

THE SPRINGFIELD ARMORY: A STUDY
IN INSTITUTIONAL DEVELOPMENT

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THE VIEWPOINT

From August, 1918, to September, 1919, I was stationed at the Springfield (Massachusetts) Armory and became imbued with its distinctive spirit, which is the product of its long tradition. A search of the records of the establishment, supplemented by investigations in other New England archives, revealed that the institution had indelibly imprinted the economic and social life of Springfield, had served as a precursor and pattern for other agencies of the United States Government, and had taken a prominent place in the technological advancement of manufacturing in the country. This three-fold development has made of the Armory an institution with character and individuality, and constitutes the central theme of this dissertation.

THE MATERIALS

Most of the material used was gleaned from manuscript sources. Collections of great value are those of the Springfield City Library Association, the Connecticut Valley Historical Society, The Massachusetts State Archives, The Library of Congress, and certain private citizens in Boston. For the period since 1795 the principal source was the vast Springfield Armory File, containing regulations, payrolls, work records, and correspondence.

The published material devoted to the Armory is confined mostly to anecdotes. More valuable are official publications of the United States (chiefly War Department publications, Statutes, and Debates in Congress) and files of local newspapers. For two special periods there is additional matter: the Revolutionary Laboratory is partly disclosed in the Journals of the Continental Congresses, and in published letters of the men involved; a collection of pamphlets covers the Ripley-Stearns controversy. There are a few special studies on arms.

Verbatim notes were made from all these sources, and from the notes the story has been drawn. Passages of special importance or vividness have been quoted. The full bibliography appears as Chapter 10 of the work.

The appendices which follow Chapter 10 comprise fundamental documents, and such data as require presentation in tabular form.

THE DIGEST

The following summaries of the chapters set forth the major items in the history of the institution.

Chapter I. The Situation

Springfield, Massachusetts, was the first settlement in the Connecticut Valley, by virtue of its favorable situation for the fur trade. As this business was replaced by farming, Springfield became eclipsed by near-by towns in more fertile agricultural districts. Recrudescence came with the Revolution, when facilities for transportation and manufacturing caused Springfield to be selected as the site for a munitions plant. Following the War, a second period of decay was arrested by the establishment of the National Armory.

Chapter 2. The Revolutionary Laboratory

Established by Washington close to the frontier, the manufactory of the Revolution turned out cartridges and fuses, and made repairs to all kinds of ordnance. In addition, a powder factory grew up in the town and local contractors undertook to cast cannon for the government. Springfield became the principal storage center and outfitting point for both ordnance and quartermaster supplies. Operations were carried on in rented quarters, but storehouses and a powder magazine were constructed on the site afterwards selected for the National Armory. The organization provided for considerable differentiation of functions, and the methods of paperwork were much like present-day Army procedure. The personnel were partly military and partly civilian. Criticism by townfolk of government administration led to an investigation of the conduct of affairs, and ultimately to a court martial, but no penalties followed. The strife seems to have been engendered by social friction inevitable to the operation in war time of a federal organ in a community with powerful traditions of frugality and local government. Demobilization during 1781-2 left a keeper of military stores in charge of federal property.

Chapter 3. The storage Depot of the Period of the Confederation

At the end of the war a new magazine was erected to store surplus powder - the most prized of ordnance stores at that period. This became the object of attack by Shays and his back-country army in January, 1787. The movement behind Shays' Rebellion spurred Massachusetts to favor the new Constitution composed the following summer, under which the National Armory was established.

Chapter 4. Founding the National Armory

A statute of 1794 provided for National Armories, patterning after the French system of government-owned shops for manufacturing muskets. Nevertheless, subsidizing private gunsmiths, a

practice inherited from Britain, was not abolished. Washington selected the location because of situation safely inland and yet on water transportation, accessibility to the British frontier, local water power, proven worth of the site, and presence of government-owned buildings.

The first land was bought and work was begun in 1795. The three principal officers, Military Storekeeper and Paymaster, Superintendent of the National Armory, and Master Armorer, were civilians and quasi-independent of each other. Strife ensued, to the detriment of the plant, from which the Superintendent emerged supreme, after a struggle of fifty years. For a time the Master Armorer was looked upon as assistant superintendent; all assumed responsibility in the temporary absence of the superintendent, and one succeeded to the higher office; but by 1812 he had become definitely relegated to a subordinate position, along with a recognized hierarchy of lesser officials. The conflict between Superintendent and Paymaster was less easily settled, because the former was responsible for conduct of the plant whereas the latter purchased raw materials, paid the workmen, and took charge of the output. In the very first administration the controversy was carried into the courts, and nearly every succeeding administration took up the cudgels until 1841, when the Paymaster became an appointee of the rival official.

The workmen were employed on contract, but were rationed by the government. Moreover, their children attended an Armory school, and business and social-centers sprang up in the neighborhood of the shops. This distinct community grew up partly because of remoteness of the village, partly because armorers who lived on federal property had no legal standing in the Town, and partly because of social cleavage between the Congregational trading and farming townsmen and the Dissenting artisans of the Armory.

Sovereignty of the United States government over the Armory property came into question before the state supreme court in 1811. Loose construction of the Constitution in this case prevented state interference in later years.

Chapter 5. War, and readjustment under the Civil Superintendency

The War of 1812 precipitated a fresh struggle between Paymaster and Storekeeper, which was complicated by the issue between Federalist New England and Democratic federal government. It was difficult to speed up production and even to obtain raw materials.

In the generation following the close of the War, the Armory was placed upon solid foundations.

(1) A comprehensive plan for buildings was adopted, and several of those now standing were

constructed. Water power rights were increased. (2) A department for repairing muskets was inaugurated, and oddments were periodically sold at auction. New methods of manufacture were adopted as fast as inventions were made, and coal was tried out for smelting and power. Permanent purchasing agencies were set up in principal centers of supply. (3) Practices of workmen which defrauded the government were curbed. A periodically revised pay schedule was adopted, which made it possible to hold skilled mechanics against competition from private manufacturers. (4) Workmen were stimulated to invention by establishment of the principle that devices worked out in the government shops may be used without compensation by the United States, which patents them without charge. (5) The Superintendent was recognized as the chief officer, with power to appoint all others except the Paymaster, and with sole responsibility for the purchase of supplies and the payroll. (6) Political interference from Washington was fought off, so that the Armory had a chance to develop along sound economic lines. (7) Social betterment among employees was fostered, and fusion between Armory and Town progressed materially. During this period, when social structure was based on the church, organized dissent arose in Springfield within the Armory group, in the institution of the Episcopal, Universalist, Baptist, Methodist, and Roman Catholic churches. Every dissenting sect in Springfield established before 1850, excepting the Unitarian, sprang out of Armory society.

With the rise of Jacksonism, the Armory was thrown into new turmoil, because it was a potent weapon in Democratic hands to turn against the Federalist section in which it lay. With the death in 1833 of the Superintendent who had firmly founded the institution, the spoils system replaced sober business management and generated a storm which subsided only with the clarifying tempest of the Civil War.

Chapter 6. Military vs. Civil Control

The struggle came to a climax after the appointment in 1841 of a Military Commander in place of a Civilian Superintendent. This was urged by the Army on military grounds and utilized by the Whigs as a pretext for accomplishing the purpose of the spoils system without openly embracing it. It achieved greater efficiency and so incurred the enmity of many workmen; it ousted Democratic henchmen, who became clamorous when that party returned to power; it ramified throughout the village, for the Armory was no longer distinct from the Town. The antagonism crystallized about the persons of Major Ripley, the Commandant, and Mr. Stearns, a prominent merchant, real estate operator, and promoter of the Town. It took the form of disturbances of the peace, civil suits, and courts martial. In 1853 the civilian

superintendence was restored. In the meantime vast improvements were made along the lines sketched in Chapter 5, and these were carried on feebly by the superintendents who followed Major Ripley.

As the Civil War approached, the Armory was ill-prepared to meet a crisis. Appropriations were curtailed, poor pay and part-time work drove mechanics elsewhere, southern armorers were sent to study the plant, and finally 105,000 arms were shipped to southern arsenals. When war was declared, the civil administration broke down under the strain, and a Military Commander was again appointed. This time the white heat of patriotism fused all parties, and caused whole-hearted acceptance of the new order.

Chapter 7. The Modern Armory

Institutional-development since 1861 is of minor significance. The Civil War necessitated expansion in plant, a heavy military guard, and two working shifts. Difficulties with workmen resulted from competition for labor by private arms factories, and from unforeseen incidence of the draft law. The plant was found to be awkwardly remote from a railroad.

Since 1865 the Armory has settled down to a definite policy. The executive positions are filled by Ordnance officers, and a detachment of enlisted men performs the distinctively military duties about the plant. The civilian employees are occupied with administration and fabrication. The trade tends to be handed down from father to son. Standards of pay and working conditions set by the Armory have done much toward making Springfield the comfortable, well-to-do city it is today, in sharp contrast with the usual New England mill town. Some additions have been made to land and buildings, and three departments of note have been established: The Small Arms Museum, The Small Arms Proving Ground, and the Metallurgical Department.

The World War saw a repetition of many of the troubles experienced during former wars, but probably none which are not inherent in the traditional policy of minimum outlay for defense in time of peace.

Chapter 8. Production at the National Armory

From the technical standpoint, the Armory has distinguished itself in several respects. It helped make western New England the chief arms manufacturing center in North America. It had a large share in the development of interchangeability of parts, the outstanding contribution of American manufacturing industry. It permitted experimentation without reference to cost, thus compelling

improvement of the arm to the high quality of the Springfield rifles of 1873 and 1903. All these accomplishments have been incidental to the avowed object of the institution - to provide the Army with arms in peace-time, to establish a reserve for war, and to furnish a nucleus for rapid increase of output in case of war.

Chapter 9. Summary and Prospectus

The importance of the Armory has been summarized in this abstract. Those who are responsible for its future need to bear in mind that it is more than a factory for making rifles - that it is an institution woven of the fabric of American life, possessing a spirit more potent for the good of America than the most up-to-date factory created by fiat.

THE SPRINGFIELD ARMORY

CHAPTER I. THE SITUATION

SETTLEMENT OF SPRINGFIELD

Soon after the earliest permanent settlements of New England had found foothold, William Pynchon of England and Massachusetts Bay nosed his vessel up the waters of the stream known to posterity as the Connecticut, in the then remote Indian country. He had in view a trading venture in furs which he hoped would justify the expense of establishing a settlement. When, after observing the futility of trying to ascent beyond the great falls since called South Hadley, he dropped down stream looking for a location for his settlers, he must have selected the mouth of the Agawam, (or Westfield, as it is called in most of its course), because of the promise of that major tributary of the Connecticut to give approach to the vast region to the westward. At all events his settlement, called Springfield, lived up to his expectation as a remote outpost of the Indian fur trade, which, in the years that immediately followed turned a handsome fortune for his family.

Added to its favorable situation, near the head of navigation on the Connecticut and at the trade outlet of the rugged mountains to the westward, it was soon found by the whites to be the western end of a direct and easy route to Massachusetts Bay itself, by the way of the valley of the Chicopee or Quabog, which empties from the east into the master stream of the region, only four miles above the mouth of the Agawam.

This fact the Indians had known from time immemorial—indeed it was partly because of the concentration of Indian trails at this point that Pynchon selected it as the site for his factory. Trails from all directions found their tortuous way to the sandbar ford which the silt-laden Agawam threw across the Connecticut just below its mouth. Those paths which stretched toward the north and south found easy crossings over the tributary streams at points a few rods from the master waterway. At such places the water plunged off the upland rock it had uncovered, to make its way quietly across the sandy flood-plain of the major stream, and shallows offered natural fords. Those routes which led into the hills to the east and to the west ascended the valleys of the two principal tributary rivers, (the Agawam to the west and the Chicopee to the east), or worked their way up lesser valleys to the table-land which had been laid down as the bed of a glacial lake, and

through which the Connecticut had cut a steep-sided, flat-floored valley. Thus located at a grand crossing of land and water routes, Springfield was looked upon as the metropolis of the region.¹

SLOW GROWTH OF THE COLONIAL PERIOD

Unfortunately, the second and third half centuries after settlement did not bear out the early promise. During the first season Pynchon had been compelled to remove from the fertile alluvial plain about the mouth of the Agawam to the east bank of the Connecticut, in order to have peace with the aboriginal owners of the land, who resented losing their best corn fields to the intruders. The pioneers, thus transferred, found themselves on a low sandy ridge in the midst of the river floodplain, separated from the stream by one strip of marsh, and from a river terrace thirty to forty feet above them, by another. This terrace, a narrow remnant of a former floodplain, was cozy with springs and rivulets which had their source in the steep side of the sandy upland which rose 110 feet above the Connecticut within a horizontal distance of half a mile.

The topographical difficulty presented by this steep scarp put the residents of the town at a disadvantage which was only intensified by the uninviting character of the upland itself—a sandy waste stretching eight or ten miles to the mountains; a monotony varied only by clumps of stunted pines and occasional swamps and ponds. No farmer would settle on “the hill,” as the upland was locally called, while fertile valley land was available. Hence, with the decline of the fur trade and the substitution of farming as the chief activity of the region, Springfield found itself outstripped in population and in wealth by several neighbors. Northampton, in the heart of the fertile lake plain of central and northern Massachusetts, began, toward the middle of the eighteenth century, to assert its preeminence among Connecticut Valley town, and even West Springfield, built upon the rich soil at the mouth of the Agawam, from which Pynchon’s first settlement had been driven to the unpropitious east bank, had grown out of leading strings, and in 1773 forced a separation from the mother town. In short, at the end of the colonial period of American history, Springfield was cramped for space on which to grow, hopelessly

¹ Wright, Harry A. *Early Maps of Connecticut Valley in Massachusetts*. Springfield: Wright and De Forest, 1911.

handicapped by the unproductivity of its tributary area, and fast losing the grip which it once maintained upon western New England.

The following reminiscence will serve to illustrate these conditions:

“Setting aside Chicopee and Longmeadow (since established as separate towns) the Springfield of 1774 consisted mainly of a row of houses on the west side of Main Street, some two miles in length. The Ferry street of old, now called Cypress, was a well traveled thoroughfare, it being the route to the ferry which connected the two sides of the river, and its junction with Main street was a central point in a business way. What is now State street, then called the Causeway, was the only road leading eastward through the swampy meadow lying along the town brook....”²

Of its former prosperity, there remained by 1775 only the fact of numerous tiny power sites along the streams that tumbled down from the upland to the river, and the potential strategic advantage for transportation which had led the Indians and fur traders to congregate there, but which it must share with West Springfield, already forging ahead in the race. The increase in the size of boats had already determined that Hartford, and not Springfield, should stand at the portal of navigation on the Connecticut, because of the shallows and rapids between the two town. These obstructions, while not insuperable, offered the first important obstacle to boats bound upstream, and the bulk was generally broken at the town below them. The vast west that to Pynchon had seem and proved to be so profitable, was already being diverted into the coffers of New York merchants; the region properly tributary to Springfield to the westward was thus reduced to a part of the strip of highland east of the Hudson, from which settlers were rapidly driving the fur-bearing animals. Only the Bay Path remained, the old route to Boston, and that was forced to compete with newer and hillier, but more direct routed to other Connecticut River towns. In the natural course of events Springfield seemed doomed to slow disintegration and ultimate desuetude.

THE TURNING POINT OF 1775

Strikingly enough, the expected course of events was, at the outbreak of the Revolution, on the verge of being arrested by events which re-established Springfield, pioneer town of the valley, as premier city of western New England, and relegated its

² Clogston, William, comp.: Springfield Scrap Book in Springfield City Library Association. 4 vols. V.1 “Historical Reminiscences of Springfield.

rivals of that year to places of subordination. These unexpected fillips pivoted on the swift development of an industrial society in the northeastern United States during the first three quarters of a century of their natural life.

In three phases, in particular, this evolution affected Springfield profoundly: first, the practiced eye of military strategy seized upon the rare fitness of the town's location for the establishment of one of the first industrial plants in the western hemisphere; second, the introduction of power driven machinery enabled the inhabitants to utilize to the full the only important natural resource of the place—its swift streams—and so to maintain the impetus which war had given; and third, the habits of the aborigines, the instinct of Pynchon, and the decision of military authorities were vindicated in the establishment there of the junction of the first east-west and north-south railroad lines of Western New England. The structure of economic life building from these facts of location and water power forms the warp of the thesis which this study undertakes to establish; its woof is drawn from the mass of social and political activities which crowd the period covered.

CHAPTER II. **THE REVOLUTIONARY LABORATORY**

EARLY GUNSMITHING IN THE SPRINGFIELD FIELD DISTRICT

When the irate citizens of his Majesty's colony of Massachusetts Bay found themselves fast drifting into a position from which war alone could extricate them, they cast about, in the manner of pioneers habituated to self-dependence, for means of carrying on armed resistance. Among the duties which the state Committee of Safety took upon itself was the provision of arms and munitions of war. The necessity for this activity was made apparent by Parliamentary embargo on the exportation of firearms to the American Colonies in 1774, and in that year Richard Fally (Foley) of Westfield was designated armorer for Massachusetts.³

There was, at this date, a score of expert gunsmiths in the colony, of whom at least two lived in Springfield, one in Northampton, one in Granby, one in Leicester, and

³ Sawyer, C.E.: Firearms in American History. Boston, the Author, c. 1910. pp. 72-122

two in Sutton. All these, in addition to Falley, may be said to belong to the Springfield district, and still another, Robert Orr, who at the outbreak of the Revolution was assisting his father in the manufacture of arms at Bridgewater, became in 1795 the first Master Armorer of the National Armory established that year in Springfield. Besides these masters of the craft, a number of less skilled artisans living in the larger towns could be called on in the case of need, commonly to perform only one or two of the principal operations involved in the fabrication of the musket.

The year 1775 saw the initial struggles of the war, as a result of which everyone who could adapt himself to the business of gunsmithing was called in to help. The several towns, as well as the colony, attempted to equip the troops as rapidly as possible. Springfield, acting in concert with other towns, in March 1776 recorded payments to three local mechanics for twenty guns. One of them made the barrels and the ramrods, a second the locks and rigging, and the third the stocks.⁴ The fact that both the town and the state found in the Springfield district the gunsmiths needed may indicate the presence there, close to the expanding frontier, of an unusually large following of the profession. To the combined efforts of town and colony were added those of the 'continent' - that loose organization of which the Continental Congress was the head and the troops under Washington the arm. This body likewise turned to Springfield for its munitions, an action which in time developed the Springfield National Armory.

GENESIS OF THE IDEA OF A NATIONAL WORKSHOP

Among Washington's more experienced officers was Col. Henry Knox of Boston, commanding officer of a Continental regiment of artillery. His knowledge of a then little understood branch of warfare, forced him to consider materiel more and personnel less, that infantry officers were wont to do. On September 27, 1776 he addressed the Continental Congress from his headquarters within the defences of New York City in a list of suggestions "for the improvement of the artillery of the United States."⁵ His recommendations indicate that the idea afterward embodied in the arsenals and armories of the United States found its genesis in his brain:

⁴ Springfield Town Records, March 12, 1776. Vol. 5.

⁵ Henry Knox to a Committee of the Congress Sept. 27, 1776, in Mass. Hist. Soc. Coll. Knox Papers v.3, p. 58.

“That there be one of more capital Laboratories erected at a distance from the seat of war, in which shall be prepar’d large quantities of ordnance stores of every species and denomination. That at the same place a sufficient number of able artificers be employ’d to make carriages for Cannon, of all sorts and sizes, ammunition Wagons, Tumbrils, harness & c. & c. That as contiguous as possible to this place a foundry for casting brass cannon, Mortars, Howitzers be established upon a large scale.” Knox must have pressed his views upon his chief, for three months later Washington wrote to the Congress from camp near Trenton a sketch of his plans: cannon, carriages and shot were to be provided at “elaboratories to be established, one in Hartford and another in York. Magazine of provisions should be laid in.”⁶

Knox was to be put in charge of this work and to receive a commission commensurate with his position. On December 27, 1776 he was accordingly made a brigadier general and chief of artillery. The few remaining days of the year saw the completion of arrangements on paper for the needed shops and storehouses. The Congress empowered Washington to send Brig. Gen. John Armstrong of Pennsylvania “to fix on the most secure and convenient places for ... proper magazines of provision for the army to be immediately formed in or near Pennsylvania....”⁷

Pennsylvania was naturally selected for the first of such establishments because of its central location, but it was soon seen that effective distribution of supplies could not be made from any single point: furthermore it does not pass belief that members of Congress from other sections indulged in a little log-rolling. In any event, a resolution was shortly adopted to the effect “that two other magazines of ammunition ... be formed, one in the eastern states and one in the southern states. Ordered, that the delegates of the eastern states confer together, and also those of the southern states, and fix upon proper places, and report to Congress....”⁸ Within three days, the selection had been made in the cases of the middle and eastern states, Carlisle, Pa. and Brookfield, Mass., being the sites chosen.⁹

⁶ Hartford, Conn., and York, Pa. Magazine meant in the eighteenth century any sort of storehouse; elaboratory or laboratory were variants of a term applied to what would now be called a workshop. Washington to the Continental Congress, Dec. 20, 1776 in official Letter to the American Congress. v. 1, p. 353. London, 1795.

⁷ Journals of the Continental Congress, 1774-1789, Dec. 21, 1776. Washington Government Printing Office. 1906.

⁸ Ibid. Dec. 24, 1776.

⁹ Journals of the Continental Congress, 1774-1789. Dec. 27, 1776. Washington: Government Printing Office. 1906.

SELECTION OF A SITE

Why the “eastern delegates” picked out Brookfield is a matter of debate. It possessed undeniable advantages, being on the main road from Boston to Albany and to New York. More important, it lay on the broad crest of the upland of crystalline origin between the Atlantic Coast and the Connecticut Valley, and therefore, while remote from the coast, and difficult of access of to an enemy, offered an abundance of nearly level land upon which to build an arsenal, in the field along the brimming brook (Quabog) which give the town its name. It was, moreover, in 1776 the largest town of western Massachusetts, the state which, because of its central location in New England, good transportation connections, and preponderance of political influence, was almost certain to be selected for the new works.

To be sure, the greatest center of population was the Springfield district, but it was divided into three towns, mutually jealous and unable to cooperate in bidding for a venture which must profit one more than the others. Brookfield’s eligibility may well have been pointed out by Col. Jeduthan Baldwin, a resident of that town and a colonel of Engineers in the Continental Army. Having, during the year, laid out and directed the fortification of the works at Long Island, Leachmor Point, and Ticonderoga, which included prescribing for at least one arsenal, and being on friendly terms with Samuel and John Adams and perhaps other delegates to the Congress, his advice was probably sought. He was, moreover, eager to return home, and the prospect of a command in his native town with congenial work which he was well equipped to do, might have caused him to throw his weight to the Brookfield proponents.¹⁰

Two other men whose advice may have been asked for would likewise have felt a preference for the town—both Ezekiel Cheever, then Commissary of Military Stores for Massachusetts, and Joseph Eayrs, Major in command of the Continental Artillery Artificers Corps operating in western New England, had many relatives in Brookfield, all of whom may well have desired the acquisition of the industry. It hardly seemed necessary, however, to invoke personal influence, since the qualifications of the situation offered sufficient inducement to a group of laymen, such as the delegates were, to choose

¹⁰ Baldwin, Jeduthan. Personal Journal. Jan. 2, 4, Mar. 28, Apr. 2, July 17, 28 Aug. 3. Dec. 2, 1776.

it over all rivals.

By the time the determination of the Congress had been reported to Knox, he had come to a conflicting decision. "...he was of the opinion that Hartford in Connecticut would be on many accounts more convenient for that purpose than Brookfield, particularly in respect to buildings, which are already erected, and though not such as are immediately fit for the uses they are intended, may be easily converted to them."¹¹

On the strength of this recommendation of his Chief of Artillery, Washington urged the Congress to permit the change of location. Hartford was considerably more populous than any other town of western New England, and it possessed the tremendous advantage of being on navigable water. This very advantage was, nevertheless, a serious drawback, because it brought enemy invasion from the sea within the realm of possibility. Furthermore, Hartford was not on the main road to Albany, certain to become the base of operations along the Canadian frontier, and it was uncomfortably near New York, at the moment in British hands.

In the Congress, Knox's proposition grounded, doubtless on the shoal of jealousy on the part of the Massachusetts delegation. In the meantime Knox had changed his mind, and now fixed upon Springfield as the most suitable location. This seems to have been the outcome of a visit to Springfield in the latter part of January, 1777, from which place he wrote General Nathaniel Greene "... that it was the best place in all of the four New England States for a laboratory, cannon foundry etc...."¹²

In fact, Knox was so determined in his championship of Springfield that Washington directed him to go ahead with the works there, undertaking himself to "inform Congress of the necessity of this variation from their resolve."¹³

This he did a day or two later, in a letter which set forth Knox's argument in favor of Springfield together with his own: "a quantity of copper, tin and other useful materials, can be had there and that the necessary works and preparations, from these and other advantages, can be accomplished at least three or four months sooner than any where else.

¹¹ Washington to the Continental Congress, Jan. 17, 1777. *Official Letters to the American Congress* v.2 pp. 9-10.

¹² Nathaniel Greene of Rhode Island, Major General in the Continental Army, afterwards Quartermaster General (Mar. 2, 1778 to Sept. 30, 1780.). Knox to Washington Feb. 1, 1777. *Washington Collection: Library of Congress*. Washington, D.C.

¹³ Washington to Knox, Feb. 11, 1777, in *Sparks Jared: The Writings of Washington*, v. 4. p. 319. Boston, 1834.

In consequence of his opinion, which I esteem of weight, particularly in this instance, and knowing the importance of and how essential these establishments are, I have ventured to order the works to begun there, without regard to what had been done at Brookfield, which was of but little consequence. The former, besides the many advantages mentioned by General Knox, stands on the Connecticut river, and has good navigation, yet is entirely secure against any attempt of the enemy, being twenty miles above Hartford, where the river is narrow and too shoal to admit vessels that can give the least annoyance.

As nothing but the good of the service could have led to this measure I trust it will be approved.”¹⁴

Approached with such convincing arguments from such high authority, the Congress could but acquiesce, and acted favorably to Springfield on February 20, 1777. Since the undertaking was to be financed by the Council of Massachusetts Bay, the agreement to retain that state as a site for the works no doubt broke down the most threatening aspects of Congressional opposition. In justification of his position, nevertheless, Knox sent to the President of the Council a complete account of the situation and of his own reasons for insisting upon the change.¹⁵

From this document it appears that Washington, apprehensive of the unsuitability of Brookfield, hit upon Hartford as a substitute, and sent Knox thither to look over the ground. That officer's findings showed the validity of Washington's judgment, but further survey brought to attention Springfield possessing advantages which Knox has himself clearly set forth.

“Springfield is a place more proper than Brookfield with respect to its being situated on Connecticut River, the great saving of transportation by Water to and from any part of the Sound, New Port, New York or indeed to any part of the Continent by Shifting into different Bottoms.

Springfield is preferable to Brookfield in point of Geography with respect to Hudson's River and the Northern Department.

Springfield has the advantage of Brookfield in the Number of streams which empty themselves in Connecticut River and on which are a number of Saw Mills. Timber is much more easily gotten at Springfield than Brookfield by the facility with which it is transported by means of the River and much Charge saved thereby. Shop Houses and Stores though not Very convenient are already gotten and the workmen at Work in the various Branches which could not be provided at Brookfield without building them which

¹⁴ Washington to the Continental Congress, Feb., 1777. Official Letters to the American Congress, v.2 pp. 27-28.

¹⁵ Knox to James Bowdoin Apr. 6, 1777, in Massachusetts Archives. V. 196. pp. 367-368b. Also accompanying enclosure, p. 369.

would inevitably have retarded the preparation of Stores Waggon Carriages & c for some months.

Provisions and subsistence is much more cheaply provided at Springfield than Brookfield as the Country is more plentiful.

And when the buildings Magazines & c Shall be erected in a Compleat manner the plain just above Springfield is perhaps one of the most proper Spots in America on every Account.”

These statements prove that Knox possessed a clear apprehension of the needs of an arsenal and that he had studied the location in such detail that he could plan to place the works on the infertile upland, far from the straggling village of the day, but in the precise spot where they were afterwards erected.

ESTABLISHMENT OF THE LABORATORY AT SPRINGFIELD

Washington and his aides had all along been urging the imperative demand for speedy production of the munitions of war, and Knox, as he had already been seen, started the men to work before the Springfield site had been approved by the slower-moving legislative authorities. Plans for housing the business had been drawn up by Col. Thomas Dawes, and when the Congress finally settled on Springfield, Knox approved these projects and recommended to the Massachusetts Council that their author be appointed superintendent of construction: in the meantime premises for immediate occupancy were to be rented. The problem of storage for the output could not have been serious at the outset, since the demand for the product exceeded the amount that could possibly be produced. The first processing seems to have been connected with cartridges, which were papier mache or cloth cartons containing the powder. Each man carried about forty rounds, and constant use wore them out. It was the business of the laboratory to refill and renew these cartridges. In April, 1778, one week's fabrication turned out 7584 cartridges, but as this followed a year of activity at Springfield, it must be assumed that the production at the start was smaller.

The first workshop appears to have been a barn in the rear of a building known as the Hitchcock House, located on Main Street where Emery Street now intersects, very near to the business center of the town of 1777. It was rented for the purpose from Ebenezer Stebbins, and there operations were promptly got under way. So considerable

were the demands for powder from the very beginning that Gen. Heath reported with mingled astonishment and regret that all the powder belonging to the Continent at Boston had been sent on to Springfield by Knox's order to be fixed in the laboratory, as early as April, 1777.¹⁶

SPRINGFIELD AS A STORAGE DEPOT

Very shortly after the laboratory had been put into operation Springfield began to be a storage center of importance as well. Toward the end of the very month in which Heath had stripped his own warehouses of powder he transferred to storage at Springfield "25 cases of arms lately arrived" in Boston from Martinique, and he urged a similar course with respect to "part of the cannon...the muskets, flints, powder, tents, and lead ball,...in order to their being conveyed to the army."¹⁷

This material was a part of a consignment which had been made with the connivance of the French government, another load of which had been delivered at Portsmouth, New Hampshire. Heath made every effort to forward this equipment to Springfield, but found himself blocked by the unwillingness of John Langdon, Continental agent for New Hampshire, to follow any directions other than those of the Board of War of the Continental Congress. When the issue came to Washington's attention, he saw forthwith the necessity of removing the precious stores from an exposed coastline, and succeeded in having sent to Springfield, the Portsmouth consignment, but all the supplies along the New England seaboard.¹⁸

Thus Springfield became at the outset a military depot of supply of the first rank, distributing to the whole eastern and northern part of the insubordinate states. Its location placed upon it the responsibility for supplying all engagements intended to repel or dislodge the enemy on the coastal fringe of New England, and all expeditions connected with Canada and the whole northern frontier. In order to function effectively, adequate

¹⁶ Major General William Heath, Commander of the Eastern Department with headquarters at Boston. Heath to Washington, April 9, 1777, in *Mass. Hist. Soc. Col.* 7th Ser. V. 4, p. 73.

¹⁷ Heath to Washington, Apr. 26, 1777, in *ibid.* pp. 82-83.

¹⁸ Heath to John Hancock of the Massachusetts Delegation to Congress, Apr. 26, 1777, in *ibid.* pp. 81-82; Heath to Washington, Apr. 26, 1777, in *ibid.* pp. 82-83; Washington to Heath, May 2, 1777, in *op. cit.* 5th Ser. v. 4, pp. 50-51; May 10, 1777, in *ibid.* p. 52; Heath to the Board of War, May 11, 1777, in *op. cit.*, 7th Ser. v. 4, pp. 88-89; Heath to Jonathan Trumbull, Governor of Connecticut, May 13, 1777, in *ibid.* pp. 93-94.

storage space had to be provided, and the growing need for more and more housing facilities was a constant, acute problem for some three years. By 1780 a number of buildings were under contract, as shown by the rentals of that year; paid to Ebenezer Stebbins, \$116.; to Thomas Stebbins, \$300; to Charles Pynchon, \$775; to James Hall, \$133.; to Josiah Williston, \$100.; and to Samuel Bliss, \$91., for one property and \$225. for another.¹⁹

In the meantime Dawes's plans for new constructions were bearing fruit in another part of the town. Less were bearing fruit in another part of town. Less than a month after the first continental supplies began to move toward Springfield, all the buildings, available for hire, were in use and it became necessary to case about for additional means of storage.²⁰ Heath had already suggested that to pull all the military eggs in one basket possessed elements of danger, and his chief concurred.²¹ Heath feared enemy raids and Springfield's indefensibility; Washington, with the eyes of a master strategist, doubted that the enemy would penetrate the country avowedly to destroy the stores, but hazarded that "the whole might be lost, in case of other unhappy events" – possibly he had in mind the impending invasion from Canada by way of the Champlain-Hudson depression, which was intended to sever New England, the head of the revolt, from Pennsylvania, Virginia and the rest, from its body. Washington vetoed Heath's proposal to establish Worcester as a secondary magazine of supply because that town lay "on a very public road, and moreover was the place marked out by Congress where prisoners are to be kept." He preferred the alternate site of Brookfield, and directed that such supplies as Springfield could not accommodate were to be sent thither under the direction of Col. Ezekiel Cheever, Commissary of Military Stores for Massachusetts since August 17, 1775, and stationed at Springfield.²² By this decision additional storage space was procured, the hazard of combined stores was reduced, the wounded pride of the defeated Brookfield champions of the arsenal was soothed, and stores control was retained in the hands of a single set of authorities.

¹⁹ Smith, William Collected Papers, to the employees of the Connecticut Valley Historical Association, Springfield, Mass.

²⁰ Heath to Washington, May 11, 1777, in Mass. Hist. Soc. Coll. 7th Ser. v. 4, pp. 101-102.

²¹ Heath to the Board of War, May 11, 1777, in *ibid.* pp. 88-89. Washington to Heath, May 23, 1777, in *op. cit.* 5th Ser. v. 4, p. 51.

²² Remained in office at Springfield until Jan. 1, 1781, thus serving throughout the major operations of the war.

CONSTRUCTION OF NEW BUILDINGS

Still further storage facilities were being added meanwhile by the construction of new buildings in Springfield. By the resolution of the Congress which fixed Springfield as the site of the arsenal, a magazine was to be erected there “sufficient to contain 10,000 stands of arms and two hundred tons of gunpowder and a laboratory adjacent thereto....”²³ Knox felt that so much powder should be stored in two, or perhaps four, separate buildings, in order to decrease the risk of explosion and consequent destruction.²⁴ It was determined to begin building operations with a single powder magazine, and Thomas Dawes, who had already drawn up plans was

“... appointed a Committee to Purchase in the Town of Springfield in the County of Hampshire a piece of Ground & take a deed thereof to the Treasurer of this State in Trust for the United States sufficient to Erect a Magazine upon & also for Erecting an Elaboratory adjacent to such Magazine....

And that Col. Thomas Dawes, contract with some person or persons to Erect & compleat the same upon the best terms he can agreeable to the plan herewith delivered as soon as may be. And also for erecting an Elaboratory adjacent to such Magazine. That Mr. Dawes have leave to contract with Mr. William Crafts as Master Carpenter, & to give the same Rations pay & c as Major Eayrs & his Company of Carpenters now have at Springfield.”²⁵

On the same day the Continental Congress discussed a motion to establish at Springfield a foundry for casting brass field pieces, howitzers, and mortars. This was tabled and contracts for such part of the work were let instead.²⁶

Dawes set himself promptly to his appointed task, but found numerous difficulties in his way. Let him tell his own story.

“Agreeable to your orders of July 17th I went to the Town of Springfield, and as the lands best situated for the proposed buildings belonged to the Town I waited upon the Gentlemen Selectmen, and informed them of the business I was upon, and the orders I had received from your honors; and desired they would sell me as many acres as I should want for the purpose. They accordingly called the Town together and the inclosed letter

²³ Journals of the Continental Congress, April 14, 1777. According to the Journal of Col. Jeduthan Baldwin (Aug. 7, 1777) two hundred tons of powder was the equivalent of 16,000 barrels; Knox, however, understood the amount to be 4,000 barrels.

²⁴ Knox to Jeremiah Powell, President of the Massachusetts Council, May 10, 1777, in Mass. Archives v. 197, p. 42.

²⁵ Massachusetts Council Records, July 17, 1777. v. 21. p. 618.

²⁶ Journals of the Continental Congress, July 17, 1777.

which I received yesterday is their answer.²⁷

I would further inform your Honors that it was impracticable to get the materials so as to proceed with the work this season. The timber & joyst cannot be got until the coming fall & winter. If the Timber could be got the sap being up, the worms would soon take it and the buildings in a little time moulder away. The demand for boards is now so great from the workmen already there, that it is with some difficulty they get supplied. The Stone being nearly four miles off, and the men most used to the quarry, absent in the Army, or so engaged in farming, that this business cannot be attended to till the coming of fall & winter.²⁸ I persuaded several persons to make as many bricks as they possibly could this season: who must be assisted with some money, and not be liable to be called upon to go into the Army. If they engage with spirit in the business. I concluded I should run no risk by engaging thus far in the brick way, as no great loss would arise if the works was carried elsewhere. I believe there will be no great difficulty in getting lime for the purpose. All the articles will be much higher than formerly and some of them at least as three to one. Having made such inquiry as was necessary, and finding it impossible to do anything to advantage this Summer, I returned and make the above report to your honors; and would beg leave to observe that if the works are to go on at Springfield the next Spring, it will be necessary that the contracts for the materials be made early the coming fall, and as many as are necessary got upon the spot where the building will be erected; that there be no loss of time to the workmen when they begin....”²⁹

Had the date been 1917 instead of 140 years earlier, hardly a word would have required changing – so similar was the difficulty of getting men, the necessity of relieving them from liability to service with the colors, the scarcity of materials, and the high prices. Dawes received for his reconnaissance and his plans the sum of fifty pounds, seventeen shillings.³⁰ The land which Dawes wanted was a part of the training field of the militia, which been since the seventeenth century devoted to military purposes. The plot is described in the original record:

“all the common land from the Reere of the Wood lotts over the Meddow Eastward to the Swampe or dingle called Squadtrees dingle & Soe from the head of that dingle down to Garden Brook & from thence Southward to the Bay path and over the Pathe Soe as to range even with ye head of the dingle yt goes down to Good: Miricks wood lott: All the land within this compass vizt between wqawtree dingle Eastward & the wood lotts before ye Town Westward & between the Bay path & over it as above Southward & Garden brook & wood lott of old Granted Northward is by the Towne now ordered to be reserved kept & appropriated for a Trayning place and Towne Comon & soe to remayne perpetually & not other at any time to be disposed of.”³¹

²⁷ Town meetings of Aug. 4, 1777 and Aug. 9, 1777. Springfield Town Records v. 5. pp. 450-451.

²⁸ At East Longmeadow, where occurs an outcrop of red sandstone.

²⁹ Dawes to the Mass. Council, Aug. 15, 1777, in Mass. Archives, v. 198, pp. 40-43.

³⁰ Itemized account paid Feb. 27, 1778. Ibid. v. 175, pp. 157-157a.

³¹ Land abstracts from Early Records, in Hampden County Registry of Deeds, p. 60. (p. 182 of original record) dated February 26, 1673.

It seems likely that this prohibition on alienation caused the town to refuse sale of the land wanted by Dawes, and to offer instead a lease “for such a number of years as the committee...shall think proper and at such a price as they...shall think reasonable.”³² No record of the execution of such a lease has been found, but the year 1778 saw the erection on the Training Field of Dawes’s magazine, a barracks, and accommodations for the operations of the laboratory. The magazine seems to have been located on the low land north of the hillcrest tract on which the barracks and laboratories were placed.³³

In this vicinity were the town pest house and cleaning house of Revolutionary days, and the only access to it lay across the higher parts of the training field, where a road had been worn by wagons hauling clay from the adjacent hillside for brick-making. The remaining buildings were erected close to the Boston road, just south of the location of the line of arsenals constructed between 1808 and 1830, and now (1920) known as the East and Middle Arsenals, and the Barracks. It must not be supposed, however, that all military activities were removed to the hill upon completion of these few buildings. The Massachusetts Council, acting upon a resolution of the General Court, during the Autumn of 1777, had subsidized Johathan Hale and David Burt to the extent of sixty pounds in order to enable them to rebuild the powder mill at Springfield.³⁴ This establishment, located on the powder site afterward procured for the National Armory, had the reputation of making good powder.³⁵ Moreover, the manufacture and storage of materiel continued to be carried on in every procurable cranny of the town. The activities connected with the Burgoyne campaign furnished the principal stimulus for operations at Springfield, and the importance of the place to the business of supplying continental and state troops with both ordnance and commissary stores is picturesquely summed up in the impressions of one of Burgoyne’s captured officers, who viewed the situation as the troops marched thru the town on their way to Cambridge early in November, 1777.

“East Springfield is an exceedingly lively little village....

This place is a veritable magazine for the storage of weapons for the Americans;

³² Springfield Town Records, Aug. 9, 1777. v. 5, p. 451.

³³ Deed of Apr. 2, 1804, to “seventeen acres in the northerly part of the Training Field beginning at a stake in a hollow where the old powder house stood....” Hampden County Registry of Deeds, v. 43, p. 25.

³⁴ Mass. Council Records, 1777. p. 148.

³⁵ Upper Watershops, since 1857 the only Watershops. George Williams, member of the Committee at Salem, to Col. Timothy Pickering. Mar. 22, 1778, in Mass. Archives.

and it also has a small, but very well built armory or arsenal. We saw here various parks of artillery, with their trains, and among other things, twelve entirely new 4 pounders of French make. The store or magazines houses were filled from top to bottom; and workmen of all trades were seen in the houses engaged in the manufacture of ammunition wagons, guns & c.....”³⁶

GENERAL PLAN OF ARSENAL ORGANIZATION

A glimpse of the organization and operations of the period between the summer of 1777 and the autumn of 1779, when work was decreased, owing to the removal of the seat of war from the north, suggests the complexity of the organization of supply, even at the pre-Napoleonic day.

Lieut. Col. David Mason of the Continental Artillery, was Director of the Board of Works at Springfield from the inception of the laboratory at that place, his appointment dating from January 1, 1777. A Boston man, more than fifty years of age, he possessed the confidence of the colony, as well as that of the Army. He was in charge of a large group of artificers of diverse trades, numbering 139 men as early as May, 1777, three months after Springfield had finally been chosen for the works. He was responsible to them for their pay, which totaled nearly three thousand dollars a month during the first months of operation, funds for this purpose were furnished him by the Continental Treasury under the direction of General Heath, commander of the Eastern Department.³⁷ On June 5, 1778, Lieut. Col. William Smith was transferred Valley Forge to act as Deputy Quartermaster General for the division centered at Springfield.³⁸ From this date Mason was known as Director of Ordnance. Thus early in the military life of the nation did the functions of quartermaster become separated from those of the ordnance officer. Smith seems to have been wholly independent of any other local authority, but he maintained the closest relations with Gen. Heath at Boston, and with several officials occupying posts as Deputy Quartermasters General at stations in New England and New York. He reported directly to at least two Army superiors – the Quartermaster General

³⁶ Letters of Brunswick and Hessian Officers, p. 147-158. Albany, 1891.

³⁷ Pay Roll for May 1777, in Mass. Archives.

