per month; and gradually the number was increased till, as before noticed, in 1864 the product for a day's work was 1,200; and many days the same number were boxed and shipped to the

quartermasters of the army in different parts of the country; each box containing 20 muskets complete, that is, with bayonets, ramrods, screw-drivers, tompons, spring vises, etc.

A large amount of money has been expended by the Government, from 1795 till the present time, for land-improvements, buildings, machinery for the manufacturing of machinery, tools, small arms, and their necessary appendages, accoutrements, repairs, etc. The whole amount will exceed \$32,500,000, of which probably \$26,225,000 was for manufacturing purposes, the balance, \$6,275,000, being expended for land, buildings, improvements, etc.

Superintendents.—David Ames, the first superintendent, was a resident, but not a native, of Springfield; a distinguished man in many respects; a pioneer in paper-manufacturing, and for many years far in the lead in this industry. Benjamin Prescott was appointed from civil life, and stood high in the estimation of the employees; he was a man of fair executive ability, a good citizen, and of sturdy honesty. Col. Roswell Lee was appointed from the army, 1812-1815. More than six feet in height, erect, dignified, "he was every inch a soldier; and I used to look up at him, and think that he was about equal to Gen. Washington," was the remark of an old Armorer only a few days ago. Loved by all employees and citizens, Col. Lee's name is and will be oftener in the thoughts, and spoken by men's lips, than that of any superintendent, living or dead. Roswell Lee Lodge of Free and Accepted Masons derived its name from him, and he was also the first worshipful master of Hampden Lodge. Andrew Jackson had fairly commenced his second term of office, when it became necessary to select a suitable successor to Col. Lee. There were many aspirants; politics ruled, favoritism ruled, the army ruled, the navy ruled, etc. But Old Hickory was equal to the occasion: "I will appoint a man to that position whom I know,—a man above reproach; a man of integrity; a man I respect; a man that is capable, and just the one for that situation;" and he appointed John Robie, a Methodist minister, who proved to be all that Gen. Jackson had asserted of him. It is said that he was a chaplain in the army, and was at the battle of New Orleans. Lieut.-Col. James W. Ripley was a thorough, practical, energetic officer, under whose administration the Armory, as regards its efficiency, received an impetus so wholesome and judicious, that its results will be perceived as long as fire-arms are manufactured. The Main Arsenal, the superintendent's house, and the long storehouse were erected, the iron fence around the grounds commenced, the grounds beautified and otherwise improved, during his administration. E. S. Allen, acting superintendent, was a native of Springfield, a good citizen, well known in the community, and master armorer for more than a quarter of a century. Gen. James S. Whitney was a genial, social man, who had a pleasant life, and a kind word for every person. Under his administration the imposing

iron fence commenced by Col. Ripley was finished, and the Water-shops improved at the expense of many hundreds of thousands of dollars. Capt. George Dwight was a native of Springfield; a man who had a host of



Viaduct over Mill River, at the Water-shops.

friends, and not one enemy; who was directly or indirectly connected with almost every public improvement to the town or city; prominent in local military organizations, and especially in the fire-department. As a citizen, as a man who has filled many important offices of honor and trust, his memory will "always be green" in the hearts and minds of all who knew

him. Capt. A. B. Dyer was appointed from the Ordnance Department as commandant. Without doubt, no superintendent before or since came so near to the hearts of the employees, especially the subordinate civil officers. With almost unlimited power and means, his whole energy and force were directed to one object, and that was to give promptly to the armies in the field all the fire-arms they needed. He was determined, also, that the arms should be of the best model, best material, and of better workmanship than ever before. Col. T. T. S. Laidley and James G. Benton, graduates at West Point of the class of 1842, with Rosecrans, Doubleday of "Sumter fame," Pope, Longstreet, and Johnston, were two highly accomplished ordnance officers, whose reputation is not confined to the United States, foreign countries acknowledging their great ability in matters pertaining to small-arms and ordnance. Col. Laidley is living. Col. Benton died Aug. 23, 1881: by his death, Springfield lost a beloved citizen, and the Ordnance Corps one of its eminent members. Col. I. H. Wright held office only ten months, and had no opportunity to show the executive or constructive ability which the Government and the public expected from one whose prestige was unexceptional. Capt. C. C. Chaffee was a young, gallant ordnance-officer, who bade fair to stand as a peer of any in the department, and whose untimely death was lamented not only by his family, relatives, and brother officers, but by a great number of personal friends and the public. The following table gives the complete list of superintendents and their terms of office:—

NAMES OF SUPERINTENDENTS.	FROM.	UNTIL.
*David Ames	1794	Oct. 31, 1802
*Joseph Morgan	Nov. 1, 1802	Oct. 31, 1805
*Benjamin Prescott	Nov. 1, 1803	Aug. 31, 1813
*Henry Lechler	Sept. 1, 1813	Jan. 15, 1815
*Benjamin Prescott	Jan. 16, 1815	May 31, 1815
†Lieut.-Col. Roswell Lee	June 1, 1815	Aug. 25, 1833
*Lieut.-Col. Talcott, <i>Acting</i>		Oct. 31, 1833
*John Robb	Nov. 1, 1833	April 15, 1841
*Lieut.-Col. J. W. Ripley	April 16, 1841	Aug. 16, 1854
*E. S. Allin, <i>Acting</i>	Aug. 17, 1854	Oct. 18, 1854
*Gen. James S. Whitney	Oct. 19, 1854	March 1, 1860
*E. S. Allin, <i>Acting</i>	March 1, 1860	June 27, 1860
Col. I. H. Wright	June 27, 1860	April 25, 1861
*Capt. George Dwight	April 25, 1861	Aug. 21, 1861
*Capt. A. B. Dyer	Aug. 22, 1861	Oct. 27, 1864
Col. T. T. S. Laidley	Oct. 27, 1864	May 14, 1866
*Capt. C. C. Chaffee, <i>Acting</i>	May 14, 1866	June 14, 1866
†Col. James G. Benton	June 14, 1866	Aug. 23, 1881
Capt. J. E. Grear	Aug. 23, 1881	Oct. 3, 1881
Lieut.-Col. A. R. Buffington	Oct. 3, 1881	

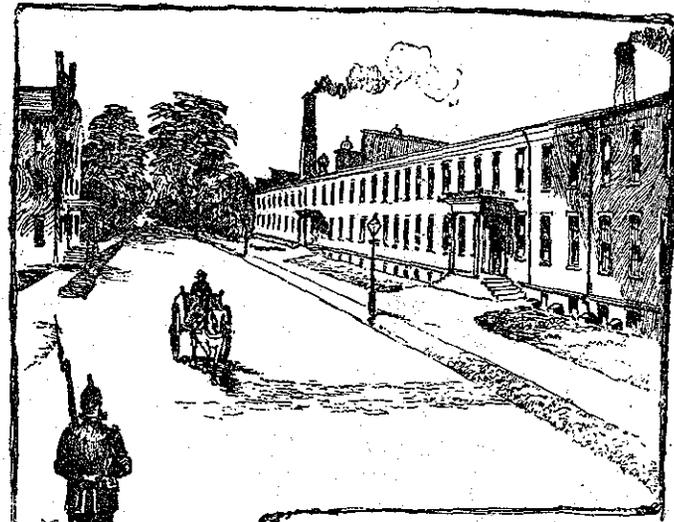
* Deceased.