³⁸ Account of Forage Purchased from the Department of Springfield March to November, 1778, in Connecticut Valley Historical Society Collection, Smith Papers.

and the Commissary General of Forage.³⁹ His business appears to have been confined to procurement, transportation, and distribution of food, forage, clothing, and the like, for thruout the whole period of active hostilities in the north, Col. Ezekiel Cheever of Massachusetts was Commissary of Military Stores, stationed at Springfield, and upon him devolved the duty of storing materials and issuing them upon proper requisition. The three officials, Mason, Smith, and Cheever, mutually independent, were between them responsible for supplying the extensive operations connected with the repulse of the invasions of Burgoyne, Howe, and St. Leger in 1777, the march and counter march of the captured armies during the subsequent year, the Canadian expedition of 1779, and incessant and ubiquitous calls from the Hudson Valley, the Canadian frontier, the seacoast towns, and even the more remote western frontier.

OFFICE OF THE COMMISSARY OF MILITARY STORES

Of the three, Col. Cheever's sphere seems to have moved in the smallest orbit. He had in his office five six assistants, who divided among them the two functions for recording transactions in stores and conducting shipments to surrounding points.⁴⁰ The storehouse functioned separately, under the direction of one Moses Church, Assistant Commissary of Issues. Church, with his clerk and scale man, and doubtless workmen handling the stores, made up a squad which must have been closely connected with Cheever's office, but the outspoken jealousy which existed between the two officials indicates that neither could remove the other.

OFFICE OF THE DEPUTY QUARTERMASTER

Lieut. Colonel Smith, in a fashion always characteristic of the quartermaster, exercised an aggregation of diverse and numerous functions. One of his most pressing duties was the collection and issue of forage. In this business he was subject to a set of regulations surprisingly detailed in minuteness of instruction. He had to keep careful accounts of all forage received and issued, noting the names of the parties involved in

³⁹ Reports of disbursements prior to Oct. 31, 1778, sent to these officers, *ibid.* The incumbents were Major General Nathaniel Greene of Rhode Island, Q.M.G. from March 2, 1778 to Sept. 30, 1780, and Colonel Clement Riddle of Pennsylvania, C.G.F. from July 1, 1777 to June, 1780.

⁴⁰ Return of the Assistant Commissary of Issues to the Mass. Council, Aug. 21, 1779, *ibid.* v. 45, p. 292; Hearing *cit.*

these transactions, to take receipts which were to be used as sub-vouchers to this account, to send duplicate copies of the account to the Forage Master at Philadelphia and to the Quartermaster General; to make an itemized return of employees and their wages; to take from wagoners receipts in duplicate for all issues, sending one with the good, and retaining the other to vouch for the return. The list of officers to whom forage might properly be issued, together with the amount to each, was carefully set forth.⁴¹ In this set of instructions appear the principal roots of modern army supply systems—careful receipts in duplicate, a return of receipts and issues to superior authority, accompanied by the proper vouchers, numbered, a separate return of employees, and restrictions on the number of officials who could properly draw supplies. It is no wonder that the frontier folk of a primitive society found it difficult to understand this complex administrative system, and consequently felt that their dearly earned money was being lavishly squandered by a gang of loafers who sat about offices. The extent of the Springfield Forage Master's operations appears from accounts which list hay, corn, rye, oats, buckwheat, and peas as the commodities purchased, and Springfield, Westfield, Wilbraham, Longmeadow, and Brookfield, as the towns where requisitions were commonly made. Since in 1778 these towns comprised a district with a radius of at least forty miles about Springfield, the activity requisite to garnering forage must have been considerable. During January and February of 1780 the quartermaster accounts for personal services ran to \$57, 863.00 most of it due for transportation, with fewer sums for rent, blacksmithing, coopering, and carpentering. Twenty-five different names appear on this return.

A serious handicap to prompt and effective land transportation between Springfield and points west, was the Connecticut River, only ten feet deep, but eighty rods wide, and crossed by only one ferry, a private venture licensed and regulated by the Court of the General Sessions of the Peace for the County of Hampshire (in which Springfield at that date was situated.) Even had this ferry been properly run, it could scarcely have served the inflated traffic occasioned by wartime needs, and there is some

⁴¹ Forage Masters Instructions, dated about March 1, 1778, for receiving and issuing forage at the magazines. Signed by Col. Clement Biddle, Commissary General of Forage. Smith Papers.

evidence to show that it was at times not so diligently attended as was desirable.⁴² Indeed the need for better facilities for crossing the Connecticut was notorious as far away as the Hudson, for in the spring of 1778 the Deputy Quartermaster General at Fishkill, N.Y. laid before General Greene the necessity for improving the conditions at Springfield. It was proposed to construct a bateau capable of transporting four horses at a time, a scow to accommodate two teams, and two scows large enough for one team each.⁴³ Indeed the business was presented as of pressing importance by Greene himself.⁴⁴ In consequences of these orders, Smith proposed to Thomas Hunstable of Boston to undertake the job of overseer of the boatmen at forty dollars a month and two rations a day, and that he further procure twelve boatmen at the rate of eight pounds and one daily ration, the engagement being for one year.⁴⁵ At the same time carpenters were brought from the vicinity of New York to construct the boats.⁴⁶ Contemporary records show that there were employed the overseer, twelve men, and a clerk, but the accounts which commence with July, 1778, list only the overseer, five to ten men, and a cook, wife of one of the boatmen.⁴⁷ The rapidity with which the ferry line was established is a tribute to the efficiency of Smith's office, in spite of the fact that he had been in Springfield only a few months. The total expense of the construction of boats and a barracks to house the men was L1533—16-10.⁴⁸

Besides the special organization for river transportation, there was stationed at Springfield sometime before July, 1779, a Deputy Wagon Master, Joseph Jones, who was responsible for all horses and equipment in a district that included Granville, Great Barrington, Wilbraham, and Brimfield, and who made returns to Col. Smith. Some of these animals were government owned, but others were hired, usually to be driven by their owners who received a lump sum for their own labor and that of their horses.⁴⁹ The connection between the office of Moses Church and that of Smith is not clear.⁵⁰ The former seems to have been employed by the state of Massachusetts, whereas the latter

⁴² Petition to the Mass. Council of the Selectmen of Springfield and West Springfield, Aug. 31, 1778, in Mass. Archives.

⁴³ Udney Hay D.Q.M.G. at Fishkill to D.Q.M.G. at Springfield, May, 21, 1778, in *ibid.* v. 175, p. 50.

⁴⁴ Joseph Shurtliff, D.Q.M.G. to D.Q.M.G. at Springfield, received June 7, 1778. *ibid.* p. 52.

⁴⁵ Smith to Hunstable June 7, 1778, *ibid.* p. 51.

⁴⁶ Petition *cit.*

⁴⁷ Smith Papers.

⁴⁸ Return dated Nov. 27, 1778 signed by Smith, in Mass. Archives, v. 175, p. 69.

⁴⁹ Returns of the Deputy Wagon Masters, Smith Papers.

⁵⁰ *Supra* p. 10.

was a continental officer, but they must in the course of their duties have had intimate dealings with each other.

In his capacity of superintendent of equipment, Smith was responsible for keeping shod his own horses, and those of traveling officers, troops, and supply trains, as well. Customarily he issued an order on the local blacksmith, which was then indorsed by the official for whom the work was performed and returned to the Deputy Quartermaster General to serve as a voucher for his account of payments of personal services. Here is another example of the early existence of an army practice still in vogue, v iz. the indorsement procedure. Incidentally it is of some interest that Col. Mason functioned thru Col. Smith in this matter, indicating that the activities of these two men were clearly differtiated. This business was afterward (August 1780) turned over to Joseph Eayrs, the chief artificer, but only because Smith was being shorn of his duties.⁵¹

A still further subdivision of organization was occasioned by the detail of Major George Measum as Clother General or Commissary of clothing, with station at Springfield. His commission, a Continental one, dated from October 16, 1776, and he was at Springfield throuth the great part of the war.⁵² He occupied much the same relation to Smith as did the Deputy Wagon Master.

From the forgoing sketch it is clear that matters pertaining to quartermaster supply were almost as diverse and complex during the Revolution as in the twentieth century, and the organization framed to handle them was not dissimilar.

THE OFFICE OF THE DIRECTOR OF ORDNANCE

That part of the works having to do with ordnance, being the kernel of the activities centered at Springfield, was organized with even more detail than the Quartermaster's functions, although the operations do not present the diversity, and consequent complexity, of that officer's functions. As has already been stated, Lieut. Col. David Mason was in full charge of the laboratory. Under his direction were men who had been enrolled for three years or the period of the war, in a regiment of artillery artificers. This regiment was commanded by Col. Benjamin Flower of Pennsylvania, but the men

⁵¹ Orders to the new blacksmith, Smith Papers, passim.

⁵² Washington to Museum, July 31, 1779; Petition of the Selectmen of Springfield to the Mass. Council, Apr. 4, 1780, both in Mass. Archives.

were stationed where there was need of them. The detachment at Springfield fell to Mason's supervision. All the men detailed to that station were Massachusetts men, although enrolled in the Continental service, a fact which emphasizes the importance attached to state's prerogatives in the 1770's. Immediately subordinate to Col. Mason, and responsible to him, was Major Joseph Eayrs of Boston, an officer of Flower's regiment who had been stationed within the Eastern Department with his men even before the Springfield project was devised. His duties were comparable to those of the modern ordnance repair shop organization, and his personnel functioned thru the medium of several officers, each with the rank of captain, who directed his own branch of the work. At one time there were captains of the carpenters, the smiths, the wheelwrights, and the harness-makers, besides a master tinsmith, a quartermaster, a paymaster, and clerks and conductors. The workmen who made up the enlisted personnel are thus seen to have been skilled artisans in their several trades, who were doubtless diverted from the fighting arms of the service because of their special qualifications.⁵³ With this group as a nucleus, Mason and Eayrs had organized the laboratory.

The principal operations of the manufactory group themselves were divided into two divisions: first, the repair and replacement of arms and artillery equipment, and second, the fabrication of cartridges and fuses. The one was in effect the job which Eayrs and his men had been originally sworn in to do; the other was a novel undertaking, to which Mason seems to have given his particular attention. Both required more men than Eayr's little detachment could muster, and recourse was had to civilian labor. As much of the work was routine, it could be performed by unskilled hands, and it was not long before the civilians greatly outnumbered the enlisted workmen. In fact, no new enlistments appear to have been made, since even the carpenters were mostly civilians by the end of 1778.⁵⁴ But whether enlisted or civilian, the men were messed by the government, and even took their turn in the kitchen, at least in some instances. No records of the number of men employed in the laboratory during its busiest years have come to light, but certain fragmentary data offer a clue to the magnitude of the works; there were seventeen men and a boy in the company of carpenters in 1778; in the

⁵³ Return of the Names of the Officers & Men belonging to the Company of Artificers at Springfield, Aug. 20. 1779, *ibid.* v. 55, p. 1417.

⁵⁴ Hearing of Nov. 25-27, 1778, *cit.*

company of wheelwrights eight men and a boy; thirty-nine blacksmiths; twenty-one harness makers. Besides these, there were certain line troops: a small unit of twenty-eight soldiers guarding the stores and magazines, under the command of a captain, and a larger detachment of Col. John Crane's Artillery Regiment, officered by a captain and a captain lieutenant (equivalent in rank to a first lieutenant.) numbering forty-three men. This Captain Lieutenant was John Bryant, who, with the rank of Captain, after the war took charge of the supplies stored at Springfield, and still later assumed the duties of Paymaster and Military Storekeeper in the new National Armory. Then there were considerable numbers not listed in known records employed in the fabrications of cartridges, fuses, and such other items as may have been manufactured in the laboratory, and a smaller, but not insignificant body of laborers in the storehouse.

CRITICISMS OF THE TOWNSFOLK

Without doubt, every Springfield man or boy who so desired, could obtain work for the asking, and the town was flooded with outsiders, attracted thither by the high wages or by a sense of patriotic duty, or by both. Indeed, no small number of workmen were foreigners, some of them being deserters from His Majesty's forces. Those who came from outside Springfield were without family ties, and thus were for the first time enjoying freedom from the social restraints which characterized Puritan New England. It is not surprising, therefore, to learn that lawless outbreaks repeatedly occurred, and that between midnight carousals at the tavern, and stealthy depredations upon hen-roosts, orchards, and gardens, the good folk of the neighborhood became thoroughly scandalized by the army contingent. Particularly did the husbandmen of West Springfield suffer, for the wealth of their bottom lands and the difficulty which the river barrier threw in the way of pursuing the marauders to justice, made them the easy victims of mischievous raids. Moreover, the large-scale business operations being carried on at Springfield entailed a considerable overhead expense, wholly unfamiliar to simple farmers and small merchants of the frontier, and to these necessary expenditures, were added the waste which is inevitably linked with government supervision of business because of the ability of such undertakings to continue without showing a profit, and because of the extravagance which war-time production, with its emphasis on speed and quality, always

entails. The sum of all these unaccustomed disbursements dumbfounded the thrifty folk of villages who were near enough to see what was going on. They were stretching every muscle to organize militia and pay their quotas into the state and continental treasuries, and their reward was the privilege of witnessing what seemed to them a wanton extravagance, sinful beyond all imagination. To heap insult upon injury, this money was finding its way into the pockets of strangers, which the bulk of the adult male population of Springfield and surrounding towns was at the front.

In the summer of 1778 the growing resentment found expression in a joint petition of the selectmen of Springfield and West Springfield to the Massachusetts Council, praying a thoro investigation of the conduct of several officers of government at the works in Springfield, particularly in the matter of the establishment of the continental ferry. The petition recited extravagance in the expenditure of public money, unnecessary increase in the public debt, consequent raising of the prices of every commodity other than money, private personal resentments, and use of public property for private pleasure. Dated August 31, it was committed by the Massachusetts Council on September 30, and on October 24 a Committee of three was appointed to repair to Springfield to investigate the charges. This committee held a hearing at Parson's Tavern in Springfield on November 25, 26, and 27, and made a report to the Massachusetts Council. This was not a court martial, although its business was to inquire into the conduct of military officers. Nevertheless, voluminous testimony was taken, and the officers, particularly the Deputy Quartermaster General, offered in defense all the accounts and authorizations pertaining to their several offices. A careful perusal of the documents brings to nothing more than the absence of regulations on a number of minor points such as the disposal of tallow from animals killed, and the right of officers to wood for fires. Personal spite on the part of a few individuals is clearly brought out, although the reasons for the grudges do not usually appear. The Hearing and the salutary effect of imposing careful methods upon the officers, but criticism would not remain silent, and on February 11, 1779, the Congress directed that Mason, Smith, and Eayrs be brought before court martial.⁵⁵ The Smith Papers are full for this period, indicating that all available accounts were collected for the defense. On April 12, 1779, Washington sent to the Congress the report of this court

⁵⁵ Journals of the Continental Congress, May 29, 1781.

martial, and two days later that body returned it to the Commander-in-Chief, with directions “that he take such order thereon as he shall judge proper.”⁵⁶ From the fact that no changes in the personnel were made, it is fair to infer that Washington found no irremediable fault with his officers at Springfield. Nothing more is heard of the effort of Springfield citizens to disparage the work of the Army at that place, and the usual functions continued to be discharged as before.⁵⁷

DEMOBILIZATION

In the summer of 1780, came the call for retrenchment. On July 26, the Board of War of the Congress resolved to “enquire into the state of the department of military stores” with reference to reorganization, and on August 12, report was made to the Congress that one commissary-general of military stores, one deputy commissary-general, and one commissary at Springfield, should be retained in service.⁵⁸ Acting upon its determination, the Board at once discharged those officers serving by its own warrant, and recommended the discharge by the Congress of those who belonged to Flower’s regiment, a proposal which was at once adopted in the case of Major Eayrs and certain of his subordinates.⁵⁹ This action did not affect the positions of Colonels Mason and Smith. As it worked out, the only immediate result of the action seems to have been the derangement of the whole system of supply at Springfield.

So serious was this aspect of the case, that the War Office once more took a hand in a report to the Congress, on December 29, 1780: “The affairs at Springfield remain in the most deranged situation....

The season is far advanced and the preparations so essentially necessary for the campaign are still delayed. Every day lost at this period will be regretted at the opening of the campaign and therefore it is hoped that Congress will excuse the Board for pressing a determination of the report of the Board respecting the pay of the Department of Military Stores.”⁶⁰ On the last day of 1780 Col. Smith and Col. Mason were relieved,

⁵⁶ Ibid. Apr. 4, 1779.

⁵⁷ Smith Paper, passim.

⁵⁸ Journals of the Continental Congress, Aug. 26, 1780.

⁵⁹ Ibid.

⁶⁰ Ibid. Jan. 2, 1781.

in spite of a determined effort to retain the latter, on the part of Gen. Knox.⁶¹ Their places were taken temporarily by the remaining officers, but it was seven months before the reorganization was legalized. On July 30, 1781, the Board of War formally approved the arrangements which had been made by the Inspector General (Ezekiel Cornell of Rhode Island) whereby Captain William Hawes, of Boston, formerly in charge of the harness-makers, was continued as Captain of the Artificers, and Captain John Bryant of Boston formerly Captain Lieutenant in Crane's Artillery Regiment, stationed at Springfield, was continued as Captain in the Laboratory, a post which he had been occupying since the first year. All other officers were discharged and the Board of War was further empowered to carry out such other reforms as might be judged desirable.⁶²

These subsequent reforms took the direction of canceling contracts and establishing magazines for the storage of unused war materiel.⁶³ No clearer indication exists that the war was definitely over, than this rapid demobilization of the organization of supply at Springfield, months before the signing of peace terms. The artificers sought other positions, the laboratory was closed, and Capt. Bryant took over the stores. Thus closed the first chapter in the long history of Springfield's connection with the federal War Office.

The choice of Springfield as a base of operations had been vindicated. Some friction had occurred between the continental incomers and the settled inhabitants of the vicinity, to be sure, and many were doubtless relieved to see the old order restored. But the complex organs of supply in wartime could not have been grafted on to the simple agricultural community life of the Connecticut Valley without growing pains and the town as a whole had benefited greatly from the experience. Indeed, it had been halted in its march toward decay, a march which was destined to be resumed with the closing of the federal plant in 1787. The time soon came when even hostile critics of continental activity might well long for the return of property, even at the sacrifice of social and political prejudices. Moreover, the site of Revolutionary activities of the federal government remained. The advantages for which it had been selected, and the tradition of

⁶¹ Ibid. Nov. 18, 1780.

⁶² Ibid. July 30, 1781.

⁶³ Notably one for founding cannon, let on Sept. 19, 1777 to James Byers, afterward Storekeeper at the National Armory. Ibid. Aug. 23, 1781. Ibid. April 26, 1782.

an emergency job ably performed, linked it permanently with the life of the infant nation, as subsequent chapters will show.

CHAPTER III. **THE STORAGE DEPOT OF THE PERIOD OF THE CONFEDERATION.**

THE MAGAZINE OF 1782

The close of the campaign of 1781 closed the successful revolt of the Thirteen United States. After the prolonged and racking efforts of the six preceding years the infant government relaxed and sank into slothful coma. Nevertheless, provision was made at Springfield for the adequate care of federal property, which, manufactured there or sent thither for storage, had not been needed for the war. This property consisted of miscellaneous quartermaster and ordnance stores, mostly in a condition hardly warranting repair, if analogy may be drawn from the known condition of muskets even before the final campaign, and a quantity of powder.⁶⁴ Powder was, of all the materials of war, the most difficult to obtain offhand, and the most quickly destroyed by use. Hence the Congress took good care that the amount left over from the war be preserved against future need. In a resolution of April 26, 1782, it was determined "That the Secretary of War take order for establishing good and sufficient magazines for the reception of the public ammunition at the following places, to wit, - at Springfield, in the State of Massachusetts; at West Point, in the State of New York; at the Yellow Springs, in the State of Pennsylvania; and at New London, in the State of Virginia." Pursuant to this resolution the town government of Springfield was approached with a view to placing the magazine of the training field in the vicinity of the buildings on the hill. Thus the powder would be stored within view of the buildings which had been constructed during the war, and which at the moment were filled with continental supplies of all sorts. At a town meeting held on August 6, 1782, it was voted "that liberty be granted to erect a magazine in the training field" and the selectmen were appointed a committee to view the site chosen by the federal officials and to lease out a piece of land therefor.⁶⁵ The place selected was a plot of ground on the Boston Road east of the other United States

⁶⁴ Washington to Jonathan Trumbull, Aug. 28, 1780, in Mass. Hist. Soc. Coll. 5th Ser. v. 2, pp. 200-201.

⁶⁵ Springfield Town Records, v. 5, p. 527.

buildings. It was, in fact, the easternmost point of the training field, on the edge of the Squaw Tree Dingle, near its head, and therefore could offer no obstruction to maneuvers on the drill ground. Furthermore, it was far out of town, and yet accessible to other federal buildings, by the way of Boston Road. Construction was begun at once, and for an even sixty years the magazine housed quantities of United States powder. At last, although still admirably serving its purpose, it was torn down because of the hazard it offered to residences and public buildings which had been erected in the vicinity.

Contemporary accounts give a picture of the government works during the period which linked the feverish activities of the Revolution with the sober industry of the National Armory.

“The road from Wilbraham to Springfield is...a continued pine plain, without fence. Pass the Magazine, a long brick building. Further on, are two large public stores for arms and a number of barracks, & c. The ferry which we crossed at Springfield is very commodious. Several ladies came over with us and their carriage entered and left without untackling.”⁶⁶

To a layman, the spectacle of government enterprise, nearly a decade after active operations had ceased, was impressive; a professional eye saw a less flattering condition, but one which reflected credit upon the caretakers of the place, working within the limited sphere permitted them. The following is an excerpt from Washington’s diary less than two months later than the foregoing quotation:

“Reached Springfield by 4 o’clock, and while dinner was getting examined the Continental stores at this place, which I found in very good order at the buildings (on the hill above the town), which belong to the United States.

The barracks (also public property) are going fast to destruction, and in a little time will be no more, without repair.

The laboratory, which seems to be a good building, is in tolerably good repair, and the powder magazine, which is of brick, seems to be in excellent order and the powder in it very dry.”⁶⁷

Less than a year later William Loughton Smith, of Charleston, S.C., noted that there were at Springfield “public stores of arms and accoutrements, and cannon belonging to the United States; they are kept in very good order. I think there were 8000

⁶⁶ Probably the U.S. ferry over which so much ado was made in 1778. Davis, Samuel: Journal, Sept. 1, 1789, in Mass. Hist. Soc. Proceedings, 1869-1870, p. 13.

⁶⁷ Washington, George: Diary, Oct. 24, 1789.

stands of arms, and a large quantity of gun powder.”⁶⁸

Thruout this period Capt. John Bryant was in charge of the buildings and their contents. There was sufficient energy left in the flaccid Confederate Government to keep in repair the actual stores and storehouses which they had inherited from the vigorous Revolutionary days – nothing more.

SHAYS’S REBELLION

Even in the midst of governmental doldrums, however, Springfield proved to be a magnet to attract the passing lightning, in consequence of which the period of the Confederation is illuminated with the most spectacular event in the whole history of the Springfield institution. This incident, the so-called Shays Rebellion, having no direct connection with the main thread of institutional development of the Armory, was, nevertheless, indirectly partly responsible for the recrudescence of national life and the consequent establishment at Springfield of the National Armory with which the following chapters of this study concern themselves.

It is the province of the general historian to treat of the causes and ramifications of that movement of back country folk, who, burning with indignation at finding themselves debtors in an epoch of depreciating currency, sought to vent their rage and despair upon the courts, which they viewed as the instruments of tyranny – arbitrary upholders of the rights of big business and a merchant-ridden state government. The causes and effects of the movement were much alike in all the states, but the culmination was reached in Massachusetts, where armed veterans of the Revolution determined upon another revolt as the normal and direct avenue to freedom. The Connecticut Valley furnished the stage for this threatening menace, because the rich bottom lands and the prosperous trading towns along the course of the largest of New England streams threw a wedge of merchants and wealthy farmers akin to the seaboard dwellers, between the poverty pinched small farmers of the rugged uplands on either side. During 1786 armed mobs broke up sittings of state courts in Northampton and Springfield, among other places, and the following winter saw the mobilization of small armies. The State raised forty-four hundred militia, and the back country organized itself into a force not

⁶⁸ Smith, W.L.: Journal, Aug. 25, 1790, in Mass. Hist. Soc. Proc. V. 51.

incomparable as to size, of which more than two thousand were drilled in the vicinity of Worcester by Daniel Shays, a captain of the Revolutionary Army. Needing additional supplies of arms and ammunition, this force marched in the dead of winter (January 25, 1787) to the arsenal at Springfield, with the intention of raiding the place. General Shepard, commanding twelve hundred Massachusetts militia at Springfield, had erected two stockade forts for the protection of the federal stores, and from this defensive position greeted Shays's onslaught with artillery fire.⁶⁹ A few of the offensive force were killed and others wounded, but the significant effect of the volley was the disruption of the rebel morale, and the consequent proof that in the face of grim resolution Shays's cause was a hopeless one. The citizens of Massachusetts and the other United States learned two practical lessons from the affray: First, that the mockery of government under the Confederation could be no longer tolerated since that political fiction had failed to protect its own property, and to provide a sound financial system which alone would avert depreciated currency and approaching bankruptcy; second, that armed revolt in a democracy was untenable, and could lead only to domestic woe and political annihilation. As a result of this schooling, in addition to a number of other lessons, the Continental Congress sat in Philadelphia the following summer, and when, a year after the little battle on Springfield Hill, the people of Massachusetts had in their hands the fate of the Constitution, they adopted it, in part, because by so doing they hoped to avoid repetition of so unfortunate and dangerous a contretemps.⁷⁰

With the adoption of the Constitution came once again an energetic order of affairs, and shortly thereafter the founding of the National Armory at Springfield, with which the principal thread of this narrative is resumed in the following chapter.

⁶⁹ Journal of W.L. Smith cit. It seems reasonable to suppose that since there were two stockades, one of them stood near the powder magazine, the other near the storehouse. This suggestion bears on the location of the stone which has been placed near the center of Benton Lawn to commemorate the skirmish. The fatal cannon may have been fired from either stockade, and the location of the marker midway between the site of the magazine and that of the storehouse permits a choice of hypotheses. At the same time it implies that Shays had marched his men under the guns of one enemy fort in order to attack a similar position farther along the road, thus exposing his front, his rear, and his whole right flank, a piece of tactical folly from which the most mediocre military leader may safely be absolved. If this reasoning be correct, one is driven to the conclusion that the encounter occurred when Shays had just about reached the position now marked by the junction of Magazine Street and St. James Avenue. There, at the fork of the Causeway Road, the Wilbraham Road, and the original Bay Path, now State, Bay, and Pine Streets, Shays would have come within range of the stockade which had been erected before the Magazine.

⁷⁰ Fiske, John: *The Critical Period of American History*, pp. 320-321. Boston and New York, c. 1888.

CHAPTER 4

THE SPRINGFIELD ARMORY

CREATION OF THE WAR DEPARTMENT

With the establishment of the new Federal government, the leaders of the country were faced with stupendous tasks, one of the first being the creation of suitable military defense. To this end the Congress in an act approved August 7, 1789, created “an executive department to be denominated the Department of War” and designated that the principal officer therein should “be called the Secretary of the Department of War.” He was allowed an assistant and was given “the custody and charge of all records, books, and papers in the office of the Secretary for the department of war, heretofore established by the United States in Congress assembled.”⁷¹ Under this official, an Army was organized and funds were appropriated for its maintenance; presumably it was provided with arms and munitions from public stores such as that at Springfield, and from purchases made from time to time of individual armorers, many of whom had been set up in comfortable businesses by the Revolution. Whatever the method, it was not until 1792 that the first step was taken toward creating a federal system of ordnance supply. In a resolution of that year Congress determined that “the President of the United States be authorized to direct two arsenals and two magazines with necessary buildings to be erected in proper places, one to be situated to accommodate the Southern States.”⁷² This move was in line of progress, and it is natural to infer that the specific reservation in favor of the southern states was inserted because the principal federal arsenals then in existence (legacies of the Revolution), as well as the greater number of private ordnance makers, were located in the North. Unless precluded by law, the inertia of private labor, and the vested interests of the districts which had profited so much already from their proximity to public arsenals, would combine to locate both the contemplated

⁷¹ The Public Statutes at Large of the United States of America, from the organization of the government in 1789, to March 3, 1845. Richard Peters, ed. Boston, 1861. v. 1. p. 50.

⁷² It should be clearly understood that the terms used have altered their common connotation since the eighteenth century: at that period arsenal meant a place for storing any accoutrements of war whatever; magazine meant the particular building in which powder or other ammunition was stored; armory meant a place of manufacture of arms.

establishments in the North, a conclusion which sectional feeling was, even at this early date, alert to combat. No appropriation was attached to this resolution, and as a consequence the arsenals were not then constructed. In the mean time, such appropriations for ordnance as were made were included in miscellaneous War Department lists.

AUTHORIZATION OF NATIONAL ARMORIES

Little by little the several types of expenditure for warfare grew to a size which warranted their being separately specified. First came the Paymaster's and then the Quartermaster's departments; then in the appropriation act for the support of the military establishment for 1794 (approved March 21, 1794), appeared the following item: "For the ordnance department, six thousand seven hundred and fifteen dollars, and thirty-two cents:..."⁷³ A few days later this growth in the direction of an independent ordnance supply came to fruition in the Act which set apart funds for the establishment of arsenals and magazines, one of which, as the event turned out, came to be known as the Springfield Armory. This act accommodated itself to the sectional feeling of the country by providing for three or four arsenals, with magazines and armories attached, their location to be determined by the President on a basis of most efficient service to the several parts of the United States. Springfield and Carlisle, however, received special recommendation as having been used heretofore. The act recited, in detail notable for that period, provision for officers and for workmen, for the procurement of money and the accounting for the expenditure thereof, and for future growth.⁷⁴

This piece of legislation reflects with startling vividness the conditions which were vexing statesmen in every phase of their public life. For instance, it indicates the uncertainty then painfully apparent as to the boundary between federal and state rights; this in the proviso "that none of the arsenals be erected, until purchases of the land necessary for their accommodations be made in the same is intended to be erected." Evidently the Constitution was not deemed sufficient protection to the states in the year 1794. The traditional jealousy of the American people of the military caste is disclosed at

⁷³ Stat. at Large, v. 1, p. 346.

⁷⁴ Ibid. v. 1. p. 352. Quoted in full in Appendix 2.

a number of points: the total number of workmen at the several armories was limited to one hundred all told; the appropriation was limited to one year in spite of the constitutional permission to make it for two. Either because of conservatism in launching a new venture, or with the hope of controlling this new and unchained forces, the cost of the arms required by the Army were still procured from private gunsmiths, the appropriation for the armories being only one fifteenth as great as the allowance for the purchase of arms, ammunition and other military stores, or which small arms made up the chief item in those days of meager equipment and undeveloped artillery. The influence of certain well established private armories probably had something to do with this arrangement, and there was, moreover, good cause for feeling that to entrust to untried organizations the burden of furnishing so vital a supply as arms for the public defense, would be a display of unwarranted faith. Whatever its origin, the principle thus established fastened itself firmly upon the system, and years after the government armories had become competent to supply the whole peace-time needs of the Army, they were forced to divided funds with private establishments, on the ground that otherwise the private plants would be closed and in the event of war the country would be unable to procure a sufficient supply of arms. Another, and perhaps the most interesting way in which the institution under discussion reflected the organization of the nation, lies in the provision for officers of the arsenals were to “be employed one superintendent, and one master armorer (who shall be appointed by the President of the United States,)” and who were to receive \$70.00 and \$50.00 a month respectively in compensation for their services; the next section of the act provided “that there shall be employed an officer, whose duties shall be (under the direction of the department of war) to superintend the receiving, safe keeping and distribution of the military stores of the United States, and to call to account all persons, to whom the same may be intrusted: he shall receive for his compensation, at the rate of one hundred and twenty-five dollars per month, and shall be appointed by the President of the United States.” Altho not specifically mentioned, it is clear that the last described officer – who came to be called the Paymaster and Military Storekeeper – had not only to do with the armories, but with the arsenals as well. His was the one office which could trace continuity at Springfield back to the Revolutionary laboratory, and this fact, coupled with the particular terms in which his office was

created, and his salary, which eclipsed that of any other person about the place, inevitably gave to the officer holding the position a feeling of independence and preeminence. As matters turned out, the armory at Springfield soon grew to proportions overshadowing the arsenal, thus automatically increasing the relative importance of the superintendent and the master armorer, each of whom was, by the terms of the Act, quasi-independent. The struggle between these three for mastery, in spite of the nice check and balance imposed by the statute, makes up an absorbing chapter of the first fifty years' history of the place .

BACKGROUNDS OF THE NATIONAL ARMORY

The legal formulation of the national armories exerted a powerful modifying influence upon the natural development of arms-making in the United States. To understand the institutional and industrial progress of the Springfield Armory, it thus becomes necessary to follow its larger roots into the soil which nourished them.

Obviously there were prototypes of the armories and arsenals which were outlined in the Act of 1794. The arsenals and laboratories of the Revolution were well known to most of the members of Congress a decade later. But the Revolutionary establishment seem never to enter the special field of armory beyond repairing a few muskets. In the United States the manufacture of firearms had from earliest continental times been an important and a highly respected occupation, but always in private hands. Indeed, the methods of work were primitive enough to be classed as household manufacture, and the secrets of the trade were handed down in certain families thru generations. It is true that in some centers labor had by 1790 become somewhat specialized, one man making forgings, another stocks, a third doing the filing, a fourth the assembling, and so on. Of all the parts necessary to complete a first class arm, the locks were most complex, and the rifled barrels most difficult to manufacture; as a result only the better equipped gunsmiths attempted either. Most American-made weapons were fitted with locks of foreign manufacture – before the Revolution chiefly British – after 1775 French.⁷⁵ As a matter of fact the Revolution was fought with the most outlandish variety of arms. A year before the outbreak of hostilities, Great Britain had prohibited the exportation of arms to the colonies. To make good the shortage thus produced, committees of safety and the

⁷⁵ Sawyer, *op. cit.* pp. 1-3, 29-30, 145.

Continental Congress began to purchase anything that would shoot and could be bought from the Dutch, Spanish, and French West Indies, and their mother countries. France sent the larger number of these supplies, secret consignments which reached American shores as early as March 1777 thru private commission houses, but which came from the royal armories. In the same year Lafayette crossed to the aid of the colonials, bringing arms of which at least 250 were of the Charleville (royal armory) model of 1763. This miscellany, together with privately owned hunting guns and the scanty production of the two hundred armorers then resident in the colonies, gave the officers of the continental army an extended test of the several types of weapon then in use.⁷⁶

To the moment when the British embargo forced the colonials to look elsewhere for inspiration, the methods and style of armoring which had come to be practiced in the mother country, were in general followed in America. This meant, in brief, private manufacture for even those arms intended for use by the soldiery. The usual practice of a contractor for government arms was to sub-let to several journeymen the various operations, each of which was performed in the sub-contractor's kitchen or back yard. In such centers of gunsmithing as Birmingham, London, Dublin, and a few less important places, there were hundreds of such men, who took their several completed parts to the contractor's shop, where the assembling was done.⁷⁷ In America, since each man possessed his own fowling piece, there was no such need wholesale production for military purposes, and private manufacturers had to support itself wholly independently of governmental largess. But the methods were very similar, altho modified by the practice of buying locks, and even assembled pieces, from abroad.

When the overseas trade in arms was summarily stopped in 1773, the Committee of Safety for Massachusetts cast about for a substitute means of supplying the colony with military muskets, and solved the problem by appointing a master-armorers for the commonwealth, who received forty shillings a month in addition to his stipend as ensign in the militia. This step seems to have been taken as a result of the precarious condition in which the rebellious colony found itself, and quite without precedent. A factory was at once established, where were made the first arms officially intended for use against the

⁷⁶ Ibid. pp. 72, 113-114, 116.

⁷⁷ Ibid. pp. 21-22, 98.

mother country. Early in 1776 other colonies followed the example of Massachusetts in devoting special attention to the procurement of arms, until not only all the gunsmiths, but also many ordinary blacksmiths, were engaged in the manufacture of firearms for the armies.⁷⁸ This emergency measure became a precedent which was followed during the last two decades of the eighteenth century by permanent armory establishments, undertaken by the several states. Of these the greatest and the most enduring was the Virginia Armory, founded at Richmond in 1797, a typical example of state owned and operated manufactory. Presumably the success of the Massachusetts idea of a state master-armorer, and the signal service of the congressional arsenals during the Revolution, prompted such undertakings as this.

The possible influence of the French upon the passage of the Act of 1794 remains to be discussed. How great it was must be left to inference, but it may safely be assumed that the French system was known in America and appreciated by American military leaders. As already noted, a considerable number of French arms found their way to the aid of the rebellious colonists during the Revolution. Altho these were of all the models of the century, they favorably bore comparison with British and Dutch arms likewise in use. One reason for their superiority was obvious – they had been fabricated in three or four centralized shops under the specifications and the direction of the government. For France, most military of occidental nations, with characteristic logic and order, had begun the public manufacture of arms for war as early as 1535. This work received official stamp in 1669, with the creation of the first national armory in history at St. Etienne. Within the next century three other works had been established, and arms-making in France had become exclusively a state matter.⁷⁹ This method possessed certain advantages over the haphazard English custom: it insured ample production; it permitted a certain standardization of type by means of the adoption of a model and the manufacture of duplicates at one or more of the workshops; and it gave the state complete and immediate control of stores in time of need. That some of these advantages were apparent to the American army can not be doubted. The French government provided the bulk of the arms used by the colonial forces; when the arms arrived the bulk of the arms

⁷⁸ Ibid. pp. 118-119, 122.

⁷⁹ Ibid. pp. 22-23.

used by the colonial forces; when the arms arrived they were found to be similar to each other, in many cases indeed nearly identical. This was a vast help in training troops to act in concert. With the war over, military judgement pronounced in favor of the French models, particularly the one evolved at Charleville in 1763, considerable numbers of which had been brought over by Lafayette and so to the attention of Washington and the other leaders. When production was commenced at Springfield, in 1775, the Charleville 1763 was the arm used for a model. It seems likely, therefore, that not only the model arm, but the model armory, was in some part French. Certainly the Springfield Armory was the first national armory in the western world outside France, and one is left to judge whether its establishment resulted from French influence or from the exigency of the situation – no other factor could have been of potent significance in its founding. Presumably the two worked conjointly.

SELECTION OF A SITE

With the passage of the act authorizing the arsenals, the matter passed from the hands of Congress to those of the President. No one could have been better qualified than Washington to select the sites for arsenals. Possessing considerable native judgement, he had added by experience of wars on all frontiers knowledge of conditions prerequisite to an ideal location, and by extensive and repeated travels a fund of information as to possible sites. The ideal location must be reasonably protected against invasion by remoteness from frontiers, must be sufficiently close to established trade routes to be accessible to a considerable section of the country, must be near (in terms of transportation at least) to raw materials, must be on waterpower, and should be close to a labor supply which, if not already trained to make guns, could easily use its technique to that end. In addition to these geographic and economic compulsions, there remained the political necessity of locating the plants in the several sections of the country, and in states which would look with complaisance upon federal gun-making in their midst. Final decision spoke in favor of Springfield and Harper's Ferry, Va., as locations for the first establishments, and since the armories there erected proved adequate for the time, no others were founded under the act; indeed these two workshops served the country until the outbreak of the Civil War, when Harper's Ferry fell into the hands of the Confederate

Army, and Springfield was left as the sole national armory in the possession of the United States government, a position which it held until 1904, when the manufacture of rifles was commenced in a small way at the Rock Island (Ill.) Arsenal.

With the history of the Harper's Ferry Armory, this study is only incidentally concerned; it was located at a strategic point in a southern state which supported the national government, and on good water-power.

The foundation at Springfield must be considered in greater detail. It will be recalled that Springfield was mentioned in the Act of 1794 as a possible site for one of the arsenals, in view of the fact that a few government buildings were already in existence there. It possessed certain indisputable advantages in addition. The situation was admirable from the standpoint of defense; the town lay on a stream which could be navigated, but which would offer almost insuperable obstacles to an invading enemy; it was on a crossing of state routes which gave it excellent land communication with the seaboard centers, but the place was far enough inland, and the roads to it were sufficiently difficult, because of mountains, to render it reasonably safe from attack by land. The materials of production were readily accessible – wood from the surrounding hardwood and mixed forest, for stock and for charcoal (the necessary fuel for working iron), and iron from neighboring Salisbury field.⁸⁰ A labor supply was also at hand, for scattered thru southern New England were a number of gunsmiths who had made reputations for themselves and posterity during the last quarter of the eighteenth century. They, with their employees, made up a considerable body of experts. It is true that this group was probably smaller than that in the middle states, particularly in Pennsylvania, where the industry had early obtained preeminence, but it was notably larger than that south of the Potomac, where gunsmithing had failed of development along with industry in general, and it was ample to insure an adequate and continuous supply of skilled labor. Whether Springfield possessed amply water-powered resources was a question less easily settled. Almost any small stream could furnish the forced draft required for smelting iron, but by 1794 the development of power machinery had progressed to a point where vastly

⁸⁰ Salisbury, Conn., located fifty miles south west of Springfield, was one of the principal iron centers of the continent prior to the opening of the Pennsylvania fields. Altho its output was never great, it had the reputation of furnishing better iron than most of the found in scattered districts along the eastern face of the Appalachians.

increased use of power could be anticipated.

In this resource Springfield was limited to insignificant streamlets along the face of the “hill,” and to Mill River, a small brook which tumbled down the floor of a secondary valley worn in the older consolidated rock that underlies the upland east of the town. It was fluctuating in volume, and already appropriated at several points for mill sites. On account of these disadvantages the viewing committee sent by Congress to report on a site had suggested that the works be located on the Agawam at the point which the Indians had named Mitteneague because of the falls there which broke the water into snowy spray. Here there would not only be a larger flow and a greater fall than at any point along Mill River, but the size of the stream and its considerably developed system of tributaries insured a regularity of flow which could not be expected from the smaller water. The government buildings in Springfield could still be used for storage, and would be only slightly farther from the power site than would be a point on Mill River. All things considered, there could be no hesitancy in choosing the Agawam location.

At this juncture the farmers of the town of West Springfield, under whose jurisdiction the falls of Mitteneague lay, decided that they did not want a roistering crowd of armorers interfering with their New England propriety. The matter came up in town meeting, where a group under the leadership of Deacon Jonathan White prevented action favorable to the Committee’s scheme. In after years, when the armorers were among the most respected residents of Springfield, Deacon White was assailed by his fellow-townsmen as ignorant, austere, and morose. As a matter of fact he was doubtless conservative and puritanic, and his convictions had been trampled on by outrages which he laid at the door of the armorers, whether justly or not. Certain it is that many of the armorers of the period prior to 1815 were unmarried men who came and went with the mobility characteristic of factory labor in a society almost wholly agricultural and commercial. Having no families, they were forced to spend their spare time in the tavern, and being strangers in the town, and in most cases members of religious creeds different from that dominant in New England, they were not induced to attend that single social meeting center for all respectable folk – the Congregational Church. To a man of the type of Jonathan White the encouragement of such persons would be not only undesirable, it

would be sin. But the Deacon and his supporters had far better cause to oppose a military establishment than any furnished by armorers. Since the outbreak of the Revolution, Springfield had been used as recruiting rendezvous, and the turbulent body of raw recruits, bored by inactivity and eager for excitement, were inclined to carouse of nights, and even to organize pilfering raids, in the course of which gardens, orchards, vineyards, chicken-houses, and hives, were despoiled. Inevitably West Springfield was a greater sufferer from these outrages than Springfield itself, because the river offered a barrier to pursuit, and the political boundary retarded speedy justice. To the victims, these pranks were committed by representatives of the War Department, and they did not stop to consider the possible difference between soldiers and armorers.⁸¹ The good power of Mitteneague had therefore to be abandoned, in favor of the inferior resources of the east side of the river. It may be assumed that not other site than the Springfield vicinity was seriously considered since Washington had several times gone strongly on record in favor of Springfield and the place had already stood satisfactorily the test of war. Springfield, moreover, welcomed a project, as a straw which might point to a way out of the economic slough into which the town had once again fallen with the cessation of Revolutionary activities.

The arsenal was already in effect established in the shape of the powder magazine, storehouses, barracks, and houses owned by the government on the hill. But preliminary to purchasing land, it was desired to secure the consent of Massachusetts to making the settlement permanent. This consent was given by the passage of June 25, 1798 of an act “granting to the United States power to purchase land.”⁸²

Even before the federal project had been confirmed by state action, however, land had been purchased, and the manufacture of arms begun. For the time being, the buildings on the hill could be continued in the United States service without change of status, but a water power site had to be selected at once. Among the streams which tumbled riotously down to join the Connecticut in the immediate neighborhood of Springfield, only one, Mill River, seems to have been considered as a source of power for

⁸¹ “Silver Stream” in the Springfield Daily Gazette, Saturday Evening, Aug. 28, 1847, Springfield, 1847.

⁸² An act providing for the cession of Castle Island...land in the Town of Springfield not exceeding 640 acres...to the United States, and for other purposes therein mentioned stronghold of Federalism had no intention of throwing bars in the Acts and Resolves of Massachusetts. Boston: Printed by Young and Mins, 1798.

the heavier operations involved in arms making. Perhaps the others were too small, or too thoroughly taken up with mills to bear further exploitation. At all events Mill River possessed certain advantages. It had out a rather steep-sided valley in the soft lacustrine deposits, and in the middle part of its course had uncovered the bedrock, thru which it made its way for about half a mile. Here it offered admirable sites for dams, but its narrow valley precluded the impounding of large quantities of water. Along the upper reaches of the stream there were reservoir sites, but there the fall was not great enough to furnish the requisite power. Even had the storage capacity been ample, however, the stream would have been far from ideal for water power, because of its limited drainage basin. Taking its rise among the little ponds of the upland, within eight or ten miles of the Connecticut, it was dependent upon such precipitation as chanced to fall within a few square miles. This meant floods at high water and midsummer droughts when the water would be too low to turn the wheels. Another disadvantage lay in the fact that the nearest point on the stream lay a mile away from the buildings already owned by the United States, and that the available power sites in 1795 were still farther off, thru the pine barrens, and over the dissected margin of the Connecticut Valley.

In spite of all the objections, however, the historical precedent the ownership of buildings in Springfield, and the hospitality of the inhabitants to the federal industrial experiment, determined the construction of the plant with a double base, one part on the hill, the other on the Mill River. On June 22, 1795, the government of the United States purchased its first piece of land in Springfield for the purpose of erecting thereon a manufacturing establishment. The acre and half of thus purchased cost the handsome sum of \$400.00, because it fronted the river and carried with it the right to construct a dam five feet high. Three years later an acre on the south side of the stream was purchased, in order to complete title to land necessary to the erection of a dam and the overflowing of land adjacent to the river. In 1802 this unit was made self-sufficing by the procurement of the water rights from a nearby spring. Thus, gradually, and as need arose, the power plant of the National Armory came into being. In after years this site became known as the Lower Water Shops, to differentiate from sites higher up the stream which the government afterwards purchased; ultimately the whole property in this vicinity was sold, but the power is still there, just above the junction of Main and Locust Streets, now

almost “down-town” in Springfield.⁸³

In the meantime the buildings on the hill were still being used for arsenal purposes, altho the land on which they stood was the municipal training field, property of the inhabitants of the town. Because of negotiations which had been undertaken in 1782 prior to the erection of the powder magazine there was a current impression that the United States had already bought some land from the town. This was given expression in the minutes of a town meeting held March 18, 1795, three months before the purchase of the powder site on Mill River. At that meeting, called for the express purpose of considering a sale of land to the federal government, a committee was chosen “to look into the matter respecting the land the town have heretofore sold to (the) United States.” The committee was further empowered to survey the Training Field and to “report the expediency of selling any land to the United States.”⁸⁴ Nothing seems to have come of this effort to disentangle the facts of ownership, and the activities of the armory and of the militia may be supposed to have continued peaceably side by side. On April 7, 1800 the question was revived in a special town meeting, this time “to see whether the town will take any measures to obtain compensation for such part of the training field as is occupied by the United States, and to chose any committee for that purpose and empower such committee to convey the same.”⁸⁵ The committee chosen pursuant to favorable action on this question reported that a contract had begun for a lease of ten acres to the United States, but that no lease had ever been executed, and that no record existed as to what part of the consideration had been paid, if indeed any compensation had ever been made. In the meantime the United States had spread itself over more than the ten acres originally proposed to be allotted to them, and the committee “recommend to take effectual measures for obtaining a reasonable compensation for said land (the ten acres) and also other parts of the Training Field now occupied by the United States.”⁸⁶ The means in the powder of the town did not prove immediately effectual, for nothing further was heard of the matter until more than a year later. The Armory officials, however, were not wholly inert, for early in 1800 the Military Storekeeper had urged upon the Secretary

⁸³ For the details of these and other real estate transactions, see Appendix 3.

⁸⁴ Springfield Town Records, v. 5, pp. 668-671.

⁸⁵ Springfield Town Records, v. 6, p. 1.

⁸⁶ Ibid.

of War and Upon the Commissary General of Stores the wisdom of purchasing land in order to permit placing the buildings farther apart, thus effecting a reduction of the fire hazard.⁸⁷ Less than a year after this (January 23, 1801) the filing and stocking shop was burned to the ground in the space of an hour, and only heroic exertions on the part of workmen and citizens saved the remaining buildings on the hill. In this conflagration were destroyed 500 muskets, besides components and tools, the total mounting to a serious loss for the infant armory. The departments which had been housed in the consumed building were forced to suspend operations for the time, and the War Office had to expend \$2500.00 for reconstruction, while the armorers used a disrepair barracks as a makeshift.⁸⁸ This calamity seems to have stirred the Washington officials to action, for on August 24, 1801, about thirty and a half acres were deeded by the Inhabitants of the Town to the United States in consideration of \$509.00.⁸⁹ This included the land on which federal buildings stood, most of them in a tract on the Boston road at the brow of the hill; a separate bit (thirty rods) lay to the eastward, where stood the magazine of 1782. At last the United States possessed the land it had so long squatted upon, and this parcel became the nucleus of Armory Square, always the heart and head of the establishment, and the site of much of the manufacturing, as well as the administration.

As had been anticipated, the power available at the first site on Mill River soon proved inadequate, and the Armory authorities seized the first available chance to expand their holdings. This came about in 1809, when the Revolutionary powder mill, located a considerable distance upstream from the old power, blew up. At this point the river emerged from a rather narrow, steep-sided valley on to a little floodplain, across which it meandered in search of a path for its final headlong plunge to the Connecticut bottoms. The conditions offered a first rate small power. A number of land purchases, completed in 1809, transferred to the United States the right to build a dam ten feet high, and to control the land which was subject to overflow thereby. On this foundation was erected the Upper Water Shops, later greatly enlarged, and still one of the principal

⁸⁷ Joseph Williams to the Secretary of War, and copy to Samuel Hodgdon, Jan. 26, 1800. Springfield Armory Correspondence File.

⁸⁸ Joseph Williams to Sec. of War, Jan. 23, Jan. 30, 1801, May, 1802; to Samuel Hodgdon Jan. 25, Feb. 14, 1801. Ibid.)

⁸⁹ App. 3.

manufactories of the Armory.⁹⁰ It possessed the advantage of being nearer the hill than the older power, but this was offset by the limited size of the power, and lower shops remained for many years the more important. One or two minor land purchases completed the founding of the Armory on its present locations, and closed the first period of land acquisition.

ASPECT OF THE EARLY ARMORY

On the ground thus obtained, the operations of the Armory were carried on until the stimulus furnished by the War of 1812 urged still further extension of holdings. At the lower power site the need for building was immediate, and at the upper site the explosion had wrecked the old power plant. The United States' first buildings must have been at the outset few and simple. A part or all of the structures were of frame, as might be expected in that place and time of surplus timber. All have disappeared by replacement in stone and brick. On the hill the old shops and storerooms of Revolutionary times answered the requirements of the earliest years. As has already been noted, it was the presence of these buildings ready for use which determined, in part, the selection of Springfield as a site for the first of the National armories.

Some notion of the appearance of Armory hill may be gleaned from scattered comments. A traveller to Boston in 1795 would have seen an irregular group of frame structures, strung along the Boston Road in the vicinity of the first milepost out of Springfield village. After toiling up a steep hill, he would see a two-story red storehouse looming up alongside the road on the northerly side. A few rods farther on stood two one-story frame houses (near the site now occupied by the Middle Arsenal). These were utilized by the Paymaster and the Master Armorer as homes. Just behind this row, appropriately near the center of the federal tract, lay two barracks, of four and six rooms respectively. There were used by turns for quartering soldiers and for manufacturing arms. Both were low, one story buildings, and one seems later to have been used to house workmen. At the rear of the federal tract were ranged a two-story house, a part of the time unused, but occupied at intervals by officers of the garrison stationed in Springfield; one or two smaller dwellings occupied by workmen; a boarding house for employees of

⁹⁰ App. 3.

the government; and the house erected by Col, Mason for his own use during the Revolution, in 1795 the abode of the Superintendent. Several hundred paces further along the road, squatted the brick magazine, built by order of the Congress in 1782, at a distance thought adequate to insure safety to other buildings in case of accidental or designed explosion of its contents. On the whole a well arranged group of buildings, but wholly inadequate to meet the future needs of the expanding factory, and subject to maximum fire hazard because of the frame construction, the close juxtaposition of buildings, and the distance from copious supplies of water and from the town fire engine. It is, therefore, not surprising that the same traveller, passing out of Springfield a few years later, would have noted marked changes in the physical aspect of the Armory. One of the first additions to the establishment was a one-story pay office, put up in 1798 at a cost of \$238.83.⁹¹ The return for the quarter ending March 1, 1801 shows the expenditures of \$1135.00 for new buildings and repairs, most of which doubtless figured in the rehabilitation of the burnt filing and stocking shop.⁹² Perhaps because of suspicion that the fire was of incendiary origin, the Armory officials took up with the Secretary of War the project of fencing the grounds.⁹³ Although at first discouraged by General Irvine, the Commissary General, who made a visit to Springfield early in August, 1802, on the ground that a wooden fence, such as was contemplated, would not afford additional security, and would be subject to destruction by high winds because of its exposed condition, the project was put through in 1803 and 1804.⁹⁴ In 1805 a "blockhouse" was placed appropriately near the center of the public ground to serve as a headquarters and guardhouse for the garrison, and possibly also to furnish protection in case of need.⁹⁵

THE FIRST PERIOD OF EXTENSIVE CONSTRUCTION

In 1808-1811 came the first heavy outlay for public buildings. Early in 1807 the Storekeeper advertised in the local press for proposals for the construction of "a BRICK STORE, on the public ground at the United States Armoury, at Springfield, mass., one

⁹¹ Cash Ledger dated 1796 in S.A.C.F.

⁹² Ibid.

⁹³ Williams to Sec. of War, May 3, 1802, in S.A.C.F.

⁹⁴ Williams to Sec. of War, Aug. 23, 1802, Cash Ledger cit. S.A.C.F.

⁹⁵ Cost \$763.00; James Byers to Sec. of War, Mar. 17, 1806. Stationing federal troops on the post seems to have been revived in 1802, since on April 26 of that year the Secretary of War inquired as to the state of unoccupied barracks. Williams to Sec. of War, May 3, 1802. S.A.C.F.

hundred feet in length, thirty-four feet in width, and two stories high.”⁹⁶ This was the building completed in December of the same year, and called the New Brick Store. Later it received the more dignified appellation of West Arsenal, and with its conversion to use as a barracks, it came to be called “the Barracks”. Its total cost was \$8,000.00.⁹⁷ To make way for it the old storehouse was moved a few yards east, and closer to the road. The new building was at first used for storing and packing arms, and remains in its altered form the oldest landmark among the present group of United States buildings in Springfield. During the Civil War it was amplified by the addition of a third story, and it has been treated to repeated coats of paint – otherwise its external appearance is unchanged. Close upon the completion of this building followed (in 1808-1809) the construction of shops on the hill; a two-story stocking and filing shop on the site of the building now utilized in part by the Small Arms Museum, and a story and a half brick forging shop, used for forging the smaller parts, located near the contemporary stock shop. The forging shop became the core of the structure now known as the Annex, which in its present form is the product of many alterations and additions. Nearby two small brick shops were put up at about the same time, one of which was used for annealing. In 1811 this group was crowned by a two-story brick office intended for use as an administration building, a function which it has since that year fulfilled. The total cost of this construction work is unknown, but, not less than \$40,000.00 had been expended by the end of 1808, and more was required for the operations of the three subsequent years.⁹⁸ All the new buildings fronted the square and lay with their rear fascades close to the property line of the day, a fact which accounts for their more finished appearance on the quadrangle side, and for their location at unusual angles to State and Federal Streets. Beside roofed buildings, this period witnessed the construction, near the site of the East Arsenal, of the Ordnance Yard, intended for the storage of ball, cannon, and other material which could not be accommodated in the storehouses, and which could withstand the elements without undue depreciation.

By virtue of these developments, storage space was manifolded, suitable housing and equipment were provided for the lighter operations of manufacture, and the fire

⁹⁶ Hampshire Federalist, Apr. 22, 1807, v. 2 #88. Springfield: Thomas Dickman, 1807.

⁹⁷ Byers to Sec. of War, Feb. 10, 1808. S.A.C.F.

⁹⁸ Byers to Sec. of War Sept. 22, Nov. 24, 1808. S.A.C.F.

hazard was greatly reduced. It is a tribute to the foresight of the men who planned them that most of these buildings are still in use, and that were alterations and additions have been required, they have followed the lines of the original plan.

Paralleling the building operations on the hill, were improvements of the water shops. At the Lower Power fire destroyed “the principal Water shop” on September 25, 1805.⁹⁹ This damage was immediately repaired by the erection of a building 88 by 60 feet in dimensions. In an effort to afford some protection from possible repetition of the loss, the walls about the forges were built of stone to a height of ten feet. From this fact it may be inferred that brick was, before 1807, scarce or expensive, or both, since the cost of quarrying and cutting stone, even though readily available, is normally much greater than the making and laying of bricks. The work was hurried to completion, and by the end of the year operations were resumed in the new shop.¹⁰⁰ Four years later a brick shop was built on the north side of Mill River, the first record of a brick construction at any of the power sites. The rehabilitation of the old powder mill in the same year (1809) involved the construction of polishing and welding shops located on either side of the stream, and of a number of houses for the workmen. It is not recorded that these were of brick, and from the evidence of old cuts it may be assumed that frame construction was used throughout.

ORGANIZATION OF THE EARLY ARMORY

This physical frame was the habitat of an organization which sharply reflected the national political and social organization. There was the same institution of check and balances, the same class cleavage, the same struggle for equality, and over all, the same general political and social development.

At the outset, the industrial operations of the Armory and Arsenal were organized in a simple, but at the same time, an ambiguous manner. The principal officers were (1) the Paymaster and Military Storekeeper, (2) the Superintendent, and (3) the Master Armorer, all civilians. The two last named were appointed by the president by force of statute, and the first mentioned was, in practice and by implication of the law, similarly

⁹⁹ Byers to Sec. of War, Sept. 25, 1805.

¹⁰⁰ Byers to Sec. of War, Dec. 11, 1805. S.A.C.F.

selected. They felt themselves to be mutually dependent, beyond the fact that all functions through the Department of War. As a matter of fact, the Paymaster's immediate superior was the Commissary General of Military Stores, but he dealt directly with the Secretary of War quite as much as with his immediate chief. The Superintendent worked directly under the Secretary of War, and the Master Armorer, being principally concerned with production, had little or no contact with officials outside Springfield. The Superintendent's business had to do with the Armory only, but his control over that institution was neither defined nor limited by statute; the Paymaster, on the other hand, was obliged to procure all sorts of supplies for the Armory, and to assume responsibility for the case of its product. He thus held the purse-strings for the Armory, and he derived certain additional authority from the fact that he was in full charge of Arsenal activities, as distinct from those of the Armory, Their duties thus overlapped, and it requires no stretch of the imagination to realize that two determined and resourceful men might so frequently disagree as to policies and methods, that they would in time reach a permanent deadlock, to the detriment of the public business.

The early incumbents of these offices were men of force, and conflicts of authority early arose, to be carried on by their successors, until changing conditions and the establishment of customs determined the sphere of action to which each should be confined, and their relation to each other in case of disagreement. Joseph Williams, the Paymaster and Military Storekeeper of the Arsenal who succeeded in 1798 to the office of Capt. John Bryant, was a Springfield resident who had married a daughter of Dr. Pynchon, and was in that way well connected with local men of influence. He was appointed at the suggestion of Samuel Lyman while that gentleman was a member of the United States House of Representatives.¹⁰¹ David Ames, the Superintendent who was designated to launch the new Armory, was in 1794 thirty-four years old, a veteran of the Revolutionary War, and an iron-worker and gunmaker by inheritance and training. His father had been one of the first men in New England to undertake the manufacturing of iron goods, and among other products of his shop were guns. The son was brought up in the thoroughgoing fashion of the day with an intimate knowledge of his profession, and his experience in making and using arms commended him to President Washington. That he

¹⁰¹ Clogston, William: op. cit., clippings.

was an all-round mechanic and a business man of the utmost sagacity is proved by his latter success as a pioneer in the paper industry of the Connecticut Basin.¹⁰² He seems to have applied his full energy and training to his work at the Armory, and to his force of character is doubtless due not a little of the stability of the foundations of the establishment. The office of Master Armorer appears to have been exercised conjointly at first by Robert Orr and Nathan Fobes, but Orr soon came to be regarded as the Master Armorer, and the position was always afterward placed in a single pair of hands.¹⁰³ Orr, and presumably Fobes as well, were practical gunsmiths, a knowledge of that calling being the first requirement of the master mechanic in an arms manufactory.

There seems to have been no real dispute as to the precedence of the superintendent over the master armorer. Possibly because the latter office was not filled for some years after the plant had become a going concern, but more probably because in the nature of things the superintendent must have direction over all the men in the shops. The promotion of Joseph L. Morgan, Master Armorer, to the superintendency in 1802 to succeed Ames, indicates that the office was looked upon as that of Assistant Superintendent, to be rewarded, if service were faithful and efficient, by promotion to the chief's seat. It must be borne in mind that the spoils system had not in the first quarter of the nineteenth century, fastened itself at the throat of efficient administration. Nevertheless, the practice to promotion was never repeated, altho it became habitual for the master armorer to act temporarily as superintendent, whenever that officer changed to be ill or absent from Springfield.¹⁰⁴

THE FIRST CLASH BETWEEN SUPERINTENDENT AND PAYMASTER

Within the fields of activity of superintendent and paymaster there were no clean-cut divisions of authority. Williams had been directed by his superior, Samuel Hodgdon, to make a return of expenditures, production, and inventory covering the activities of the Armory, as well as those of the Arsenal, or storehouses. From these figures it would be possible to determine the cost of the muskets that were being fabricated, and so judge of

¹⁰² Chapin, C.W.: *Old Inhabitants of Springfield*. Springfield: Spfd. Pg. And Binding Co., 1893. Holbrook, George B.: *The First Papermaking in the Connecticut Valley*. Springfield: Conn. Vall. Hist. Soc., 1917.

¹⁰³ Pay Roll of March, 1802 in S.A.C.F. Conn. Vall. Hist. Soc. Coll.: Charles Stearns Mss.

¹⁰⁴ S.A.C.F., passim.

the efficiency of the plant. The statements submitted to Williams by Ames for the business under his control, did not suit the recipient, who undertook to prepare a substitute. In his letter covering the transmittal of the return he explained his method of discovering what seemed to him to be the facts, adding, "I cannot for my part imagine why the Superintendent should Estimate the value of Tools & Work on hand in such round numbers, except with an intention to make it appear to Government that he is making the muskets lower than is really the case. I feel myself as much interested in the Works as Mr. Ames, but have no disposition to keep anything behind the curtain; whatever the Guns honestly cost I shall use every endeavor to make known."¹⁰⁵ This quotation indicates that the divergence of opinion between the two men had already reached an irreconcilable state. The conflict passed a crisis in the next year over a question of purchasing. A shipment of Virginia coal that had been sent to the Armory on requisition of the Military Storekeeper was condemned by the Superintendent, who forbade its being brought on to the Armory grounds. This action, apparently the last step in a series of passages of arms, incited Williams to address his superior in paragraphs which, after setting forth the circumstances, cast a shadow on Ames's rectitude: "How far the Superintd is actuated in this business form private motives I know not but it is a fact that he had been in the habit of finding fault & even condemning articles procured for the use of the Factory – unless purchased of persons of his own pointing out. From Ignorance or Design he has made the duties of my office much more troublesome and perplexing than it need be."¹⁰⁶ Ten days later he sent Ames a sharp note desiring a statement in writing of the reasons for refusing the coal.¹⁰⁷ He was not accorded the courtesy of an answer, and the matter was speedily taken to law.¹⁰⁸ In this process the Master Armorer (Robert Orr) was brought into the mess, because he had gone to Hartford to pass on the coal and had found it acceptable, thus indicating that he felt no hesitation in acting counter to the wishes for the superintendent. The contractors were three well known Springfield men, James S. Dwight, Daniel Lombard, and John Cooley, and it may be inferred that their prominence, together with the influential connections of the

¹⁰⁵ Williams to Hodgdon, Jan. 10, 1779. S.A.C.F.

¹⁰⁶ Williams to Hodgdon, Sept. 20, 1800, in S.A.C.F.

¹⁰⁷ Williams to Ames, Sept. 30, 1800 in S.A.C.F.

¹⁰⁸ Williams to Sec. of War, Dec. 5, 1800; to Hodgdon Oct. 31, 1800; in S.A.C.F.

Storekeeper, gave to the case the complexion of a cause celebre. Herein lay Williams' strength, but on the other hand Ames held the whip hand, because Army Regulations required that the superintendent certify all vouchers for the public accounts before they could be passed by the Auditor of the War Department. This is a fundamental and universally recognized principle of government accounting, intended to prevent malfeasance of financial officers, and no amount of local influence could abrogate the rule. Ames's argument was based on his asserted belief that the coal was short in weight and high in percentage of foreign matter. The Secretary of War, appealed to for a decision, was naturally cautious, but Williams referred from his hesitancy to take a definite stand, "that some false suggestions have been made from a quarter that I never expected – which had a tendency to create a belief in his mind that my whole conduct respecting the coal business was actuated by personal considerations, rather than to a regard to the public intent...."¹⁰⁹ By this time manufacturing was crippled by lack of coal, because the superintendent would not vouch for that brought by the Storekeeper, and the latter would not pay for any which the superintendent was willing to purchase. In this impasse, the Commissary General of Military Stores endeavored to cut the knot by entering into contracts himself, a project which Williams subscribed to. At the same time he announced that the government expected to discontinue, or at least considerably reduce operations at the Armory, a rumor which may have reflected only the shift of national control from the Federalists to the Democratic-Republicans, but which was turned into local capital by the Armory officials.¹¹⁰

In the meantime the issue of the coal had affected every other relation of the two officers; and the fire of January 23, 1801, which made necessary the immediate undertaking and financing of construction work, emphasized the imperative urgency of marking out their respective fields of authority. Something was done in this direction in a series of letters concerning the new building. Complaining that the Secretary of War had given directions to the Superintendent regarding the rebuilding of the shop, Williams pointed out that the Secretary of War and the Commissary General of Military Stores disagreed as "to who is the controuling officer or head of the Department," and

¹⁰⁹ Williams to Sec. of War, Dec. 4, 1800 in S.A.C.F. Williams to Hodgdon, Jan. 3, 1801 in S.A.C.F.

¹¹⁰ Williams to Hodgdon, May 11, 1801, in S.A.C.F.

asseverated that “for the harmony & well being of the Works, it would be well to have duties of the Paymaster & Superintendent more particularly defined & pointed out.”¹¹¹ While agreeing that the superintendent should be supreme over everything relating to the manufacture of arms, he expressed surprise that matters of construction should also be turned over to that officer, at the same time declaring, he entire satisfaction with the arrangement because of consequent relief from responsibility. So matters dragged on until August, 1801, when the Court discharged the case. Williams gloated over a letter from the Secretary of War “dated at Pittston, assuring (him) Mr. Bang’s report acquitted (him) of every charge which had been exhibited against (him).” At the same time he once more took occasion to vent his spleen against Ames: “Until I have the same assurance that Mr. Ames is also acquitted from those charges which from a sense of duty & purest motives for the public interest I exhibited against him I must consider him as a person unworthy of confidence & every way unqualified for Superintendency of so respectable an Establishment. I consider myself under the immediate direction of the Supt of Stores....”¹¹²

That the divergence of view as to the relative authority of the two officers still existed becomes clear from a report of the paymaster complaining that the superintendent and the master armorer both habitually absented themselves from the monthly muster of the armorers, to the complete rout of discipline.¹¹³ That so petty a matter should be referred to higher authority proves not only the mutual independence of the Paymaster and the Superintendent, but also the length to which their quarrel had taken time. Thus matters dragged on for a year longer, neither officer being able to dislodge the other or bring him under control. The administration, perhaps willing to permit both the Army and New England to discredit themselves, could not be expected to take a hand in a mess so admirably conceived to work harm to both. Finally, however, Ames quit his post, still under suspicion by his opponent, who wrote to the Secretary of War on November 10, 1802 that Mr. Ames had made over to his “all the books & papers relating to the factory except his public Cash Books while acting as Paymaster to the Armory which he declines giving up as he pretends are his security:.... Your decision on this Business will

¹¹¹ Williams to Hodgdon, Feb. 14, 1801, in S.A.C.F.

¹¹² Williams to Gen. William Irvine, Aug. 28, 1801 in S.A.C.F.

¹¹³ Williams to Sec. of War, Sept. 14, 1801, in S.A.C.F.

be necessary to claim them & c.” A man of resource like Ames perhaps felt cramped by the unfavorable attitude of the Washington authorities after 1801; his later dealings with the Armory prove that he was a Yankee of the traditional type, hard at a bargain and shrewd, yet at the same time flexible enough to accomplish great things. He left his office on October 31, 1802, in the hands of Joseph Morgan, who had for a few months been Master Armorer.¹¹⁴ The succession carried with it an inheritance of conflict implicit in the ill-defined limits of the office.

CONDITION OF THE WORKMEN

While the problem of ultimate authority was being threshed out between the higher officials, the workmen progressing with a solution of the intricate problems of large-scale manufacture and industrial relations.

It has often been asserted that the armorers were enlisted, somewhat as are soldiers in the Army. They certainly had an officer, who was as late as 1801 none other than Capt. Bryant, formerly Storekeeper of both the National Armory and the Confederation Storehouses. His title was Master of Ordnance, and by direction of the War Department, he mustered the armorers once a month.¹¹⁵ Furthermore the men received rations which were contracted for the Paymaster of the establishment.¹¹⁶ One of the first of these contractors was James Byers, who, coming to Springfield from New York, set up a general store in the town, with, subsequently, branches near the Armory grounds. In 1800 he was appointed postmaster of the town, and altho this must have been a Federalist appointment, he was made Paymaster and Military Storekeeper of the Armory three years later under the rival administration, a position which he held until 1811.¹¹⁷ The rations were prepared by a cook who was paid by the United States.¹¹⁸ The armorers’ children were taught by a public school-master, hired at the expense of the

¹¹⁴ Capt. Morgan arrived in Springfield between May 3, and June 5, 1802. Williams to Sec. of War on those dates, in S.A.C.F.

¹¹⁵ Williams to Sec. of War, Sept. 14, 1801 in S.A.C.F.

¹¹⁶ “The Springfield Armory,” in the Springfield Republican, Dec. 22, 1878. A typical ration seem to have consisted of 18 ounces of bread or flour, 1 ¼ pound of beef or ¾ pound of pork, 1 gill of rum, whisky, or other spirits; to each hundred rations were added 4 pounds of soap, 2 quarts of salt, 2 quarts of vinegar, and 1 ½ pounds of candles. One fourth of the meat had to be fresh.

¹¹⁷ Chapin, op. cit. p. Williams to J.M. Henry, Nov. 25, 1799 in S.A.C.F.

¹¹⁸ Account Book cit. in S.A.C.F. Item under last quarter of 1798.

government.¹¹⁹ All these facts point the resemblance between the armorers and enlisted men of the Army.

Nevertheless, the statement which workmen were required to sign upon entering the service, while bearing superficial resemblance to an oath of enlistment, implies a contractual relation between the workman and his employer: “We, the subscribers, do hereby severally promise and engage to work for the government of the United States of America at the public factory at Springfield, or as public service may require, one year from the date of our respective enlistments, under the superintendency of David Ames and such officers as may be appointed in said factory by the authority of said government, and faithfully, diligently, and constantly serve the aforesaid United States as Armorers to the utmost of our abilities, for the interest of the United States, and will, during the term aforesaid, conduct ourselves soberly, honestly, and industriously, and will yield full and ready obedience to all orders we may receive from time to time for the government of the artificers and apprentices employed by the United States, and will make good all damage of whatever kind the public may sustain by our not fully complying with the terms of this enlistment, and we severally engage to do the quantity of labor within the terms and at the wages as annexed to our respective names, which wages are to be paid as shall be furnished by the United States for that purpose.”¹²⁰ A rather one-sided arrangement, to be sure, but nevertheless one which laid no penalties upon withdrawal from the place. In this, it differed from enlistment. As a matter of fact, special privileges were accorded to armorers, either to attract men into the business, or in recognition that their work was essentially public service. In May, 1800, Congress passed an act exempting Armorers from military and jury duty, a privilege which was highly prized, and which became one of the inducements to service at the Armory.¹²¹

The industrial system of the period was fully in effect at the National Armory, another indication that contract, rather than enlistment, was the basis of labor there. This may be seen for the title “Master Armorer” as applying to the chief mechanic, and from the practice of taking on apprentices, who were furnished with clothing and spending

¹¹⁹ Ibid. Item under 1799.

¹²⁰ Newell, E.A. (pubr), 1868. “Springfield, Its Growth and Prosperity from its Settlement to the Present Day,” in Clogston, op. cit. v. 1.

¹²¹ Booth, A.: “Historical Reminiscences of Springfield,” 1868.

money, as well as food.¹²² While the government required on paper a good deal from its men, it differed in this respect no whit from other employers of the period. The special arrangements such as rationing employees and keeping school for the children, which appear to be evidence of military practices, were efforts to adjust the social life of the plant to local conditions.

That these functions took on a military nomenclature is not surprising in view of the military traditions and connections of the institution. Their performance under any terms serves only to emphasize the situation of the Armory. Both the hill plant and the watershops were far from town, being so located that the workmen must live outside the populated center. Since most of the buildings in both districts were owned by the United States, the early armorers had no choice but to live on the post. The difficulties attending a suitable provision of food in these remote locations led naturally enough to the application of the well understood military method of rationing. Many of the armorers were unmarried men who could not be more conventionally cared for than by an Army cook; and those who were married were doubtless given their rations uncooked. Such children as there were, being residents on federal ground, had no right of participation in the public education of the town, even if the distance from the local school had not deterred them from attending it. So, all things considered, it may be concluded that the appearance of military forms expressed a nice adjustment of needs to conditions, rather than the deliberate adoption of military practices.

As the Armory population increased, business and social centers were established near the federal ground, and in time it became possible for many of the workmen to find shelter and food off the post. With the meeting of their demands by private initiative, came the gradual sloughing off of the extra-manufacturing activities of government, but it was many years before the Armory became exclusively an industrial plant. Indeed, it never lost certain of the social and economic functions which were thrust upon it in the early days, and it is today less a factory than an institution of the city's social organism.

RELATIONS AND CONTRAST BETWEEN THE ARMORY AND TOWN

During its early years, the life of the Armory was not integrated with that of the

¹²² Account Book of 1796. Items for 1798-1800 passim.

town, but was, on the contrary, sharply distinct from it. As had already been pointed out the West Springfield folk had objected to having a scurvy lot of armorers amongst them, and the old-time inhabitants of Springfield gave evidence in their social life that they felt much the same, however business might profit from the presence of governmental activities. The newcomers were mechanics, guiltless of landownership, many of them unmarried, and either Methodist or Baptist in religion; the old settlers were small farmers or tradesmen, conventionally carrying on the family names and traditions, and Congregationalist to a man. No wider social gulf could yawn between people of the same race and language, nor could it be deeper than the difference of religion made it, in an age when ecclesiastical solidarity was the basis of all social order. One of the striking developments of the first fifty years of Armory history is the slow and quiet, but lasting and effective emulsion which common problems and aims produced from the materials of 1800, until it came to be a boast of the Springfield townsmen that he was descended from old-time armorer stock.¹²³

The early social cleavage is nowhere so sharply illustrated as in the ecclesiastical organization of the town. The First Church stood, as its successor still stands, overlooking the public square, and the center of the economic, social, and political life of the New England village. To be member of this church was to be a respected citizen and it would require hardihood beyond the common to violate generations of the dearest of Puritan traditions by holding to heretical faiths. The Armory made possible the first break in the town's theocracy. Located remotely from the Main Street, and made up of immigrants from abroad, or at least from communities less blue-bloodedly Puritan than Springfield, the tiny centers of population established about the hill location and about the watersheds brought with them religious beliefs, religious practices, and social forms which, however mutually diverse, bore closer resemblance to each other than did any to those of the old town. Propinquity and a common sense of the aloofness which would be natural to any newcomers, directed that they join forces to establish churches of their own, for the church was still, in 1795, the central social institution. It is, therefore, not surprising to find that Methodist preachers held occasional meetings in the homes of armorers as early

¹²³ Numerous articles and books on old Springfield reflect this attitude.

as 1796 and 1797.¹²⁴ Some time afterwards, the Baptists in the Armory communities formed a feeble organization until stimulated by the impetus with the War of 1812 gave to the Armory.¹²⁵ In this case, however, the promoters were the higher officials of the Armory, with perhaps some support from Army officers stationed on the hill, a few of whom must have been Episcopalian.¹²⁶ Little by little the life of the hill and of the watershops groups found expression in centers of business and diversion, the more important being in one case along the Boston Road opposite the national grounds, where had been for years a wayside tavern, and in the other case facing Mill River between the Upper and Middle Water Shops. Old buildings, still used for stores, offices, and restaurants, remind the casual visitor of the days when Springfield village was a long time ago. Then connections grew up between these new suburbs and the old settlement. In 1805 the economic development on the hill had gone so far that James Byers felt it worth while to establish one branch of his business (then located at the corner of Main and State Streets) at a point on the brow of the hill, a location which faced the Boston Road and the Armory, and another at the Watershops. As Paymaster and Storekeeper for the Armory, he naturally felt the pull to the Armory locations more strongly than the average business man of the town.¹²⁷ Other contacts between the life of the village and that of the Armory were made one by one. Among them none is more striking than the activities of the fire companies. The volunteer fire brigades of the town in nineteenth century United States formed the first line of defense against the most dreaded of visitations. The members of the fire company were excused from militia duty, and their drills furnished that balanced quota of work and play which made the best sort of foundation for wholesome social intercourse. It naturally followed that the fire company was the club of the day, affording the outlet of the modern athletic club, and earning,

¹²⁴ Holland, J.G.: History of Western Mass. 2 vols. Springfield: Samuel Bowles & Co., 1855. v. 2. pt. 3, p. 122.

¹²⁵ Ibid. p. 125.

¹²⁶ The federal buildings on the hill were used intermittently as a station of line troops and as a recruiting headquarters until after the War of 1812. Federal Spy, Oct. 23, 1804 and Oct. 8, 1805. Springfield, 1804-1805. Hampshire Federalist, Apr. 8, 1806. Springfield, 1806. King's Handbook of Springfield, Mass., Moses King, ed. p. 256. Springfield: James D. Gill, 1884.

¹²⁷ "The Springfield Armory", Springfield Republican, Dec. 22, 1878. The Hampshire Federalist, Nov. 26, 1807 contains an advertisement of Byers and Bliss to the effect that dry goods and groceries may be brought at the store in Springfield "and also on the hill near the public armories."

besides, the respect of the whole community. The fire company of the Town of Springfield was organized as an engine brigade at about the time of the Armory's establishment, and for some years had the only up-to-date fire fighting apparatus in the vicinity.¹²⁸ Shortly, however, the need for protection of the United States property was seen to be sufficient to warrant the purchase of similar equipment by the Armory officials. A beginning was made during, if not before 1800, for in that year \$31.00 were expended for an engine hose.¹²⁹ By 1808 there were two engines, one of them being stationed on the hill, and the other at the watershops.¹³⁰ These engines were manned by workmen from the shops, who were paid a small stipend from the government funds. Fire companies at that time commonly engaged in competitive drilling, and official Armory instructions of a somewhat later date show that keen rivalry existed between the two federal companies. That this extended to the town companies can not be doubted, and as a matter of course each helped the others in case of serious conflagrations. The mutual aid thus afforded probably helped to build up friendly relations between the and armory groups.

Another recurrent occasion which tended to break down the barriers, was the celebration of national holidays. In such events, notably the ceremonies connected with Independence Day, the Armory would naturally, because of its national affiliations, take a prominent part, and the townspeople, perhaps reluctantly, were forced to focus their attention upon the upstarts in their midst. Of one such celebration (that of 1806) it is recorded that eighty officers, men, and boys from the public works, and eleven soldiers, marched in a procession which numbered little more than double that figure. To be sure, the old Springfield folk derided this celebration as a motley show of Republicans – old Springfield being still violently Federalists – but the matter riveted the attention of the newspapers for some days, and it was not many years before the celebrations were joined by large numbers of the populace, who even went to the Armory grounds to do their part.¹³¹

Here and there certain individuals were successful in bridging the gap between

¹²⁸ Newell, J.K.: "Old Springfield Fire Department," in Conn. Vall .Hist. Soc. Papers and Proceedings, 1876-1881, v. 1 pp. 19-20. Springfield: Pubd by the Society.

¹²⁹ Account Book of 1796, in S.A.C.F.

¹³⁰ Newell, op. cit. pp. 22-23.

¹³¹ Republican Spy, July, 1806. Northampton, 1806. Hampshire Federalist, July 15, 1806.

Armory and town. The paymasters were usually chosen by direction of the politically powerful in the vicinity and therefore had affiliations with influential townspeople; one or two of the early superintendents succeeded in building up amicable relations between hill and valley; and certain of the early armorers proved by their sound sense and their interest in civic affairs, that the popular notion of the profession did not apply to all its followers. For example, Elisha Tobey, who was a charter employee, and whose mechanical trustworthiness made him inspector of the finished product of private armories contracting with the government, became prominent in civic business. In 1808 he was made fire warden, in 1812 deputy sheriff, and in 1817 one of the first officers of Hamden Lodge of Masons. Another armorer, John Kirkham, was a member of the first board of trustees of the Springfield Institution of Savings. Joseph Weatherhead, of a somewhat later generation of armorers, was influential in the establishment of the Springfield Cemetery Association. These and many others owned their homes and threw their whole weight toward the stabilizing of society.¹³² Indeed, a very considerable number of the armorers were men of distinction. Possessing, in a day when expert mechanical knowledge was uncommon, a thorough understanding of the whole art of gunsmithing, and of flintlock technique in the particular operations upon which they were engaged, they were versatile and proficient workmen. They looked upon their occupation as public service, and carried the ideals of household manufacture into the larger sphere of the Armory. Thus they were able to exercise an influence within their own group, and in the town at large, which greatly exceeded their mere numbers. Springfield folk recognized, as early as 1815 or 1820 that they had incorporated a vital body, which, whether for good or ill, was bound to work out its destiny in close conjunction with that of the town as a whole.

One expression of the armorers' unwillingness to remain outside the pale of active community life appeared in a vigorous attempt to obtain the franchise. Since most of them lived on the post, they were unable to vote, and were so advised in a decision of the State Supreme Court. Reluctant to abide by this, they pressed the representative of the district in Congress to obtain a revision of the law. On December 17, 1812, Congressman

¹³² Tobey, F.G.: "Old State Street," in Conn. Valley Hist. Soc. Paper and Proceedings, 1904-1907. v. 4, pp. 184-196. Springfield: Published by the Society, 1912.

Bacon introduced in the House of Representatives their petition praying that they be granted “such relief...as may appear proper.” The matter was referred to a select committee but nothing came of it. Nevertheless, the effort illustrates that attitude and the influence of the Armory leaders, even at that early day.¹³³ Within a few years the difficulty rectified itself thru the acquisition of property and the erection of homes by many of the workmen, outside the federal tract. Such individuals came under the jurisdiction of the town, and could vote, if properly qualified. That they did so is apparent in a number of instances, some of which set the townsfolk by the ears. In the early 1820s the residents of the village proper desired to purchase a new fire engine. The project was promptly voted down by citizens in the outer parts of the town, most of whom were armorers, who could not see any personal benefit to be derived from the proposed acquisition.¹³⁴

The statutory relations between the United States land and that of the Commonwealth of Massachusetts have always been thrust into the foreground of quarrels which have from time to time arisen betwixt Armory and town. Most of the debatable points have now been settled, but one of the early cases cut deeply into the states rights traditions of western New England. This matter involved the respective jurisdiction of the state and the federal governments on the Armory ground. Article I, Section 8, of the Constitution of the United States provides that “the Congress shall have Power.... To exercise exclusive legislation in all Cases whatsoever, over...all Places purchased by the Consent of the Legislature of the State in which the same shall be, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings;....” The act of Congress authorizing the purchase of ground in Springfield was specifically stated to direct “that for the safe keeping of the military stores, there shall be established...three or four arsenals with magazines...(and) that there shall be established, at each of the aforesaid arsenals, a national armory....” In a subsequent section of the act, separate appropriations were made for the arsenals and for the armories.¹³⁵ Now the watershops belonged to the Armory establishment, and could not possibly be constructed as part of

¹³³ Annals of the Congress of the United States, 12th Congress, 2d Session, pp. 413-414. Washington: Gales and Seaton, 1853.

¹³⁴ Newell, J.K.: op. cit. pp. 19-20.

¹³⁵ App. 2.

the Arsenal. Hence when Ethan A. Clary, occupant of one of the government houses at the watershops, sold without a license a pint of rum on the premises occupied by him, he was held by the Court of Common Pleas to have violated a law of the Commonwealth of Massachusetts which forbade the sale of intoxicants by unlicensed persons. This court indicted him in 1809, but Clary was a man of some consequences in the Armory community, and he fought the case.¹³⁶ Against him were ranged, first, the easily proved facts that he did sell a pint of rum and that he possessed no license therefore; second, the leading lawyer of the county at the time, George Bliss, as counsel for the prosecution; and third, the conviction of most members of the state courts that the federal government should be restricted whenever legally possible. Bliss argued that since an arsenal was a place for storing arms, and an armory a place for manufacturing arms, that Congress had no legislative jurisdiction over the latter, of which the watershops was an example. Clary's counsel, on the other hand, pointed out the broad interpretation of the constitution, for which John Marshall's decisions in the Supreme Court of the United States were setting a precedent during that decade. The matter was decided adversely to Clary in the inferior court, but was appealed to the Supreme Judicial Court of the Commonwealth. This body, after deliberating over a period of nearly a year, in the September term, 1811, rendered a decision favorable to Clary, on the ground that an Armory was included in the Constitutional clause "and other needful buildings," and further that the Armory was needful as part and parcel of the business raising and supporting an army, an obligation laid upon Congress by another paragraph of the same section of the Constitution. This is said to have been the first decision in the country on this point, and it established a precedent which had never been departed from.¹³⁷

RENEWAL OF THE INTERNAL STRUGGLE

While a modus vivendi was being worked out between the Armory and the community in which it was situated, the dispute between the superinendent and paymaster-storekeeper persisted, regardless of changes in the personnel of both offices, thus proving that the quarrel lay implicitly in the organization. With a year of Morgan's

¹³⁶ Overseer of the Upper Watershops. Payroll for May, 1809, in S.A.C.F.