† Died in office.

The Present Officers are: Lieut.-Col. A. R. Buffington, commanding; Capt. Frank Heath, Capt. James C. Ayres, Lieut. W. M. Medcalfe, assistants. Col. Buffington has the reputation of being an efficient officer, a rigid disciplinarian, and of excellent executive ability. He is assisted by three members of the Ordnance-corps.

Reminiscences, Facts, and Anecdotes.—After the Armory was established, for a number of years the parts of arms which were to be carried to and from the Water-shops were conveyed in a wheelbarrow. The wheeler, an employee of Government, lived on public ground, so as to be near at hand when required for service. Walnut Street, now one of the main avenues of the city, was in those days merely a lane. The "Old Armorers" made for themselves beautiful homes on Walnut, State, Main, and other streets in the town; and in the records of the town, of the churches, of benevolent and educational institutions, appear the names of many of them, whose memory will be always dear to their descendants, and to the institutions of the city in which they were the first in good works, deeds, and counsel. It is not surprising that these men became attached to the town, the Armory, and to the homes they had made for themselves. Many of them commenced working in and about the Armory when only 13 years of age; and they not only made homes in and about Springfield for themselves, but induced others, either relatives or acquaintances, to come here, and take up their residence. Whilst digging for the foundations of the long storehouse which stands upon the terrace overlooking Pearl and Worthington Streets, the remains of 12 or more soldiers dressed in regimentals were uncovered. During the 1812 war, the United-States Army being a Government post, the United-States soldiers were often quartered in the barracks and in the dwelling-houses which were on "public ground." The houses were commonly occupied by Armorers; but, at a short notice that soldiers were coming, they moved out, and the soldiers moved in, and they remained in these comfortable quarters a longer or shorter time, "according to orders." A portion of the ground now occupied by the storehouse was then used as a graveyard; and soldiers were often buried there, and buried, too, in their uniforms. "In the last war of 1812, a part of a regiment of infantry which had been quartered in the barracks was ordered away; and they left in the hospital one of their comrades, a drummer, very sick with typhus-fever: the man had a young son who staid with him. The drummer died, and the Armorers left their work to go with his body to the grave; and all wept as they saw the poor drummer covered with earth, and his young son sobbing over his father's grave." The first quarter of this century witnessed many exciting, curious, and laughable scenes and incidents between the superintendent and the employees, among the workmen themselves, and between the workmen and the townspeople. According to the

fashions of those days, there arose many quarrels; for intoxicating drink was used by every one, high and low, rich and poor,—all drank. The workmen were allowed to carry their bottles or jugs of rum into the shops, where, properly labelled, they stood on a ledge or shelf just above the washing-place, which was a long sink or trough; and often officials, coming



The Machine, Milling, and Polishing Shops.

into the workshop upon business, would walk up to the array of jugs, select their favorite "rum," take a good respectable drink, deposit a pistareen or a Spanish quarter by the side of the jug, and then go about their business. Benjamin Prescott, the third superintendent, was capable of managing any number and all kinds of men; but as he had some "rough-and-ready" ones to deal with, he drew the reins of discipline very close at times. In 1812-1815 the usual license was restricted: Government was at war with England; the State militia as well as the regulars wanted muskets: the men must be ready at their working-hours: boys, even the workmen's sons, must not enter the shops. At this time military enthusiasm was high: the

boys caught the spirit; and the Hill boys formed a company of artillery, and paraded with wooden guns and a battery of a dozen lead cannon. One day as Superintendent Prescott was on his way to the Water-shops, driving his horse as was his habit, the boys were having a parade in the street; and, seeing "Old Prescott" driving towards them, one of the elder boys cried out, "Here comes Old Prescott: let's fire at him." A line was formed on each side of the street, and a half-dozen loaded lead cannon were placed in front of each rank; the cannon were about five inches long, by three-quarters of an inch diameter. Mr. Prescott, intent upon his business, gave no heed to the hostile display, and rode through the open ranks, and was saluted from right and left with "twelve guns;" he turned, feeling obliged to return the compliment, which he did by saying, "Well done, well done, boys." It was probably during his administration that the following incident occurred. The United-States Congress had made appropriations for erecting a suitable dwelling for the Armory superintendent, who personally saw that the work should be done according to his wishes, and, what was of more consequence to see, that the appropriation should not be exceeded. The sides as well as the top of the house were to be shingled; and when it was near completion, the carpenter notified the superintendent that there were not enough shingles to finish: "It is all done but part of one side of the house, and that needs about a half of a bundle more of shingles." Uncle Sam was rather penurious in those days, and no one knew it better than the superintendent. For him there was no more money except by an appropriation, no appropriation until Congress convened. There was a short whispered conference with the carpenter. A few days after, the house was completed: a lumber-dealer in the town was "out" a bundle of shingles, Uncle Sam "in" the same, said bundle of shingles disappearing from the lumber-dealer's yard one uncommonly dark night.

Uncle Sam, — U. S., — U. S. A., — how many minds have been mystified by the cabalistic letters U.S.! Many years ago there were two ne'er-do-wells to be seen almost every pleasant day lounging along and about the streets of Springfield. One pleasant day it was noticed that Joe had lost his companion: Jake had disappeared, and Joe was alone. It was not at all Joe's mind to loaf alone, and he tried to find something to do. When it was known that he was willing to earn his daily bread, a place was found for him in the Armory, where soon he was earning \$25 a month. Four or five years passed away: and one pleasant summer's evening, as Joe, well-dressed, was walking down Main Street, he saw coming towards him his old companion. "Why, Jake, is that you? Where have you been? Where did you come from? What are you?" — "Hold on, Joe; hold on! don't you dress better than you used to? Where did you get those good clothes?" — "Why, Jake, don't you know? ain't you heard? I've worked for Uncle Sam

for ever so long; 25 dollars a month, Jake, 25 dollars a month." — "Uncle Sam! Uncle Sam! I didn't know that you had an Uncle Sam. Joe, Joe, for old acquaintance' sake, you just ask your Uncle Sam if he won't hire me."

Fires have been of frequent occurrence. A coal-house upon the Hill accidentally took fire, and thousands of bushels of charcoal burned for two or three days. Water thrown upon the outside of the coal served only to intensify the heat in the centre of the burning mass, and the coal was all destroyed. Some time afterwards, a coal-house at the Middle Water-shops was burned, but most of the coal was saved. The coal-house was situated over the river, or dam. The ignited coal was thrown into the river, where it floated down the stream, and was afterwards drawn ashore; the partially burned coal was raked to some distance from the burning building, spread out upon the ground, water put on it, and most of it saved in fair condition.

"1824, March 2, wind extremely high, the United-States Filing-shop took fire, and burned to the ground; loss estimated at \$15,000," but afterwards found to be about \$30,000. It was a raw, cold, blustering day. The cinders were carried as far as the Water-shops. There was not much snow on the ground: the heat was intense, and blankets were spread upon the ground to prevent the burning of the roots of grass. July 4, 1842, the building called the barracks was burned. In July, 1864, the polishing and a portion of the milling department buildings were burned. Major A. B. Dyer, then superintendent, acted as chief engineer, and proved himself capable of filling that office satisfactorily to the city firemen and to the public generally.

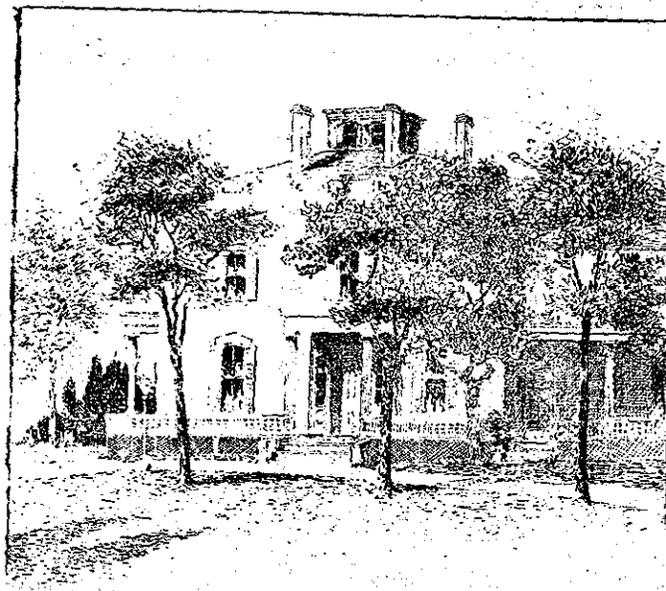
Henry Lechler, fourth superintendent, was a German, impetuous, irritable, capable in small affairs, in managing a small number of men, but failing in execution when great results were expected from great effort on the part of the chief. "I have seen him, his coat-tails streaming behind him straight out, riding like Jehu from the Hill to the Water-shops, — he always rode on horseback: he would enter the shop, and go to the forger, or tool-maker, as the case might be, and producing a piece of steel from one of his pockets, say six inches long by three-quarters of an inch square, would give the steel to the workman, saying, 'Cast-steel is scarce: you must be careful how you use it.' On an occasion when there was quite a demand for cast-steel, on account of tools to be made, and the supply had given out, he said, 'No cast-steel? I will take my horse and cutter, and go to Boston, and I'll bring back cast-steel enough to last one while;' and, sure enough, Superintendent Lechler drove down to Boston, and returned with a good supply of the necessary material in his cutter." It appears that there was quite a scramble for office, even in those early days of the Union; and Benjamin Prescott, after eight years of service, was obliged to give place to Henry Lechler, who remained in office one year and three months, when Mr.

Prescott received his second commission from Government. He brought the news of his appointment and the requisite papers to Springfield, walked up to the Armory, entered the well-known room,—it was in the month of January, 1815,—took down Superintendent Lechler's greatcoat from its peg, hung his own in its stead, and, having lighted his cigar, drew his old familiar arm-chair to the blazing wood-fire, and waited for his predecessor's appearance. Mr. Lechler soon entered the room: and the new superintendent, without quitting his arm-chair, or even looking away from the fire, handed—over his shoulder—the "document" to Mr. Lechler, who, after reading it, rushed out of the office into the workshops with the words, "Men, I am no more! men, I am no more!" However, he peaceably resigned his powers to Mr. Prescott.

At this time the workmen, some of them at least, were rough and lawless: they could not forget their old camp habits, and foraged in all directions. One Sunday quite a number of them, about 20, started upon one of their expeditions, the "objective point" being a particular watermelon-bed in the vicinity of Longmeadow. The good people of the town were at church: but the news was soon conveyed to the town constable, for watchful eyes had been for many days and nights upon that melon-patch. The constable soon had a posse at his command: the watermelon-bed was surrounded: the depredators were captured, and in a short time safely imprisoned in Colton's tavern. Most, if not all, were barefoot. When meeting was done, the people by twos and threes went to the tavern "to have a look at the rascals." After the people had seen, the boys and the girls had seen, probably almost every inhabitant of Longmeadow had seen the robbers, the landlady thought that she would have a peep at them. One of the number had only four toes on one of his feet: the great toe had been lost by some accident or otherwise. The landlady, with spectacles on the end of her nose, after looking over the crowd, happened to espy Mr. B.'s foot,—the foot that had only four toes: she noticed that the great toe was missing, whereupon she walked close to him, and pointing a finger at him said, "You are a thief! you are an arrant thief, for I've seen your tracks in our watermelon-bed more than a hundred times."

The Corner Tavern was a famous place for the workmen to frequent, where they would tell stories, drink their toddy, and pass their leisure time. In the war of 1812, a company of infantry was recruited in Boston to serve on the Lakes. Every man was tall, strong, and physically well qualified for the service. Upon arriving at headquarters, by some hocus-pocus they were drafted into the marine corps, and served through the war. When pretty well scared,—for they had made their marks, and in return were pretty well marked by scars from gun-shot and sabre wounds,—they one by one, what there was left of the company, made their way back to Boston. As most if

not all of them walked the whole distance from Buffalo to Boston, they would naturally go through Springfield, as it was the most directly travelled route. One of these naval heroes chanced to enter the bar-room of the Corner Tavern one forenoon at just the time when quite a number of men were taking their toddy. His story was soon told, his scars shown, and then



The Commandant's Quarters.

they treated: one treated, another and another and another treated: the veteran drank his rum every time, and was happy. "How are you going to get to Boston?" asked one. "Walk."—"What! walk all the way? it's a hundred mile, almost."—"Well, that makes no difference: folks are very good, just the same as you are: I'll get along."—"Come, boys, pass the hat for the old fellow." The hat was passed: and a little more than \$2 in silver was raised, and handed to him. He was overcome. Food, drink, and lodging had been given him freely: but money, hard cash,—this was something, and demanded gratitude, in words at least. "My friends, I—1

— thank you; and, my friends, I thank God for every thing, for all his mercies; I— I— I thank God for every thing,— for every thing, every thing. My friends, for every thing I thank God,— for every thing, my friends,— except bread— I can buy that now of the baker."