¹³⁷ Commonwealth v. Ethan A. Clary, in 8 Mass. Rept., 72. Rice, John L.: Remarks at a meeting of the Connecticut Valley Historical Society, in op. cit. v. 4, pp. 230-233.

accession to the superintendency, Paymaster Williams was superseded by James Byers, government contractor and general storekeeper of Springfield.¹³⁸ He found the superintendent at odds with his predecessor over a rough shed which Ames claimed as having been built at personal expense. No sooner had Byers settle this dispute than he discovered evidence of gross mismanagement within the Armory.¹³⁹ Coal and iron were improperly cared for, iron which ought to have been used in fabrication was sold as scrap, and the Storekeeper found that he had no power to limit of direct purchases nor to supervise the case of stock intended for use in manufacture, altho compelled to make payments and returns therefor.¹⁴⁰ It was customary for the superintendent to make a quarterly return of all Arsenal matters, including those under the direction of the superintendent, to the Superintendent of Military Stores at the seat of government.¹⁴¹ Byers feared that the unbusinesslike practices of the Armory might be laid by Washington officials to his door, and he was not the man to sit idly by and permit his reputation to be smirched. It is not beyond belief to suppose that his vigorous denunciations had something to do with the “dismissal from office” of Capt. Morgan just two years after that gentleman’s assumption of it.¹⁴² At all events, Byers felt greatly relieved by the occurrence: “I flatter myself now Sir and sincerely for the advancement of the public interests of this place.”¹⁴³ That Morgan was not above suspicion appears from the fact that he had been using a government horse as his own, and that Byers felt it necessary to withhold travelling expenses that the ex-superintendent as security that the horse be turned over to federal authorities at Washington, that being Morgan’s destination.¹⁴⁴ The new superintendent was Benjamin Prescott, who came to Springfield from Northampton, and who occasioned less friction, if the advance of complaints may be taken as trustworthy evidence. Byers worked with him until his own death (Nov. 2, 1811), covering a period of extensive building operations which must have necessitated closest cooperation. Another suggestion of pacific relations appears from the marked

¹³⁸ Unofficial records give Oct. 1, 1803 as the date of Byer’s assumption of office, but he signed at least one official letter on Sept. 30 S.A.C.F.

¹³⁹ Byers to Sec. of War, Oct. 15, 1803, in S.A.C.F.

¹⁴⁰ Byers to Sec. of War, Mar. 17, 1806 in S.A.C.F.

¹⁴¹ Byers to Supt of Military Stores, Jan. 5, 1805 in S.A.C.F.

¹⁴² Oct. 31, 1805.

¹⁴³ Byers to Sec. of War, Nov. 8, 1805 in S.A.C.F.

¹⁴⁴ Byers to Sec. of War, Jan. 7, 1806 in S.A.C.F.

development of plant organization which occurred. Payrolls of 1802 picture a nondescript organization under the headship of the superintendent, directed in detail by two armorers who received equal salaries. (\$50.00 a month, only \$20.00 less than the superintendent himself), and about seventy men at an average wage of \$15.00 a month. Seven years later, altho salaries had not increased much, a hierarchy of control had grown up. Under the Superintendent ranked a single Master Armorer, who had an assistant, stationed very likely on the hill. Each of the water shops was directed by an Overseer or Superintendent, as he was variously called, and it may be inferred that the Master Armorer exercised general direction of all parts of the plant.¹⁴⁵ The organization thus outlined remained in force for many years – as long, indeed, as the civilian superintendency was retained.

Two years after Byer's death, Prescott was removed to make room for Henry Lechler (Sept. 4, 1813). This succession occurred during the War of 1812, and it may be taken to mark a new epoch in Armory history – the feverish period of wartime production and the subsequent serene and progressive regime of Col. Lee, which saw the completion of the lines of development thrown out in the first fifteen or twenty years of beginnings.

CHAPTER 5

WAR AND READJUSTMENT UNDER THE CIVIL SUPERINTENDENT

ACTIVITY ON THE EVE OF THE WAR OF 1812

The plant improvements were commenced in 1807 were continued until the outbreak of the War of 1812. In 1811 a road was laid out to serve as the main artery of communication between the shops and arsenal on the hill and the factories along Mill River. Striking the stream at a point just below the Upper Privilege, this road furnished a straight line of transit between that site and the hill, thus bringing it into articulation with the seat of administration.¹⁴⁶ This improvement was followed by the acquisition of a very considerable additional acreage of land adjoining the hill tract on the east.¹⁴⁷ That part of the training field which lies eastward of the land deeded to the United States in 1801 had fallen into the hands of the Trustees of the School Fund of the Town, and several parcels

¹⁴⁵ Payrolls of 1802 and ff., in S.A. File.

¹⁴⁶ Walnut Street. Green, Mason A.: Springfield, 1636-1886. Springfield: C.A. Nichols & Co., 1888. p. 357.

¹⁴⁷ App. 3.

had been bought by private citizens who had built homes facing the road which marked the eastern boundary of the Armory grounds. In 1812 a number of purchases were made in behalf of the United States, resulting in the extension of federal owned land to include the magazine tract. This was approximately the plot since called Federal Square. Existent buildings were for the time used by armorers as homes, and the vacant land became the repository of antiquated structures which had ceased to be of service on their original sites on Armory Square, but which were too good to be demolished. There the Ordnance Yard, the Blockhouse, the Old Red Stores, and perhaps other antiques found temporary locations. (Photograph of the Armory Grounds about 1820.)

A sudden check was given to the physical improvement of the plant by the declaration of war against England on June 18, 1812. It now became necessary to increase the production of muskets as rapidly as possible. Ever since 1807 the annual output had been mounting, but in 1811 (the maximum until 1817) it barely reached the twelve thousand mark. Furthermore, the possibility of immediate expansion was fraught with serious difficulties. The plant equipment was inelastic and the country's supply of skilled labor was little more than enough to care for the peace-time requirements. Moreover, Springfield shared with the rest of New England, a lack of sympathy with the war venture. Thus patriotic response to the national needs was discouraged. Nevertheless, one line of activity could be undertaken at once, viz., the repair of old arms in government hands which were worthless without the attention of expert gunsmiths. The effort to accomplish this object brought out once more the irreconcilability of the offices of superintendent and paymaster as then constituted.

THE INTERNAL CONFLICT AGAIN

On the very day war was declared, the Secretary of War wrote to the Paymaster advising the promptly institution of repair work on arms then in stored. Having no facilities for this work under his immediate direction Paymaster Chaffee naturally turned to the Superintendent of the Armory, but Prescott refused to participate in the work.¹⁴⁸ An appeal to the Secretary of War resulted in the issue of an order direct to Prescott, but matters dragged on into the following year without accomplishment – the waste of

¹⁴⁸ John Chaffee to Sec. of War, July 31, Sept. 19, Oct. 4, 1812 in S.A.C.F.

precious months in wartime.¹⁴⁹ In the meantime production of new arms was falling off, owing in part at least, to circumstances beyond the control of Armory officials, but emphasizing President's refusal to obey his superiors. When the spring campaign was about to begin, an inspector was sent to Springfield with authority to render a decision. This he couched in the form of an order to the Superintendent directing that he put all the men qualified to repairing the best arms in store.¹⁵⁰ Since the existing correspondence drops the matter at this juncture, it is to be presumed that the work was undertaken, but a call from Major General Dearborn and Lewis for 600,000 flintlocks revealed the lamentable fact that so many weapons were not on hand. Three hundred thousand were dispatched to Albany, leaving less than two hundred thousand, leaving less than two hundred thousand in store.¹⁵¹ A \$1500.00 loss of a coal house at the Upper Watershops in the following June hampered production still more¹⁵². Finally the Armory was subjected to a further investigation, which resulted in Prescott's dismissal in favor of Henry Lechler, a gunsmith of Pennsylvania German origin. Prescott was incensed at this time of affairs, and held a particular grudge against his successor.¹⁵³ It is easy to surmise that New England's unfriendliness to the war was reflected in Prescott's reluctance to undertake the rapid repair of arms, Lechler's appointment, moreover, seems clearly to have been dictated by political motives. He was the only civil superintendent from outside the New England the Armory ever had, but in 1813 Massachusetts had nothing to expect from the dominant group at Washington, whereas Pennsylvania was supporting the war. When he was at least reappointed he removed from the Armory records his share of the correspondence of his term in office. It seems incredible that his avowed reason for this theft, viz., to prevent the letter falling "into unclean hands" could have been his real one, and his letter promising their return could easily have been followed with the point of fulfillment, had he not had something to conceal by the retention of the correspondence.¹⁵⁴

Whatever the motives underlying Prescott's dismissal, the new superintendent

¹⁴⁹ Chaffee to Prescott, Jan. 23, 1813; to Sec. of War, Jan. 26, 1813 in S.A.C.F.

¹⁵⁰ Chaffee to Callender Irvine, Commissary General, Apr. 13, 1813 in S.A.C.F.

¹⁵¹ Ibid.

¹⁵² Chaffee to Irvine, June 24, 1813, in S.A.C.F.

¹⁵³ Greer, J.F. and Ingersoll, E.P. The Springfield Arsenal, 1776-1861. Writing about 1878: in S.A. Mass. Collection.

¹⁵⁴ Prescott to Rosewell Lee, July 12, 1815 in S.A.C.F.

took office in 1813 only to face perplexities and annoyances without number. The federal government's finances were swiftly ebbing, and the price of raw materials were rapidly advancing. Steel, in particular, could be had only with difficulty and at inflated prices, partly because England, the chief source of supply, had been out off and partly because British control of the seas reduced importation from elsewhere.¹⁵⁵ In October, 1813, a shipment was finally received from Boston, which included some German and some American steel, three thousand pounds in all. This consignment was made, however, only on condition that a return load be guaranteed the teamster.¹⁵⁶ It is said that on one occasion Lechler went himself to Boston and brought back his sleigh full of steel.¹⁵⁷ Quite apart from industrial difficulties, his semi-foreign demeanor and language displeased many of the people with whom he came in contact, some of whom, even among the workmen, manifested outspoken contempt for him. The Paymaster's clerk was looked upon by Lechler as a particular offender in this regard; the old friction points between the two superior officers seem judiciously to have been rubbed by this man, generally to Lechler's alarm and the disaffection among workmen who ranged themselves on Prescott's side was fanned to the point of disloyalty. Indeed, the Superintendent felt called upon to ask the Paymaster to discharge his subordinate, a fact which in itself once more exhibits the regrettable division of authority in the early Armory organization.¹⁵⁸ Under such burdens production failed to increase conspicuously and in the autumn of 1814 three workmen were transferred from the Harper's Ferry Armory to Springfield with instruction to inaugurate the business of rifle manufacture. The rifle had been experimented with at Harper's Ferry, but did not at this time come into permanent use by the Army.¹⁵⁹ The close of the war with the campaign of 1814 relieved the harassed superintendent of his immediate worries, but it also opened the door of dismissal from office, and in January of 1815 Prescott resumed his chair in the office of Superintendent, to retain it for three months, at the end of which period he returned to the supervision of his factory at Waterford, New York. Indeed, he had obtained the Armory superintendency because he wanted to supplant Lechler and to get possession of the

¹⁵⁵ Rockwell & Bros. to Chaffee, June 15, 1814 in S.A.C.F.

¹⁵⁶ Abram Gibson to Lechler, Oct. 25, 1813, in S.A.C.F.

¹⁵⁷ King's Handbook of Springfield.

¹⁵⁸ Lechler to Chaffee, Mar. 20, 1814, in S.A.C.F.

¹⁵⁹ James Monroe to H. Leighler (Lechler), Oct. 3, 1814 in S.A.C.F.

correspondence of his previous term. While seeking the reappointment he had informed his prospective chief that he would not be able to continue for “any length of time at the head” of the Armory, and after he got it he made frequent trips to Waterford to attend to his private interests there.¹⁶⁰ Naturally therefore, he found everything to criticize the condition of the works, much of it justified no doubt, in view of the harassing war and the virtual bankruptcy of the federal government.

“I find that the Muskets manufactured Since Sept 1813 (the date of Lechler’s appointment) have bin made principally from materials left on hand at that time only Six pattern muskets bin made wholly from new materials. Owing to neglect in repairing (illegible word) the Machinery at the different water works have bin much injured. Stock has not bin provided to keep up the difrent Branches of corse continual interference & delay has taken place. The irregularity with which the business has bin conducted has drove many of the best workmen form the Factory to seem imployment elsewhere but nothing Sir, is wanting but funds and a Competent Superintendent to manage the business to place this Establishment upon a resonsible & useful footing.....

The workmen suffer very much for there pay most of them have families to support being obliged to purchis provisions on credit have to pay and advanced price, that together with the discount they are obliged to make on York Money Wages were paid in New York exchange, which was then below par in the more stable financial wheel whose hub was Boston, make it extremely hard and discouraging. Unless they are relieved it will be impossible to go forward with the business. The necessary tools for making Rifles are nearly completed & the Manufacturing of them already commenced and will be urged as fast as possible.”¹⁶¹

The fashion in which this letter threw upon poor Lechler the responsibility for scarcity of material, pressure for time which precluded repairs and improvements to the plant, high prices, bankruptcy of the government, and war wages in private armories, needs no comment.

COL. LEE APPOINTED SUPERINTENDENT.

On of the Prescott’s periodic visits to his private Enterprise, he received notification of the appointment as his successor Roswell Lee, Lieutenant Colonel of the Twenty-third infantry, then stationed at Sackett’s Harbor, N.Y. He at once forwarded to Lee his blessings and a few words of sage advice, recommending before all “the propriety of letting things in the Armory remain according to my late arrangements until I

¹⁶⁰ Prescott to Sec. of War, Jan. 13, Feb. 4, 1815 in S.A.C.F. Cf. the often repeated story of his dramatic entry upon his renewed duties. King’s Handbook of Springfield.

¹⁶¹ Ibid. pp. 245-261.

can explain the subject to you,” and suggesting William P. Walcott, his clerk, and Adjonijah Foot, the acting master armorer, as confidential supporters.¹⁶² When, a month later, he did return to Springfield, he was disappointed to discover that Lee had not yet reported, being delayed by his inability to get money due him for the War Department for travel.¹⁶³ Instead of the hoped for conference, he left a letter which throws some light on the situation of the craft of which Lee was Lee was about to take the helm. “You will find Sir among the Armorers men of different views and interest with respect to officers of the Dept. in fact the men are divided into parties. Some wish A to be Master Armorer and some B, other are discontented because others occupy situation in the Works that they themselves wish for. In making the selection of Master Armorer, assistants inspectors, overseers etc. I consulted the public good & therefore to the best of my judgment endeavored to choose the men. I would therefore with great confidence Sir request you to pay but little attention to the complaints or suggestions of such as may wish to influence you in the organization of the works....having been instrumental in building up the Armory I feel a strong interest in the success of the Establishment & it will give me pleasure at any tome to communicate with you on the subject.”¹⁶⁴

The fact that the new superintendent, in his vigorous efforts to abolish abuses in the Armory, did retain the officers of Prescott’s appointing is the best of proofs that Prescott’s judgment of men was of the first order. It was not easy to withstand pressure to install others in their places. In fact, Lee had himself foreseen this at the time of his acceptance of the appointment. He conceived, as an avenue of escape from impending difficulties, the retention of his military rank. “I hope to retain my rank in the line of the Army, as it would greatly assist me in performing the duties of Superintendent, being enabled to hold in check any Officer who would probably be stationed at that post of the protection of the property in charge of. Sd. Superintendent. Heretofore difficulty has arisen on this account.”¹⁶⁵ A Connecticut man, Lee must have been somewhat familiar with the disputes which formerly had raged between the superintendents and the paymasters at Springfield, and the reference quoted may have touched this; it seems

¹⁶² Prescott to Lee, Apr. 24, 1815 in S.A.C.F.

¹⁶³ Lee to Senior Officer of the Ordnance Department, May 8, 1815, in S.A.C.F.

¹⁶⁴ Prescott to Lee, May 20, 1815, in S.A.C.F.

¹⁶⁵ Lee to Senior Officer of the Ordnance Department, May 8, 1815, in S.A.C.F.

probable, however, that he referred to line officers in charge of troops, many of whom had been on the post during the war. For a number of months his request received tacit admission, because, having been ordered to Springfield as a line officer of the United State Army, he received no other appointment in spite of the fact that his commission as Lieutenant Colonel of Infantry expired by limitation in June.¹⁶⁶ In July, while he was still serving without formal appointment, the military forces which had been guarding the plant were ordered away, and civilian guards were hired in their place.¹⁶⁷ This obviated the necessity for retaining military rank, and Lee immediately set about fixing his civil appointment, which was finally confirmed a month or two later.¹⁶⁸

The perplexing aspect of administration turned out to be presented, not by the soldiers stationed at the post, but by the workmen within the Armory, who, immediately upon Lee's arrival began importuning him on all sides. His own estimate of the difficulty of his position appears in the following burst: "The duties of my present station are far more arduous and difficult than the command of a regiment, even in times of war, but as I have begun in the past I am determined to persevere and do the best I can for the Establishment.... Much firmness, patience, discretion and judgment is necessary to overcome the prejudice and improper habits that have crept into the Armory; but from the experiments I have made there is reason to believe I shall succeed."¹⁶⁹ To begin with, there was undisguised unrest among the workmen because of the infrequency and uncertainty of pay. About July 1, 1815, they received three months back pay, in the Treasury notes of a government which could permit its employees' wages to fall into such gross arrears. The form of payment "cause some murmuring at first but finally went down very well...."; the receipt of pay in any form "seems to give new life to the works."¹⁷⁰ Well it might!

Much more difficulties to eradicate was the factionalism which Lee inherited from the strife between Prescott and Lechler. This contention crystallized about the person of Benjamin Moore, who had served his apprenticeship at Springfield, and had later held positions at the Harper's Ferry and Richmond (State of Virginia) armories. He

¹⁶⁶ Order to signed by Gen. Parker. See Lee to George Bomford, Aug. 6, 1815 in S.A.C.F.

¹⁶⁷ Lee to Bomford, July 11, 1815, in S.A.C.F.

¹⁶⁸ Lee to Bomford, Aug. 6, 1815, in S.A.C.F.

¹⁶⁹ Lee to Capt. John Morton of the Ordnance Office, Oct. 9, 1815.

¹⁷⁰ Lee to Col. Decius Wadsworth, Senior Officer of the Ordnance Dept., July 9, 1815, in S.A.C.F.

was directed on August 7, 1812, by the Secretary of War, to inspect contract arms at Springfield. In this engagement he fell afoul of Prescott, and was instrumental in procuring that officer's dismissal in favor of Lechler. Lechler rewarded him with the office of Master Armorer, a position which he promptly lost when Prescott was reappointed. He now besought Lee to restore him to the position of Master Armorer.¹⁷¹ Against such action Prescott presented an argument which took the form of a sweeping condemnation; alleging that "he... made a most wanton waster of Public property from sinister views," that he was not "qualified for the Station, being one of those Characters who appear to be busy but bring little to pass," that "his knowledge of gun work (was) very superficial," and that "he had bin the ostensible head of a faction part of the Armorers and part of Citizens..." However, Prescott indicted a number of other workmen as part and parcel of the same faction, Moore not even given credit as the principal.¹⁷² Lechler and Prescott seem to have drawn up proscription lists, the practical workings of which effected the utter disruption of discipline thruout the Armory. Already the place was becoming an institution of the commonwealth which could be tampered with only at the expense of inciting the inhabitants of the town to factional dispute, so that the whole community was waspish at the date of Lee's arrival.

LEE'S EARLY EFFORTS AT REFORM

It was the new Superintendent's business, to allay strife and to build up a harmonious personnel, without which the best equipment in world could not produce satisfactory guns. A start in the right direction was made with the appointment of Adonijah Foot as Master Armorer. For some years Foot had been in active touch with the fabrication processes, and he alone of the higher officials, got on well with both Prescott and Moore. His qualifications had made him Assistant, and then Acting Master Armorer, and when Lee recommended him for a permanent tenure he believed him to fulfill the principal qualifications for the office: "A Master Armorer should not only be a good mechanic but intelligent, inflexible, possessed of independence of mind, of reputable character and dignified department of strict integrity scrupulously faithful to the trust

¹⁷¹ Moore to Lee, June 7, 1815 in S.A.C.F. He was afterward for many years Master Armorer at Harper's Ferry Armory.

¹⁷² Prescott to Lee, July 2, 1815, in S.A.C.F.

imposed on him....”¹⁷³ Truly an ambitious goal, but one which many of the armorers nearly approached in the days before the factory system had succeeded in reducing all talents to the common level of quantity production. (It must be constantly borne in mind that the Springfield Armory was one of the earliest factories in the United States, and that it received a hand stamp of character all its own before machine production called into being industrial plants by the thousand, each like all the rest in its social structure and in its ideals.)

While Lee was thus oiling the troubled waters of this institution, he was clearly defining his position to the authorities at Washington. He had no notion of being served with the bitter dishes that had been thrust before more than one of his predecessors: “I do not expect nor wish to occupy and Post under Government of honor or profit only during good behaviour but I would not suggest the propriety...of investigating the conduct of important Officers may not have his interest and reputation unjustly sacrificed by the secret machination of a few wicked malicious and selfish individuals, on the Government deprived of the services of a faithful Servant. I have nothing to apprehend of this kind at present, but the same farce may be played that has made so frequently acted on this theatre and the principal Officer secretly supplanted, or as I may say, misrepresented to the Government. While I remain, should such a course be pursued, I only ask an opportunity to defend myself.”¹⁷⁴

With this view of his office and its dignity, the new superintendent commenced the unraveling of the snarl in which found the plant enmeshed. One of his first moves was to take account of stock. Finding several thousand muskets in store, he undertook to repair those which justified that attention, thus reversing the policy to which Prescott had clung thruout his incumbency.¹⁷⁵ One hundred and fifty men were put upon this task in July, 1815.¹⁷⁶ The rest Lee asked permission to sell; upon receiving the consent, he concluded a contract involving 16,000 stands of arms and more than \$100,000.00.¹⁷⁷ This wholesale clearance of the decks was followed up by periodic sales of obsolete arms, parts, and scrap, thus making way for efficient manufacture and storage of current

¹⁷³ Lee to Bomford, Aug. 2, 1815, in S.A.C.F.

¹⁷⁴ Lee to Bomford, Aug. 6, 1815, in S.A.C.F.

¹⁷⁵ In a letter of Feb. 4, 1815, Prescott gave the figure wanting repair as 5253.

¹⁷⁶ Lee to Bomford, Aug. 7, 1815 in S.A.C.F.

¹⁷⁷ Lee to Wadsworth, July 9, 1815 in S.A.C.F.

arms.¹⁷⁸ Incidentally the sales provided a fund which proved to be of great value in that time of financial stress.

It soon became clear that better work might be done if the physical equipment were brought up to date, and Lee at once began to urge improvements. An administration building thirty-four by forty-four feet and two stories high, to contain offices of the Superintendent, Paymaster, and Master Armorer, and a chapel for religious services, was conceived during the summer of 1815, altho not built until four years had passed. It has ever since remained the official headquarters of the Armory, and now, much remodeled, contains the main entrance and the principle offices of the new establishment. It was proposed at the same time to construct on the hill additional manufacturing buildings and a number of houses for the workmen, with the expectation that the plant would employ 450 hands and have a yearly output of 30,000 muskets. Additional water power for the heavier operations was to be provided by the acquisition of a site on Mill River “near one of our Water Shops where only an old saw mill is now standing.”¹⁷⁹ This purchase was allowed and in 1817 was consummated. Its chief value lay in making possible the raising of the Lower Watershops dam, but in the meantime the existing mill was used as a makeshift. For the moment, however, the whole scheme was sidetracked, a turn which in no way surprised Lee, for he was well aware that money could not be found for current expenses, owing chiefly to the reaction against expenditures for warfare consequent upon the close of hostilities with Britain.¹⁸⁰ (This is a phenomenon of politics in the United States. After each of our wars, it has been impossible, for a longer or shorter period, to get the public to look with sympathy upon Army expenses.) Nevertheless his formulation of a policy, and his insistence upon the fulfillment as the years, passed, had marked results in the slow and steady building up of the establishment.

The lack of money, both for the purchase of supplies, and for the payment of wages, loaded the superintendent with pressing difficulties. Upon assumption of office, he had begun the practice of setting up agencies in the several principal centers of supply,

¹⁷⁸ Lee to Bomford, June 22; October 12, 1815. Contract signed Oct. 12, 1815. S.A.C.F. Lee to Bomford, July 20, 1815; to Colonel Tobias Lear, Accountant of the War Department, s.d., in S.A.C.F.

¹⁷⁹ Lee to Bomford, Sept. 17; to Wadsworth Nov. 4, 1815 in S.A.C.F.

¹⁸⁰ Lee to Bomford, Oct. 12, 1815, in S.A.C.F.

for the purpose of making purchases and handling any Armory business.¹⁸¹ Purchases were also made outright, particularly in the case of iron, coal, and gunstocks. All these creditors began to exert pressure for payment, and as the debts remained unpaid, soon refused to furnish supplies except at exorbitant rates.¹⁸² It was estimated that arrearages for 1815 totaled \$70,000.00 a staggering sum for that day. This figure included back wages.¹⁸³ The case of the workman was pathetic. With seven months pay due, the authorities had adopted the scheme of giving them orders on the federal treasury, these to be redeemed upon the receipt by the paymaster of war warrants to cover the amount. So slight was the confidence in the solvency of the United States that men who reached the limit of their meager savings were compelled to sacrifice their orders at a discount of from six to twenty percent. In fact, so long overdue were the payments, that by January, 1816, the merchants refused to undertake further extension of credit, and the miserable workmen could no longer dispose of their orders at any sacrifice whatsoever. Since the system of distributing rations had been abandoned by Lechler, even that recourse of former days of stringency was closed.¹⁸⁴ In this crisis, many Armorers left the works to seek occupation elsewhere, but most of them, burdened with families, or possessing skill in but the one trade, a skill not called for elsewhere in the country, had recourse to a petition to the Washington authorities, which their superintendent forwarded with a vigorous letter of support.¹⁸⁵

The soreness induced by such unjust treatment only inflamed the festering wounds dealt during several years by internal dissension, and in the spring of 1816 Col. Lee found a serious revolt on this hands. Handling the workmen had been stiff mailing from the first, as evidenced by the superintendent's view of the separation of the plant into three groups of shops: 'The inconvenience...is nearly or quite balanced by some advantages. The risk of loss by fire is less – the health of the workmen is better - are less capable of forming strong combinations against Officers of Government placed here, as they seldom agree,....'¹⁸⁶ To complicate matters, the ancient strife between

¹⁸¹ Lee to Thomas Richards, New York, July 29, 1815, in S.A.C.F.

¹⁸² Peter Schoenberger, ironmonger, to Lee, June 17, 1815; also other S.A.C.F., passim.

¹⁸³ Lee to Bomford, Jan. 25, 1816, in S.A.C.F.

¹⁸⁴ James Byers Jr. to Lechler, Oct. 11, 1813, in S.A.C.F.

¹⁸⁵ Lee to Bomford, Jan. 25, 1816 in S.A.C.F.

¹⁸⁶ Lee to Bomford, Sept. 16, 1815, in S.A.C.F.

Superintendent and Paymaster had broken out afresh, once again over the question of purchases. Lee felt that the works could not be carried on without interruption so long as the purchasing right remained in the hands of the Paymaster, and he even went so far as to request Prescott to use his influence to ‘effect a change in the Pay Office.’¹⁸⁷ The crisis of the whole disturbing situation came with the promulgation by the superintendent of a series of regulations for the government of Armory employees.

Being a man of deeply devout instincts and of the most Puritanic moral code, Lee was hurt and incensed by many current practices within the Armory. The slipshod method of handling tools and raw materials annoyed him, and the custom of carrying alcoholic liquors into the shops, and the betting, treating, and rough playing which the workmen regularly indulged in, outraged him. He determined to put a stop to evils which he saw lay of the root discipline and efficient workmanship. The decision took the form of the dismissal of two employees who were found engaged in wrestling. The story goes that custom demanded that these men, prior to leaving, should treat the crowd; the drinking commonly occurred about the flagstaff, or the liberty pole. Someone suggested that a liberty pole was out of place if their liberty to wrestle was to be abridged, and nothing would do but to cut it down. Before this could be done Lee directed Walcott, his clerk, to order the men to return to work. This they refused to do, and it required all the force of authority which could be mustered by both the master armorer and the superintendent himself to save the pole.¹⁸⁸ Lee was covered with chagrin because the superintendent of the rival National Armory, that at Harper’s Ferry, was in his office at the time, and witnessed the whole undignified affair. His state of mind crystallized his determination to root out the objectionable practices, and he forthwith discharged eleven more workmen, some of them occupying positions of trust.¹⁸⁹ Then he posted a series of strict regulations for the future government of the Armory, three copies of which are extant among the Armory papers. An undated copy, apparently a rough draft which was never published, shows clearly that the chief purpose of its author was the systematization of the methods of handling and recording the movements of stock, and that abridgements of shop customs were calculated solely to improve the quantity of the

¹⁸⁷ Lee to Bomford, June 22, 1815, in S.A.C.F. Prescott to Lee, Jan. 29, 1816 in S.A.C.F.

¹⁸⁸ Green, *op. cit.* p. 358.

¹⁸⁹ Lee to Eli Whitney, Mar. 8, 1816 in S.A.C.F.

output.

Most of the instructions for making returns on stock were omitted from the copies which were published, perhaps because it was felt that they could be more effectively transmitted to the foremen as special orders. In the remaining edict spirits of all kinds were forbidden within the shops, fighting and even ball-playing were proscribed, and indecent and unnecessary noise was prohibited. Disobedience of officers was made a particular offense, and the whole was harsh and unyielding in tone.¹⁹⁰

Two months after the publication of these regulations, matters had so quieted down that Lee could assure his chief that “the difficulties...have entirely subsided and every workmen is quiet and apparently satisfied....& I feel no apprehension of serious difficulties in future.”¹⁹¹ This state of affairs had been brought about by the influence of the saner workmen, and the economic pressure which Lee was able to exert. As premier armorer of the country, he easily arranged with “all the Masters and Manufacturers to the South (of Springfield,) not to employ each other’s workmen without a recommendation from the person who last employed them.”¹⁹² Since a job in an armory was considered highly desirable and Lee had “an opinion of employing a great number of workmen, more than I want at this place,” a country-wide interarmory agreement of the sort outlined was an effectual threat with which to enforce discipline.¹⁹³

On the basis of these victories, Lee dictated a conqueror’s peace. Regulations followed which fixed office hours at from eight to twelve and two to six, and shop hours at from seven to twelve and from one to six.¹⁹⁴ Two workmen who were absent more than the permitted period were sharply disciplined.¹⁹⁵ Neighbors who permitted their animals to graze on the unfenced public ground were directed in no uncertain terms to see that the practice was stopped.¹⁹⁶ The wife of Moore, ex-master armorer, was firmly requested to remove from the government’s owned house which she had continued to occupy after her husband’s departure from Springfield.¹⁹⁷ The custom of charging

¹⁹⁰ Armory Regulations, Mar. 8, 1816 and an undated copy of a few days earlier, in S.A.C.F.

¹⁹¹ Lee to Wadsworth, May 8, 1816, in S.A.C.F.

¹⁹² Lee to Wadsworth, Apr. 13, 1816 in S.A.C.F.

¹⁹³ Lee to Lieut. Bangs, in charge of Ordnance at Vergennes Arsenal, Vt., May 11, 1816 in S.A.C.F.

¹⁹⁴ Regulation, May 16, 1816, in S.A.C.F. Lee to Bangs, May 24, 1816 in S.A.C.F.

¹⁹⁵ Lee to Capt. Lewis Foster, Overseer of the Lower Water Shops, Oct. 10, 1816, in S.A.C.F.

¹⁹⁶ Lee to Elam Chaffee, June 15, 1816, in S.A.C.F.

¹⁹⁷ Lee to Mrs. Benjamin Moore, June 5, 1816, in S.A.C.F.

workmen occupying houses on the public ground with reasonable rentals “at least sufficient to keep the building in repair,” was established with the War Department.

¹⁹⁸Obtaining homes rent free seems to have become of one pleasant practices of official Armory life; it was one which Lee determined to sweep away.¹⁹⁹

At the same time, he realized that all efforts would be but superficial in their effects if the fundamental principle of a just and equitable wage were not established. In the course of years, fluctuations in press of work, in value of United States currency, and in quality of superintendent had fostered a number of evils in this connection. Since Ames’s time no contract had been required of the workmen; the common practice was to combine labor in the government shops with the running of a small farm or with work in a store; neglect to readjust prices made in possible, before fixed hours were established, for a good workman to do his stint in a few hours or a few days a month, for which he received his usual wage; this easy-going procedure set a premium on the place of a workman, so that outsiders were in the habit of bidding for the armorer’s “chance,” as much as \$300.00 being recorded for a single transfer of this particular vested interest.²⁰⁰ With a clean sweep of victories in small matters, Lee set about the adoption of a fixed and proper wage scale. In initiating so radical a change he felt the need of backing from his superiors at Washington, and he proposed a very moderate cut. “Wages may be reduced one-sixth at least. There would be no danger of losing our workmen or difficulty of obtaining more than are wanted if they are put down one-fourth; but I think it best to give a fair liberal price for our work.”²⁰¹ In November he forwarded to Washington model forms providing for a contract obligation to be entered upon severally between the workmen and the superintendent; the workmen to agree to accept such wages as might be fixed from time to time and to abide by the regulations of the Armory; annulment of contract to require sixty days notice by either party. A wage-scale was enclosed providing the cuts already suggested, with some modifications which had been worked out in conference with the Paymaster at the direction of the Ordnance Office.²⁰² In a regulation shortly afterward issued, the hours during which the shops remained open

¹⁹⁸ Lee to Bomford, July 24; to Lear, Aug. 15, 1816; S.A.C.F.

¹⁹⁹ Regulation, Oct. 10, 1816 in S.A.C.F.

²⁰⁰ Lee to Bomford, Aug. 11, 1816, in S.A.C.F. Greer and Ingersoll, op. cit.

²⁰¹ Lee to Bomford, Aug. 11, 1816, in S.A.C.F.

²⁰² Lee to Bomford, Nov. 2, 16, 1816, in S.A.C.F. Chaffee to Lee, Oct. 4, 1816, in S.A.C.F.

were specified as 6 a.m. to 8:30 p.m. on Mondays, Tuesdays, Thursdays, and Fridays. It may be assumed that this concession was made to permit the men who possessed small properties to arrange their shop work so as to take care of a certain amount of outside matters.²⁰³ By these changes the old abuses were reduced, altho the clean sweep which Lee had hoped to make was delayed a quarter of a century – until the advent of the military superintendency in 1841.

LEE'S POLITICAL ACTIVITIES

While thus displaying the utmost energy in correcting evils which had crept into the establishment, Lee was not blind to the inferior position to which his own niggardly salary and the financial whip of the Paymaster reduced him. In characteristic fashion he set about improving his condition. Joining forces with the superintendent of the Harper's Ferry Armory, James Stubblefield, he petitioned Congress thru the Ordnance Department for an increase of salary.²⁰⁴ He hit precisely upon the real drawback of governmental service in his day: "Shall a man capable of better business drag out a few miserable years of anxiety and perplexity for the public benefit and finally be dismissed or die bankrupt and his family in a state of penury and wretchedness. I do not ask nor expect a salary that will make me rich, but a compensation that will support me in a manner becoming my station, not in the luxuries but the necessaries of life."²⁰⁵ He urged his claim upon the representatives of the district in Congress, with the happy result of raising the pay and emoluments of his office to the equivalent of \$1500.00 per annum.²⁰⁶ This was an important tactical victory in the perennial struggle between Superintendent and Paymaster, for the latter thenceforth received \$300.00 a year less than the former, thus becoming implicitly the subordinate officer. But Lee did not allow the matter to rest at that point. He had already begun negotiations, in which he had interested Superintendent Stubblefield, looking toward a private venture in arms manufacture, and now he took good care to let this project be advertised to the officials in Washington.²⁰⁷ He seized

²⁰³ Regulation, Dec. 16, 1816 in S.A.C.F.

²⁰⁴ Stubblefield to Lee, Nov. 22, 1815 in S.A.C.F.

²⁰⁵ Lee to Stubblefield, Nov. 4, 1815 in S.A.C.F.

²⁰⁶ Lee to James Bargour (senator) and to Samuel W. Dana (representative), Apr. 15, 1816 in S.A.C.F. Lee to Whitney, May 8, 1816, in S.A.C.F.

²⁰⁷ Stubblefield to Lee, May 4; Sept. 28 1816; S.A.C.F.

upon every occasion to declare his views of the proper relation between Superintendent and Paymaster. "...if you wish to avoid the difficulties that have agitated this Establishment for many years, permit me to say you will not require the Superintendent to account to the Pay Master who is considered a subordinate officer..."²⁰⁸ Indeed, so skillful was his playing upon the fears of his superiors that the Colonel of Ordnance frankly swung into this orbit; "I am Sorry that you entertain any Thoughts about quitting the Armory at Springfield. Some additional Regulations will probably be adopted calculated to place the Store Keepers in a State of greater Subordination to the Superintendents...I shall be glad to be favored with your own Ideas of which is necessary to be done to place your Establishment on a proper Footing..." He proved as good as his word, for before the end of the month he had transmitted to Lee copies of new regulations which put the Armory under the full charge of the superintendent, and permitted no expenditures not approved of by him.²⁰⁹

This victory settled for all time the subordination of the Paymaster to the Superintendent, and came as the response to increasingly important duties and responsibilities of the officer in charge of production. Since 1816 manufacture of arms has never ceased to be the chief interest of the Springfield institution, and the handling of stores has invariably fallen to a subordinate command. Nevertheless, Lee did not relax his vigilance in preventing a reversal of his success. Nearly a year later he was urging an increase in the pay of the master armorer, and at the same time discouraging an increase for the paymaster: "After the first (superintendent) the Master Armorer is by far the most important office in the Establishment.... The paymaster's) duties are considerably diminished by reason of the purchasing of materials for the Armory being taken from him and added to the duties of the Superintendent. The PayRoll of the workmen and all accounts are made out at the office of the Supt."²¹⁰ The following year, while laboring under the impression that a revision of regulations was impending, Lee acknowledged anxiety that it "be clearly understood who is at the head and has the chief management of the Establishment..."²¹¹

²⁰⁸ Lee to Bomford, July 24, 1816, in S.A.C.F.

²⁰⁹ Ordnance Office Regulations under cover letter of Nov. 19, 1816, in S.A.C.F.

²¹⁰ Lee to Sec. of War and to Senior Officer of the Ordnance Dept., Oct. 17, 1871; S.A.C.F.

²¹¹ Lee to Morton, May 20, 1818 in S.A.C.F.

The man's political sagacity, as evidenced by the skill and dispatch with which he accomplished the subordination of his rival officer, was given perpetual practice in coping with the incessant flow of schemes with which the Armory, like any other public undertaking, was inundated. Fields into which his adroitness was continuously needed were those of his relation with the Harper's Ferry establishment, with the private contractors for arms, with inventors of patents for improvements in gunsmithing, and with the line of the Army.

He persistently fostered cooperation with the rival National Armory. The salary increase, which he worked out with the superintendent of that place, had already been noted. He went much further – exchanged regulations and prices on piecework, discussed production capacity, worked out instructions for the inspectors of contract arms, procured in quantity raw materials in cases where location favored combined purchases, (e.g., walnut timber from the hardwood forests of the Potomac were exchanged for grindstones from Nova Scotia) carried on experiments in plant improvement which, if successful, were adopted by both armories, and arranged an interchanges of workmen and of personal visits.²¹² But he did not scruple to point out the inferiority of the rival plant to his own: “This place with the additions I propose will not contain as much shop room as the works at the Ferry & you will find the arms made at the latter cost considerably more than those made at the former, and your own judgment will decide at which place the Arms have the preference in point of workmanship, and which is the most eligible stand for a GRAND NATIONAL ARMORY.”²¹³ Following upon this statement, it can cause no surprise to learn he was bitter in his hostility to the frequently revived project of an additional armory in the west. Rumors of immediate undertaking of this business spread abroad toward the end of 1816, whereat Lee pertinently inquired of his chief if it would not be wisdom to establish the old armories on a respectable footing before inaugurating a competitor beyond the mountains, “lest the new Armory swallow up all that is necessary and proper for the old ones.”²¹⁴ Wadsworth cited in reply the generous appropriation of Congress for the year 1816 as evidence that the old armories would not

²¹² Correspondence of the years 1815-1820, passim; S.A.C.F.

²¹³ Lee to Wadsworth, Dec. 24, 1816, Cf. Lee to the Hon E.H. Mills, Dec. 26, 1818, in which he goes over the whole ground once more. S.A.C.F.

²¹⁴ Ibid.

be neglected, but added that a new establishment would likely be made “on Account of the extreme difficulty of obtaining good Arms by Contract and the Expense of Transportation over the Mountains.”²¹⁵ The soundness of this view appears clearly when set in its context of the Ordnance Office policy with reference to supplying the Army with weapons. “In making permanent arrangements for the defense of the country the principle difficulty and delay will be in providing firearms for the Infantry. The national armories are capable at present of furnishing but 20 to 25 thousand stands of arms annually, and admitting another establishment in the western country as has already been proposed we can calculate over 30 thousand stands annually, which if the militia are to be armed from the national Arsenals seems not to be adequate to the great and increasing demand.

In time of peace arms may be obtained from foreign countries on lower terms than they can be fabricated here, but as that source would be precarious or totally cut off in time of war it would not be sound policy to remain dependent upon foreign supplies in articles so intimately connected with the security and independence of the nation....”²¹⁶ Here then, is the reason for public fabrication of arms by the United States and for the letting of contracts to private manufacturers. The two methods were part and parcel of the same scheme for potential expansion of output in wartime. Lee, however, saw only the fact that he was being compelled to share the government patronage with persons who were turning out inferior arms to those produced at Springfield, and as a greater cost to the government. He was, therefore, vigorously opposed to the whole system of contracting for arms. Nevertheless, he was too shrewd a politician not to observe that contracts were plums which fell to the politically righteous, and his own intimate association with his lifelong friend Eli Whitney, who was one of the principal contractors, kept him in touch with a practice which he could not hope to break down, but which he might be able to bend his own will.

It had from some years been the custom for the National Armories to provide for the inspection and proving of contract arms. Usually, altho not always, this inspection occurred at the place of manufacture.²¹⁷ Upon application, the superintendent of the

²¹⁵ Wadsworth to Lee, Jan. 4, 1817, in S.A.C.F.

²¹⁶ Report of the Colonel of Ordnance to the Sec. of War. Copy to Lee dated Jan. 27, 1816, in S.A.C.F.

²¹⁷ Wadsworth to Lee, Dec. 3, 1816; Morton to Lee, Aug. 19, 1816, in S.A.C.F.

armory would send out, for the necessary period, one of his assistant armorers, a man with thoro knowledge of the theory and practice of gunsmithing, and in touch with the operations at the National Armories.²¹⁸ The arrangement made for standardization of product, particularly since the Armory furnished two model guns to each of the contractors, to serve as patterns. By the adoption of a common set of regulations governing the inspections, still further strides were taken in this direction.²¹⁹ Despite these improvements, Lee was dissatisfied with the results of contract manufacture: “I recently visited some of the private establishments. I find so much difficulty in getting the contractors to make such arms as are required that if convenient with your views, so far as I have any responsibility I really wish to be released..... If the work is condemned, the alleged blame is on me – if the arms are not made agreeable to contract & comfortable to the pattern, the public interest suffers, & I am suspicious the result will be not only injurious to ultimately to the reputation of the Establishment....Where only one part of the musket is made on the contract and brought here for inspection, I find no inconvenience. The defects may readily be discovered and the proper remedy applied.... Let all the Arms be completed at the National Armories. In this way the Arms will come cheaper and of much better workmanship....”²²⁰ A year earlier Lee had already experimented with this practice by himself sending partially finished rifles to Harper’s Ferry for completion. (The workmen at the latter place had developed a skill in the fabrication of rifled arms which the Springfield men found difficult to acquire.) The scheme had proved practical and the principle had been applied to by contracting five thousand barrels, bayonets, and ramrods to be sent to Springfield for assembly.²²¹ It was a natural and short step, therefore, which Lee thus proposed, but the political cards were stacked against him, and some of the more important private manufactures continued for years to obtain contracts for muskets complete.

Thruout this period the officials of ordnance were relatively free to act as they saw fit, because the impetus of war had led to the establishment of the Ordnance Department on May 14, 1812, which was continued by the acts of February 8, 1815 and

²¹⁸ Ibid.

²¹⁹ Morton to Lee, Mar. 11, 1818, in S.A.C.F.

²²⁰ Lee to Bomford, Feb. 20, 1818, in S.A.C.F.

²²¹ Wadsworth to Lee, Mar. 15, 1817; contractor’s proposals; in S.A.C.F.

April 24, 1816. This organization, under a Colonel of Ordnance (Decius Wadsworth), was able effectively to coordinate the several activities of ordnance, and to make continued advanced in several lines.²²² Where a proposal promised well, judicious experimentation was indulged in to test out its practical utility, as for instance the trial of centralized purchasing by the Ordnance Office for both Armories. This scheme, proving unsatisfactory as regards both raw materials and tools, was abandoned.²²³

In other connections, the separate organization of the Ordnance Department permitted its officers a valuable independence of action. This finds illustration in its relations with the line of the Army. The supply departments, being relatively new, were not much relished by line officers, and they took occasion to make requisitions directly upon the Armories, thus violating regulations which had been adopted expressly to permit Washington authorities to know at all times the state of the store on hand. An instance of this came under the attention of the Colonel of Ordnance, who promptly gave orders intended to make it “fully understood that the officers of the army have nothing to do with the Business of the national Armories.”²²⁴ Lee, himself, had been completely converted to the civilian viewpoint as regarded control of the Armory, and was delighted with this summary action. He even went so far as to urge complete physical detachment between Armory and line activities of the War Department. In the spring of 1819, hearing rumors of a plan to station troops at Springfield, he set forth the inadequacy of quarters available, and voiced his opinion “that the Armory may be filled as well managed in time of peace, without a Military force stationed here, as with.”²²⁵ He was reassured that nothing more than a recruiting rendezvous was contemplated, and since a few men had been more or less regularly at Springfield on that errand, he interposed no further objections. Thus left to themselves, ordnance activities, both in the national headquarters at Washington and at Springfield, were being adjusted to conditions. In 1821, however, Congress, in one of its periodic fits of economy, abolished the Ordnance Department, merging its functions with those of the Artillery.²²⁶ The results were less adverse than

²²² Stat. at Large, v.2, chs. 83 and 49; v.3, chs. 38 and 70.

²²³ Wadsworth to Lee, Jan. 4, 1817, Nov. 10, 1817, Feb. 20, 1819, in S.A.C.F.

²²⁴ Wadsworth to Lee, Mar. 3, 1819. Requisition and Receipt for certain articles, dated July 10, 1818, in S.A.C.F.

²²⁵ Lee to Wadsworth, Mar. 25, 1819, in S.A.C.F.

²²⁶ Stat. at Large, v. 3, ch. 13.

might have been expected, because artillery officers on ordnance duty were subject directly thru their own hierarchy to the Secretary of War, and because the personnel remained unchanged.²²⁷ Nevertheless, the plan worked poorly, and in 1832 the Department was reestablished on the basis of 1815.²²⁸

CONDITION OF THE ARMORY, AS REORGANIZED

A forecast of this period of adversity appeared in the late summer of 1817, when, after repeated protestations of the Chief of Ordnance that the allotment to Springfield from that year's ordnance appropriation was ample, Lee was suddenly directed to retrench, by reducing either wages or number of workmen.²²⁹ In succeeding years the appropriations were so divided that Springfield normally obtained 175,000,000 annually.²³⁰ Persistent efforts on the part of the superintendent failed to improve the situation, and during the winter of 1817-1818 forty men were laid off.²³¹ On July 8, 1818, practically all the skilled workmen in the plant were limited to an earning capacity of forty dollars a month.²³² Finally, in the late winter of 1820, Lee journeyed to Washington to feel out the authorities there. He learned that the contemplated wage cut was calculated to adjust prices to "the great Reduction which has already taken place in the necessaries of life occasioned by a diminution of the circulating medium."²³³

Incidentally he called on Johnson and Clay, among others, in the matter of the western armory project, and came away satisfied that a bright future for Springfield was assured.²³⁴ Shortly after Lee's return to Springfield he published a reduction in wages which amounted to about eight percent.²³⁵ A year later the Ordnance Office dictated a further reduction on grounds of "the cheapness of Subsistence & the reduced price of labor generally, throughout the county...."²³⁶ This time the cut amounted to twelve

²²⁷ Lee to Lemuel Pomeroy, contractor for government arms, Apr. 14, 1821, in S.A.C.F.

²²⁸ Stat. at Large, v. 4, ch. 67.

²²⁹ Wadsworth to Lee, Mar. 7 and 15, 1817, in S.A.C.F. Bomford to Lee, Aug. 15, 1817, in S.A.C.F.

²³⁰ S.A.C.F., passim.

²³¹ Lee to Isaac Newell, Apr. 23, 1818, in S.A.C.F.

²³² Armory Regulations of July 8, 1818, in S.A.C.F.

²³³ Wadsworth to Lee, Mar. 7, 1860, in S.A.C.F.

²³⁴ Lee to Adonijah Foot, Feb. 20, 1820, in S.A.C.F.

²³⁵ Lee to Capt. Jacob Perkins, Assistant Master Armorer, Apr. 8, 1820, in S.A.C.F.

²³⁶ Bomford to Lee, May 28, 1821. in S.A.C.F.

percent for day labor and fifteen percent in the case of other workmen.²³⁷ For the moment the resultant reduction in the cost of the musket had a favorable political effect. The Secretary of War had inspected the Armory during the year and had reported that “nothing could be finer” than the management and appearance of the plant.²³⁸ But the effort to force wages down to the general level prevailing throughout the country induced threatening economic disturbance. Competition for skilled mechanics just then being offered by the infant cotton industry of New England raised fears in Lee’s mind of losing some of his most valuable workmen, unless he might obtain permission to raise their wages.²³⁹ This agitation was renewed in the autumn of 1824, when Lee pointed out the immediate necessity of raising certain specified workmen in order to prevent their leaving for cotton factories. These men were leaders of their profession, being the assistant master armorers, the browners, the forgermen and the machinists, and their loss would place the Armory in an awkward predicament. The increases asked were trifling, and after three months they were approved by the War Department.²⁴⁰ Thus began, in southern New England, the scramble for skilled labor which threw the Springfield Armory into a competition which has ever since determined that economic necessity, rather than political expediency, shall dictate the major terms on which production must go forward. The Armory at Springfield was now taking its position as a leading institution among governmental agencies and in the expanding industrial field. Lee was, moreover, generally recognized as the chief source of improvements. Every few months witnessed a new stride in the direction of systematization and standardization of both product and methods of production. Recent inventions had greatly advanced both speed and quality of putput, and these improvements were disseminated to other armories, both public and private, by the practice of a quarterly exchange of muskets between the two national establishments, and by the collection and comparison at stated intervals of samples from each plant making government arms and by the adoption of uniform and detailed rules for the inspection of contract arms.²⁴¹ Efforts to stamp out undesirable

²³⁷ Lee to Stubblefield, Aug. 11, 1821, in S.A.C.F.

²³⁸ M. Roberdeau of the Secretary’s suite to Lee, Sept. 21, 1820; Morton to Lee, Oct. 9, 1820, in S.A.C.F.

²³⁹ Lee to Bomford, Feb. 18, 1822, in S.A.C.F.

²⁴⁰ Lee to Bomford, Oct. 26, 1824; Bomford to Lee, Jan. 28, 1825, in S.A.C.F.

²⁴¹ Bomford to Lee, Aug. 27, 1821, in S.A.C.F. Bomford to Lee, Sept. 18, 1821; Bomford to Foot, Aug. 25, 1823, in S.A.C.F.

practices within the Armory were redoubled; the business among the workmen of selling their privileges in the plant was again prohibited, thus showing that a position in the works was still considered a good thing, reductions in pay notwithstanding; transactions on the public ground which could be contrary to law if occurring on state soil, were forbidden; detailed regulations for the watch and for the driver of the public horses were issued; and even the temperature of the shops was prescribed.²⁴² From time to time these regulations were modified or elaborated, and it became the invariable practice to issue only written instructions, copies of which were filed for reference within the covers of a single book. Any neglect of duty was sharply called to account, and if the occasion justified, remissness was punished with summary dismissal.²⁴³ In 1828 the Ordnance Office transmitted a statement of pay and emoluments for the several official positions at the Armories. This presumably meant no marked changes, but only increased standardization of practice.²⁴⁴

The beginnings of machine production numerous and interminable disputes over patents and royalties. Certain of these concerned the Armory itself, others merely the general progress of gunsmithing. Even the latter sort of quarrel occasionally filtered into the Armory circle in some fashion. One such case possesses certain interest in its implicit recognition of the preeminence of the Springfield plant and its superintendent in the arms-making world. A patent litigation over a machine for turning irregular forms came up for decision to the Secretary of State. He appointed Lee arbitrator, and the decision was never questioned, once it had been rendered.²⁴⁵ Another case is the first of a whole series of disputes which annoyed and threatened the fortunes of one head of the Armory after another. The question involved the right of (a) the National Armories to the use of improvements which – in some case worked out independently within the plant – could be interpreted as infringements of lawful patents, and (b) the relation of the superintendents infringements within the Armory. It took the form of a suit over an

²⁴² Armory Regulations, Mar. 18, 1823, in S.A.C.F. Bomford to Lee, Apr. 18, 1823, in S.A.C.F. Armory Regulations, Dec. 1825, and Jan. 1826, in S.A.C.F. 58-60 degrees. Armory Regulations, Jan. 28, 1826, in S.A.C.F.

²⁴³ Lee to Foster, May 20, 1830, in S.A.C.F.

²⁴⁴ Dated July, 1828. Quoted in full in App. 7.

²⁴⁵ Thomas Blanchard and Asa Kinney, both of Millbury, Mass. Lee to William Thornton, Supt of the Patent Office, June 14; Kinney to Lee, June 27; Blanchard to Lee, July 3; Thornton to Lee, Aug. 27, 1819; in S.A.C.F.

alleged infringement of a patented screw auger for boring barrels, the action being brought against the person of Roswell Lee, because of the Constitutional inhibition upon suing the United States. The plaintiff had been an employee of the National Armory under the superintendency of Ames, but delayed patenting his invention until twenty years after it had come independently into use at several different places. The Ordnance Office arranged to reimburse Lee for expenses legitimately incurred in fighting the action, which dragged on for fourteen months. It was then decided in favor of the defendant, but at considerable expense to both sides, and the government was forced to forego the costs due, on account of the poverty of the plaintiff, whom Lee characterized as “an honest man, but....poor and ...very much deceived relative to the merits of his claim....”²⁴⁶ Both principals came to look upon the whole business as vexations, and to regret the undertaking. The plaintiff complained of inequity in the proceedings: “The facility which you (Lee) can get evidence throughout the United States gives you a decided advantage.... I find that the road to Justice through the US court is a dear turnpike & that you can pass free have so much the advantage of the individual who has to pay toll that I would relinquish my right in the machine for much less sum that I really think they (the U.S.) had been benefited....”²⁴⁷ Lee, on his part, set forth with his usual clarity the principles which the case involved – principles which demanded, though they did not receive, prompt definition: “I think several important principles are involved in the decision of this cause. One is whether a person is liable as a private individual as acting as an officer under the Government of the United States. Another principle is, whether a man or number of men for every improvement made in the ordinary course of business when in the employ of the United States are entitled to patents & compensation from the Government when those improvements are made with stock and Materials & at the expense of the United States. If this principle is supported by the court, Patents may be taken out and claims made on the Government, almost every day by the workmen.”²⁴⁸ It time it came to be recognized that any workman who made an improvement on United States time could be given a patent without charge, which would protect him against

²⁴⁶ Lee to Bomford, Oct. 21, 1822, in S.A.C.F.

²⁴⁷ William Holmes to Lee, Aug. 20, 1882, in S.A.C.F.

²⁴⁸ Lee to Bomford, Feb. 20, 1882. Cf. Lee to Bomford, Aug. 11, 1821; Jan. 12, 1822; Bomford to Lee, Jan. 31, 1822 in S.A.C.F.

infringement by private concerns, but the federal government has unlimited right to the improvement without payment of royalties.

CONTRAST BETWEEN SPRINGFIELD AND HARPER'S FERRY

While the armory at Springfield was thus on the up grade to success and prosperity, the master hand, mind, and temper of its superintendent were needed elsewhere. On March 3, 1823, Congress passed, after twenty years of discussion, an act to establish "a national armory on the western waters," and appropriated five thousand dollars to send a suitable committee to select a site.²⁴⁹ The Ordnance Office immediately recommended Lee to serve on this committee.²⁵⁰ Upon leaving for his tour of inspection, Lee directed his trusted Master Armorer, Adonijah Foot, to assume the duties of acting superintendent, thereby establishing a custom which became fixed so long as the civil superintendency was retained.²⁵¹ The new Armory was not established, but the matter bubbled up thru public consciousness for years and at one time Lee feared he would be sent to initiate operations in the new plant, a prospect which he did not relish, in spite of the fact that it promised increased income.²⁵²

A much longer and more distasteful absence was made necessary by conditions at the Harper's Ferry Armory in 1825. In November of that year Lee received a letter from his chief proposing that the superintendents of the two existing National Armories exchange positions. His own administration of the Springfield plant was lauded and the suggestion was made that the Harper's Ferry Armory would benefit from the change. Incidentally the opportunity of being close to Washington during the approaching discussion of the bill for a western armory, was presented as bait.²⁵³ The shadowy passages of the epistle were illuminated by Capt. William Wade, then assistant to the chief ordnance officer, who became a lifelong friend of Lee's at about this time. (He was a member of the committee to select a site for the western armory. A few years later he resigned from the Army and set up in Pittsburgh a manufacturer of steam engines.) In a communication labeled "Private" he baldly stated the reasons for Bomford's unexpected

²⁴⁹ Stat. at Large, v. 3. ch. 71.

²⁵⁰ Bomford to Lee, Mar. 5, 1823, in S.A.C.F.

²⁵¹ Lee to Foot, May 20, 1823, in S.A.C.F.

²⁵² Lee to Jonathan Dwight, Jr., Mar. 2, 1826, in S.A.C.F.

²⁵³ Bomford to Lee, Nov. 2, 1825, in S.A.C.F.

proposal:

“...reports of mismanagement at Harper’s Ferry, reach the Dept. through so many channels, that some notice of them indispensable. An enquiry, or a transfer was proposed, the latter was chosen by Mrs. S.....(James Stubblefield, Superintendent of the Harper’s Ferry Armory). No doubt is entertained here, of the good intentions which animate the authorities at Harper’s Ferry. But...practices prejudicial to the public interests prevail there, which require a firm and vigorous course of measures to correct. There is reason to believe, that the course of things there are controlled by an unseen and irresponsible influence which cramps the energies of the Supt.....”²⁵⁴

The idea did not please Lee, for quite adequate reasons. He had worked hard to elevate the standards of the establishment committed to his care, and had been successful. To assume the same odious and heavy burden in a new location, meant more long years of bitter fighting. Furthermore, he had considerable property interests in Springfield, which were bound to suffer from even a prolonged temporary absence.²⁵⁵ Then there were trade connections and the prestige which he enjoyed all over his section of the country, which would be sacrificed, in part at least, by his removal. At that very moment he was negotiating important and extensive alterations and improvements in the Springfield plant. Furthermore, his proved Master Armorer had died within the month, and although he had been solicited by the Ordnance Office to name a successor and had been designated as the Master Armorer’s superior, he could not feel enough confidence in an untried man, willingly to withdraw at that particular juncture.²⁵⁶ Accordingly he got into immediate touch with Representative Lathrop, who broached the Secretary of War, and came away with the information that the Department would retain Lee at Springfield rather than see him resign, a course he was threatening to pursue.²⁵⁷ The transfer was not pressed during the winter of 1825-1826, but by spring rumor spread abroad news of the scheme, and a great stir ensued.²⁵⁸ Acting perhaps on advice of his friends, Lee begged for a reprieve on the grounds of the imminent undertaking of construction projects,

²⁵⁴ Wade to Lee, Nov. 24, 1825, in S.A.C.F.

²⁵⁵ On a previous short absence he had been obliged to delegate some private business to Master Armorer Foot. Lee to Foot, Dec. 29, 1824, in S.A.C.F.

²⁵⁶ Notice to the shops, Oct. 14, 1825 in S.A.C.F. Bomford to Lee, Oct. 24, 1825, in S.A.C.F. Bombord to Lee, Nov. 23, 1825, in S.A.C.F.

²⁵⁷ Lathrop to Lee, Dec. 8, 1825, in S.A.C.F.

²⁵⁸ Ethan A. Clary, Clerk at the Springfield Armory, to Lee, March. 21; George Talcott, Major on Ordnance Service in charge of the Watervliet N.Y. Arsenal, Apr. 23, 1826, in S.A.C.F.

direction of which could not well be delegated, and of his own ill health.²⁵⁹ To these pleas Bomford turned a deaf ear, but dropped the information that the number of workmen at the Ferry had already been reduced, and that it was proposed to discharge certain of the insubordinate foremen before Lee should take charge.²⁶⁰ Seeing the writing on the wall, Lee took early leave for Washington, where he unearthed several foul messes that concerned himself, and achieved his primary aim – nothing more about the exchange was said for a number of months.²⁶¹ In October, however, he received orders to repair to Virginia on November first; on the sixth he did quit Springfield, after having vigorously expressed his objections once more, this time to Col. Wool, the Inspector General of the Army.²⁶² At Wade's suggestion he took his own clerk, in order to have at least one trained and sympathetic assistant.²⁶³ Affairs the Ferry were in a worse mess than even had been anticipated, and unluckily Lee was seriously laid up for months by an injury which he received shortly after his arrival. Under these conditions efforts at reform were not crowned with conspicuous success, and in the end it proved necessary to hold a court of inquiry over Stubblefield's administration. The findings officially record "that Mr. Stubblefield has discharged his duties at Superintendent, with fidelity for twenty Years' and wholly exonerate him for serious offence in neglecting certain small matters."²⁶⁴ The superintendents were ordered back to their proper stations, and the incident was officially closed.

Two years later, however, the sore broke out afresh, and Lee was once more sent to Harper's Ferry to evoke order.²⁶⁵ The fundamental trouble lay in "the family influence which...controlled everything at Harper's Ferry, and monopolized all the patronage, power, profits, and emoluments of that place," even the post office, as well as War Department offices.²⁶⁶ This sinister influence had laid wires which caused such high officials as the Master Armorer to dance, and exoneration of Stubblefield's conduct by

²⁵⁹ Lee to Bomford, Apr. 29, 1826, in S.A.C.F.

²⁶⁰ Bomford to Lee, May 5, 1825, in S.A.C.F.

²⁶¹ Lee to Stubblefield, Sept. 14, 1825, in S.A.C.F.

²⁶² Joseph Weatherhead, Master Armorer to Halbach & Brothers, ironmongers, Nov. 16, 1826, in S.A.C.F. Lee to John E. Wool, Oct. 30, 1826, in S.A.C.F.

²⁶³ Wade to Lee, Oct. 13, 1826 in S.A.C.F.

²⁶⁴ Lee to Weatherhead (Master Armorer) May 16, 1827; Proceedings of a Court of Enquiry Convened at Harpers Ferry, April 16, 1827 (dated May 30, 1827); S.A.C.F.

²⁶⁵ Bomford to Lee, May 20, 1829, in S.A.C.F.

²⁶⁶ Wade to Lee, Apr. 14, 1827, in S.A.C.F.

board had not cut a single one of these wires. A fresh investigation found that although Stubblefield had not shown great energy and vigilance in the execution of his duties, he was not guilty of want of integrity and he was directed to return to his position.²⁶⁷ Instead of doing so, however, he resigned, whereupon Lee refused further duty away from home returned to Springfield.²⁶⁸ He reported “having had a very unpleasant time...owing to the unprecedented state of excitement that prevailed there among the workmen, and citizens....”²⁶⁹ On July 27, Lee’s successor’s in command at Harper’s Ferry was appointed.²⁷⁰ A few months later this sordid chapter in political history of the national armories was closed with the stark report that the new superintendent had been shot thru the heart by a workman who had been discharged during the Stubblefield row. Nothing could better illustrate the tremendous debt which the Springfield Armory, and all government operated plants based on the Springfield idea, owe to the inflexible, progressive, and clear-thinking methods of Col. Lee. At a critical juncture, he rescued the institution from a state of bondage to mean politicians and preserved its character as a place of business. Under Prescott and Lechler Springfield had been on the same road which Harper’s Ferry afterward took, and whatever had been the importance³ of the Armory to Springfield since 1815 is founded on Lee’s work.

LEE’S LATER PLANT IMPROVEMENTS

It was not solely business efficiency and moral integrity that Lee buttressed his progressive undertakings. His mind was constantly teeming with ideas for the material improvement of the plant, as well. It is characteristic that he did not turn hastily to construction projects, and that when he did take steps in that direction they were sure-footed. The extensive operations pushed thru by Prescott, having proved adequate for wartime needs, were doubtless ample for the more restricted manufacture of Lee’s first years. He soon perceived, however, that the ultimate obstruction to progress lay in the limited water rights controlled by the United States, and he lost no time in opening negotiations for the purchase of a mill seat just above the Lower Watershops. The

²⁶⁷ Proceedings of a Board of Enquiry dated May 26, 1829, in S.A.C.F. Bomford to Lee, June 8, 1829, in S.A.C.F.

²⁶⁸ E. Warner, clerk at Springfield Armory, to James Carrington, July 1, 1829, in S.A.C.F.

²⁶⁹ Lee to Carrington, Aug. 7, 1829, in S.A.C.F.

²⁷⁰ Wade to Lee, Jan. 30, 1830, in S.A.C.F.

privilege had been improved by a dam and a saw mill, then disused, but Lee proposed to raise the dam at the Lower Watershops “so as to render the place much more valuable,” and to destroy the existing dam and mill. It proved an uphill task to obtain the considerable sum required for such a venture, but Lee was tenacious.²⁷¹ The alternative which he feared was the purchase of the place by David Ames, whose papermill stood just above it. In this eventuality, the usefulness of the Lower Shops would be greatly impaired, because the dam there was already higher than the legal limit; and Lee was sufficiently informed of the temper of the first superintendent of the Armory to be sure of exaction of the full legal rights to which the purchase would entitle him. In desperation he wrote, “it must be sold & should Mr. Ames get hold of it much contention would ensue....”²⁷² After numerous discouraging reports from Washington, the money was finally forthcoming, and within two weeks the transfer had been consummated.²⁷³ With the small sum remaining after paying for the water site, Lee purchased for the United States a strip of land lying between Boston Road and the federal property on the hill. Supposing that the United States ownership extended to the roadway, certain buildings had been constructed on this ground. Lee discovered the omission in course of surveying the government property. Since the strip was vital to the Armory, the Trustees of the School Fund, its owners, were inclined to set an exorbitant figure, so that Lee was in high feather when he finally succeeded in negotiating the purchase at a reasonable price: “I have made much trouble and great anxiety in obtaining this Deed. Once piece of land is where the large work shop and other brick buildings now stand. The principal difficulty has been in procuring the land at all. After the trustees concluded to see it the price was made a question: but at last I got if for a fair sum.”²⁷⁴ This purchase concluded transactions of land on the hill until the era of sweeping improvements inaugurated by Major Ripley, a generation later. The superintendent did, however, advance in person the purchase price on a tract of land at the brow of the hill, hoping he might resell to the government, but this was disallowed. His motive in making the purchase is an illuminating commentary on the man’s character. “I purchased it to prevent a dram shop

²⁷¹ Morton to Lee, May; Wadsworth to Lee, Dec. 15; Blake to Lee, Dec. 25, 1816; S.A.C.F.

²⁷² Lee to Wadsworth, Mar. 25, 1817, in S.A.C.F.

²⁷³ Morton to Lee, Apr. 4, and May 30; Lee to Bomford, July 3, 1817; S.A.C.F. App. 3.

²⁷⁴ Lee to Senior Officer of the Ordnance Department, Nov. 20, 1817; of. Lee to William Lee, Second Auditor of the Treasury Department, Sept. 4, 1817 and Lee to Bomford, July 3, 1817, in S.A.C.F. App. 3.

for being kept there, as had been the case for years past, not much to the advantage of the works or workmen.”²⁷⁵

The fact that further land purchases were not made should not be taken as an indication of passivity on the part of the Armory authorities. In 1817 Lee asked and obtained permission to move the block house, the commissary store, and the Ordnance Yard to the vicinity of the magazine, on the land now called Federal Square.²⁷⁶ Even earlier he had urged the erection of a fireproof storehouse for finished parts, and the removal of the three frame structures to a location remote from the better buildings was in part a matter of fire protection.²⁷⁷ Funds for so ambitious a project as a new building were not forthcoming, however, and the superintendent turned his attention to the more pressing needs of the Water Shops. His first efforts to improve equipment hinged on the question of storehouses for charcoal. He begged for a new coal house at the Upper Shops: “Our present Coal houses furnish barely room sufficient to hold one year’s Stock. For this reason we are, or have been short of this article, before the Colliers commenced carting for another year. This gives them a decided advantage over us....by putting up the aforesaid building. I shall be enabled to store nearly Two years’ Stock of Coal; This would place me above the control of the Colliers – reduce the price one Dollar in a hundred bushels.....”²⁷⁸ Failing to obtain approval for new construction, Lee turned his attention to necessary repairs, which he paid for out of savings effected in the handling of current funds.²⁷⁹ He even managed to build at the Middle Water Shops a forge for working over scrap iron and steel, thus reducing loss which had disturbed the hands of the plant as far back as Prescott’s first term.²⁸⁰

These progressive steps were accompanied by occasional setbacks. Always, fire hazard had been very great, and some of Lee’s projects sprang from a desire to reduce this risk. In spite of vigilance, one of the coal storehouses at the Middle Watershops was destroyed by fire, in 1819, causing a thousand dollar loss, which would have been far greater but for mercury of a favoring wind. Lee thereupon insisted upon the immediate

²⁷⁵ Lee to Wadsworth, Apr. 9, in S.A.C.F.

²⁷⁶ Lee to Wadsworth, Mar. 25; Morton to Lee, Apr. 4, 1817, S.A.C.F.

²⁷⁷ Lee to Senior Officer of the Ordnance Dept., June 29, 1816, in S.A.C.F.

²⁷⁸ Lee to Senior Officer of the Ordnance Dept., Sept. 10, 1816, in S.A.C.F.

²⁷⁹ Wadsworth to Lee, Apr. 14, 1819; Lee to Hon. E.H. Mills, Dec. 26, 1820, in S.A.C.F.

²⁸⁰ Wadsworth to Lee, Apr. 14, 1819, in S.A.C.F. Stearns Mss.

purchase of a fire engine for use at the Middle Shops, and of an adjoining half acre of land upon which to erect suitable storage facilities for the charcoal.²⁸¹ Another serious fire loss was prerequisite to obtaining buildings. It occurred on the night of March 2, 1824, when the principal shop on the hill was burned to the ground, in spite of heroic efforts of the armorers and citizens. A stiff wind had blown sparks from the forge on to the roof of the overcrowded finishing shop. The presence of 15,000 seasoned stocks in the garrett furnished ample tinder, and the gale completed the business. The total loss was finally estimated as approximately twenty thousand dollars, of which nearly two thirds consisted of stock and stores, material which would properly have been housed elsewhere if storage space had been available.²⁸² Lee was at the time absent on the quest of a site for a western armory, but at once set himself to the task of planning a new and greater armory for Springfield. So great a loss furnished him an opportunity to expound a comprehensive improvement in the plant, which had lain close to his heart for a long time. His own convincing argument may be summarized. It was based on the evils of physical division of the plant into five sections – the hill shops and four watershops.²⁸³ These he declared to be inconvenience to the management, added cost for the foremen, transportation charges and delays, and difficulty of proper oversight. He proposed three alternative schemes for improvement. The first was to sell off the entire plant at Springfield and to remove to the lower falls of the Chicopee, three and one half miles north of the hill shops. This plan would permit concentration of all branches of the work at one point, and provide river transportation by way of the Connecticut and the Chicopee; its ultimate desirability appealed to the practical idealist in Lee. The second proposal was to sell off the Hill and the Lower Watershops sites, and to concentrate the whole plant in the vicinity of the Upper Watershops, raising the dam there enough to give the needed additional power. These projects he offered as more desirable than the third, but he possessed no illustrations as to which was likely to be adopted. The last scheme involved leaving the plant as it was, but outlined a plan for constructing new brick workshops and warehouses on the hill which would adequately care for the needs of

²⁸¹ Lee to Wadsworth, Apr. 28, 30, and Aug. 10; Morton to Lee, Aug. 11; Wadsworth to Lee, Aug. 18; Lee to Jacob Perkins, maker of fire fighting equipment, Apr. 30; Perkins to Lee, May 4, and 31; Warner to Perkins, Aug. 10, 1819, S.A.C.F.

²⁸² Foot to Lee, Mar. 3, 4, and 26; to Bomford, March, 1824. S.A.C.F.

²⁸³ Upper, Middle and Lower, and the Saw Mill a few rods about the Lower Shops.

the next several years.²⁸⁴

Had the first and most revolutionary plan been adopted, it may be safely averred that the United States would have long since saved in running expenses many times the cost of the transfer to Chicopee. Inertia and vested interests combined, as Lee foresaw, to defeat this plan, and even the offer of the whole power below the bar at Chicopee was coldly rebuffed by the War Office.²⁸⁵ The second suggestion was adopted and carried thru a quarter century later, and since 1857 the Upper Watershops has been the only watershops. The third proposal was the one adopted for the moment, however, because it laid out the ground plan of the Armory Square in a form which has been consistently followed since, and because the buildings put up in accordance with it still exist. Construction was ordered to begin at once on the side of the edifice lately destroyed, and authorization shortly followed for building the sister shop flanking the office building on the south. The corner stones were both laid in the latter half of 1824, and, known as the North and South Shops, respectively, these buildings for many years cared for the lighter operations connected with fabrication. In a somewhat altered form they still house a multiplicity of Armory affairs.²⁸⁶ A few months later the forge on the hill was remodeled to two stories and the whole set of new buildings was partially occupied in November.²⁸⁷ Meanwhile the Ordnance Office had authorized the erection of a storehouse, to face Boston Road at the intersection of lines projected from the new workshops and the storehouse of 1808 respectively. This building, completed in 1825 was two high and brick, like the rest, and the four structures compelled the appropriation of twenty-one thousand dollars.²⁸⁸ Armory Square, thus by 1825, in a fair way to take on the aspect it has worn to the moment of writing. A few years earlier a house for the residence of the superintendent had been put up directly across the parade ground from the administration building, and in 1830 the square was crowned with an additional storehouse, that which

²⁸⁴ Lee to Bomford, Mar. 23, 1824, in S.A.C.F.

²⁸⁵ Jonathan Dwight, Jr. to Lee, Feb. 14; Lee to Dwight, Mar. 2, 1825; S.A.C.F.

²⁸⁶ The three structures were later connected, a third story was added to each flank, a square cover was erected on the west front of the office part, and a Georgian portico to its eastern face. The more important of these changes were due to pressure of Civil War needs. In 1918 a further link was added at the south end, forming, with the East Arsenal (also built in 1824) a partial inclosure of the parade ground. Copies of Mss. Deposited in the corner stones; advertisement for proposals, Apr. 1; Foot to Bomford, Apr. 19; Foot to Lee, Apr. 26, 1824, S.A.C.F.

²⁸⁷ Foot to Lee, Nov. 25, 1824, in S.A.C.F.

²⁸⁸ Lee to Bomford, Feb. 19; Bomford to Lee, Mar. 10, 1825, in S.A.C.F.

became known as the Middle Arsenal. This structure, the first of three story buildings awakened keen interest in the Ordnance Office, whose members scrutinized every detail of the architecture. For the first time money was spent for pure decoration – a balustrade (since removed) along the eaves, bull’s eye fan lights in the attic, and a portico of Georgian design. The construction of this main entrance, with an elaborate doorway, on the side away from the Boston road, is a patent reminder that the buildings about the square were originally planned to face the center. In the new arsenal were installed the first gun racks of the type which stirred Longfellow many years later to incite his famous verse on the Arsenal at Springfield; and it was Lee’s friend and counsellor at the Ordnance Office, William Wade, who designed these racks. The building without equipment, cost sixteen thousand dollars, and for many years it was the pride of the Armory. In fact, it still remains the most dignified and attractive of the group of simple structures which it stands.²⁸⁹ Still further to improve the appearance of the hill works, Lee undertook to grade and drain the yard.²⁹⁰ This project could not be satisfactorily carried out because of the sharp cut thru which the Boston Road descended from the upland to the level of the river terrace. Lee therefore proposed to the Selectmen of the Town to draw a new property line which would throw the road farther from the bank on which the Armory buildings stood, and permit the laying out of a more direct line to “the Factory Skipmuck Road” (St. James Avenue). The exchange of land involved would make little or no money payment necessary.²⁹¹ The scheme fell thru at the time, but later an arrangement was made by Major Ripley, whereby Lee’s purpose was accomplished. Another project which long agitated the Armory’s neighbors and its superintendent, concerned the magazine which in 1782 had been erected far out in the country along the Boston Road. An Armory building reached out to the eastward, and as workman and others began to build homes along the Road, the possibility of an explosion of the magazine became a bugbear to the whole town.

In 1818 Lee reported that more than twelve thousand pounds of powder were

²⁸⁹ On this edifice; Lee to Bomford, Sept. 18, 1826; Wade to Lee, May 13; Lee to Bomford, June 1; Wade to Lee, July 1, Aug. 18, 1830; S.A.C.F.

²⁹⁰ Bomford to Lee, Aug. 19, 1829, in S.A.C.F. The presence of abundant hillside springs made the land at the edge of the hill and along Boston Road spongy, and springtime erosion of the sand produced unsightly gullies.

²⁹¹ Lee to the Selectmen of Springfield, June 29, 1830, in S.A.C.F.

stored in one building, three times as much as was needed for proving musket barrels, the only use to which that particular powder was ever put;. At the solicitation of “several very respectable gentlemen of this town” he urged upon the Ordnance Department removal of the surplus, on the ground that it exposed the works and the dwelling houses of more than fifty families to unnecessary danger.²⁹² This proposal was vetoed by the Colonel of Ordnance, but at his suggestion a high brick or stone wall was erected at a distance of twenty feet from the building.²⁹³ This precaution did not assuage agitation, but reiterated expostulation were coldly received, and the magazine remained.²⁹⁴ In the floor of building operations which the fires of 1824 1825 let loose, Lee saw his opportunity to settle the question of the magazine, which he did by the purchase of a few rods of pasture land in the valley of Garden Brook, some distance north of Chicopee Road. Upon this plot a small magazine was built between 1825 and 1830.²⁹⁵ The old magazine now unused, was torn down a decade later. Its foundation is still faintly visible at the western end of Magazine Street, which derived its name from the venerable structure, across the site of which it was laid out.

At the watershops Lee’s efforts were less fruitful in the long run than on the hill. This was owing to no fault of his conception of the nature of desirable improvements, but only to the scanty funds furnished by the government. Indeed, Lee had no sooner established himself at Springfield than he undertook such changes as he could afford to make. He was a pioneer in the adoption of triphammers for welding barrels, and other improvements were suggested he consistently experimented with them.²⁹⁶ Some of his building operations have already been noted. In the summer of 1822 he tore out the wooden dam at the Upper Shops, which had become decayed and leaky, replacing it with stone structure.²⁹⁷ The work occupied nearly two months (July 9 to August 31) and the quality of the structure filled Lee with pardonable pride: “It is a permanent work and I believe will remain as long as the United States have occasion to make Arms.”²⁹⁸ Six

²⁹² Wadsworth to Lee; July 21, 1818, in S.A.C.F.

²⁹³ Wadsworth to Lee; July 24, 1818 in S.A.C.F.

²⁹⁴ Wadsworth to Lee, May 27, 1820.

²⁹⁵ App. 3 C.F. Map of Lieut. Linnard in Springfield Armory Museum.

²⁹⁶ Lee to Whitney, Dec. 30, 1816 in S.A.C.F.

²⁹⁷ Lee to Col. S.B. Archer, Inspector of Artillery, June 13, 1822; copy of paper deposited in foundation stone; S.A.C.F.

²⁹⁸ Lee to Bomford, Aug. 31, 1822, in S.A.C.F.

months later when called upon Representative Lathrop, long a friend of the Armory, at the seat of government, to estimate the requirement of a marked increase in the output of the factory, he stated “first it would be necessary to obtain additional water power; for this purposes it would be advisable to raise our dam at the Upper Water Shops four feet (the foundation is sufficiently substantial and was laid with a view to that object in necessary.)”²⁹⁹ For a time fruition of his hope for a “GRAND NATIONAL ESTABLISHMENT” seemed certain; a survey of lands to be inundated and statistics on the Mill River were prepared; and land was purchased in accordance with the survey.³⁰⁰ But time after time the hope was deferred, until it was left for successors to carry out here as at the hill plant, the projects of Col. Lee.

MACHINE PRODUCTION AND PLANT EXPANSION

At about this period Lee began to consider the possibility of utilizing steam for at least a part of the heavy operations, but the day of steam power was still far in the future, and dissatisfied though he was with the division of the water power between twenty-seven wheels at four sites – a division forced upon him by the meager resources at Mill River – he utilized it as efficiently as possible.³⁰¹ The business of stocking guns, from time immemorial a craft requiring the highest skill, within a few years had been put upon a machine production basis, and removed from the hill to the Lower Watershops. On the night of June 30-July 1, 1825, fire visited that place, destroying some seven thousand dollars worth of property, including that of the stockers.³⁰² As the buildings destroyed were of cheap construction, Lee seized the opportunity to improve the plant by erecting a new fireproof forge of stone, brick and slate, and special buildings for the novel operations of stocking and rolling.³⁰³ These structures, completed between 1826 and 1828, served the United States until the whole privilege was sold in 1852.³⁰⁴

During these years of active building operations (1824-1830) there was some agitation for proving extensive additions to the plant capacity. Attention of the country

²⁹⁹ Lee to Lathrop, Jan. 11, 1823, in S.A.C.F.

³⁰⁰ Foot to Lee, Dec. 28, 1823, in S.A.C.F. App. 3.

³⁰¹ Lee to Whitney, July 19, 1824, in S.A.C.F.

³⁰² Lee to Bombard, July 1, and 12, 18125, in S.A.C.F.

³⁰³ Ibid.

³⁰⁴ Lee to Weatherhead, May 16, 1827; to David Wilkinson, Manufacturer of Pawtucket, R.I., Feb. 19, 1828, in S.A.C.F.

was turned to the locality by the construction of the Enfield Canal around the shallows on the Connecticut River just below Springfield, a work which was completed in the autumn of 1829.³⁰⁵ Congressman Lathrop pushed Armory extension to the limit of his ability, and the canal was dug partly to furnish the Amory with transportation direct to the ocean.³⁰⁶ Hitherto all traffic destined for the river trade had been sent by wagon to or from Hartford, where transfer to packet boats were made. The part played by the canal and consequent establishment of freighting companies with terminal quays at Springfield cast a rosy light on the future prospects of the Armory. In spite of this, definite improvements of movement were not authorized, and Lee found himself compelled to resort to political pressure to put through even minor projects. For instance, the purchase of five and a half acres of land contiguous to that already possessed at the watershops required two years of patient endeavor. When it was crowned with success, notification came not from the War Office, but from a member of Congress, an obvious indication of the means used in accomplishment.³⁰⁷ In the meantime Lee was compelled to expend on fabrication the total amount usually allotted to him. Thus he was denied his former discretion in applying surplus and savings to new buildings. This circumscription of individual authority lay along the line of increasing centralized control evident throughout the administrative history of the United States. Naturally it was obnoxious to Lee, who felt such action to be an expression of want of confidence in himself.

Despite discouragements, however, he persisted in his demands for further improvements, and the authorization for the construction of dwelling houses for the Paymaster and the Master Armorer, together with several small water shops (all of which were erected at about the time of Lee's death) resulted from his efforts.³⁰⁸ A set of drawings prepared by a recent graduate of West Point show the nature and extent of the improvements which Lee had, by his persistent and undismayed efforts, put through against relentless opposition. In this connection a rent roll for almost exactly the same period bears testimony that the twenty-five dwellings owned by the United States housed

³⁰⁵ Nov. 11. Bowne, Jacob T. comp: Scrap Book of the 250th Anniversary of the Settlement of Springfield, 1886, in Springfield City Library Association Collection.

³⁰⁶ Lathrop to Weatherhead, Nov. 21, 1826; Weatherhead to Lee, Mar. 28, 1827; S.A.C.F.

³⁰⁷ Bomford to Lee, Apr. 24, 1828; Nathaniel Slisbee, M.C. to Lee, May 21; Wade to Lee, June 24, 1820; S.A.C.F.

³⁰⁸ Clary to Weatherhead, Mar. 31, 1832, in S.A.C.F. Stearns Mss.

the families of forty-one officials and workmen at a total rental of \$234.30 a quarter, individual houses ranging from \$2.00 to \$10.00. The Superintendent, Master Armorer, and three clerks received quarters rent free.³⁰⁹ Most of these houses had come into the possession of the United States incidentally to the acquisition of Land needed for the future expansion of manufacturing, and Lee did not possess the expenditure of government funds for house building, preferring to encourage workmen to construct their own homes, thereby stabilizing the social life of the community: ‘...if they (the workmen) build houses for themselves it adds weight to their interest for the prosperity of the Establishment & has a powerful influence on their conduct....’³¹⁰

DEVELOPMENT OF COMMUNITY LIFE

Throughout his career as Superintendent of the Armory, Lee worked unceasingly for moral and social, as well as physical, improvement of the establishment. His efforts naturally followed in part the channels of church endeavor. A vigorous supporter of the Episcopal Church himself, he importuned his superiors to enable him to organize church activities at the Armory. His request was at the outset a very modest one: ‘There are two old stores at this place in charge of the Storekeeper, the upper stories of which are not occupied or wanted for public property now here. In behalf of myself and others, I request permission to occupy a part of one of them for the purpose of public worship. No additional expense will be incurred, & let it be recollected that we have no right in the parish. No persons living on public land are seated in the Church (myself excepted) and the use of one of the Stores for that purpose would be of great convenience to the workmen and no injury to the public until it is wanted as a store for United States property when of course it will be taken for that purpose, and it may be proper after the last request to state that the stores last mentioned are our wooden buildings & so remote from the Armory they will not answer the purpose of Storing the work.’³¹¹ Nothing came of this plea, but the following year, when the administration building completed, a place was reserved for the holding of religious services. Lee’s friend, the Rev. Titus Strong, Rector of St. James’s in Greenfield, Mass, preached the dedicatory sermon in the early

³⁰⁹ Rent Roll for Quarter ending March 31, 1831, in S.A.C.F.