Another time, a seedy, impecunious individual walked into the bar-room, seated himself in a chair by the fire, and seemed to be occupied solely in resting. The usual time brought the workmen for their forenoon's nip of bitters, toddy, or rum. After a while they noticed the stranger, who, when he saw that their curiosity was aroused, took a newspaper from the table,— not many newspapers in those days,— and read in a distinct voice, "Advertisement. Lost where it was dropped, an empty bag with a cheese in it; never was missed till it was gone. Run away from the subscriber, a little boy about the size of a man; he rode away a two-year-old heifer, natural pacer, easy to trot; had a white streak on her fore-shoulder behind. Whoever will find the same boy, return him where no man will ever find him: shall receive 20 shillings out of his own pocket. Signed, John Knockem-down when I catch 'em. Springfield Hill, 1829." After reading he put the paper upon the table, and awaited developments. Soon one man, then another, then another, till a half-dozen or more, took the paper, and looked for the strange advertisement; but it was not found. "Finally," says our narrator, "I took up the newspaper, and looked it all through, and I couldn't find it: so I says to the man, 'You just tell me where that advertisement is, and I'll treat.' The stranger agreed, and took his rum; and he drank a tumbler just about full of grog. 'Now,' says I, again taking up the paper, 'where did you find it?' He took off his hat, and just tapped his head, and nodded to me, as much as to say, 'In my own head, there's where I found it.'"

In Gen. Jackson's time, politics were red-hot; only two parties, Whigs and Democrats: the Democrats were sometimes, especially if they were Armorer's, called "administration men." The Fourth of July was the great day of the year. The Whigs on the Fourth generally had their dinner, speeches, and toasts in the Town Hall; the Democrats held their festivities in the "Ordnance Yard," which was on Federal Square, with other public buildings, the block-house, the magazine, and the like. At each toast a "six-pounder" was fired. The Town Hall was situated in the centre of the town, so that the Whigs had their cannon placed in the meadows back of "Frost's Pond," not far from the junction of Dwight and Hillman Streets. A boy was stationed at the top of the north window of the hall; and when the toast was given, the boy waved a small American flag which could be seen by the gunners, there being no buildings then to intercept the range of sight. At the Ordnance Yard, which was surrounded by a high board fence, the Democrats had their feast with tables set under cover, but upon the ground, and the tables were but a short distance from the cannon outside the walls; the

only signal given was the clapping of hands after the toast was given. One Fourth the rain came down without cessation all through the day: but the dinner, the speeches, all came off regularly notwithstanding. The "toucher-off" of the cannon, on account of the rain, had an assistant, whose duty was to hold an umbrella over the priming. In the intervals between the toasts, the gunners had recourse to the punch, which was furnished without stint. From punch to argument, from argument to controversy, was the result: and soon there was a confusion of words, as well as ideas, upon the subject, "Does the king of England, or the king of France, entertain the kindest feelings towards the United States?" As the dispute grew quite warm, each advocate had his followers: some were for Louis Philippe, and some for William the Fourth. It was getting to be serious business, when loud shouting and clapping of hands from the dinner-table announced a toast. The powder-man ran, and in his haste deposited a liberal allowance of gunpowder in, on, and about the touch-hole; the toucher-off ran, with his iron red-hot, and his assistant, who just then was having rather the best of the argument: and with his eagerness to cover the priming with the umbrella, and his unwillingness to stop disputing, he did not calculate distances very close, when— pough— fizz— bang! and away went the umbrella, 20 feet into the air, and when it came down, alas! it was an umbrella no more: only a stick and a few pieces of rattan.

A pleasant walk of ten minutes, or thereabouts, up State Street, from its junction with Main Street, passing through the gate at the southern corner of "Public Grounds," by the uniformed guard at the gate-house, up a short, sharp hill, and you are upon the plateau, upon and around which most of the buildings connected with the United-States Army, such as the arsenals, storehouses, workshops, offices, officers' quarters, etc., are situated. Keeping to the right, you pass the officers' quarters, the barracks, the guard-house, the middle arsenal, and the east arsenal, all upon the south-east side of Union Square. Thence due northerly by a long brick building, occupied by the ordnance storekeeper, the general offices, the milling department, etc. Along the north side of the square, and also fronting Federal Street, is a long, irregular brick building, in which are the machine, stocking, filing, polishing, carpenters', and paint "shops." Across Federal Street, looking east, outside the iron fence, is the long, low, wood building of the experimental department. There are now about four hundred men employed, making one hundred and twenty "breach-loaders" each working-day. During working-hours, most of these buildings are open to the public. Passes can be obtained by application to the proper authority in the general office. Continuing your walk, now almost due west, you pass the fire-department building: white away to the left is seen the storehouse,— nine hundred feet long,— one end of which contains the government stables. Upon your right is Union Square

proper, with its trees, — a great variety, — its beautiful velvety turf, and battery of a half-dozen twelve-pounders, one of which is used for the sunrise and sunset gun. A few yards from the corner where you turn to the south-east, towards State Street, is the commandant's quarters; passing which, south-easterly, you come to the main arsenal, having almost completed the circuit of Union Square. The arsenal is capable, with its basement, of storing nearly half a million stand of arms. A long, but comparatively easy, ascent of its tower, and you are where Thomson might have written, —

" Meantime you gain the height, from whose fair brow
The bursting prospect spreads immense around;
And snatch o'er hill and dale, and wood and lawn,
And verdant field, and darkening heath between,
And villages embosom'd soft in trees,
And spiry towns, by surging columns mark'd
Of household smoke, your eye excursive roams."

It is impossible to estimate what proportion of the growth in population or wealth of Springfield is due to the establishment of the United-States Armory within its limits. Indirectly, without doubt, it was the chief cause of its growth and prosperity; other factors have, in later times, played an important part in making Springfield what it is to-day, — an enterprising, thrifty, prosperous inland city. A complete history of Springfield is something yet to be written: and when this is accomplished, *con amore*, the United-States Armory will occupy the front rank in its chapters relating to religion, politics, mechanics, and many local and physical improvements.

— ALBERT HARLEIGH KIRKHAM.

APPENDIX C

A REPORT OF EXAMINATION OF THE TREES AT SPRINGFIELD ARMORY,
NOVEMBER 26, 1913

Nov. 26, 1913.

Mr. Louis S. Murphy,

Forest Examiner,

U.S. Dept. of Agriculture, Forest Service,
Washington, D.C.