³¹⁰ Lee to Lathrop, Jan. 11, 1823, in S.A.C.F.

³¹¹ Lee to Senior Officer of the Ordnance Dept., July 29, 1816, in S.A.C.F.

spring of 1817.³¹² Lee's next object was the settlement of a chaplain on the post, 'who must be a man of talents, a classical school, a regular bred divine and of fire rate respectability & I could wish of the denomination called Episcopalians. The pay allowed to Chaplains by the Government with what sums may be obtained by subscriptions would give a gentleman of above description a very handsome support – say from \$700 to \$1000 per Ann.'³¹³ Unable to accomplish this desire in whole, a preacher was engaged half time, but Lee did not rest with half measures, and kept his eye on available candidates for the position of chaplain the moment he should obtain authorization.³¹⁴ In the spring of 1818 he authorized both church and school under an arrangement with Lieut. Col. Bomford, whereby the rentals of government houses were applied to the support of a chaplain and schoolmaster.³¹⁵ He spent sixty or seventy dollars before he was apprised that rentals could not be expended for such purposes. At this juncture, learning that the practice was being continued at Harper's Ferry, he at once launched a petition to Congress, setting forth that the Armory community numbering 'more that 900 souls' ought not to be deprived of the benefits of church and school, 'as it is believed that religious instruction has a tendency to correct & improve the morals of men & prepare them for a future world: And that common education is essentially necessary to form the minds of the Youth of Our Country for future usefulness....'³¹⁶ The matter was carried to the Secretary of War, who happened at the moment to be John C. Calhoun, but nothing could be done, and such religious and secular instruction as obtained continued to be paid by subscription of the beneficiaries.³¹⁷ Two years later Lee was again importuning the authorities, but was put off not only by the Ordnance Department, but by the local Congressman as well.³¹⁸ Such doggedness left lurking suspicions in the minds of certain officials at Washington, with the result that they brought the subject once more to the surface in the shape of a request for a report on the connection of schools and churches at the Armory with the federal funds.³¹⁹ By this time Lee was done with begging for aid,

³¹² Hoppand, op. cit., v.2, p. 124.

³¹³ Lee to Titus Strong, Feb. 28, 1817, in S.A.C.F.

³¹⁴ Shubael Bell to Lee, July 6, 21; Tillostson Bronson to Lee, Oct. 30, 1818; S.A.C.F.

³¹⁵ Lee to William Lee, Aug. 26, 1820, in S.A.C.F.

³¹⁶ Petition to Congress enclosed by Lee to Wadsworth, Jan. 4, 1819, in S.A.C.F.

³¹⁷ Wadsworth to Calhoun, Jan. 28; Calhoun to Wadsworth, Jan. 30, 1819; S.A.C.F.

³¹⁸ Morton to Lee, Jan. 24; E.H. Mills to Lee, Feb. 21, 1821; S.A.C.F.

³¹⁹ Bomford to Lee, Jan. 9, 1822, in S.A.C.F.

and evinced no surprise when once more told that it could not be legally furnished.³²⁰ His report marks progress: ‘no part of the Rents have been supplied to the support of schools, or a chaplain, at this Establishment.... We have employed a chaplain at various periods, and constantly during the past year, but we have always paid them by subscription with such aid as we have been able to obtain from other sources than the public funds. Schools are supported by the persons who send children to school. It may be proper to remark that we occupy a room for religious worship & two rooms for Schools, which is all the aid we have ever received from the United States....’³²¹ For years, Episcopal services were carried on within the Armory grounds, until in 1838 the first steps were taken to found a parish in town.³²² Thus under the wing of federal authority, altho never acknowledged, by the government at Washington, grew up the Church of England in a town of dissent. Lee was, however, thoroughly tolerant, and when Ethan A. Clary, the Master Armorer’s clerk, became instrumental in assembling the first company of Universalist worshippers in Springfield, the chapel on the Armory hill was thrown open to him. Here the society continued to hold meetings for some time, and when strong enough to stand on its own feet, removal took it only a few rods away, to Beacon Hall at the corner of the Boston Road and Walnut Street, where it continued to minister to the needs of the Armory community.³²³

Meanwhile, other denominations were establishing themselves under the benign favor of the Superintendent. It has already been noted that the Methodists and the Baptists made sporadic attempts to organize congregations at the water shops at a very early day of the Armory’s history. Between 1811, when the society was organized with nineteen members, and 1821 the Baptists met at the homes of their number. In the latter year they managed to finance a tiny building, twenty-six by thirty-six feet, which was appropriately located near the Upper Watershops. Ten years later, the memberships having grown to fifty, they were able to afford a regular pastor. Little by little the pull of the town overcame the prestige of early location, and by degrees the congregation moved

³²⁰ Bomford to Lee, Feb. 22, 1822, in S.A.C.F.

³²¹ Lee to Bomford, Jan. 18, 1822, in S.A.C.F.

³²² Holland: *op. cit.*, v.2. p. 124.

³²³ Organized in 1827, Rower, James E., ed.: *Springfield, Present and prospective*. Springfield: Pond & Campbell, 1905, p. 130. Copeland, A.M., ed.: *Our County and Its People*. 3 vols. The Century Memorial Publishing Co., 1902. n. pl. v.2, p. 307.

to their present location within the business district.³²⁴ While the Baptists were slowly forging on, the Methodists about the Upper Watershops organized with eleven members (1815) and formed a connection with the Tolland circuit of the New England conference, whereby a preacher came down to Springfield once a month, from the up country to the eastward. (At this period the strongholds of this faith were in the back country.) In 1819 Springfield was made a regular station with a preacher of its own. To the Watershops sphere of influence, Armory Hill now was added, and the minister preached alternately in the Armory Chapel and at Methodist homes in the vicinity of the Upper Shops. In 1820 Asbury Chapel was erected near the Watershops by seventy-seven members, and three years later a church was built in Union Street, near the Hill Shops. For years preaching was held at one or both places, as interest warranted, and in 1835 the two centers established independent foundations. But here again, the growing cosmopolitanism of the town finally led to the erection of a church building in what is now the business quarter, and the Watershops was abandoned.³²⁵ In this simple fashion the social fabric of the town was being transmuted by the incursion of a variety of religious sects.

But for many years the complaisance of the established Congregationalism did not see the opportunity and the threat which were looming up on the roads to Boston and to East Longmeadow. It was not until 1833 that members of the First Church established a Congregational Chapel opposite the Armory on Boston Road (known as the Fourth Church, and after 1854 as Olivet, Clogston: *op. cit.*, "Our City Churches", Aug. 26, 1871) 'for the especial accommodation of families living in that rapidly growing vicinity.'³²⁶ The rather slow growth of the church indicates that most of the families in the vicinity preferred accommodation elsewhere, and the social cleavage which the Armory introduced in the town persisted for many, many years. Nothing better proves the position of the plant as a social institution than the startling fact that, with a single exception, every domination which established itself in Springfield between the original planting of the settlement and 1850, was the direct outgrowth of the Armory community. (In the 1840's the Roman Catholic parish in Springfield was inaugurated to care for the Irish workmen who Major Ripley brought from Kennebec Arsenal to serve in the Armory.)

³²⁴ Holland: *op. cit.* v. 2. p. 125.

³²⁵ *Ibid.* pp. 122-123.

³²⁶ Quoted in Copeland: *op. cit.* v. 2. p. 284.

The Unitarian Church alone, which in Springfield as elsewhere, was an intellectual revolt against the dominant reactionary theology of the Congregationalism then taught, found its spring without the Armory community.

While the Armory was thus stiffening its social fabric, relations with the townfolk were becoming closer, if not more amicable. Residents of the vicinity attended the periodic sales of materials unsuitable for manufacture and of commissary stores.³²⁷ The disastrous fires of 1824 and 1825 had done something toward furthering interchange, for townfolk and armorers had side by side fought the flames and the practice of mutual protection became firmly established.

The practice of featuring the Armory on Independence Day persisted, and the immense prestige of Col. Lee in the town, together with the extinction of party feeling in the years following 1815, led to monster celebrations. In 1825 and 1826 three to four hundred persons were banqueted in the new storehouse (East Arsenal) following a procession from church to the accompaniment of 'martial music, the ringing of bells and the roar of cannon.'³²⁸ Men of "all parties, religious or political' were responsible for this demonstration, headed by a committee which included the superintendent and the paymaster of the Armory, the local representative in Congress, and prominent citizens of Springfield.³²⁹ In November 1826, Lee was the recipient of good wishes at banquets in the Franklin Hotel on the hill and at Phelp's Hotel in town, the occasion being his departure for Harper's Ferry Armory.³³⁰

By 1827 the shadow of Jacksonism was looming over the country, and altho the banquet was made the feature of the celebration, this time at the Ordnance Yard, the occasion was marred by the hissing of a Jackson toast. The following year the celebration was confined to a parade of the Hampden Guards and a religious service, perhaps because it was desired to avoid an impolitic outburst of party feeling, now rising high once more, with the development of the Jackson faction. With the election over, there was nothing for the Armory officials to do but swallow the new-fangled political pill, and

³²⁷ Account of Sales at Auction of Subsistence Stores at the Commissary Store near the U.S. Armory, Springfield, by Roswell Lee, Agent, for the Commissary General of Subsistence, September 22nd, 1819, in S.A.C.F.

³²⁸ The Leading Journal, July 4, 1867.

³²⁹ Green: op. cit. p. 387. Cf. Springfield Republican, July, 1825.

³³⁰ Green: op. cit. p. 388.

this they recognized publicly with cannon and banquet on March 4, 1829. Lee presided, with Chaffee at the foot of the table, but the East Arsenal this time seated only a bare two hundred and fifty, many of whom being Jackson men from surrounding towns. Among the Springfield folk there was “an unusual indifference manifested towards attending the dinner.”³³¹ Thus did Federalist Springfield withdraw from felicitations, and thereafter for years the Democrats celebrated at the Ordnance Yard, while the Whigs carried on their separate festivities in town.³³² Obviously, the political cleavage between Whig and Democrat corresponded closely with the social cleavage between townsman and armorer, altho there were a few staunch Whigs among the Armory employees, and here and there a Democrat in town, especially the federal office holders.

EFFECT OF THE JACKSON REVOLUTION ON THE ARMORY

The approach of the political system which Jackson caused, awakened marked apprehension on the part of the official class thruout the country, and its accomplishment left a wake of extraordinary bitterness. The Armory at Springfield was not exception to the general rule. In a letter dated January 27, 1829, Lee warned the Harper’s Ferry superintendent as follows: “N.B. Our time is nearly out – rely on it.”³³³ He contrived to have clerk Clary in Washington during the inauguration, and was informed by this agent that it was contemplated to make several removals and that many office holders in Washington were alarmed for their situations.³³⁴ For the moment nothing was altered at Springfield, but Jackson’s inauguration had become a signal for open bidding for political favor. A man wanting work was recommended to Lee as having “been always a firm Jackson man.”³³⁵ Another applied for clerkship thinking it possible “that a vacancy may occur in this time of overturning.”³³⁶ Still the status-quo at the Armory remained unaltered, altho the officials anticipated the ax with mail. Lee satisfied himself thru Wade that the Ordnance Office planned no “reform”, as the spoils system was euphemistically termed, except at Harper’s Ferry, altho some effort had been made to unseat Chaffee, the

³³¹ Quoted in *The Leading Journal*, cit. Cf. Green: op. cit. p. 397.

³³² *The Leading Journal*, cit.

³³³ Lee to Stubblefield, in S.A.C.F.

³³⁴ Clary to Lee, Mar. 4, 9, 1829, in S.A.C.F.

³³⁵ W.C. Gay to Lee, Mar. 23, 1829, in S.A.C.F.

³³⁶ L.R. Paige to Lee, Oct. 28, 1829. S.A.C.F.

Paymaster.³³⁷ Whether Lee himself was dissatisfied with this disposition to let matters ride does not appear, but presently he was notified that Charles Howard of Springfield had been appointed Paymaster and Military Storekeeper, to relieve Chaffee on December 1, 1829.³³⁸ Howard is understood to have been one of three Jackson men in the county in 1823, and therefore may be said to have a right to an office, if such spoils are ever justifiable, but Chaffee, always at odds with Lee, felt that the superintendent had a hand in the business, and let it be known that he would leave no stone unturned in his efforts to bring about Lee's expulsion from office.³³⁹ Whatever he may have attempted, he succeeded only in eliciting from the Chief Ordnance Officer a letter of the warmest praise for the quality of Lee's work.³⁴⁰ As Chaffee had been directed to turnover his papers, not to his successor, but to the superintendent, and as Howard had been specifically ordered to report on his assumption of duty to the superintendent, the change in the Paymaster's office marked its complete subordination to that of the Superintendent, a victory accomplished at the price of years of vigilance and friction. The Armory was at last wholly under the direction of a single officer, and so it has remained.³⁴¹

Altho secure in his office, Lee was nevertheless destined to derive little but anxiety and harassment from remaining three and a half years of life. Already he had carried on a three year running encounter with David Ames over the water of Mill River, and this bone of contention remained, altho open quarrel did not again break out until the succeeding administration. Ames's paper mill lay between the Lower and the Middle Watershops of the Armory, and toward the end of 1825 its owner subscribed, in concert with owners of a mill site below the Lower Shops, a letter of protest to Lee. The Upper Watershops, it was claimed, let so irregular a flow of water thru its wheels that users of the stream below were alternately left without water or deluged with more than their reservoirs would accommodate.³⁴² Lee's prompt reply was conciliatory only in phraseology, for his argument presented his dilemma of allowing part of his wheels to let

³³⁷ Wade to Lee, Oct. 12, 1829, in S.A.C.F.

³³⁸ Bomford to Lee, Nov. 17, 1829; John H. Eaton, Sec. of War, to Charles Howard, s.d.; S.A.C.F.

³³⁹ William Riddall, an official of the Treasury Department, to Lee, Dec. 21, 1829, in S.A.C.F.

³⁴⁰ In the year 1829 the Armory output was a thousand more muskets than in any previous year, and the cost per musket was reduced. Bomford, to Lee, Feb. 19, 1830, in S.A.C.F.

³⁴¹ Bomford to Lee, Nov. 18; Howard to Lee, Nov. 24, 1829. List of Books deposited in the Office of the Superintendent; S.A.C.F.

³⁴² Ames et al. to Lee, Dec. 13, 1825, in S.A.C.F.

idle or drawing off the pond, and admitted no concessions.³⁴³ By 1828 the matter threatened to come to suit, and there rested for the time being.³⁴⁴

Friction between his master armorer and certain of the foremen, inability to get commutation for fuel for officers at the Armory, and the refusal of the superintendent of Harper's Ferry Armory to keep faith in a contract with the Springfield Mfg. Co., owned by a close friend of Lee's, were milestones along a thorny path.³⁴⁵ But the bitterest of all Lee's trials sprang from a series of investigations which began with an agitation to increase the pay of workmen.

At the beginning of 1832 Lee was directed to report to the Ordnance Office his views on a suitable increase for all workmen.³⁴⁶ The following September a board of officers was appointed under the chairmanship of Lt. Col. George Talcott, Inspector of Ordnance, to sit upon the question of pay for both officers and workmen, and to make a general inspection of the institution.³⁴⁷ The board met late in September, questioned the workmen, and made a careful study of the requirements of the plant.³⁴⁸ On the basis of their findings an order was promulgated at the close of the year, which directed the discharge of fifty workmen, on the ground "that the Armory is overstocked with workmen."³⁴⁹ Coming at the end of a year's surveillance, a period during which Lee's health had been precarious, it was doubtless with a heavy heart that the superintendent issued the order for the discharges. He felt the action to be a disparagement of his administrative ability, and his discomfiture was increased by the application of his bayonet forger for leave to go to Washington to attempt the arrest of the prosecution of the order. He curtly was refused permission for the leave of absence telling the man that he could not be spared and this his place would be forfeited should he leave without authority. This rash product of irritated indisposition sharpened antagonism all along the line: the disgruntled workman used his kin to the local congressman to get an order put

³⁴³ Lee to Ames et al., Dec. 17, 1825, in S.A.C.F.

³⁴⁴ Lee to Ames, Sept. 28, 1828; Ames to Lee, Sept. 29; Lee to Ames, Oct. 29, 1828 in S.A.C.F.

³⁴⁵ Diah Allin to Lee, Jan. 25, 1830, in S.A.C.F. Bomford to Lee, Nov. 26, 1831, in S.A.C.F. Lee to George Ruse, Supt. of Harper's Ferry Armory, May 29, 1830; Benjamin Jenks, head of Springfield Mfg. Co., to Lee, Apr. 28, 1832 S.A.C.F.

³⁴⁶ Bomford to Lee, Jan. 18, 1832, in S.A.C.F.

³⁴⁷ Bomford to Talcott, Sept. 7, 1832, in S.A.C.F.

³⁴⁸ Lieut. Dan Tyler, Recorder of the Board, to Lee, Sept. 26; Talcott to Lee, Sept. 28; Bomford to Lee, Oct. 13, 1832; S.A.C.F.

³⁴⁹ Dated Dec. 10, 1832. Instructions and Regulations 1827 to 1833, in S.A. File.

thru the Secretary of War directing Lee to grant the furlough; and Lee's letter of protest was sharply rebuked.³⁵⁰ Incidentally it came out that the real reason for the cut in the number of workmen was the small size of the appropriation for the year, and recondite influences persuaded the Secretary of War to postpone the execution of the until April 1, 1833, "in consideration of the inclement season of the year, which might occasion great inconvenience to the workmen discharged."³⁵¹ Lee, however, was in no way mollified by these developments, and when he received further directions to discharge first the intemperate, second the single men, and finally the married me who had been there the least time, he considered that the interference passed all bounds and used his own discretion in the selection of victims for the guillotine.³⁵² This proved the opportunity of envious enmity, and the War Department was officiously informed of the retention of two men "decidedly of intemperate habits," and that since the discharge of several workmen, a Boy had been taken into the Armory."³⁵³ One of the alleged inebriates being the Master Carpenter, it may be supposed that Lee felt unable to dispense with his services, and he did not discharge either of the men accused. Instead, ill and weary, he asked for leave of absence, to go to the West Indies in the hope of recouping his health.³⁵⁴ The request was granted, and Talcott went to Springfield to assume temporarily the duties of the superintendent.³⁵⁵ By that time, however, Lee was too ill to leave home, and after a few months he passed away.³⁵⁶

In the meantime the agitation over the workmen was not allayed by Lee's severe illness, and the Inspector General of the Army was called in to report on the number of men who possessed small parcels of land and who absented themselves in order to get their crops.³⁵⁷ At about the same time efforts were renewed to effect the replacement of the intemperate Master Carpenter. The concerted action of the Ordnance and Inspector's General's departments failed to find a substitute for some months but were finally

³⁵⁰ Bomford to Lee, Dec. 26, 1832 in S.A.C.F. Jan. 1, 1833 in S.A.C.F. Talcott to Lee, Jan. 5, 1833, in S.A.C.F.

³⁵¹ Capt. W.H. Bell of the Ord. Dept. to Lee, Jan. 7, 1833, in Instructions and Regulations, 1827-1833, S.A. File.

³⁵² Bomford to Lee, Mar. 19, 1833, in *ibid.*

³⁵³ Bomford to Lee, Mar. 29, 1833 in *ibid.*

³⁵⁴ Lee to Bomford, Apr. 13, 1833, in *ibid.*

³⁵⁵ Order dated Apr. 23, 1833, in *ibid.*; assumed charge May 13, 1833.

³⁵⁶ Died Aug. 25, 1833. Weatherhead to Talcott, Aug. 26, 1833 in S.A.C.F.

³⁵⁷ Unsigned letter to Brig. Gen. John E. Wool, July 27, 1833, in S.A.C.F.

crowned with success.³⁵⁸ It may be piously hoped that the jackals who did not hesitate to leap upon the leonine superintendent, once he was too ill to defend himself, were able to lick their chops in complete self-satisfaction. (The other man accused of intemperance was foreman at the watershops in 1840, which may be taken as vindication of Lee's judgment in his case at least.)

The subsequent eight years (1833-1841) proved thoroughly the necessity of having a man of first-rate calibre at the helm of Armory affairs. With Lee's death the moment had arrived for instituting the spoils system in full force, and the superintendent who took charge on November 1, 1833, reliving Talcott from his temporary duties, furnished a classic example of this type of government administration. John Robb had been with Jackson in the War of 1812, and later served as chief clerk in the War Department.³⁵⁹ His appointment, therefore, was openly political, and had no reference to either his knowledge of guns or of manufactories.

ROBB'S ATTEMPTS AT REFORMS

The first business of the new superintendent was an effort to carry out to the letter Lee's injunction against liquor.³⁶⁰ This brought to light the fact that the "shop laws" as they were called, regarding treating and "dubbing", or treating all round, one man standing the crowd each day, had never been abrogated. Lee, having accomplished his major purpose of keeping alcohol out of the shops, had tacitly permitted the men to drink about the spring near the Middle Watershops and in winter in one of the coal houses. This concession was rendered necessary by the temper of the workmen, who considered Lee "overbearing" in going as far as he did.³⁶¹ Robb was not the man to brave public opinion, and no determined attack upon the traditional practices of the workmen seems to have been made.

Settling accounts left by his predecessor, and reorganizing the personnel of the Armory, occupied the first months of the new incumbent of the chief office. The contracts with the Springfield Manufacturing Company, making barrels and bayonets for

³⁵⁸ Wool to Superintendent of the Springfield Armory, Aug. 1, 1833, in S.A.C.F. Nov. 11, 1833. Armory Regulations, 1829-1840 in S.A. File.

³⁵⁹ Chapin: *op. cit.*, p. 315.

³⁶⁰ Regulation of Nov. 11, 1833, in Armory Regulations, 1829-1840 *cit.*

³⁶¹ Diah Allin, foreman of the Middle Watershops, to Robb, Nov. 11, 1833, in S.A.C.F.

both armories, were subject to months of discussion, and finally got into Congress before complete settlement was effected.³⁶² Much greater stir, however, arose out of Robb's appointments and dismissals. Of these the most significant was the relegation to a subordinate position of Joseph Weatherhead, expert Master Armorer and at various times Acting Superintendent, and the substitution as Master Armorer of the same bayonet forger who had used his relationship to the local congressman to serve his private ends in 1833. Bates took office on January 1, 1834, receiving his appointment three weeks later.³⁶³ This act was the signal for a storm of protest which reached Jackson himself. The townsfolk had become vitally interested in the Armory, as is shown by the following letter, which, in spite of its partisanship, presents the subject in the clear white light of the passions of the moment.

“To the President of the United States.

In compliance with the wishes of your political friends in that vicinity, I herewith enclose to you a brief and accurate statement of the course of conduct pursued by the Rev. John Robb, since he has been appointed Superintendent of the Springfield (U.S.) Armory, Mass. The friends of the administration in that section of our country, be assured Sir, have no desire to trouble the Government in regard to their trials and difficulties, and would not now do so, had no longer forbearance, in their opinion, ceased to be a virtue, and the political disasters to the friends of the present administration consequent upon Mr. Robb's management of the Springfield Armory, become quite discouraging and disheartening. The party who have struggled so long and suffered so much, in sustaining the administration, stands humble and mortified before their political opponents, since almost every act and movement of Mr. Robb goes directly to encourage their efforts and increase their strength. His conduct and measures have made the Republican party feel that the Government is not only dishonored, but that the public interest is abused and suffering, and will continue to suffer essentially, from the imbecility, both of talent and management, of several of his new and insubordinate officers.

Without further remarks, I will detail to you, Sir, some of the official acts of Mr. Robb, that have rendered him so obnoxious to our truest and best friends in New England. Mr. R. commenced upon the duties of his new station on the 1st of November last – he found two gentlemen employed as clerks in his office, who had been some years in the employ of his predecessor, one of whom (Mr. Wm. F. Walcott) is a decided and uncompromising opponent of your administration, and the other (Capt. E. Warner, an officer in the late War) an inflexible and ardent friend both of yourself and your administration – a gentleman of superior talents and unblemished reputation. One of his (Mr. R's) first acts, without possibly knowing his worth or capability, was to notify the

³⁶² Robb to Rust, Nov. 16, 1833; to Benjamin Jenks, July 9, 1834; Bomford to Robb, Jan. 30, 1835; S.A.C.F.

³⁶³ Bomford to Robb, Jan. 17, 1834, in S.A.C.F.

last named gentleman, that his services in the Armory were no longer required, for the only reason that he wished to put his son in his place – while he retained, and yet retains in his office, Mr. Wolcott, an open opponent of the administration. His next movement was to recommend to the Secretary of War, and urge the appointment of Mr. E. Bates to the place of Master Armorer, the second officer in the establishment, who was an ordinary workman at the Blacksmithing business, and who is well known throughout that whole community, as entirely unfit and incompetent to perform the duties of the place, and who did not even know the names or uses, as can be abundantly proved, of the several component parts of a musket – and this too, where there were suitable and competent persons at hand. The Master Armorer is entitled to one clerk, and the next measure of Mr. Robb was to discharge the gentleman who had for some years been employed as Master Armorer's clerk, without assigning the least reason or pretext. The name of this gentleman is Mr. E.A. Clary, who was a Lieut. in the late war, and who uniformly has been a fearless and inflexible Republican – an ardent and constant friend and supporter of your administration. He has a large and dependent family, and is now in this City asking for some employment honorably to support them. The gentleman who Mr. Robb caused to succeed Mr. Clary is Mr. Lewis Foster, Jr. an acquaintance and friend of Duff Green, and one of the most violent and headstrong nullifiers in New England. The next movement in order, was the filling the office of Inspector in the U.S. Armory, made vacant by the resignation of an efficient political friend, Mr. John Newbury. This place Mr. R. filled by appointing Mr. John C. Stebbins – an open and most vindictive libeler of your honorable self, and a patron and subscriber to that vehicle of defamation and abuse, the National Journal, as long as it was published – although there were several worthy political friends who wished for the place.

In addition to the facts stated above, there have been many other changes and shifts in the more unimportant places of the Armory establishment, which, in the opinion of those of your political friends located in the immediate vicinity of the Armory, and who are very qualified to judge, instead of being useful or necessary to the public interest or to the establishment, will demean and injure both.

I cannot close this communication without adding that Messrs. Warner and Clary, the two clerks who had been discharged, in consequence of the able and efficient support which they have always given to your administration, had rendered themselves somewhat obnoxious to that portion of the New England aristocracy located in Springfield, and that it is confidently believed by our friends that they were dismissed from the public employment in consequence of representations made by some of the leading opposition in that section, the moment they found they could approach or influence Mr. Robb. I ought also to say, Sir, that in relation to the administration published at Springfield, and the only one for miles around, Mr. Robb's conduct has been most injudicious, not to say ungenerous. This paper (The Hampden Whig) has always zealously supported your administration, though it has a very limited patronage – is located within a few rods of the armory and its Editor has heretofore enjoyed the benefits resulting from the Government for that establishment. Mr. Robb, however, for reasons unknown, does not patronize this paper, but on the contrary has bestowed jobs of public printing to a considerable amount upon one of the most bitter assailants of your administration, the Editor of the Hampden Journal – notwithstanding his office is located about a mile distant

from the Armory.”³⁶⁴

Confronted with this epistle, Robb refuted the point with regard to Clary, and was fully exonerated by the President, who doubtless believed the protest to be inspired by faction within the party.³⁶⁵ Some difficulty was encountered in ejecting certain of the ex-officials from their houses on government land, but the storm was weathered with sails set.³⁶⁶ Nevertheless, this chapter found a sequel in the petition of Springfield people that Thomas Warner, an expert mechanic in the shops, be made Master Armorer, as much better fitted for the position than Bates.³⁶⁷ In this case the change marked progress, but it indicates the fluidity of Robb’s character.

In yet another incident the superintendent subordinated what he would have considered his principles to expediency. By hiring men from the armories of private contractors, he brought down on his hand the imprecations of several of them, and was called to account by the Chief of Ordnance, since his action violated a long standing agreement undertaken between Lee and his contractors.³⁶⁸ In a long apologia Robb held that he was not “bound to ask the consent of ... any one ... whether or not I shall employ a man in the service of the government. Such a principle is subversive of the rights and privileges of an American citizen....”³⁶⁹ Nevertheless, a few months later he took pains, before hiring an applicant, to ascertain whether or not the man had obtained the consent of his former employer to quit, “as it is my desire to preserve a good understanding between the National and private armories....”³⁷⁰

No government institution could have existed thruout the administration of Jackson and Van Buren without becoming mixed up in financial squabbles. By virtue of a general circular the deposits of the Armory were removed from the Springfield bank, and placed at Hartford. This resulted in an outcry from the local establishment, which took the form of a political appeal and let to a compromise whereby the two institutions shared

³⁶⁴ John P. Eldridge, Feb. 4, 1834, in S.A.C.F.

³⁶⁵ Robb to Caleb Rice, Feb. 12; Bomford to Robb, quoted the President’s approval of his conduct, Feb. 24, 1834; S.A.C.F.

³⁶⁶ Robb to Clary, Sept. 3, 1834; Capt. Bell to Howard, May 2, 1835, in S.A.C.F.

³⁶⁷ Bomford to Robb, July 27, 1837, in S.A.C.F.

³⁶⁸ Asa Waters Jr. to Bomford, Feb. 15; W.F. Walcott, superintendent’s clerk, to Lemuel Pomeroy, Mar. 8; Robb to Bomford Apr. 12, 1836; S.A.C.F.

³⁶⁹ Ibid.

³⁷⁰ Robb to P. & E.W. Blake, Aug. 9, 1836, in S.A.C.F.

the profits from the government business.³⁷¹ This agreement had been in operation only a year when the crash of 1837 deranged the whole currency system of the system. The Armory officials, by using government authority for dealing in specie only, were not seriously inconvenienced, and the workmen actually profited by the increased value of money. The previous autumn, piece work prices had been increased twelve per cent, certain day wages had been advanced, and clerks and inspectors were raised five dollars a month.³⁷² These moves had been extorted by the high prices and the emigration of workmen to the west, then bidding for labor of all kinds. The panic suggested a reduction of wages, but this was forestalled by Robb, who pointed out that altho many men were out of work, such were not trained gunsmiths, and further that prices at Springfield had materially decreased.³⁷³ When Congress came to feel the pinch, however, retrenchment was made the order of the day, and appropriation for the fiscal year 1841 was so small that all improvements and repairs had to be postponed, and the workmen's pay cut one third.³⁷⁴ The officers, having been put on a standardized scale of pay, did not suffer from this reaction.³⁷⁵

When the wages had been raised in 1836, the superintendent had attempted to enforce a regulation for compulsory service with the Armory fire companies. This effort elicited a long protest signed by three armorers, presumably the chiefs of the companies, reciting the reasons why it would be impossible to organize efficient fire fighters without pay. Chief among these reasons was the fact that firemen in the two companies received insurance, remittance of a poll tax, and exemption from military duty.³⁷⁶ In view of the fact that one of the town companies was stationed near the Lower Watershops, thus relieving the government of the maintenance of fire equipment at that place, other Armory fire companies had customarily helped to combat fire in the town. It was rumored that this particular town company would be removed in case the armorers should refuse to serve, a threat which brought Robb around to press the plea for the workmen for a stipend

³⁷¹ I.C. Bater to Lewis Cass, Sec. of War, Jan. 22, 1835, in S.A.C.F. Farmers and Mechanics Bank of Hartford to Robb, Mar. 26, 1835.

³⁷² Robb to Bomford, Aug. 1836; Bomford to Robb, July 15 and Sept. 28, 1836; S.A.C.F.

³⁷³ Robb to Bomford, Aug. 10, 1837, in S.A.C.F.

³⁷⁴ Talcott to Robb, July 29 and Aug. 15; Robb to Talcott, Aug. 1, 1840; S.A.C.F.

³⁷⁵ The storekeeper received the pay and emoluments of a Captain of Ordnance; clerks were paid seventy-five dollars a month. War Department Regulations of Oct. 19, 1838; Talcott to Robb, May 20, 1840; S.A.C.F.

³⁷⁶ Crosby, Hawkins, and Hall to Robb, May 5, 1836, in S.A.C.F.

of three dollars a year. In this fashion the town was helping to prevent excessive autocracy within the Armory.

No considerable alterations or additions were made to the plant during Robb's administration. On January 26, 1834, the schoolhouse was burned to the ground, cause a small financial loss and some inconvenience.³⁷⁷ Minor construction, such as a proof house, coal houses, cisterns, flumes at the watershops, were indulged in at a trifling total expense. Four brick dwellings for the accommodation of the workers were erected, pursuant to proposals by Lee. These are still extant in altered form among the quarters nearest the Annex Building.³⁷⁸ A picturesque outlay in paint transformed the buildings on the hill to "ordnance colour", which may be assumed to be the distinctive salmon shade still retained by the older buildings in Armory square – a decided architectural asset, in their setting of green or white according to the season, with the contrast of blue sky.³⁷⁹ An appraisal of the United States property in Springfield in 1840 set the figure of \$209,161.00 for lands and buildings. The buildings numbered eight-five, of which forty-six were shops, eight were storehouses, twenty-one were quarters paying rent, and the remaining ten were quarters furnished rent free to the officials.³⁸⁰

Toward the end of Robb's tenure of office the Ames quarrel broke out afresh, owing to the fact the Lower Watershops dam was rebuilt and made three and one half inches higher than it had formerly been. Robb expressed his willingness to restore the old level, but only after Ames had reduced the level of his own dam, in accordance with the request which Col. Lee had made years before. The matter was taken by Ames over Robb's head to the Secretary of War, and this precipitated the whole affair into the hands of the United States District Attorney, where the matter rested when Robb was dismissed from office in 1841.³⁸¹

The new Whig president, perhaps uncertain as yet whether to adopt the spoils system or not, took occasion shortly after his nomination to warn all government employees (Democrats) against "all partisan or active interference in elections, and the

³⁷⁷ Report of a committee, Jan. 28, 1834, in S.A.C.F.

³⁷⁸ Bomford to Robb, July 6, 1826, in S.A.C.F.

³⁷⁹ Robb to Bomford, Nov. 27, 1838; List of Expenditures, 1840; S.A.C.F.

³⁸⁰ Statement of the appraised value of the public lands, buildings, fences, ordnance yard & c at the Springfield Armory from latest valuation, dated 1840. S.A.C.F.

³⁸¹ Ames to Robb, Dec. 17; Robb to Ames, Dec. 21, 1840; Ames to Sec. of War, Jan. 61; Robb to Bomford, Jan. 21; John Mills, U.S. Dist. Atty. Mar. 23, 1841; S.A.C.F.

contribution of any assessment on salaries or official emoluments for party purposes....”³⁸² Meanwhile, the dissatisfaction which the Ordnance Department had felt for the management of the Armories under spoils rule, found expression in a recommendation of the Board of Ordnance to replace the civilian superintendents with officers of the Ordnance Corps. This met with the approval of the Secretary of War, and the President, a military man himself, no doubt saw the value of a military regimen. At all events, Whigs realized that here was a defensible mode of removing from office certain politicians of the rival camp, and the order was promulgated without waiting for the sanction of Congress, which had established the civilian superintendency by law.³⁸³ On April 15, 1841, Robb gave place to his successor, and Springfield became a stage for the bitterest public quarrel in the history of the Armory.

CHAPTER 6. **MILITARY VERSUS CIVIL CONTROL**

THE SETTING FOR THE STRUGGLE

On April 15, 1841, James W. Ripley, Major Of Ordnance in the Regular Army of the United States, arrived at Springfield, and on the following day took command of the Armory. This simple act proved to be the opening gun in a campaign waged with incessant bitterness for two decades, until the stress of the Civil War settled victory upon the military standard. The struggle symbolized the deep and abiding impress which the Armory had made upon the life of the town, for not only was armorer ranged against armorer, but citizen defied citizen, as well. The whole community was spilt again and again, upon the basic question of military versus civil control of the Armory – newspapers spat their venom, fingers were snapped in the face of the law in the most orderly section of the United States, and men were stoned on the streets – until the populace became grouped into two bitter and irreconcilable camps.

As often happens in cases involving principle, the controversy crystallized about personalities. Major Ripley became ex-officio the standard bearer of the military party. Connecticut born, West Point bred, a veteran of the 1812 and of the Seminole wars,

³⁸² Circular over the signature of the Sec. of War, Mar. 23, 1841, in S.A.C.F.

³⁸³ John Bell, Sec. of War, to Robb, Apr. 1; Bomford to Robb, Apr. 3, 1841; S.A.C.F.

afterward Chief of Ordnance during the Civil War, Ripley expressed in his personality the quintessence of military precision and discipline.³⁸⁴ Vigorous, assertive, stubborn, he undertook vast measures, carried them thru, and stood by them when they afterwards needed defense. Versed in the handling of army supplies from his earliest years in active service, he was transferred to Springfield from the Kennebec Arsenal, Maine, which he had commanded to the satisfaction of the War Department, as evidenced by his promotion. His principal opponent, Charles Stearns, was likewise a New Englander. Owing as his trade that of a mason, Stearns early began to deal in Springfield real estate, in coal, in lumber and in politics. He was a typical town boomer, instrumental in acquiring a metropolitan water supply, in instituting a sewer system and in encouraging railroad building.³⁸⁵ Needless to say, he was a politician; and he aimed, while pushing his town into the path of progress, to absorb a certain share of the increment attendant upon progressive ways. In the calm light of historic perspective, these two powerful citizens of Springfield, Ripley and Stearns, are seen to have every interest in common. Their joint endeavors might have advanced both the town and the Armory beyond the rosiest dreams, but unluckily they fell afoul of each other in matters affecting both pocketbook and dignity, thus wounding each other in vulnerable parts. Thenceforth unremitting war was in order, war to the death indeed, for Ripley left Springfield and Stearns died, before the agitation which they had stirred up lost itself in the Civil War.

ACTIVITIES OF THE NEW HEAD

One of the first acts of the new chief was the replacement of the Jacksonian Howard by Edward Ingersoll, who for a generation remained the Paymaster and Military Storekeeper of the Armory.³⁸⁶ Now, for the first time, the two principal officers at the Armory harmonized completely; without this concord Ripley's position would have been altogether untenable, for the new Paymaster was a strong man, who could and did assume responsibility for the execution of orders from Ripley, which he staunchly adopted as his own.

³⁸⁴ Chapin: op. cit., p. 114.

³⁸⁵ Chapin: op. cit., p. 351. Hall, E: "The Catholic Lot on the Armory Grounds" in 4 Conn. Vall. Hist. Soc. Papers and Proceedings, 1904-1907.

³⁸⁶ Ripley to Bomford, July 10, 1941, in S.A.C.F.

In a manner reminiscent of Col. Lee, Ripley promptly suggested comprehensive changes and improvements in the plant. In his first estimate of funds, submitted October 29, 1841, he asked for nearly thirty thousand dollars, one half for new machinery and flumes, the remainder for improving grounds and buildings.³⁸⁷ Already, during his first summer, he had painted the more important buildings on the hill, and he desired to continue this work, fence in the grounds, which he proposed to plant trees.³⁸⁸ It is noteworthy, because of later developments, that extensive repairs to the Superintendent's quarters were considered necessary at this date. This particular need was reiterated the following spring, when experienced builders surveyed the building and declared that it must be entirely rebuilt.³⁸⁹ The Secretary of War refused to consent to the measure, however, "at this particular time when every expenditure is the subject of misrepresentation and clamor."³⁹⁰ By midsummer the funds of the Treasury were reported so low that immediate retrenchment was imperative: "But as it is understood that extensive repairs to the works are necessary, which whenever made, will require a temporary suspension of manufacturing operations, it is supposed that this would be a suitable opportunity to undertake them, as you have funds on hand for that purpose. The renovation of machinery and completion of all necessary repairs will, moreover, enable you to resume your manufacturing operations more efficiently and to better advantage, whenever the causes, inducing the reduction of expenditure...shall be removed."³⁹¹ As a result of this letter, some forty men were at once discharged, followed in August by a shutdown of the entire plant, repairs being immediately undertaken. They were pushed with such success that operations were resumed on November 1, 1842, less than three months after the closing order was issued.³⁹²

In the meantime Congress had abolished the office of Superintendent of the Armories, and upon Majors H. H. Craig and J.W. Ripley as Commandants, devolved the duties which they had been exercising at Harper's Ferry and at Springfield, respectively,

³⁸⁷ Ripley to Bomford, in S.A.C.F.

³⁸⁸ Ibid.

³⁸⁹ Ripley to Talcott, now Chief of Ordnance, Apr. 25, 1842, in S.A.C.F.

³⁹⁰ Talcott to Ripley, May 2, 1842, in S.A.C.F.

³⁹¹ Talcott to Ripley, July 29, 1842, in S.A.C.F.

³⁹² Ripley to Talcott, Oct. 17; Talcott to Ripley, Oct. 28, 1842, in S.A.C.F.

for months past.³⁹³ This conclusion represented the crowning success of a long and bitter fight in Congress waged between the so-called military party, and the friends of civil administration. The struggle had been called into being by a visit to European arsenals made during 1840 by four members of the Ordnance Board, whose studies abroad had convinced them that greater efficiency in the National Armories of the United States might be obtained by placing them in charge of ordnance officers skilled in both the use and manufacture of weapons. Of these protagonists, Col. Talcott was the leader.³⁹⁴ It was the influence of the permanent officials of the War Department that had installed Major Ripley at Springfield by executive edict, before Congress had specified the appointment of a military officer to the position. (It should be borne in mind that the President had a legal right to appoint a military officer as superintendent if he chose to do so.)

As long as Ripley's position was technically that of civil superintendent, opposition to him, while outspoken, had not become rancorous. But when, after the shutdown, operations were resumed and certain of his critics within the Armory were not put back on the pay roll, the wrath of a section of the community knew no bounds. Ripley characterized his enemies as follows: "Among those who partook in the original excitement against me, were some who abused me too rankly ever to cease to hate me, because my remaining here is to them a perpetual memorial of their own injustice towards me.... There are others, whose services in the Armory I have thought were not required by the public interest."³⁹⁵ The standard by which he determined those whose services were not required by the public interest was the length necessary to go in order to correct – "irregular hours of work, leaving the shops at pleasure to attend to private concerns, reading newspapers during the hours of labor, and smoking in the shops. The most serious abuse of all was the established idea that the men were entitled to their places beyond the term of time for which they were hired, and could not rightfully be discharged without rendering to them a satisfactory reason. In truth, the pretensions of the

³⁹³ Regulation of the War Department, Oct. 1, 1842, signed by I.C. Spencer, in S.A.C.F. House Document #207, 2d Sess. 27th Congress.

³⁹⁴ Congressional Globe, n.s. v. 26, p. 871, 2d Sess. 33d Congress. Washington: Rives 1853.

³⁹⁵ Defense of Major James W. Ripley, read before the Court of Inquiry at Springfield, March 16, 1846, p.4. n.d., n.p., n. publ. Senate Document, #344, 29th Congress, 1st Session. Washington, Ritchie and Heiss, 1846.

men were such, as if yielded to, placed the establishment under their control....”³⁹⁶

Among those who had interested themselves in the cause of the civil superintendency was Charles Stearns, who now undertook remonstrance with the Commandant, and, in January, 1843, even a trip to Washington to confer with Col. Talcott, whom he had known when that officer was temporarily in charge of the Armory in 1833. Stearns was aroused by the distress which the discharge and suspension caused to many of the workmen, and still more by the fact that Ripley used the situation as an excuse to refuse work to those who opposed him in his contemplated reforms.³⁹⁷ New men had been brought into town, particularly a number of workmen from the Kennebec Arsenal who had served under Ripley at the station. Many of these were Catholic Irish, and the racial and religious animosity their presence awoke, added fuel to the fire already brightly burning as a result of Ripley’s acts. Stearns was peculiarly susceptible to the fact that so many of the Armorers thrown out of work “had invested all their spare earnings in neat and comfortable dwellings.”³⁹⁸ Being specialized laborers, most of them had to seek fit occupation outside Springfield, a course which would inevitably throw on the market a number of dwellings in the vicinity of the Armory. In the light of Stearn’s real estate operations, particularly his opening of Union and Worthington Streets (immediately south and north of the Hill Shops, respectively), and his ownership of much other property near the hill shops, it is not difficult to understand this solicitude. A lawyer on Springfield Hill, who had formerly been schoolmaster to the armorer’s children, testified that building on the hill had almost ceased after 1842, and that real estate had been very adversely affected.³⁹⁹ The pecuniary distress of the ousted armorers, unfortunate as it was, came as an inevitable concomitant of their own actions in the face of impending reforms.

OPENING OF THE STRUGGLE

The positions of the opposing factions appears from their own words, set forth during the preliminary skirmishes of the fight. A mass-meeting of citizens at the Town

³⁹⁶ Ibid. p.3.

³⁹⁷ Greer and Ingersoll: op. cit.

³⁹⁸ Stearns, Charles: Report of the Case of Charles Stearns against J.W. Ripley, passim. Springfield: G.W. Wilson, 1851.

³⁹⁹ Testimony before the investigating committee, Aug. 26, 1853, in the Springfield Post of that date.

Hall on April 15, 1842, just a year after Ripley's advent, drew up nine resolutions and chose a committee of three to proceed to Washington to present their case to high politicians there. These resolutions affirmed belief in a civil administration, asserted that the military superintendency was unjust and cruel toward the Armorers, treating them like machines, and expressed dismay at the "alarming ascendancy of the military power in our country." Out of the mixture of traditional conservatism and political buncombe was concocted a petition to Congress, signed by the citizens' committee and by a committee of three armorers, who took the case to Washington.⁴⁰⁰

Talcott, expressing the views of the military group, issued a counter-statement under five clear-cut heads, sharply in contrast to the muddled petition of the opposition. He averred that the number of men employed had been greater than necessary owing to the fact that they did not perform full days' labor; that the conditions at the Armory were superior to those at any private industrial plant – so much so in fact, that on the average forty applications a week were received from men desiring openings, and that formerly as much as \$300.00 had been paid for a man's chance in the Armory; that new regulations had been adopted, but that the old ones had been enforced, particularly as to fixed and full-time working hours, thus forestalling men who had been in the habit of working four to six hours a day and being absent days or weeks at a time.⁴⁰¹ In this connection it is important to note that new tariffs for piece-work were in process of adoption, which were justified by the machinery introduced during the two decades of sweeping improvements after 1820. The failure to keep these tariffs revised abreast of the times had made possible the accomplishment of a month's work (so-called) in a small fraction of thirty ten-hour days.⁴⁰²

By the time the plant was reopened for operation in November, 1842, the temper of the community had grown ugly. In December and January three fires occurred on United States property, which caused small loss, but created fury in Ripley's heart. The first of these was the result of an overheated chimney, but the disposition, formerly manifested on the part of the citizens, to aid in quenching flames on Armory grounds, was replaced on this occasion by surly gloating over the annoyance which the

⁴⁰⁰ Petition dated Apr. 16, 1842. Stearns: *op. cit.*

⁴⁰¹ Statement of G. Talcott, June 25, 1842, in *ibid.*

⁴⁰² Greer and Ingersoll: *op. cit.*

conflagration caused the superintendent. Ripley strongly urged “the erection of a high and permanent fence,” adducing as his reason for making the request, “the temper and disposition manifested by the rabble...: it being such as to excite, if possible, still stronger fears than have heretofore been entertained for the safety of the public property at the post...”⁴⁰³ On January 2, 1843, a barn belonging to one of the government houses burnt down. Ripley’s comment shows increasing exasperation: “This is the third fire that has occurred at the post within the last six months, and the second which is to be traced to incendiaries.”⁴⁰⁴ He desired to offer a reward for their detection, but was counseled by his chief to incite the watchman to vigilance and to organize public opinion against destruction of property in lieu of either fence or reward.⁴⁰⁵

Stearn’s mission to Washington in the early part of 1843 having come to naught, the agitation in Springfield continued, to the end that Stearns and two others were delegated to proceed once more to Washington. There in July, they so impressed the Secretary of War, James M. Porter, of the importance of their case, that he determined to follow his petitioners to Springfield, in order to make a personal investigation. This he did in the very same month. While he was in Springfield, in order to make a personal investigation, a group of citizens presented to him a defense of Major Ripley, which was drawn up by George Ashman, lawyer, politician and influential citizen. This remonstrance declared that “great improvements new vigor and economy, have been introduced into the ... public work; that... Major Ripley has been governed by a strict fidelity to the Government, and has manifested extraordinary ability....”⁴⁰⁶ Ashmun and some of his associates had originally opposed the change to the military regime, and their opinion may have been influential in causing Secretary Porter to support the Commandant against his detractors. In October he put his decision in writing to Stearns and his associates, in part as follows: “The establishment is in good order, and the work conducted with care and attention. The expenses of manufacturing do not appear to have been increased, and the foundation has been laid by the erection of new machinery, for a considerable improvement in the uniformity of a construction of the various parts of the

⁴⁰³ Ripley to Talcott, Dec. 16, 1842, in S.A.C.F.

⁴⁰⁴ Ripley to Talcott, Jan. 3, 1843, in S.A.C.F.

⁴⁰⁵ Talcott to Ripley, Jan. 9, 1843, in S.A.C.F.

⁴⁰⁶ Stearns: *op. cit.*

arms, and an estimated reduction... of the expense of manufacture.... The officer in charge must necessarily exercise his own discretion in the employment of the hands.... As the Government pays as high wages as any individual, it has a right to expect from those employed a return of industrious application to business.... The troubles on both sides have grown more of infirmity of temper and irritation of language, than by anything showing moral obliquity on either side.”⁴⁰⁷ Thus worsted, Ripley’s assailants withdrew from the field, but the conflict was postponed, not finished.⁴⁰⁸

CONTINUED IMPROVEMENT AND RENEWED STRIFE

During these acrimonious years, improvements were being pushed with energy. The old magazine of 1783 was torn down in 1842 and the materials were used in needed construction.⁴⁰⁹ Estimated for funds to be used in repairs and improvements during 1843-1844 totaled \$161,000.00, and although they were materially pared by Washington agencies, new machinery and new buildings, besides repairs to old ones, were constantly in progress.⁴¹⁰ Indeed, so considerable was the business offered by the Armory to local firms, that Stearns forgot, for the moment, his animosity, and begged to be permitted to supply the Armory with lumber.⁴¹¹ The practice of furnishing private armories with iron, an outgrowth of Robb’s administration, proved a nuisance and was discontinued.⁴¹² Master Armorer Warner having left to assume new duties at Whitney works, Ripley arranged to have successors of his own choosing appointed, though the kaleidoscope of incumbents of that office during the years 1842-1848 seems to indicate that the general conditions in the plant, or the particular difficulty of serving a task-master of Ripley’s type, made the office less pleasant than it had formerly been.⁴¹³ Lee’s idea of rectifying boundary lines of the government land was resurrected.⁴¹⁴ To crown all, the practice of rendering an annual report of operation was instituted in 1845.⁴¹⁵

⁴⁰⁷ Porter to Stearns, et al., Oct. 23, 1843, in Stearns, op. cit.

⁴⁰⁸ Cf. Ripley to Porter, Aug. 22, 1843, in S.A.C.F.

⁴⁰⁹ Ripley to Talcott, Aug. 9.; Talcott to Ripley, Aug. 11, 1842; S.A.C.F.

⁴¹⁰ Ripley to Talcott, Oct. 18, 1842; Talcott to Ripley, Apr. 8, 1843, S.A.C.F.

⁴¹¹ Stearns to Ripley, Aug. 4, 1843, in S.A.C.F.

⁴¹² Ripley to Bomford, Nov. 2, 1841; Ripley to Contractors, Dec. 14, 1841; S.A.C.F.

⁴¹³ Ripley to Talcott, Aug. 19; Talcott to Ripley, Oct. 16, 1843; Otis Holmes to Ripley, Sept. 16, 1844; S.A.C.F.

⁴¹⁴ Ripley to Talcott, Apr. 13, 1844, in S.A.C.F.

⁴¹⁵ Talcott to Ripley, Feb. 7, 1845 in S.A.C.F.

In the breathing space intervening between Stearns's earliest and his subsequent attacks, scope for fighting propensities of the commandant was furnished by the renewal of the dispute with Ames over the dams on Mill River. An award was made by a viewing committee of three on June 28, 1842, and given technical expression in a survey made by an engineer for the Western Railroad Corporation, employed jointly by Ripley and Ames, paved the way for a peaceable settlement of the difficulty. Ames' dam, ascertained to be six feet two high, was accordingly reduced; the United States dam, being only a few more inches than legal height, was left untouched, whereat Ames renewed the controversy (in the spring of 1844). The case, which had been in the courts for a year, was by this action continued.⁴¹⁶ The Armory correspondence is dumb as to the outcome of the suit, but the matter lost interest for the United States in 1845 and 1846, when operations at the Lower Watershops were discontinued, owing to the substitution of steam for water power in certain operations.⁴¹⁷ For a decade the original site of manufacture of the National Armory was rented; it was finally sold.⁴¹⁸

The active resumption of the feud between Ripley and Stearns was occasioned by the plans of the commandant for improving the hill grounds. In brief, these plans comprised the purchase of additional land on the north and west of the government holdings on the hill, grading and planting the tract, laying out roads around the margins of it, fencing the remaining ground, and the construction of new buildings on a comprehensive scale.

In the spring of 1843 permission was granted by the Ordnance Office to tear down the old superintendent's quarters, using the proceeds, which sale of the materials might bring back, for the erection of a shelter for the new steam engine about to be installed.⁴¹⁹ This was the initial step in a long series of sales of dwelling houses, receipts for which were turned into the fund for repairs and improvements. Unfortunately for the peace of Springfield, it infuriated Stearns, who had built the house during Lee's administration, and who considered its condemnation and destruction an insult to his business

⁴¹⁶ Ames to Ripley, June 12; Ripley to Ames, July 7; Ripley to Franklin Dexter, Oct. 30, 1843; Ripley to Emory Washburn, et al. (the viewing committee), May 11, Ripley to I.C. Bates, May 28, 1844; S.A.C.F.

⁴¹⁷ Report of Operations for the Fiscal Year ending June 30, 1845, in S.A.C.F.

⁴¹⁸ S. Merrick to Ripley, Feb. 10; Ripley to Talcott, March 10, 1846; Feb. 14, 1849; Talcott to Ripley, Feb. 21, 1849; Ingersoll, Doolittle & Co. to Ripley, Aug. 25, 1852; Christian Sharps to Ripley, Sept. 22, 1852; S.A.C.F.

⁴¹⁹ Talcott to Ripley, Apr. 20, 1843, in S.A.C.F.

integrity.⁴²⁰ During the same period, several of the better dwellings were moved and altered to fit the new landscape plan.⁴²¹ In 1845 the cellar for the Commanding Officer's new quarters (now Quarter #1, still occupied by the Commanding Officer) was dug, and the imposing edifice commenced to rise. During the autumn Lincoln and Magazine Streets were projected, and the latter was actually fenced off in November.⁴²² Lincoln Street was opened during the Fiscal Year 1848.⁴²³ In passing it should be stated that Ripley owned all the property opposite the East (Federal) Square between Armory Street and the location of Magazine Street, besides certain parcels on the brow of the hill.⁴²⁴ Such land as was not bought by the United States could, with the laying out of marginal streets, be platted and sold for residential purposes. The shrewdness involved in thus placing money in his private pocket with his official hand may strike the moralist with horror; but it is worth noting that Stearns, in all his endeavors to defeat Ripley, never publicly criticized this procedure, also it cannot be doubted that it cut him to the quick to find that his avowed enemy was his successful rival in real estate promotion. In fairness to Ripley, it may be supposed that all this land was intended by him to be added to the Armory plot upon receipts of available appropriations; this was done with all real estate owned by him west of Armory Square, and there is no evidence to show that he profited from the transactions. Col. Lee had followed the same practice.

The site of the Commandant's new quarters was a part of a considerable acreage newly purchased on the north and west sides of the Armory Square and contiguous thereto. It had been purchased from several different owners in 1845.⁴²⁵ The intention to procure the remaining parcels of land lying on the slope of the hill was obvious to the whole community. Owners of the property therefore booted their prices, on the well-trying principle of holding up the government. Ripley had foreseen this, and had craftily stated the consideration in certain cases to be less than that actually paid but yet a reasonable sum, "in that the owners of contiguous territory, in consulting the County Records, might

⁴²⁰ Stearns, *Op. cit.*, p. 4. Ripley to Talcott, May 23, 1844; Jan. 2, 1845; May 9, 1846; Talcott to Ripley, Apr. 29, 1846; Memoranda, 1845-1855; S.A.C.F.

⁴²¹ Report of Operations *cit.*; Memoranda *cit.*; S.A.C.F.

⁴²² Ripley to Talcott, Sept. 27; Talcott to Ripley, Oct. 2, 1845; Memoranda *cit.*; S.A.C.F.

⁴²³ Report of Operations, 1848, in S.A.C.F.

⁴²⁴ Smith, Marcus, and Jones, H.A.: *Map of Springfield*. New York: N. Drips, 1851. In the collection of the Springfield City Library Association.

⁴²⁵ *The National Armories: A review of the system of superintendency, etc.*, p. 50. Springfield: Wilson, 1852.

have no information which could govern them in affixing prices to their own, in case of any future purchase from them on the part of the Govt. It was thought that this object could be better accomplished in the way referred to than by mentioning a price evidently nominal.”⁴²⁶ To make assurance doubly sure, the road (Prospect Street) which had from time immemorial stretched across the training field, and which in 1827 had been laid out as a street, but, never quite claimed to the town, was in 1845 closed, and a fence built along the property line of the United States. This move effectually shut off from public roadways all the property which Ripley wanted save that abutting on the Boston Road. It so chanced that one of the lots belonged to Charles Stearns, and another had formerly been owned by him, until he sold it in 1843 for church purposes to the Roman Catholic congregation of Springfield, lately organized with a nucleus of Irish workmen recently come to labor in the Armory and on the railroad.⁴²⁷ When, in April 1845, the priest and a number of his parishioners attempted to stake out the ground of their church, they found their property cut off from the road by Ripley’s fence. Calling Stearns into conference resulted in a decision to move forward with the work, even though it necessitated crossing the ground fenced in. This was promptly met with a prohibition from Ripley against traversing United States property. The issue was thereupon joined.

RIPLEY VS. STEARNS ONCE MORE

The case was replete with delicate complexities. First of all, it was necessary to settle the exact boundary line between federal and private property; then came the question of right of way across the public ground, reserved in the deed of 1801 which gave title to the nucleus of the Armory Square.⁴²⁸ Once these legal questions were settled, there still remained the religious issue, which in mid-nineteenth century New England was capable of serious complications, (the Catholic community itself, in part economically dependent upon the pleasure of Major Ripley, was reluctant to push the matter, but could not afford to sacrifice its property); finally the whole quarter inevitably revived the old animosity between Ripley and Stearns, and with it the community feud,

⁴²⁶ Ripley to Talcott, Mar. 15 and 19, 1847, in S.A.C.F.

⁴²⁷ Hall: in 4 Conn. Vall. Hist. Soc. Papers, p. 218.

⁴²⁸ In 1843 Ripley had ascertained that so long as a single way was maintained across the ground the requirements of the Deed of 1801 were fulfilled. George Ashmun to Ripley, Mar. 3, 1843, in S.A.C.F.

which had rested quiescent but smoldering for two years.

Stearns laid the matter before W.L. Marcy, Secretary of War, who happened at the time to make a visit to Springfield. Receiving no satisfaction from that source, he took the law into his own hands on the following day, when, with eight workmen, he tore down the fence and a small tool shed which Ripley had had moved into the disputed roadway.⁴²⁹ The fence was immediately replaced by the Armory carpenters, and that very night cut down once more.⁴³⁰ By this time Ripley was so enraged that he turned the matter over to the United States District Attorney, who instituted proceedings against Stearns and his cohorts for riot and for malicious trespass. The trial on the former charge was held at Boston in July – the promptness being probably due to the influence of Ripley and the Secretary of War, both of whom urged speed in the prosecution.⁴³¹ At the end of the hearing covering eight days the jury returned the verdict of not guilty. The case of malicious trespass was continued to the next term of Court.

The Catholic parish, wishing itself well out of the mess, entered upon negotiations with Ripley for the purchase of the lot which they owned, and in October the United States came into possession for the sum of \$400.00. This did not by any means close the case, however, for both Stearns and Ripley were determined men, and the question of Prospect Street was still unsettled. Moreover, Stearns still owned a lot of abutting on that street, and so had a personal interest in continuing the agitation.

During the summer of 1845 Stearns brought an action in the state court against Ripley for trespass, alleging that Ripley had deposited poles and erected a fence on property claimed by Stearns as his own. This cause was subsequently carried to the supreme court of the Commonwealth, where the plaintiff was sustained. On September 30, 1845, while Stearn's suit in the state court was pending, the United States District Attorney brought in the United States Court a counter suit for forcible trespass. This and the earlier indictment for malicious trespass were kept alive for some three years, much to Stearn's annoyance.⁴³² In the meantime, Ripley maintained the fence against all

⁴²⁹ June 19, 1845. Rescript of the case of the U.S. v. Charles Stearns et al., head in the District Court of the United States sitting at Boston, in *Springfield Republican*, July 19, 1845. Cf. Stearns: *op. cit.* pp. 22-23.

⁴³⁰ Stearns: *Statement in the Springfield Republican*, June 23, 1845.

⁴³¹ Ripley to Robert Rantoul, U.S. Dist. Atty., June 20, 1845; W.L. Marcy to Robert Rantoul; in Stearns: *Report of the case of Charles Stearns against J.W. Ripley*, p. 36.

⁴³² Stearns: *op. cit.*, pp. 35-76. *The National Armories*, *cit.* p. 54.

opposition and continued to purchase property in the vicinity.

To the legal prosecutions was added pressure out of court. On October 1845, Ripley received a letter from the President of the Western Railroad Corporation, George Bliss of Springfield. Friendship and business association with Stearns, and personal resentment aroused by Ripley's high-handed methods of gaining possession of a pasture belonging to Bliss and wanted for the Armory, dictated this epistle.⁴³³ The railroad had by deed of 1840 obtained rights to all the water from springs in the ravine to the north of Armory Square and to rights of way across adjacent property.⁴³⁴ Purchase by the United States in 1845 of the southerly slope of this ravine and subsequent grading and terracing of that part of the Armory grounds were alleged to have damaged these interests of the railroad. The object of Bliss's letter was to threaten an injunction against further improvements.⁴³⁵ To this Ripley returned a reply.⁴³⁶ The matter hung fire for several years, to be cleared up in the end by the payment on the part of the United States of \$1000.00 for all water rights of the Western Railroad Corporation (June 19, 1842).

PLANT IMPROVEMENT

The activities which had given Bliss a hold on Ripley were part and parcel of a comprehensive scheme for improving the appearance and the efficiency of the plant. Arrangements were made with the Town of Springfield whereby the Boston Road (sometime called State St.) and Mill and Hickory Streets, near the watershops, were widened and straightened by means of an exchange of property.⁴³⁷ As these changes added considerably to the property holdings of the United States and therefore entailed a payment to the Town, it required two years for their consummation, which took place in 1848. The changes paved the way for considerable improvements: at the Lower Watershops the intersection of Pine and Mill Streets was broadened; at the Upper Watershops a way was provided for the permanent bridge across Mill River which still exists, and easy angles of approach were opened to the several converging streets leading to the bridge; on the hill it became possible to decrease the grade of State Street and to

⁴³³ Bliss to Stearns, Jan. 19, 1846, in Stearns: op. cit. App. pp. 13-14.

⁴³⁴ Hampden County Registry of Deeds, Book 110, p. 336.

⁴³⁵ Bliss to Ripley, Oct. 30, 1845, in S.A.C.F.

⁴³⁶ Nov. 26, 1845, in S.A.C.F.

⁴³⁷ Town Records, Apr. 6, 1846. John Mills to Ripley, Apr. 23, 1846, in S.A.C.F.

revise the slope of the Armory grounds in such a way as to permit the erection of the iron fence on that side, plans for which were taken in hand in 1850.⁴³⁸ A small remaining strip along State Street was vested in the Trustees of the School Fund, who for some time tried to extort an exorbitant price from the United States. Finally, however, finding that Ripley could not be browbeaten, they completed the State Street frontage of the Armory grounds by sale in 1851.⁴³⁹

The whole decade beginning in 1845 is a record of extensive construction and of replacement and improvement of buildings, machinery, and grounds. Some of the more important and lasting works deserve brief mention.

In 1845-46 the Commanding Officer's Quarters were constructed. The machine shop (Annex) was extended sixty-one feet and a wing of fifty feet was directed to the north, both of these being two stories in height. Thus the building was given much its present day appearance. Its construction was a response to the satisfaction given by the new steam engine, of Ripley had reported a week earlier: "The utility of steam power at this establishment is essentially felt in its being so constantly available at all times during working hours entirely unaffected by the frosts of the winter or the drought of summer by both of which our operations by Water are often seriously interrupted.... The exhaust steam is conducted in pipes through the departments of the shop and is a safe and effectual method of warming the rooms whereby stoves and fuel are saved."⁴⁴⁰ A brick cistern of 30,000 gallons capacity was excavated near the new quarters, (this still is evidenced by the iron cap a few years northerly of the northeast corner of the Main Arsenal), and another 700,000 gallons capacity near the Machine Shop. These were intended primarily for fire protection. In 1846-47 construction concerned itself chiefly with water shops since abandoned or rebuilt, but the "new arsenal" (Main Arsenal) was began during this fiscal year, as well as the building for the storage of stocks and lumber (Long Storehouse). These structures were completed by the end of fiscal year 1850, thus crowning the most ambitious building operations ever undertaken by the Armory at one time. During the same period the dam at the Upper Watershops was raised five feet, the

⁴³⁸ Ripley to E.D. Beach, Chairman of the Board of Selectmen, Sept. 23; Beach to Ripley Sept. 24, 1850; S.A.C.F.

⁴³⁹ Ripley to Beach, July 9, 1851, in S.A.C.F.

⁴⁴⁰ Ripley to Talcott, Nov. 7, 1845, in S.A.C.F.

land thereby flooded was purchased and the necessary new works was constructed. This project had been urged by the Commandant in 1847: “Much difficulty has existed at the Upper Watershops for some time past, in consequence of an insufficient supply of water, and immediate measures should be taken to enlarge the pond. This desirable object can now be easily accomplished, but insuperable obstacles are likely soon to arise, in the purchase of Mill Sites at higher points upon the stream, which is contemplated by other parties. A new building, at the same Shops would also very much facilitate our operations....”⁴⁴¹ Appropriation was made the following year, and the work was completed in 1849.

As Ripley himself phrased it, each of these works, either on the hill or at the watershops, was “part and parcel of a system of improvement.”⁴⁴² Nevertheless, his main interest lay in the hill shops, and he conceived it “very desirable to consolidate as many as possible of the operations in the manufacture on the Hill. The experience of every hour shows this....”⁴⁴³ While bending every effort to improve the plant layout, the pride which he took in the appearance of the grounds, was responsible for a number of expenditures which the strict utilitarian would not have considered necessary. The embellishments of the new arsenal and the Commandant’s quarters caused reference to be made to his “spacious repositories” and his “magnificent mansion.”⁴⁴⁴ But he was not content with erecting fine edifices. He spent such funds as could be made available over several years in purchasing additional land which, because of its slope, could never be used for building. Other money expended for grading the newly purchased ground, for planting shade trees, for laying gas mains about the square, for putting down stone flagging for sidewalks around the square, and for fencing the whole of the United States property.⁴⁴⁵ Armory Square was fenced with pickets and high boards during the first four years of Ripley’s administration – this step he had taken as a measure of protection of government property. The unsightliness of such fences disturbed him, however, and as soon as he had obtained the bounds he desired, he set about arranging for a means of inclosure which

⁴⁴¹ Ripley to Talcott, Aug. 24, 1847, in S.A.C.F.

⁴⁴² Ripley to Col. H.K. Craig, Chief of Ordnance, Oct. 8, 1852, in S.A.C.F.

⁴⁴³ Ibid.

⁴⁴⁴ Stearns: op. cit.

⁴⁴⁵ The terraces north of the Long Storehouse were made during these years, and the land west of the Main Arsenal was similarly terraced, but there the elevation of the of the water table and the easily gullied soil shortly necessitated the establishment of the gentler slope still maintained.

would satisfy the eye and serve amply for protection. Obviously an ornamental fence of iron would be just the thing, but the expense was prohibitive. Finally it was hit upon to utilize scrap iron in possession of the government for pickets, and the native bedrock. Longmeadow sandstone, a fine-grained red stone, quarried four or five miles away, for the foundation and posts. On August 17, 1847, Ripley leased a convenient quarry, and immediately commenced drawing from its materials for the foundation and base wall of the fence.⁴⁴⁶ It was not until May, 1852, that the patterns of the pickets and gates were approved. Then the work was rushed with all possible speed. The casting was done by Cyrus Alger & Co., founders, of South Boston, Mass., at a charge of three cents a pound, payment being made at the rate of three and one-half cents a pound in old cannon and other condemned castings of the Ordnance Department, which had been assembled at Newport, Portsmouth, and New London.⁴⁴⁷ The product was inspected by the Master Armorer of Watertown (Mass.) Arsenal.⁴⁴⁸ By the end of fiscal year 1853 the fence along the whole length of the State Street line of Armory Square was completed, together with the brick walk up the hill to the main entrance. The main entrance was at that time just below the crest of the hill on State Street. Owing to a later regrading of the street, this entrance had to be closed, but the gates are still in place. The Byers Street line was next in order, but before completion of this part of the fence the War Department had been overtaken by a new fit of legislative penury, and the remainder of the fencing had to be postponed until subsequent administration.⁴⁴⁹

Most of the attacks on Ripley administration were based on expenditures not strictly utilitarian. The ratio these bore to expenditure for machinery and for fabrication, throws light on the validity of the attacks made upon the Commandant. \$125,000.00 to \$180,000.00 was allotted annually to the item "Manufacture of Arms." This was less on the average than had been customary for some years before Ripley's advent, but it was more than made up by allotments varying from \$32,000.00 to \$125,000.00. for repairs and improvements. One half to two thirds of amounts so allotted were devoted to

⁴⁴⁶ Ripley to Luke Kibbe, Jr., Oct. 7, 1847, in S.A.C.F.

⁴⁴⁷ Ripley to Alger, June 8, 1850, in S.A.C.F.

⁴⁴⁸ Letters between Ripley and Alger, 1852-1853. Especially Alger to Ripley, March 16, and Dec. 5, 1853; S.A.C.F.

⁴⁴⁹ Springfield Daily Union, April 2, 1914. Memoranda, 1844-55; Annual Statements of Operations, 1846-1854, inclusive; S.A.C.F.

buildings and grounds; the remainder went for repairing machinery and equipment. Land was purchased under specific allotments, apart from all regular expenditures. It thus appears that the amount spent for manufacturing purposes was only slightly less than had been usual, and that most of the very considerable sums spent on improvements would not have reached Springfield at all but for Ripley's efforts. Adding to this the facts that during the last four years of his incumbency the shop produced annually more arms than in any previous years, and that the cost of the arm was reduced, it must be said that his administration appears efficient and progressive.⁴⁵⁰

Such justice, could not, of course, be expected from his contemporaries, embittered by years of strife, and outraged by the stubborn continuation of projects, such as grading, fencing and tree-planting, which served admirably as points of attack because they were not necessary. In January, 1846, while the heat generated by the strife over the closing of Prospect Street, a number of citizens of Springfield addressed to Congress a memorial demanding an investigation of Ripley's conduct and administration. The outcome of this was the institution of a military court of inquiry, under the presidency of General John E. Wool, which sat in Springfield for about a month during February and March, 1846.⁴⁵¹ Among the charges, which numbered thirteen, were (a) discharging artisans without cause and the substitute of unskilled hands; (b) harshness in treatment of armorers; (c) collection of money under various false pretences; (d) encroachment on rights of town and individuals.⁴⁵² The memorialists failed to prove a number of their points, but they did succeed in showing the Ripley had put pressure upon some of the workmen to terminate their subscriptions to certain newspapers, particularly the Independent Democrat, published by Apollon Munn, one of the committee who had in 1843 carried to Congress his opposition to Ripley.⁴⁵³ A few other and minor points in the accusation were admitted by Ripley, but these were not such as to warrant his removal. As a consequence the court of inquiry exonerated him, and indeed, whitewashed him so completely that the Springfield Republican, which had been Ripley's staunch supporter,

⁴⁵⁰ Assignment of annual allotments, in letters of Talcott, Craig and Capt. Maynadier of the Ordnance Office, to Ripley; S.A.C.F.

⁴⁵¹ Booth, A.: "Historical Reminiscences of Springfield," in Clogston: op. cit. v.1, p. 28.

⁴⁵² Defence of Major James W. Ripley, cit. pp. 5-15.

⁴⁵³ Reply to the Defense of Maj. James W. Ripley. By the Memorialists. Springfield: Wood and Rupp, 1846, pp. 26-27.

lamented the job on the ground of such gross partiality that “the effect will be far less conclusive upon the public mind than if an impartial and more just report had been written which certainly could have been done, without altering the final verdict of the Court.”⁴⁵⁴

This prognostication was more than vindicated, for within a year Stearns had given notice that he would take possession of his property on Prospect street.⁴⁵⁵ Ripley immediately sent to Stearns a promise of repeated prosecution for trespass, and the agitation subsided to a simmer until 1850, after the action pending against Stearns in the United States Court were dismissed by the federal attorney. Then Stearns brought suit against Ripley in the Circuit Court of the United States at Boston, for malicious prosecution. It was heard in the November term, 1850, and threshed out the whole question of the boundary line, reviewing the so-called riot of 1845. When the evidence was all in the judge instructed the jury that the action could not be sustained, and Stearns was compelled to return home without a triumph.⁴⁵⁶ His failure to obtain results from the courts had been a signal, for even his legal victories had been Pyrrhic ones, and the next two years saw the accomplishment of Ripley’s objective, viz. the government ownership of all the land on the major slope of the hill. This denouncement rendered absurd further attempts to maintain Prospect Street as a public road. Stearns succeeded in compelling Ripley to pay handsomely for the property which he owned on the disputed roadway. In December, 1847, the question of price was submitted to three disinterested parties, and Ripley’s counsel paid double their award, - in other words, twice the fair market value. To save face, the title passed from Stearns to the Armory counsel in person, and the next year (1848) the United States came into possession through his intermediary. Even so, Stearns was not fully recompensed for the costs of maintaining several expensive actions in court. Nevertheless, his spirits shortly received balm in a temporary victory through the legislative wing of government. In 1848 he had sent a fourth memorial to Congress, reciting the events which had centered about the affair of 1845.⁴⁵⁷ Liberal use of italics played a spot-light upon the military arrogance manifested by the haughty commandant

⁴⁵⁴ Springfield Daily Republican, May 4, 1846.

⁴⁵⁵ Ripley to Stearns, May 27, 1847, in S.A.C.F.

⁴⁵⁶ Stearns: *op. cit.* pp. 35-76.

⁴⁵⁷ Stearns: *op. cit.*, pp. 14-15.

against a simple citizen of the commonwealth.⁴⁵⁸ Nothing came of it at the moment, but in 1851, Talcott, who as Chief of Ordnance had valiantly upheld Ripley's arms, was cashiered and ignominiously dismissed from the military service, for cause unconnected with the issue of the Armories, but nevertheless greatly to the discredit of all projects which he had championed.⁴⁵⁹ His successor, Col. H.K. Craig, who had been in command at Watertown and later at Harper's Ferry, proved less able or less willing to push Ripley's case. In 1852 the Democratic Party once more obtained the Presidency, a shift which redoubled the efforts of the spoilmen (who felt the incoming party to be their champions). The Armories were plums too juicy to be overlooked by the office-seekers, and the new President proved no match for the onslaught. In advance of his inauguration, a carefully organized movement brought before Congress a petition signed by residents of both Springfield and Harper's Ferry, appealing for a return to the civil superintendency.⁴⁶⁰ This was matched by a remonstrance of citizens favoring the retention of the military supervision, but Stearns and his cohorts were equal to the occasion with an appeal to Franklin Pierce in March, 1852.⁴⁶¹ Letters poured in upon members of Congress, and a petition signed by five hundred Springfield voters was laid before the Senate on February 22, 1853.⁴⁶² Ripley had discerned the game as early as the autumn of 1852, and when the matter came up for debate in Congress, he was on hand.⁴⁶³ In vain! A proviso in the appropriation act for the fiscal year 1854 authorized the President to appoint a commission to investigate and report on the advisability of reverting to the civil superintendency.⁴⁶⁴ In a special order of the War Department dated July 8, 1853, the commission or "select committee" was announced to consist of two Army officers (one Engineer and one Artillery officer,) and four men prominent in politics.⁴⁶⁵ During the later summer and early autumn the commission sat intermittently in Springfield, while temper grew more and more feverish.⁴⁶⁶ By September Ripley saw that the Armories no longer stood in the sunshine of political favor, and in an effort to

⁴⁵⁸ Ibid.

⁴⁵⁹ War Department Bulletin, July 8, 1851.

⁴⁶⁰ Dated Jan. 1, 1852: Springfield Daily Post, Aug. 9, 1853.

⁴⁶¹ Ibid.

⁴⁶² Congressional Globe. V. 26, PP. 788-794. Washington: Rives, 1853.

⁴⁶³ Ripley to Craig, Sept. 17, 1853, in S.A.C.F. Pencil notation on letters, S.A.C.F.

⁴⁶⁴ Approved Mar. 3, 1853, Stat. at Large v. 10. ch. 98.

⁴⁶⁵ Craig to Ripley, enclosing copy of S.O. 9, 1853, in S.A.C.F.

⁴⁶⁶ Aug. 1, to Oct. 22. Springfield Daily Post, passim.

lessen criticism he refrained from sending to Washington any requisition covering special expenditures, as had been his custom.⁴⁶⁷ In so acting he saved himself the effort of making out the estimate of funds needed, for Congress went so far as to cut the appropriation of the manufacture of arms nearly one third, thus necessitating the discharge of a number of workmen. Such a procedure, occurring at the moment when the community was inflamed with a renewal of the feud, was bound to have disastrous results, as Ripley saw. His fearlessness of consequences is sharply illustrated by his own words:

“The necessity of a reduction of hands... places me at this time in a somewhat embarrassing position as I feel sure, from past experience, that it will be seized upon to raise a clamor against me and my management of the Armory, the more especially as, in making the reduction, I shall, of course, retain those, who in my judgment are the most worthy to be retained, and shall discharge those who are least so. Consideration of this nature, however, will not be allowed to interfere with the performance of an obvious duty.”⁴⁶⁸

On the last day of the commission’s sessions, Ripley sent to them a sharply drawn statement of his own viewpoint of the whole situation.

“The attempt to break down the present system originated with those who have, under it, been excluded from work or deprived of jobs or contracts at the Armories, by which under the former one they profited. These have succeeded in enlisting in their cause persons interested, directly or indirectly, in private manufacture of arms, and whose interests are opposed to an economical manufacture of the same by the Government; others who like to see the question of a change agitated simply as a matter of excitement, and some also who go with them from honest sympathy with what they believe to be wrongs inflicted by an officer of the Army, and who have not taken the trouble to investigate the matter so far as to find out whether the wrongs are imaginary or real,.... Revengeful feelings, self-interest, or mistaken sympathy constitute the true motives which have led to this agitation on the subject of a change in the management of the Armories.

A civil superintendent must be more under the influence of the dominant political party, than an Army officer detailed for the duty without regard to his political opinions. He would naturally be disposed...to favor such of the workmen as belonged to his own party, more than those opposed to him politically: and his interests would prompt him to favor most those workmen who have most influence with the voters....

The essential difference in this aspect between a civil and a military superintendent, in my judgment, is that the former must be, as he has been, controlled by the operatives of the Armory, while the latter always will control them, as he always

⁴⁶⁷ Ripley to Craig, Sept. 17, 1853, in S.A.C.F.

⁴⁶⁸ Ripley to Craig, Oct. 24, 1853, in S.A.C.F.

has....”⁴⁶⁹

The investigation brought out the fact that the labor turnover under the military administration had been slightly greater than under the civil regimen.⁴⁷⁰ Some damning evidence was produced to show that threats of the dismissal or promises of promotion were now and then used to induce armorers to support the Episcopal Church (that of the Commandant,) and to exert favorable force in Town Meetings.⁴⁷¹ Yet the report of the chairman of the investigating committee to the House of Representatives of which he was a member, brought out nothing adverse to Ripley.⁴⁷² It was contended with scant show of proof, that the military superintendency was oppressive to the workmen, that the plant was improved while wages were kept down, and that the civil form of control was more in keeping with American institutions than the military. Something was deducted from the value of these contentions by unrefuted charges, which had all along been made, that the change was desired for the sake of the spoils.⁴⁷³ The chairman of the Committee on Military Affairs in the Senate had said “here are two institutions intended for the nation, and the localities in which they exist want to get possession of them. This is the whole struggle.”⁴⁷⁴ In 1854 a letter of Jefferson Davis, then Secretary of War, to the Speaker of the House declared that one of the members of the committee was himself a candidate for the superintendency, and that of the nine witnesses examined by the committee at the two armories, six were candidates for one or another official position within the armories. The committee conclusively proved its guilt by a strenuous effort to prevent the printing of this letter.⁴⁷⁵ In spite of all this evidence, however, the cards were stacked against the military superintendency. Another trip of the Commandant to Washington in the spring of 1854 was as futile as preceding ones.⁴⁷⁶ Meantime he was subjected to innumerable annoyances. Men who had spoiled materials in their work and had paid for the loss in

⁴⁶⁹ Ripley to the Board of Commissioners, Oct. 22, 1853. Quoted in Stearn’s Scrapbook of the investigation, Springfield City Library Association Collection.

⁴⁷⁰ Springfield Daily Post, Aug. 26, 1853.

⁴⁷¹ The National Armories, etc. cit., pp. 62-64.

⁴⁷² July 13, 1854. Cong. Globe, n.s. v.29, pp. 1050-1052. Washington: Rives. 1854.

⁴⁷³ Debate in the Senate, Feb. 23, 25, 26, 1853. Ibid. v. 26, pp. 788-794, 850-852, 867-869. Washington: Rives, 1853.

⁴⁷⁴ Ibid. p. 851.

⁴⁷⁵ Ibid. v. 28, part 3, pp. 2107-2109-2110. Washington: Rives, 1854.

⁴⁷⁶ March 17 to April 15. Penciled notations on letters; S.A.C.F.

accordance with a well established custom at the Armory now dug up musty pay accounts on which they demanded redress. It was repeatedly asserted that the guns being made were inferior to those made upon the civil administration, until Ripley sent affidavits of eleven officers and inspectors of the Armory as to the quality of the arms.⁴⁷⁷ The select committee, which had six months before closed its activities in Springfield, required new statements of the cost of the improvements made to the plant.⁴⁷⁸ Ripley characterized the effects of all this agitation as “a feeling of restlessness or feverishness – an unsettled apprehensive state of mind pervading the men in the establishments.”⁴⁷⁹

The burning question was consuming the rival energies of the town, as well as those of the Armory, and even at Washington feeling ran so high that it threatened to revoke all appropriations for the National Armories, and to allow all the gunsmithing for the Armory to be done by private contractors, or else to remove Armory operations to the west.⁴⁸⁰ So nearly had the opponents of the military system overreached themselves, that the representatives in Congress for the district in which lay the private armories of Middletown and New Haven, dared to say in the House: “...if this military system is carried out it will end in the withdrawal of all contracts from private individuals...”⁴⁸¹

Great effort was made to avert this catastrophe: money was contributed by the manufactures of arms in several towns of southern New England; counsel in the investigating commission was obtained in Hartford, one of the contractors’ strongholds: the only member of the commission not holding a federal office was from Middletown, another stronghold; and the Congressional representative above quoted met unofficially in Springfield with the select committee.⁴⁸² The Secretary of War, Jefferson Davis, a West Pointer himself threw his influence against the dismantling of the National Armories. While favoring the continuance of military rule, he was disposed to punish Springfield for agitating against it, but removing the Armory to some place in the west. Such a move at the same time flatter the vanity of the upstart West, snatch a fat political

⁴⁷⁷ Ripley to Craig, Nov. 2, 1853, in S.A.C.F.

⁴⁷⁸ R.H. Stanton to Jefferson Davis, May 17, 1854, in S.A.C.F.

⁴⁷⁹ Ripley to Craig, Oct. 4, 1853, in S.A.C.F.

⁴⁸⁰ Report of the Sec. of War to the President, 1853.

⁴⁸¹ Quoted by “Springfield,” in the Springfield Daily Republican, Nov. 13, 1853.

⁴⁸² Ibid.

tidbit from a Whig stronghold, and strengthen Davis in his own section.⁴⁸³ A minority report of the investigating committee, made public at the time of presentation of the majority report, held that the charges which had been made against the military regime were frivolous, and could be traced to firmness in administration in almost every instance.⁴⁸⁴ It was, however, the unpopular side. On August 5, 1854, the President approved an act repealing all laws authorizing “the appointment of Military Officers to superintend the operations at the National Armories in accordance with which the Ordnance Department instructed Ripley to turn over command of the Springfield plant to his master Armorer, pending the appointment of his successor.⁴⁸⁵ Since the Master Armorer had been an appointee of Ripley’s, it might be supposed that he would likewise lose his official head.⁴⁸⁶ Very likely it was thought best to retain some expert knowledge of armory management in view of the fact that the new superintendent was certain to be a purely political appointee.

The pressure of applicants for the recreated office of superintendent seems to have caused congestion in the stream of official activity, for it was two months before the new head was appointed. The staid and fearless Daily Republican said of the new incumbent: “Gen. James S. Whitney is to receive the appointment of superintendent of the U.S. Armory here. He has been at Washington, made application, and been successful. It cannot be pretended that he has any peculiar fitness for the post, beyond that of being a leading supporter of the administration in Massachusetts, and one of the earliest here to publicly endorse the Nebraska iniquity. To this, we suppose he owes his selection. And it is not unjust to predict that his appointment will inaugurate at the armory just that system of political corruption which is and will ever be the great evil of the civil superintendence so long as the national government is administered upon the principles that have distinguished the administrations since Jackson’s day, and especially mark the now reigning one.

General Whitney is a politician of considerable ability, and a gentlemen of poplar

⁴⁸³ Davis, Report cit. Cf. “Springfield” in undated letter, presumably to the Springfield Republican, about Jan. 1, 1854. S.A. Collection.

⁴⁸⁴ Washington, D.C. Star, July 15, 1854.

⁴⁸⁵ Stat. at Large, v. 10, ch. 267. Ripley to E.S. Allin, Master Armorer, Aug. 16, 1854, in S.A.C.F.

⁴⁸⁶ Ripley to Craig, June 14, 1853, in S.A.C.F.

manners.”⁴⁸⁷ His inauguration became the signal for great rejoicing among the friends of the civil administration. An exuberant Springfield correspondent to the Baltimore Clipper wrote under date of Oct. 18:

“Col. Ripley...sells his private furniture today. Preparations were made yesterday for firing a grand salute today....
Tonight we meet to make arrangements for the grant jubilee! which is to be given in honor of our success over military despotism after thirteen years of fight. The Secretary of War, in the teeth of the expressed sentiment of Congress, has appointed Col. Ripley inspector over all the Armories. Mechanics to look to it! Ripley goes to Washington to reside! Already too many Army officers surround the law-making power at Washington!....”