Dear Sir:

I have to acknowledge the receipt of your very thorough and satisfactory report of the examination made by you of the trees in the grounds of this Amory in October last, together with the inclosure on the subject of the care of trees.

Your report and the suggestions made therein will be of material value to us, and with the assistance so afforded I think I shall be able to treat and care for our trees in a much more thorough and effective manner than before.

Respectfully,

S. S. PEIRCE

Lt.-Col., Ord. Dept., U.S.A.

Commanding.

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WASHINGTON

S
Federal Cooperation,
Springfield Armory, Mass.

November 10, 1913.

The Commanding Officer,
Springfield Armory,
Springfield, Mass.

SPRINGFIELD ARMORY.		
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Dear Sir:

Reference is made to your request through the War Department, communicated to the Secretary of Agriculture by the Acting Secretary of War, September 9, that the trees on the grounds of the Springfield Armory to the number of some 250 be examined by a member of the Forest Service and recommendations made concerning their future care and conservation.

A general examination was made on the afternoon of my arrival, October 8, and at your request on the following morning I went over the grounds with the First Sergeant. I found that he already had a good grasp of how the trees should be cared for and that he had done some good work, considering the time and means at his disposal. I took the opportunity to point out to him wherein improvement could have been made in his treatment of some of the trees and to suggest that he consult in this connection the following books, which I found to be in the Springfield Public Library:

"Care of Trees in Lawn, Street and Park", by B. E. Fernow, and "Shade Trees in Towns and Cities", by William Solotaroff. I also promised to send such publications of the Department on the subject as were available. Aside from the mimeographed article enclosed, these have been requested from the Department and should reach you in a week or ten days' time.

Judging from my conversation with the Sergeant, he is at more or less disadvantage in carrying on this work. Aside from the press of other duties which give him little time to attend to this tree work, he mentioned in particular the difficulty in securing competent men, - taking the men as they come to him from day to day for fatigue duty - men who can climb and otherwise handle themselves in the tree while engaged in this work. The lack also of suitable and sufficient tools and materials to work with is a serious drawback. The style and character of tools best suited to this work is fully considered in the publications I have mentioned, and the tools can be secured from any hardware dealer at a nominal expense.

I fully appreciate that in the matter of securing competent men this is a difficulty which is experienced in all lines of work at an army post where practically all work must be performed by fatigue labor. Unless it can be arranged to have certain men whom the Sergeant may select detailed to this work for such time each season as may seem

necessary, I firmly believe that more permanent and satisfactory results can be obtained by the temporary employment of suitable civilians or by turning over the work on contract to some commercial tree specialist. I think you can readily understand the importance of having this work carefully and consistently done because of the length of time which it takes to replace trees destroyed through improper care and the impossibility of repairing beyond a certain limited degree damage resulting from the work of inefficient, unskilled labor.

The Sergeant informed me that it always had been the policy not to cut trees unless they were dead or nearly so. Such a policy is undoubtedly the safest in the long run in the absence of technical advice or any fixed plan for the care, improvement, and replacement of the trees on the grounds. This brings up a condition which I should like particularly to commend to your consideration.

The trees on the Armory grounds have reached a point where from now on they are going to need more or less constant attention from year to year. There are a large number of soft maples on the grounds which have reached or already passed their prime. These trees are short-lived at best and are very susceptible of damage by storms. They consequently will not justify the expenditure of any considerable amount of money in the filling of cavities and other expensive repair work to preserve them. They will in most

cases, with the careful trimming out of dead wood, survive for a longer or shorter time, but eventually they will have to be replaced by a new and better species. Some of the elms too are already in a condition which indicates the necessity for their early removal. Trees, presumably elms or maples, have already in many instances died and been cut out and their place filled by other varieties such as the horse-chestnut, having entirely different habits of form and growth. Should this haphazard method be continued the grounds would become most ragged and unsightly in appearance.

It is undoubtedly advisable to look to the future in this respect and I would consequently recommend your securing authority from the War Department for the preparation and execution of a general improvement and replacement plan which would become the established policy of the post until further technical revision or modification seemed necessary. This procedure would be a long step in advancing the more systematic development and improvement of the grounds at Springfield.

Such a plan as is suggested would comprise first of all a record of all the trees now growing on the reservation or at least all the trees forming an integral part of the more regular and geometric portions of the shade and ornamental scheme. There must be harmony and symmetry throughout a given unit as along a certain drive, or bordering the

paths and roads of a quadrangle, or fronting certain buildings. It is not necessary to have all one species; but mixtures, where trees are planted in rows, are generally not conducive to the best harmony because of the variations of different species in habits of growth, form of crown, and the like. The tree record, then, would contain a written description of the size and condition of each tree as to its species, diameter (preferably at breast-height - 4½ feet from the ground), total height, general condition of thrift and form, whether it had been previously pruned or otherwise treated in any way and when, and its present needs, if any. This record would be supplemented by a diagram drawn to scale, showing the exact location of each tree with reference to any roads, paths, buildings, or adjacent trees. This record and diagram would then serve as a basis for a revised plan covering the replacement of individual trees now badly defective, and those not in harmony with the general ornamental scheme such as the replacement of a horse-chestnut by an elm in a row of elms. It would also in some cases provide for the gradual replacement of all trees of a certain species, as the soft maples, by another and more suitable species. It might effect a readjustment of any new growth with reference to bringing it into greater harmony with certain buildings, roads, or other improvements. A second diagram on tracing linen, similar in all essentials

to the first, would then be prepared showing the plan in final readjustment and thus indicate exactly what would be necessary to effect any given changes.

The recording and locating of the trees could probably be done by your First Sergeant. If, then, these were to be sent to the Forest Service, it would undoubtedly be possible to have the plan completed at comparatively little expense. Most of the work could be done in the office, with probably a short examination on the ground to check up the plan before formally submitting it.

Very truly yours,

Louis S. Murphy

Forest Examiner.

Enclosure.

SPRINGFIELD ARMORY.		
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PRUNING AND OTHER CARE OF ORNAMENTAL TREES

By Geo. B. Sudworth, Dendrologist, Forest Service

Kinds of Pruning

In order to obtain certain very desirable results it is necessary to prune shade trees at stated periods. The necessities for pruning shade trees may be divided under three heads:

- (a) Removal of dead branches
- (b) Removal of living branches for the purpose of relieving encroachment upon a neighboring tree
- (c) Heading-in, or shortening limbs to produce new top growth. Among the common trees which may require this treatment are mainly poplars, willows, silver maple, sycamore, locusts, and tulip-tree.

Healing of Wounds

It is very important that the wounds made in pruning for all purposes should heal promptly in order that the exposed wood may be permanently covered and protected against decay. This will be accomplished best by cutting maples and birches during October, November, and December, and other trees

from November to April. Wounds made later will lose a full season's healing growth. Maples and birches are pruned in fall and winter months to avoid the flow of sap from the wounds. Exposed wood saturated with sweet, fermentable sap is then most subject to decay. Maples and birches can, however, be pruned safely at any time after the leaves are full grown. This will vary, according to the region, from about March to June. It should be done as soon as possible after this full growth, so as not to lose much of the season's growth for healing over the wounds.

Manner of Pruning

Limbs destined to be removed entirely should be cut close to the trunk or other point of origin. The objects of close cutting are to insure, first, rapid healing of the wound, and, second, a smooth shapely trunk. In taking off limbs of considerable size an under-cut should always be made first, in order to prevent them from splitting off slivers of bark and wood from the trunk. The main body of very heavy limbs should be cut off at a point several feet from the trunk, after which the stub can be amputated without splitting or otherwise damaging the trunk. The surface of the wound should be brought in line with the general outline of the trunk. If the surface of the cut is even a quarter or half an inch deeper than this, so

much the better. No pains should be spared to make the cut at least even with the trunk outline. The surface of the cut should be left smooth, all raggedness being removed with a sharp knife, chisel, or other instrument.

Under no circumstances should protruding stubs of limbs be left. They give an unsightly appearance to the trunk; and at most they will be only partly, or very rarely healed over, even after many years. The exposed wood will admit decay to the interior of the trunk. Sooner or later this will seriously weaken or destroy the tree. Closely pruned branches heal over promptly and completely, giving a smooth, shapely form to the trunk and affording perfect protection against decay.

In pruning upright branches for top growth (heading-in) slanting cuts should always be made in place of horizontal cuts, which are difficult to protect against decay, because water is likely to remain on such surfaces.

What to Prune

Reference is made under "Kinds of Pruning" to the necessities for pruning: (a) all dead branches; (b) such living branches as should be removed entirely, or shortened, to relieve injurious encroachment upon neighboring trees, or

for keeping the tree within proper bounds; (c) heading-in to secure new top growth.

Proper observance of these requirements does not include the cutting of living branches for any other purposes. Likewise, it does not include stripping small, leafy twigs from trunks and large limbs of oaks, maples, elms, sycamores, etc., for the sake of "letting the air into the crown" or of saving the vitality of the tree, etc. Occasionally there is necessity of thinning out crown branches for the sake of giving better proportion to the crown and for some other purposes.

Before pruning to relieve the encroachment of one tree upon another, the future and permanent value of the trees concerned should be most carefully considered. Not infrequently the natural beauty of a long-lived and very valuable tree has been destroyed by senseless cutting in order to preserve intact some comparatively worthless, short-lived neighboring tree. Short-lived and otherwise inferior trees, such as poplars, silver maples, etc., should always be sacrificed to preserve in good form such long-lived trees as oaks, sugar maples, beeches, etc. As a rule, perfectly formed pines, spruces, and other conifers should be spared and encroaching broad-leaved trees severely pruned, or even cut out, whenever these two classes of trees are crowding each other too much.

Protection of New Wounds

All wounds should be protected against decay by a thorough coating of lead paint or tar. These preservatives are best applied three or four days, or a week, after the cutting, which will allow the surface of the wound to dry out sufficiently to absorb the paint or tar effectively. In exceptional cases wounds may be painted immediately after cutting, particularly when to do it later would necessitate dangerous reclimbing of a tree. Large wounds should be carefully inspected from year to year and well painted or tarred, until they are completely healed over. Cracks and deep seams are likely to appear on the face of the large wounds before they are healed over, and these especially should be carefully filled with paint or tar to keep water out.

Care of Old Wounds

Neglected, unhealed wounds, the unsightly results of bad pruning, exceedingly common in street and park trees, may be greatly improved in appearance and the life of many trees saved or prolonged, by judicious treatment. Dead, protruding stubs should be cut off close to the trunk and deep into the living wood, if necessary to bring the surface of the cut even with the outline of the trunk. No permanent harm will be done

to the tree by the severe cutting recommended. On the contrary, the deep cut increases many times the chances of rapid and complete healing. Large wounds with decayed centers or exposed cavities should be cleared of rotted wood down to the sound tissues. No pains should be spared to go as far as possible above and below the opening in taking out decayed wood. In order to accomplish this it is permissible to enlarge the opening, but preferably upward or downward rather than making it wider. In cleaning out the cavity, which is later to be filled with cement, it should be given a retaining form, so that cement filling will be held there firmly.

After the surface of the cavity has become moderately dry, it should be protected from further decay by a thorough coating of coal tar, pitch, creosote, or lead paint. Tar, pitch, or creosote are preferable to paint as they will prevent the entrance of wood boring and other wood-infesting insects. The tar or pitch should be applied hot and in a generous coat. After drying for a day or two, the cavity may then be filled with cement, the finishing coat of which may be colored to approximate as nearly as possible the color of the surrounding trunk bark. Dark gray tints are produced by adding lampblack when the cement is being mixed. Properly tinted paint can be applied, if need be, to the finished cement in order to imitate more exactly the surrounding bark.

Small cavities can be filled entirely with a mixture of one part Portland cement and two parts of sharp, clean sand. The main parts of very large cavities are best filled to within three or four inches of the surface with a mixture of two parts Portland cement and five parts gravel. Whenever possible, this mixture should be run into the cavity in half liquid form. Within four or five days it will be thoroughly set, when the finishing mixture of sand and cement can be applied. A great deal of ingenuity is required to manage the filling in some cavities. Simple, sack-like holes are easily repaired. Cavities which go above and below an opening are difficult to fill completely at one time with the coarse grout. In rare cases good judgment might justify cutting a hole at the top of such a cavity to permit slushing in the coarse filling entirely from above.

The finishing coat of cement should be brought out to within only about one-half to three-fourths of an inch of the surface of the bark - never flush with it. When finished even with the bark, the healing growth about the border of the hole must push against the cement and necessarily break it, thus permitting water to enter the cavity. When the cement is brought out to a point just beneath the surface of the bark the new healing growth closes over the surface of the cement.

The greatest care should be taken to finish the cement filling so that it will be tight in all places about the border. It is necessary also to inspect filled cavities from year to year and to keep them fully repaired. Some treated cavities will require little or no attention for several years, while others, because their position subjects them to strain (through the bending or swaying of the trunk), are likely to require a good deal of attention to keep them tight.

Replacing Useless Trees

Old, decrepit, and storm-damaged or otherwise broken trees are often so unsightly and so disfigured as to be beyond recuperation, although they may be capable of living in this imperfect condition for a long time. The present and future good appearance of most lawns, parks, and streets requires that all such useless trees be replaced by suitable young ones. Good judgment and personal or public sentiment usually strong in favor of saving old trees, should, however, always be followed in considering the disposal of historically important trees. Even a badly disfigured old tree, which marks early settlement or some other local historic event, may give far more pleasure to its owner or to the community which knows its history, than a young tree in its place. Everything should be done to improve the appearance of such trees and to prolong their lives.

APPENDIX D

"THE SPRINGFIELD ARMORY. CHAPTER 9. SUMMARY AND PROSPECTUS,"
EXTRACT FROM DERWENT WHITTLESEY, Ph.D. DISSERTATION--
"SPRINGFIELD ARMORY"

THE SPRINGFIELD ARMORY.

Chapter 9. SUMMARY AND PROSPECTUS.

Estimate of the Armory's importance. A just evaluation of the contribution which the Springfield Armory has made to the national life of the United States demands viewing the institution from a number of different angles.

First of all, has the Armory served the primary purpose of its establishment, viz. supply with arms the armies of the United States in time of war? Constant manufacture during years of peace has accumulated a surplus which could be drawn upon in case of emergency, a fact of utmost importance in a country which possesses so small a regular army as does the United States. The existence of a permanent plant where arms were being manufactured created a skilled labor supply, without which war time manufacture would be greatly impeded, if, indeed, it could be carried on at all. The existence of this labor supply encouraged and aided private arms manufacturers to undertake their ventures, which in turn could be expanded to meet wartime needs. The Springfield plant itself, has in every emergency proved itself flexible beyond expectation, and while unable to supply the total wants of the armies, has expanded its production capacity several fold within a few months. On the whole, therefore, the Armory appears to have served the country well in making provision for war.

In the second place, had the Armory been of value to the Army in peace times, and particularly, has it advanced or impeded progress in the military life of the nation? Obviously, it has supplied the bulk of the muskets and rifles used by the Regular Army, for more than half its period of existence, and it did its share even before the abandonment of the Harper's Ferry plant. It could have furnished all the arms needed in times of peace had not policy determined to encourage not one, but several centers of arms manufacture within the country. A greater service, and perhaps the greatest, was the uninterrupted series of improvements which were made to the finished product and to the processes of manufacture. It may be said that improvements were bound to take place in any event, but nevertheless, the fact that the Armory existed, independent of the economic law of profits, made it possible for workmen and Army officers to experiment with improvements and to have them given practical trial, at no cost to themselves. Once an improvement was adopted in the Armory, it was necessary for all competing manufacturers to introduce it in order to keep government contracts, and thus the level of the product was rapidly raised. Furthermore, the standard, once established, could be maintained thru any economic law. When, for instance, private contractors were tempted to increase their bids or to reduce the quality of the product, the Springfield arm remained constant in quality and cost was given only secondary consideration.

In the third place, what has been the importance of the Armory in the industrial life of the nation? A complete answer to this question demands a more intensive study of industrial history than has yet been made. Nevertheless, the principal role which the Armory took in developing a high type of manufacturing conditions and in furthering the idea and the practice of interchangeability of parts in large-scale manufacture, are two evidences that its rank in such an industrial history would be high.

Finally, what has been the effect of the plant on the community in which it stands? Without the Armory, Springfield was destined to become a transportation center, and the coming of railroads would have brought with them commercial and perhaps industrial development of the place. The character of the city's industrialism, and the nature of the commodities produced has however been largely determined by the activities of the Armory. Highly skilled labor, producing fine grade steel goods, has given Springfield an economic life which has fewer drawbacks than that of most industrial cities. On the social side, the effect had been even more pronounced. The Armory effected an interweaving of the pioneer aristocratic New England with the later industrial New England, which is rare, if not unique. As a consequence Springfield is neither a sleepy village resting on its past glories, nor is it a coarse factory town, conspicuous for its slums and tired workers. It is a vital, vigorous, and thriving city, in which education, art, and pleasant living are emphasized.

The Outlook. With such a record of achievement, what of the future of the Armory? This question can be answered only from a standpoint which considers the institution in its environment. The unpreparedness of 1917 gave rise to and justified comprehensive plans for the future protection and defense of the United States. Two of these projects deserve brief consideration, in so far as they affect the status of the Springfield Armory.

The first of these, considering the United States as a military unit, holds that no establishment where materials of war are manufactured shall be less than [two] hundred miles from the frontier. This is based on the sound principle that such plants, unless comparatively immune from attack by a foreign enemy, are liabilities rather than assets. The second, viewing conditions as they are, contemplates additions to the physical plant at Springfield which will make it the "Grand National Establishment" of which Col. Lee dreamed. No decision as to which scheme possesses the greater merit can be reached without considering history. The disadvantages of Springfield are several and serious. The place has lost that secure inland position which led to its selection for a Revolutionary supply depot. *Supra. p.* - The plant is awkwardly divided, difficult and costly to guard, unsatisfactorily supplied with water power, and at a distance from sources of coal. Besides, its railroad facilities are inadequate, and will of necessity remain so. None of these drawbacks can be overcome, and the land which the government occupies would turn a pretty penny in the market, and enhances in value year by year. There are, however, compensating advantages. Buildings and equipment, such as they are, already exist, and the expense of additions would be much less than the construction of an altogether new plant of comparable size. The Armory has made Springfield a center of gunsmithing, so that adequately trained labor

can be had in that vicinity more easily than elsewhere in the United States. One of the chief difficulties in manufacturing arms at the Rock Island (Ill.) Arsenal, is said to be the impossibility of securing enough of the right kind of labor. More important still, the strife and travail of more than a century have placed their stamp upon both the armory and the city in which it is located. Tradition, that mocker of wisdom and of efficiency, has metamorphosed the plant from a factory to an institution. There is more than superb mechanical skill in the Springfield Rifle - love and pride and patriotism have been milled and turned and forged into it. Such qualities as these can not be produced by fine, up-to-date factory buildings, safely located in the heart of America. They are part and parcel of the dignified, not too efficient, patient, fond toil of generation after generation of self-respecting workers. They cannot be transplanted.

In short, the town has moulded the Armory, and has by the Armory been moulded in turn. To divorce them would be to sacrifice their joint history.

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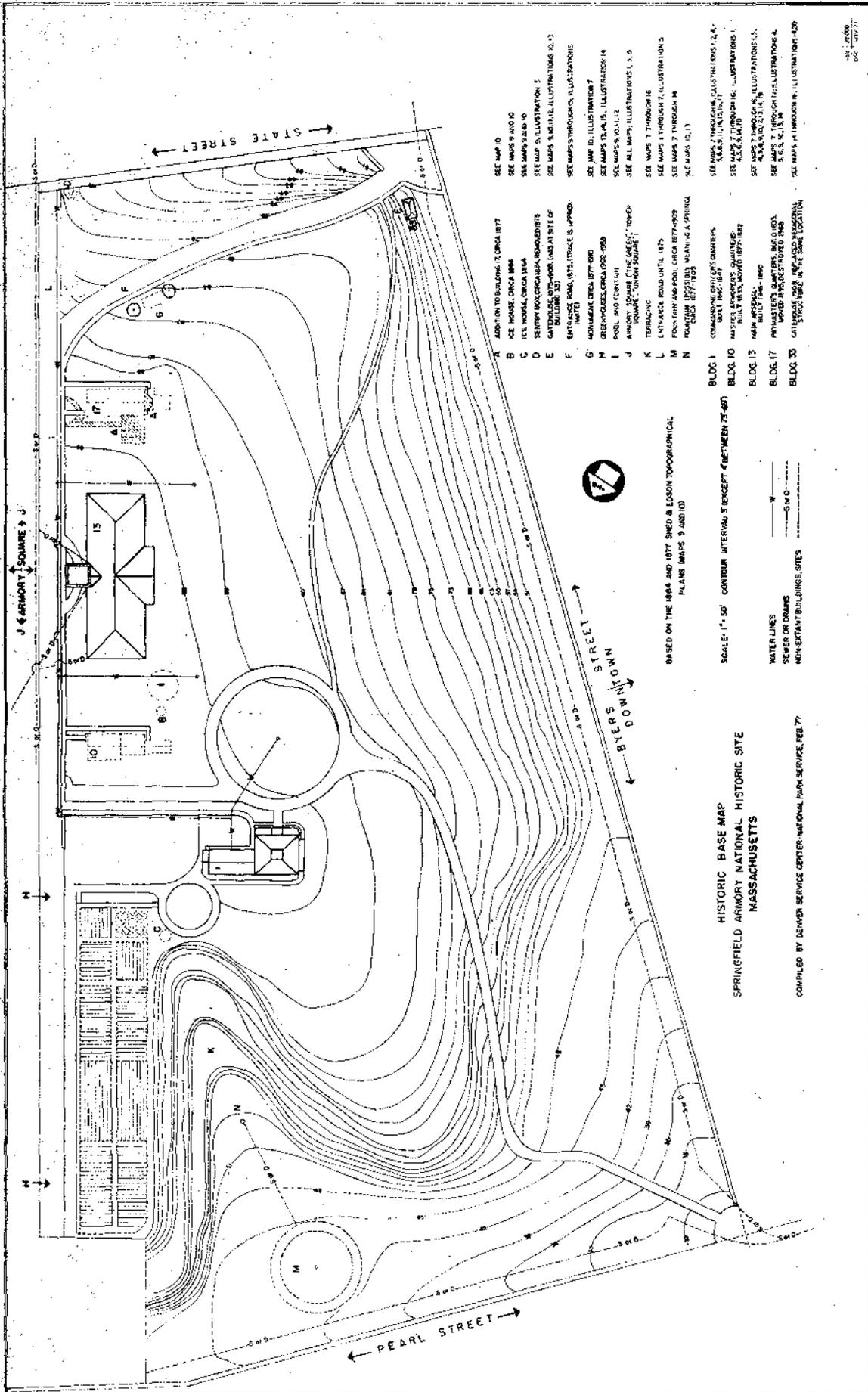
Unused Materials

Many historical materials were uncovered during the research for this project but not used. These materials could prove to be valuable for other researchers. These materials are located in the Library of Congress and in the Center of Military History, both in Washington, D.C. Additional data are available at the Military History Institute, Carlisle Barracks, Carlisle, Pennsylvania, a collection which is rapidly becoming invaluable for military history researchers.

As the nation's principal conservation agency, the Department of the Interior has basic responsibilities to protect and conserve our land and water, energy and minerals, fish and wildlife, parks and recreation areas, and to ensure the wise use of all these resources. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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- SEE MAP O
- SEE MAPS 9 AND 10
- SEE MAPS 3 AND 10
- SEE MAP ILLUSTRATION 5
- SEE MAPS 3 AND 10, ILLUSTRATIONS 2 AND 3
- SEE MAPS THROUGH 10, ILLUSTRATIONS 1 THROUGH 10
- SEE MAP ILLUSTRATION 7
- SEE MAPS 13 AND 14, ILLUSTRATIONS 14
- SEE MAPS 9 AND 13
- SEE ALL MAPS, ILLUSTRATIONS 1, 5, 9
- SEE MAPS 7 THROUGH 16
- SEE MAPS 1 THROUGH 7, ILLUSTRATIONS 3
- SEE MAPS 7 THROUGH 14
- SEE MAPS 10, 13
- SEE MAPS THROUGH 14, ILLUSTRATIONS 1, 2, 4, 5, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100

- A ADDITION TO BUILDING 12, CHINA 1877
- B ICE HOUSE, CHINA 1884
- C ICE HOUSE, CHINA 1884
- D SEVENTEENTH-CENTURY REMAINDERS
- E BUILDING 13, WORK (ON EAST SITE OF BUILDING 13)
- F ENTRANCE ROAD, 1875, (TRUCKS 18, 19, 20)
- G WORKSHOPS, CHINA 1877-80
- H GREENHOUSES, CHINA 1880-89
- I POOL AND COURTYARD
- J ARMORY SQUARE (THE GREEN), TOWN SQUARE, UNDER SQUARE
- K TERRACING
- L ENTRANCE ROAD UNTIL 1875
- M FRONT YARD AND POOL, CHINA 1877-80
- N FRONT YARD (PROBABLY MEANING A SPRING), CHINA 1877-80
- BLDG 1 COMMANDING OFFICER'S QUARTERS, BAY 1 INC-187
- BLDG 10 MASTER ARMORY'S QUARTERS, BUILT 1833, WOOD 1877-1887
- BLDG 13 MAIN BUILDING, 1880
- BLDG 17 MASTER'S QUARTERS, BUILT 1870, WOOD 1877-1887
- BLDG 33 GARAGE FOR REPAIRED MACHINERY, STRUCTURE IN THE SAME LOCATION

BASED ON THE 1884 AND 1877 SHED & EDSON TOPOGRAPHICAL PLANS (MAPS 9 AND 10)

SCALE: 1" = 50' CONTINUUM INTERVAL 1' EXCEPT (BETWEEN 72-80)

HISTORIC BASE MAP
 SPRINGFIELD ARMORY NATIONAL HISTORIC SITE
 MASSACHUSETTS

COMPILED BY DENVER SERVICE CENTER NATIONAL PARK SERVICE, FEB. 77

WATER LINES
 SEWER OR DRAINAGE
 NON-EXTANT BUILDINGS SITES