It was a great day for Stearns and his backers. A parade featured the armorers whom Ripley had discharged, salutes were fired morning, noon, and night and a banquet would up the celebration.⁴⁸⁸ Their noisy display offered marked contrast to the quiet dignity with which Ripley had taken leave of office. On September 26, one hundred and seventy-five of the citizens, including most the substantial names of the place, subscribed to a testimonial lauding Ripley’s services, and requesting him to set a date for a farewell banquet. In the earnest response to this show of confidence, Ripley lay thanked the signers heartily, but insisted that no celebration be made, saying that his “taste and judgment have ever been opposed to any such demonstrations, as a reward for the simple performance of a soldier’s duty.”⁴⁸⁹

CONTINUATION OF RIPLEY’S PROJECTS

The new civilian administrator was the first head of the Armory to inherit a thoroughly well-organized, efficient plant. Even Robb had to cope with a somewhat run-down condition of affairs, owing to Lee’s long illness, and to the hap-hazard supervision of 1833. But if he found a smoothly running machine, it was not unattended with perplexities. The Congress which had ejected the military superintendent had refuse to make an appropriation for repairs, and the allotment for the manufacture of arms fell far short of the average for the preceding quarter century.⁴⁹⁰ New operations would require

⁴⁸⁷ Oct. 18, 1854.

⁴⁸⁸ Green: op. cit. p. 491.

⁴⁸⁹ Ripley to Col. J.M. Thompson, et al. Oct. 16, 1854, in the Springfield Daily Republican, v. 2, #247.

⁴⁹⁰ Craig to E.S. Allin, Sept. 27, 1854; Craig to Whitney, Mar. 5, 1855; S.A.C.F.

improvements at the water shops or extension of the steam power plant on the hill. The unfinished fence remained a standing challenge, and upkeep on Ripley's improved plant entailed outlay of both money and energy. Most distracting of all was the onset of parties who, famished by the fat contracts during the military period, now redoubled their efforts to bend the spoils administration to their will. Typical of these episodes was the exertion of the Salisbury iron producers. This took shape in a combined petition of four firms of the district to the Secretary of War, representing that their product had been used by the Armories from their inception until within a few years, when Norway iron was substituted therefore.⁴⁹¹ Luckily for Whitney, he could deduce proof that the only purchase of iron he had made had been from one of the top four complaints, that every year since the foundation of the Armory some iron had been obtained abroad, that for five years past five-sixths of the total number of muskets fabricated had been made from the Salisbury iron, and that every chief of the establishment had sincerely desired to patronize American mines – so earnestly, indeed, that they had continued to buy Salisbury iron in spite of its inferior quality, as proved by the fact that condemnation and losses from bad metal averaged twenty-five per cent, greater than in the case of foreign iron.⁴⁹² His private view of the origin of the criticism shows the unfortunate quarrel of the preceding in a new light: "I believe the complaints that have arisen have proceeded mainly from the fact, that private manufacturers have diverted the business of making guns for the Government so much from the National Armories that the consumption of iron at these establishments has been materially lessened.... So that if the entire business of supplying our Armories with iron had been given to the Salisbury manufacturers, our demands would have been insufficient to meet their wishes."⁴⁹³ Milder wording was substituted in the letter sent to the Chief of Ordnance, but this first draft shows how adversely private ends had affected the public workshops.

In his prompt and decisive handling of this matter, Whitney proved himself the able politician which the Republican had characterized him. In fact, he soon saw clearly that Ripley had been right in nearly all of his measures, and he shortly adopted the most important of them, relying for their execution upon the officers who Ripley had left him.

⁴⁹¹ S.V. Scoville et al. To Jefferson Davis, Feb. 20, 1855, in S.A.C.F.

⁴⁹² Order of Dec. 12, 1854, in S.A.C.F.

⁴⁹³ Whitney to Craig, Mar. 15, 1855, in S.A.C.F.

He even sought and received backing from Ripley himself, who, as inspector, made periodic visits to Springfield.⁴⁹⁴ At the same time he took good care not to antagonize his original supporters; so, having the War Department, the Executive and the politicians at his back, his administration was crowned with success. An admirable illustration of his views and his technique is afforded by his recommendation with regard to his successor, at the moment of his departure for Boston, where in 1860, he took up the duties of Collector of the Port. To President Buchanan he wrote: "The Office of Superintendent, is not purely a political one, but mainly in its duties relating to the management of a Manufacturing establishment. Therefore I beg to express the hope, that while no one not a friend of your administration will receive the appointment, at the same time special regard may be had to the business capacity of the appointee. Having no doubt of the wisdom of your ultimate selection of the man...."⁴⁹⁵

Among Ripley's shattered schemes was the completion of the Armory tract and its enclosure with suitable fences. Whitney undertook to continue with the fence in June of 1855. His only alteration of Ripley's arrangement lay in the transfer of the contract for casting from Alger to the Ames Manufacturing Company of Chicopee.⁴⁹⁶ The move was in every way desirable, but it seems to have been prompted by personal friendship, rather than by business principles. James T. Ames, head of the concern, remained throughout Whitney's term of office, his confidential business advisor. The contract for a quarry having expired, Whitney preferred to have the stone furnished by the regular purveyors; A.S. Dwelly of Longmeadow was the recipient of orders for this part of the fence.⁴⁹⁷ The Federal Street side was completed during the fiscal year 1856, and in the three years following, stone was hauled and the castings made for much of the remainder. Actual construction was forced to await completion of roadways in Byers and Pearl Streets. The former was fenced by the middle of 1860, but it was left to Whitney's successor to complete the Pearl Street side, thus enclosing the principal square with the enduring and dignified cordon which still surrounds it.⁴⁹⁸ In 1855 a wooden fence four feet high inches high with iron posts, was erected around the "East Square" (Federal Square), and now for

⁴⁹⁴ Whitney to Craig, Sept. 20, 1859, in S.A.C.F.

⁴⁹⁵ Mar. 1, 1860, in S.A.C.F.

⁴⁹⁶ Whitney to Alger, June 4; to Ames Mfg. Co. June 2, 1855, S.A.C.F.

⁴⁹⁷ Whitney to Dwelly, Oct. 1855; Aug. 26, 1859; S.A.C.F.

⁴⁹⁸ Reports of principal operations, 1856-1860, in S.A.C.F.

some years cleared of buildings.⁴⁹⁹

Completion of the fence waited for a long time upon the purchases of land to the west and north of Armory Square. One such plot belonged to George Bliss, but overtures which were made for its purchase in 1855 were held up because no appropriation was available.⁵⁰⁰ In this juncture the superintendent did not scruple to resort to the ancient practice of importuning local members of Congress, Sumner being the victim of this particular case.⁵⁰¹ His pleas seem to have been effectual, for six weeks later he was apprised that by joint resolution of Congress he was authorized to exchange or sell the Lower Water Shops, and thereby procure the coveted land on the hill.⁵⁰² Whitney insisted on a sale at auction, on the ground that “there are parties, who... would be disposed to misinterpret the fairest and most honorable sale that could be made, if thereby they could make political capital, or subserve private ends.”⁵⁰³ In July the public auction was held, and title to the original federal tract in Springfield passed to Josiah D. Weston of Dalton, Mass. And William Birnie of Springfield, the consideration being \$13,500.00⁵⁰⁴ with a part of the fund thus secured, the Bliss tract and an adjoining one belonging to Ames, were procured for the Armory Square. Except of a triangular plot of ground at the junction of Federal and the prospective Pearl Streets, Armory Square was not complete. Grading was immediately commenced on Byers street, but it was found necessary to add a strip twenty-one feet wide to provide for the necessary embankment.⁵⁰⁵ This explains the curious property line of the United States between Frost and Pearl Streets. The tiny triangular patch mentioned, caused enough trouble to cap fittingly the tedious business of acquiring considerable contiguous property within the limits of a city. Need to complete the extension of Pearl Street to Federal caused the owner, Horace Kibbs, to demand the fanciful price of \$650.00 for it.⁵⁰⁶ Craig utterly refused to consent to paying such a sum, and emphasized the possibility of a “graceful curve” in the street; even when the figure

⁴⁹⁹ Whitney to Col. B. Huger, Nov. 16, 1855; Geo. Dwight and William Stone to Ripley, Sept. 26, 1853, S.A.C.F.

⁵⁰⁰ Whitney to Bliss, June 21, 1855, in S.A.C.F.

⁵⁰¹ Whitney to Charles Sumner, Mar. 18, 1856, in S.A.C.F.

⁵⁰² Craig to Whitney, May 3, 1856, in S.A.C.F.

⁵⁰³ Whitney to Craig, May 5, 1856, in S.A.C.F.

⁵⁰⁴ Whitney to Ames, July 11, 1856, in S.A.C.F.

⁵⁰⁵ Whitney to Craig, Nov. 14, 1856, in S.A.C.F.

⁵⁰⁶ Whitney to Craig, Oct. 25, 1858, in S.A.C.F.

was cut to \$325.00 he remained obdurate.⁵⁰⁷ When Whitney's successor undertook to lay out such curve, its grace appealed so little to the citizens of Springfield that the Mayor took up a proposal to procure the property and turn it over to the United States for a nominal sum. This was readily agreed to, and the street was laid out straight at a cost to the federal government of \$5.00.⁵⁰⁸ One more indication that the people of Springfield now saw that their interests were inextricably entwined with those of the Armory. Whitney carried on the work of grading and planting the grounds, much in the spirit of his predecessor. The terrace below the Main Arsenal "having been repeatedly broken and much injured by springs which issue from the hillside and by the action of frosts and snow" was in 1856-57 replaced "by a regular and gradual slope."⁵⁰⁹ This change enabled the brick culverts constructed in 1849 and 1855 to carry off into State Street all surplus waters.⁵¹⁰

At the Watershops, besides the sale of the lower privilege already alluded to, Whitney undertook extensive changes which resulted in the consolidation of the Middle and Upper shops at the latter site, and the creation of modern Watershops Pond. Among his first official act was a report on the dilapidated condition of all of the watershops. Ripley had intended to remove most of the operations to the hill, but the experimental stage through which steam power was passing deterred him from taking so radical a step. He had raised the dam at the Upper Shops five feet, using the foundations installed under Lee's supervision, but no important new buildings had been provided. It followed that Whitney found the buildings unsafe for the workmen and the Middle Shops dam endangered by the approach of winter with its ice and the ensuing spring freshets.⁵¹¹ At first he was undecided whether to urge removal of the whole plant to the hill, or reconstruction of the watershops.⁵¹² He concluded to present alternative plans, but favored the combination of water and steam. To carry out the project was estimate to cost a little more than 350,000.00 whereas the initial outlay for a steam plant would be less than \$200,000.00. Considering the upkeep, however, an annual saving of \$8,500.00

⁵⁰⁷ Craig to Whitney, Oct. 27, 1858, Sept. 22.; Whitney to Craig, Sept. 20, 1859; S.A.C.F.

⁵⁰⁸ D.L. Harris, Mayor, to I.H. Wright, Aug. 9; Wright to Craig, Aug. 11; Craig to Wright, Aug. 14.; Wright to Harris, Aug. 16; Harris to Wright, Aug. 22, 1860; S.A.C.F.

⁵⁰⁹ Report of operations for the Year 1857, in S.A.C.F.

⁵¹⁰ Ibid. 1849, 1855.

⁵¹¹ Whitney to Craig, Nov. 17, 1854, in S.A.C.F.

⁵¹² Whitney to Cyrus Alger, Mar. 24, 1855, in S.A.C.F.

would accrue to the combined system. This prospect, together with the fact that the site for the water power was already owned by the United States, served to hold part of the operation on Mill River.⁵¹³ In the fiscal year 1856 old buildings were removed, and construction was begun during the summer. By the end of the next season (1857), the shop, arched raceway and canal had been completed, the latter extending to the site of the dam of the Middle Watershops. Then followed the new dam, ten feet higher than before, together with a continuation of the canal to the point three hundred feet below the old Middle Shops dam. In 1860 the road was laid out along the canal. Buildings for forging, rolling and other special operations were completed at about the same time.⁵¹⁴ The huge expenditure which these works entailed seems to have occasioned no outcry.⁵¹⁵ Such is the magic of political potions! The new pond overflowed about eighty-one acres formerly above water, compensation for which was made under the Act of Congress of March 3, 1857, in the form of damages.⁵¹⁶

A still further addition to the new Upper Water Shops (henceforth the Watershops) was the “Magazine Lot” on the edge of the pond. Upon it in 1860 was erected a powder magazine, to replace that which Lee had put up in Hatch’s Pasture near the Garden brook a generation earlier. Besides being more convenient than its predecessor, it absolved the superintendent from the responsibility of storing powder in a place which had “long been deemed... unsafe for two reasons: one, and perhaps the most important is its exposed location, being near a railroad, which has been constructed since its location. The other is the dilapidated condition of the building.”⁵¹⁷ The title to the old site was allowed to lapse in accordance with instructions from Washington, it being on the farm of Major Ingersoll, Paymaster of the Armory, who secured the new site in order to clear his own property of encumbrances.⁵¹⁸

If Whitney followed, and perhaps outran, Ripley, in the matter of acquiring land and erecting buildings, he also ran him a close second in dealing with the workmen. Evidence is lacking as to increases in wages and enforcement of discipline. But soon after

⁵¹³ Craig to Davis, June 29, 1855; Endorsed by Sec. of War the same day; S.A.C.F.

⁵¹⁴ Reports of operations, 1856-1860, S.A.C.F.

⁵¹⁵ Notification of allotments 1856-1860, in S.A.C.F.

⁵¹⁶ Whitney to Craig, Sept. 2; Maynadier to Whitney, Sept. 5, 1857, S.A.C.F.

⁵¹⁷ Whitney to Craig, Apr. 16, 1859, in S.A.C.F.

⁵¹⁸ Craig to Whitney, May 20, 1859, in S.A.C.F.

his arrival he made an effort to press every able-bodied workman into the fire brigades, just as Ripley had done.⁵¹⁹ In contrast, however, to Ripley's brusque military manner, his was invariably suave and considerate. In the late summer of 1856, failure of Congress to pass the annual appropriation so embarrassed the Ordnance Department, that both the armories were ordered to "discharge all workmen and other employees, not holding commissions from the President, whose pay, wages, or salaries are taken from the appropriation for the manufacturing of Arms...."⁵²⁰ In transmitting this order to the men Whitney assured them that the War Department, the Ordnance Office and the Superintendent had "used every honorable effort to avert the calamity...."⁵²¹ This assurance converted the first reactions of the men affected from criticism to understanding and the passage of the hoped-for act and revocation of the order on August 30, prevented the growth of soreness over the lay-off. The superintendent's tact was such that the episode passed with scarcely a flutter of excitement.⁵²²

The civil superintendent proved to be as obdurate as the military commandant against removals of his staff. Of Ingersoll's remaining there was no question, doubtless because of his personal political strength in the town. The technical staff was composed of the Master Armorer and the Master Mechanic, E.S. Allin and Cyrus Buckland, respectively. Together they were devising machinery to handle the new type of arms then being introduced, particularly a device for the complicated operation of rifling gun barrels. Buckland was the mechanical genius, but Allin possessed a good business head, got on well with the workmen, and had grown up in the plant, his father having been foreman of the Middle Water Shops for many years. The combination was matchless, as Whitney well knew. Nevertheless, a persistent effort to dislodge him was made by a few of the old enemies of Ripley. As Whitney had been forced to reengage such of these men as had been discharged by his predecessor, the stir was fomented within the walls of the Armory itself. The crisis was precipitated when a letter, written by the ringleader of this war-to-the-death group to an official in Washington, fell into the hands of Whitney himself. From this document it appeared that the wires had all been laid for the

⁵¹⁹ Whitney to the foreman of the fire companies, Feb. 1, 1855, in S.A.C.F.

⁵²⁰ Ordnance Office Circular, Aug. 26, 1856.

⁵²¹ Whitney to the Foremen and Employees, Aug. 27, 1856, in S.A.C.F.

⁵²² Telegram Craig to Whitney, Aug. 30; Davis to Whitney, Sept. 1, 1856; S.A.C.F.

substitution of Henry D. Smith, one of the commissions which had urged the ejection of the military superintendent, for Master Armorer Allin. The Secretary of War had been talked into agreement by certain political figures, but delayed making the change until he should have “a pretext or reason.” It was surmised that the delay was really due to the influence of the Ordnance Office – “perhaps they... think if Allin is removed, they will be entirely cut off from gaining information against the operations of the Civil System...” Allin was declared to be altogether unqualified for his position:

“He was not a mechanic or Gunsmith, has no business tact or qualifications, was brought up a clerk... the duties he performs are useless, or worse than useless, and have the effect to retard the progress, and improvement in the work, perplex and hinder the foremen and inspectors, ...& cause much dissatisfaction among the operatives.”

Whitney received the writer’s approbation:

“He has been anxious for a change ever since he came here, but situated as he is, he does not wish to take any active part in procuring a change. If he should be called on by the Secretary for a report in the case he would act promptly and decidedly...”⁵²³ He did. By way of a good beginning he recited the pedigree of the author of the letter: He “is a man who was discharged from this Armory by my predecessor and by me restored. I have after consultation with the Master Armorer, given him various kinds of work as we found him to be incompetent upon one job, we have found for him other work, until we recently put him to the least difficult part of the inspection.... He has been dealt by with more forbearance and with a stronger desire... on the part of the Master Armorer...to find for him an easy job...than any other man in the Armory.... He was one of the most ardent opposers of the Military supervision, & can not I think clear his perceptions, or overcome his prejudices against any man who favored the rule which he so long and so bitterly contended.

The allegations... in relation to Master Armorer Allin, are unjust and many of them entirely without foundation. Mr. Allin is a man of much tact, and of good application to business. He has more acquaintance... with the important details of the work at this Armory, than any new man could acquire in twelve months time. He is...generally acceptable to the Foremen operatives...I could wish he had more mechanical skill, but I believe him to be in many respects a superior man of his place . . .

Our gun... the execution of which is due chiefly to the mechanical Department of Armory I have no doubt is the best of its kind ever made in the world.

Our chief drawback here has arisen from a bitterness engendered in a few minds who desire control here and who are, in my judgment, unfit to have it . . .

Nothing could be more disastrous to the business and mechanical success of this establishment than the appointment of a man who would lend himself to opening former hostilities and again introducing war and strife, over an obsolete question, into our

⁵²³ John C. Stebbins to Friend Strictor, July 12, 1857, in S.A.C.F.

shops.”⁵²⁴

Notwithstanding his background, Whitney bowed to the line of military ideals with an accuracy which must have delighted the Ordnance Office. Needless to say, Allin was retained.

THE APPROACH OF WAR

While the local issue was thus subsiding under the suavity of Superintendent Whitney, a national issue was surging up which was soon to have desperate need for the best efforts of a united Armory. During the years following 1853 private contractors were given a steadily increasing percentage of the annual appropriations for the manufacture of arms.⁵²⁵ In 1856 the output of the Springfield Armory was barely more than that of exactly fifty years earlier, and less than in any other year of Armory history since 1798. But this fact may equally well be accounted for by the critical state of mind which Congress approached Springfield Armory problems during the rancorous days when the mode of superintendence threatened the quality of the output. At all events there was no niggardly spirit evinced when it came to making appropriations for buildings, and the plant had at no time before been half so fit as in 1860. Even this activity, however, was viewed with suspicion by a group of Springfield folk, who sensed that war pervaded the atmosphere. These people were acutely aware that, while Springfield was receiving liberal appropriations for improvements, Harper’s Ferry, located in the feared and hated South, was being granted more. A copy of the bill in the House of Representatives, carrying any appropriations for repairs, improvements and new machinery at the Ferry nearly doubled the amount set aside for Springfield, was marked and sent to Whitney with the following scrawl appended “Dear General – Look at the brackets above – What do you say to it? Let me hear from you in relation to the above. Yours, C.C. Chaffee.”⁵²⁶ Chaffee was a prominent Springfielder of the Civil War period, afterward closely connected with the Armory. During 1858 and 1859 the fund for the manufacture of arms was so small that numbers of the better workmen, finding themselves on part time pay,

⁵²⁴ Whitney to Craig, July 18, 1857, in S.A.C.F.

⁵²⁵ Craig to Whitney, Dec. 10, 1858, in S.A.C.F.

⁵²⁶ S.A.C.F.

accepted offers from private establishments and from State armories. Among them was Cyrus Buckland, the foremen of the Machine Shop, and son of the Master Mechanic of the plant.⁵²⁷ In an effort to keep his men, Whitney besought his chief to permit the Armory to work up scrap iron for the fence, a job which would give some sort of labor to the workmen, but nothing seems to have of his request. For a year before this, operations had been kept up by manufacturing arms for the Marine Corps, and by making alteration on old muskets for certain of the states. This went on for some time after the alteration of smooth bore guns in possession of the United States had been stopped, and it is suggestive to note that the state which figured most prominently in this relation was Virginia.⁵²⁸ Since Virginia possessed at this time the most efficient of all the State Armories, it cannot be doubted that the work done at Springfield was additional to the maximum output of the Richmond plant.

The climax was reached at the end of 1859, when the Secretary of War, ‘directed the distribution of 65,000 Percussion and 40,000 altered muskets, Cal. .69 from the Springfield Armory to five of our southern arsenals.....

The Arms should be cleaned, oiled and carefully packed, but will not require tin lined boxes.”⁵²⁹ A month later specifications for shipment were forwarded to the superintendent. “I have a request that transportation may be provided for the following number of muskets and rifles, to be supplied to the arsenals at Fayetteville, N.C., Charleston, S.C., Augusta, Ga., Mount Vernon, Alaba., and Baton Rouge, La, by direction of the Secretary of War.

From Springfield Armory to Charleston Arsenal	750 boxes
“ Watervliet Arsenal to “ “	100 boxes
“ Springfield Armory to No. Carolina	1250 boxes
“ Watervliet Arsenal to “ “	100 boxes
“ Springfield Armory to Augusta	1000 boxes
“ Watertown Arsenal to “	100 boxes.
“ Springfield Armory to Mt. Vernon Arsenal	750 boxes

⁵²⁷ Whitney to Buckland, Dec. 31, 1859, in S.A.C.F.

⁵²⁸ Craig to Whitney, Nov. 20; Nov. 30; Dec. 2; Dec. 9; Dec. 10; 1858; S.A.C.F.

⁵²⁹ Craig to Whitney, Dec. 31, 1859 in S.A.C.F.

“ Watertown Arsenal to “ “ “	100 boxes
“ Springfield Armory to Baton Rouge	1500 boxes
“ Watertown Arsenal to “ “	100 boxes
Total	5750 boxes

Each box contains 20 Arms, weighs about 300 pounds and occupies about 10 Cubic feet. The transfer of these arms may be made, from time to time, as may be most suitable for economy and convenience of transportation, and they will be held in readiness for delivery from Springfield Armory, Watervliet and Watertown Arsenals, at such time & in such parcels, as may best suit the arrangements which your Department may make for their transfer.”⁵³⁰ Dr. Chaffee, ever on the alert against southern aggression, is reported to have said, “it should take a long time to pack those guns properly.”⁵³¹ Despite protests, they were shipped during the year, forty thousand of them being model of 1822 altered to percussion locks, the remaining sixty-five thousand, models of 1842 and later, originally made as percussion locks.⁵³²

Meantime the secrets of the Armory were being laid before the South. In September, 1860, Secretary of War Floyd gave notice that two military men from Georgia were being sent by the state legislature “to procure statistical information as to the cost of erecting an Armory and a foundry for the manufacture of arms & c in that State.

During their stay in Springfield, I shall be pleased if you will show them the establishment under your superintendence, and give them the opportunity of obtaining the information they are seeking.”⁵³³ The following month the Master Armorer’s clerk resigned to become Master Armorer at the Virginia State Arsenal in Richmond.⁵³⁴ In December an application of “J.H. Buxton (sic), late of Enfield, England, now of Virginia State Armory” to be allowed free access to the drawings, machinery, tools, & c. at Springfield Armory was favorably endorsed by the Secretary of War.⁵³⁵ So many

⁵³⁰ Craig to Maj. Gen. Jessup Q.M.G. U.S.A., Jan. 28, 1860, in S.A.C.F.

⁵³¹ Quoted in Greene: op. cit., p. 521.

⁵³² Craig to Wright, Oct. 15: Wright to Craig, Oct. 16, 1860; S.A.C.F.

⁵³³ John B. Floyd to Supt. of U.S. Armory, Sept. 10, 1860, in S.A.C.F.

⁵³⁴ S. Adams, Master Armorer’s Clerk to Wright, Oct. 23, 1860, in S.A.C.F.

⁵³⁵ Maynadier to Wright, Dec. 4, 1860, in S.A.C.F.

instructions from the Secretary of War direct to the chief of the Armory had not been given in any previous decade of the institution's history, as Floyd issued within the year preceding the secession of South Carolina. From the direction in which all these straws indubitably point, it seems fair to conclude that the southern leaders were making every effort to be ready for war following succession, and that the North was both guileless and helpless to oppose such activity.

It was not until February, 1861, that brakes were set upon this headlong descent into the chasm of national military unpreparedness. Then, at least, the Chief of Ordnance addressed a confidential communication to the superintendent at Springfield, directing that only the new model musket (presumably that of 1855) be in future fabricated, and that the work to be presented as actively as possible. As the same time "all permissions heretofore granted for furnishing to States or individuals drawings, or models of machinery or of Arms are for the present suspended, and none of the articles prepared in whole or in part, under those permissions will be allowed to be removed from the Armory without further instructions from this Office." A caution was added to enforce this restriction as quietly as possible, and to report on projects which had been undertaken along these lines.⁵³⁶ To this Wright responded that the normal output for the plant was 800 guns a month, which could, by an addition appropriation, be increased to 1200.⁵³⁷ A few days later he received orders to make the necessary increase in the force, "the demands rendering it necessary."⁵³⁸

The crisis of April in Charleston Harbor was echoed by a crisis in the affairs of the Armory. Upon the Springfield Armory depended the speed and decision with which Lincoln's volunteers could be armed. Because of the high water at Harper's Ferry, that plant had already suspended operations, and its destruction a few weeks later put it entirely out of the running.⁵³⁹ Wright, undertook, in response to pressure from the Ordnance Office, to turn out two thousand muskets a month, and suggested doing away with the Maynard primer in order to effect a saving of \$1.75 in the cost of each arm and

⁵³⁶ Craig to Wright, Feb. 4, 1861, in S.A.C.F. Note that this was the date of the organization of the Confederate government at Montgomery. See, Hosmer, J.K.: *The Appeal to Arms*, p. 19. New York & London, Harper, 1907.

⁵³⁷ Wright to Craig, Feb. 5, 1861, in S.A.C.F.

⁵³⁸ Craig to Wright, Feb. 9, 1861, in S.A.C.F.

⁵³⁹ Craig to Wright, Apr. 16, 1861, in S.A.C.F.

to increase the production capacity of the plant to twenty-five hundred.⁵⁴⁰ He likewise set before the Department the desirability of installing a military guard about the Armory, and on his own responsibility (at the instigation of the town's mayor) doubled the force of watchmen, and provided them with weapons.⁵⁴¹

At this juncture the Armory and the Ordnance Office were visited simultaneously with a shake-up, which although confusing for a few days, undoubtedly redounded to the advantage of the Union cause in the long run. For sometime citizens of Springfield had been doubtful of Wright's strength of character, and his removal was effected shortly after the fall of Sumter. George Dwight, a local man of prominence in connection with public utilities, being named as his successor.⁵⁴² This came as a complete surprise to Wright, and for some days, owing to congestion on the railroads which delayed Washington mails, he was unable to obtain a confirmation of his dismissal.⁵⁴³ On April 25 the change in the superintendency was effected, and it was then learned that Lt. Col. Ripley had been assigned to the charge of the Ordnance Department "during the feeble health of the Chief," and had assumed command on April 24.⁵⁴⁴

REVERSION TO THE MILITARY COMMAND

The new order of the day was speed and increase in production. Early in May, Dwight reported that additions were being made to the machinery, and men were being taken on as fast as they could be advantageously put to use. Already the output had reached twenty-four hundred a month, with prospective expansion to three thousand the following month, by dint of these changes and a working day of eleven and a half hours.⁵⁴⁵ Helpful suggestions made from time to time by Ripley aided in getting under way plans for still further increasing the production capacity by construction of buildings and by addition of machinery.⁵⁴⁶ In July the output was about thirty-five hundred

⁵⁴⁰ Wright to Craig, Apr. 19, 1861, in S.A.C.F.

⁵⁴¹ Wright to Craig, Apr. 18, 1861, in S.A.C.F.

⁵⁴² Green: op. cit., p. 516.

⁵⁴³ Confirmation of telegram Wright to Craig, Apr. 22; Letter Apr. 24, 1861, S.A.C.F.

⁵⁴⁴ War Dept. Special Order 115, Apr. 23, 1861. Indorsement to Springfield Armory copy of S.O. 115, 1861, in S.A.C.F.

⁵⁴⁵ Dwight to Gen. J.E. Wool, May 3; to Ripley May 4, 1861, S.A.C.F.

⁵⁴⁶ Ripley to Dwight, May 15; June 3; July 5; Aug. 3; 1861; S.A.C.F.

guns.⁵⁴⁷ At this period the guard numbered sixty, within and without the shops, and additional gas lamps and fire engines were provided to aid them in their care for the United States property.⁵⁴⁸

Satisfactory as this progress must have been, no civil servant could have expected to satisfy Ripley, and that officer, since midsummer a Brigadier General by brevet, used the unlimited executive power of the War Department to reverse the legislative action which had transferred him from Springfield seven years before. In an act approved Aug. 7, 1861, the superintendents of the national armories were directed to be appointed from among officers of the Ordnance Department.⁵⁴⁹ In making his appointment to fulfill the terms of this law, Ripley took care to select a man whose tact and ability could not be impugned by anyone. Furthermore, when Capt. A.B. Dyer, Ordnance Department, U.S.A. took command of the Armory on August 21, 1861, he found himself in charge of a loyal body of furious partisans, whose zeal for the cause for which they worked could overlook any personal inconvenience whatever, if so be it furthered the common interest.⁵⁵⁰ The retention of Mr. Dwight as general supervisor of all operations flattered the local pride, and still further favored the reintroduction of the military system.⁵⁵¹

Thus after two bitter decades of strife, the white heat of patriotism destroyed the ancient and traditional antipathy to military control of the Armory, and in the necessity for efficient management, the greed of petty politicians gave way before the expression of a nation's idealism.

CHAPTER 7. **THE MODERN ARMORY**

PRODUCTION OF THE CIVIL WAR PERIOD

With the reinauguration of the military superintendent in 1861 the institutional development of the Armory received its ultimate stamp. Changes which have occurred since that time have been of minor import and in the nature of carrying out in practice the principle laid down between 1795 and 1861. Many of the old issues have occasionally

⁵⁴⁷ Dwight to Ripley, July 20, 1861, in S.A.C.F.

⁵⁴⁸ Dwight to Wool, May 3, 1861, in S.A.C.F.

⁵⁴⁹ Stat. at Large, v. 12, ch. 57

⁵⁵⁰ Dyer to Ripley, Aug. 21, 1861, in S.A.C.F.

⁵⁵¹ Ibid. Orders #1, Aug. 21, 1861, in S.A. Book of Orders, 1861-1893.

lifted their heads, as for instance the question of steam or water power for plant improvement. Significantly enough, that have all been settled in accordance with the established practices and policies. The center of interest for this period shifts to the production of the Armory, for between the Civil and the World wars the famous Springfield Rifle was elaborated. It remains, therefore, in this section of the study, to notice only such events and activities as illuminate the character of the modern institution, and to build a framework of recent history upon which the story of great mechanical achievement may be placed.

From the first day of Dyer's command the old contentions for personal liberty disappeared, to be replaced by a military snap in orders and their execution which Lee would have rejoiced and marveled to witness. In accordance with Congressional direction, each workman during the Civil War was compelled to swear to "support, protect, and defend the Constitution and Government of the United States against all enemies....and, ... that (he would) well and faithfully perform all the duties which may be required.... by law."⁵⁵² This gave the commanding officer a hold which he firmly grasped. Men who refused to take the oath were discharged by authority from Washington.⁵⁵³ On his first day he organized two shifts of ten and a half hours each, thus nearly doubling the output, at a stroke.⁵⁵⁴ Loitering, smoking, reading and peddling in the shops were forbidden, and conversation was limited to the subject of workmen's several duties. Absences for two days or less could be granted by the foremen, but report to the Commanding Officer was required.⁵⁵⁵ An ebullition of the workmen on an occasion of Dyer's absence was courteously but sharply reprimanded.⁵⁵⁶ Strenuous efforts were made to keep up the quality of the arms.⁵⁵⁷

The national exchequer was thrown open to the Commanding Officer, particularly for making improvements in plant and in equipment.⁵⁵⁸ In an emergency, caused by the unusually heavy demands for water to run night and day during the autumn of 1861, a

⁵⁵² Act approved Aug. 6, 1861, in Stat. at Large, v. 12, ch. 64.

⁵⁵³ Adjutant General of the Army to the Commanding Officer of Springfield Armory, Aug. 13.; Sept. 18, 1862; S.A.C.F.

⁵⁵⁴ S.A. Orders #3, Aug. 21, 1861. Book of Orders 1861-1893; Cf. Ripley to Dwight, May 1, 1861; S.A.C.F.

⁵⁵⁵ S.A. Orders #2, Aug. 21, 1861, in op. cit.

⁵⁵⁶ S.A. Orders Nov. 24, 1862, in *ibid.*

⁵⁵⁷ S.A. Orders, Sept. 7, 1863, in *ibid.*

⁵⁵⁸ Appropriations, 1861-1865, in Stat. at Large, vols. 12-13, *passim.*

steam engine was installed at the Water Shops.⁵⁵⁹ The next year it was replaced by a larger one, and ever since, the water power has been materially supplemented by steam. The Middle Arsenal was fitted up for manufacturing, need for storage space having diminished with war demands for the product. The long administration building of today was created by connecting the office with the north and south shops, and the capacity of these shops and of the east and west arsenals was increased fifty percent by the addition of a third story. Temporary sheds on Federal Square completed the wartime equipment of the plant.⁵⁶⁰ Some small transfers of real estate were undertaken, but comprehensive increments to the Armory lands were postponed until after the war.⁵⁶¹

The War not only concerted the government to the wisdom of military superintendency, but it necessitated the detail of subordinate officers to the Armory. The Ordnance Department personnel was increased by nineteen through the passage of an act of Congress approved March 3, 1863, and in the spring of 1864 two lieutenants were assigned to duty in Springfield.⁵⁶² During the latter part of the war there was an enlisted man of the Ordnance Department on duty, as well.⁵⁶³ The presence of enlisted personnel was a revival of a custom which Ripley had inaugurated. Indeed, only the reduction of enlisted ordnance forces in 1851 had prevented the enlistment at Springfield to be rated as armorers and artificers.⁵⁶⁴ But the custom, prevailing at some of the newer ordnance establishments, of performing considerable portions of the skilled labor with enlisted men, was never received with favor in Springfield, probably because of the active esprit de corps which existed there among the civilian workmen. A decade later there was organized at the Armory the detachment of ordnance guard which has since performed some the more exclusively military duties about the post. The practice of manning the Armory with Army officers has grown since 1864 to the point where the positions entailing direction, as distinct from administration, are almost always, nowadays, filled by Ordnance officers.

⁵⁵⁹ Dyer to Ripley, Oct. 24, 1861, in S.A.C.F.

⁵⁶⁰ Dyer to Ripley, Mar. 8, 1862; to Brig. Gen. George Ramsay, Chief of Ordnance, May 30; Aug. 16, 1864; S.A.C.F.

⁵⁶¹ James T. Ames to Dyer, Jan. 3; Ripley to Dyer, May 21, 1863; Ramsay to Dyer, June 14; Dyer (Chief of Ordnance) to T.T.S. Laidley (Commanding Springfield Armory), Dec. 3; Laidley to Dyer, Dec. 16, 1867; S.A.C.F.

⁵⁶² Stat. at Large, v. 12, ch. 78. S.A. Orders, Apr. 25, 1864, in Book of Orders, 1861-1893, cit.

⁵⁶³ Laidley to Dyer, Nov. 1, 1864, in S.A.C.F. W.D.S.O. #303, June 14, 1865, par. 46.

⁵⁶⁴ Ripley to Talcott, Sept. 17, 1850; Talcott to Ripley, Apr. 3, 1851; S.A.C.F.

CIVIL WAR PROBLEMS

Many of the problems which had to be faced during the Civil War are startlingly like those which arose during the war years 1917-1919. Wages shot skywards. In the six months between December 1863 and July 1864, the wage increase varied from fifteen to twenty percent., according to the nature of the work, and the schedule was revised every three months.⁵⁶⁵ The shortage of money repeatedly delayed payments to the workmen, creating uneasiness lest the trained personnel should disperse in quest of surer pay for their skilled services.⁵⁶⁶ The prevailing high wages for skilled gunsmiths, due partly to the labor drain of the war and partly to the increased demand for arms, created a high labor turnover within the Armory. In the hope of minimizing this evil, Dyer sedulously refrained from hiring for the Armory any employees of firms holding government contracts. Despite his efforts the Armory was complained of, doubtless because the higher wages paid there encouraged collusion between some of the foremen and their friends who wanted jobs.⁵⁶⁷ Absence of further criticism seems to prove that Dyer nipped this practice in the bud, but he was less successful in preventing his own men from leaving. Contractors were in the habit of visiting the shops to glean ideas for their own service to the government, and some of them embraced the occasion to pick out the better workmen, to whom they afterward offered superlative inducements to leave the Armory. Dyer determined to combat this practice by refusing admittance to all contractors who would not first give a written promise not to employ Armory workmen except by consent of the Commanding Officer; and whenever he learned that a contractor had obtained government workmen, he retaliated by hiring the contractor's men.⁵⁶⁸ His scheme was effectual, if judgment may be rendered from a letter written by one of the contractors who had been a flagrant offender: "There is now at work at the Armory a ... Die Sinker, who would like to engage with us after having given proper notice, and who we would be pleased to employ, and the object of this is to enquire if such an arrangement will subject

⁵⁶⁵ S.A. Orders, Dec. 21, 1863; July 23, Apr. 28, 1864, in Book of Orders cit.

⁵⁶⁶ Dyer to Ripley, Nov. 18, 1861; Nov. 1, 1862; to Ramsey, June 27; July 18, 1864; S.A.C.F.

⁵⁶⁷ P.B. Tyler, Supt. of the American Machine Works, Springfield, to Dyer, Dec. 5, 1861, in S.A.C.F.

⁵⁶⁸ Dyer to Ripley, Jan. 15, 1862; to Smith and Wesson. Apr. 4, 1863; S.A.C.F.

you to any inconvenience and if you have any objection to it.”⁵⁶⁹ The draft of 1863 embarrassed the Armory seriously, by withdrawing several hundred workmen, some of them among the best in the plant.⁵⁷⁰ In another way the draft proved annoying, because some men joined the ranks of the gun makers, in order to avoid service at the front.⁵⁷¹ Materials, as well as personnel, occasioned some awkwardness; those items, such as filed and steel, which had to be purchased from abroad, could be had only with great difficulty. Owing to Ripley’s foresight, serious trouble was avoided by early purchase, which was kept very quiet, for as near two years’ supply as could be got.⁵⁷² The lack of railway facilities increased the outlay of money and time required to deliver the arms. In 1849 the state had granted a charter for a railroad between the line of the Western Railroad at Springfield and East Longmeadow. The proposed route would be likely to pass near the Watershops, and perhaps the Hill Shops as well, but the project was dropped, to be revived in response to the needs created by the war.⁵⁷³ When the line was finally put thru, it gave satisfactory service to the Watershops, but one of the serious drawbacks of the Hill plant is still its remoteness from a railroad, and the consequent necessity of hauling such freight cars as are used via the city trolley tracks.

Protection of the property during the war included guarding against attempts to destroy the works by southern agents, and providing facilities for fighting fire, the latter hazard being greatly increased over peace times by cramped quarters, great number of workmen, and inflammable temporary buildings. In the autumn of 1862 the Ordnance Office was apprised of a scheme to wreck government munitions plants.⁵⁷⁴ Publication in the New York Times of a statement to the effect that the Armory at Springfield could produce 25,000 rifled muskets a month, raised further fears for the safety of the plant.⁵⁷⁵ A puerile attempt to destroy the Main Arsenal was actually made in 1864 by placing a bomb in the tower. Discovered before it had exploded, accident was averted, and it is not

⁵⁶⁹ Smith and Wesson to Dyer, June 29, 1863, in S.A.C.F.

⁵⁷⁰ Dyer to Ripley, July 27, 1863, in S.A.C.F.

⁵⁷¹ Acting Adjutant General C.H.H. Broom to Dyer, June 25, 1864; Provost Marshall of Vermont to Dyer, n.d.; S.A.C.F.

⁵⁷² Ripley to Dyer (confidential), Dec. 23, 1861, in S.A.C.F.

⁵⁷³ D.L. Harris to Dyer, Jan. 25, 1864, in S.A.C.F.

⁵⁷⁴ Ripley to Dyer, Sept. 19, 1862, in S.A.C.F.

⁵⁷⁵ A.S. Harris to Sec. of War, Dec. 28, 1864, in S.A.C.F.

easy to see what harm it could have done the Union cause, even if it had gone off.⁵⁷⁶ It proved more difficult to ward off fire than to prevent destruction in the plant by the enemy. Constant vigilance maintained a fairly clear record, until the summer of 1864, when two conflagrations occurred within a month. One of these consumed a shed in which barrel trimmings were stored, and the consequent loss was trifling.⁵⁷⁷ Precautions were redoubled after this occurrence. On the hill, besides buckets kept filled with water throughout the shops, both a hand and a steam fire engine were maintained in readiness, the latter constantly attended by an engineer. Tanks in the machine shops, with hose, and cisterns in the square, completed the equipment at this part of plant.⁵⁷⁸ And yet, in spite of all, the polishing room (Annex) was gutted by a fire which raged during most of the evening of July 2, 1864. A spark from one of the polishing wheels, or spontaneous combustion of emery dust, ignited the attic timbers, and 280 feet of the building was destroyed before the flames were checked. Walls and ground floor were saved, and the building was at once rebuilt. In the meantime salvage of the machinery permitted operations to be resumed in a small way, and within six weeks the damage had been wholly repaired.⁵⁷⁹

POST-BELLUM CONDITIONS

The whole-heartedness with which the Armorers dispatched their part in winning the Civil War broke down the last vestiges of restraint between town and factory. Since that time the community has been a unit, economically and socially. The importance of the Armory in the life of the town, already recognized on the city seal by the placement of the west façade of the Main Arsenal in chief upon it, was now accepted by the whole population. As the town drew to itself new and varied industries, and thus outgrew its economic dependence upon the Armory, that institution retained its position as the premier manufactory of the place. Boys entered the employ the government for a lifetime of skilled and pleasant service; fathers placed their sons in the institution in which they had spent their own productive years. The constant succession of military executives

⁵⁷⁶ King's Handbook, cit., pp. 246-47.

⁵⁷⁷ June 13, 1864. Dyer to Ramsay, June 21, 1864, in S.A.C.F.

⁵⁷⁸ Ibid.

⁵⁷⁹ Dyer to Ramsay, July 3; 4; 6, 1864; S.A.C.F.

enabled the permanent civilian staff to wield an influence rarely permitted to department heads in a private concern. The place became the cherished property of the community, setting a standard for working hours, conditions, and pay, which went far toward making Springfield the city of comfortable domesticity which it is, in striking contrast to the usual run of mill towns of southern New England.

Few additions of property have been made to the Armory grounds since 1865, the only one of first-rate importance being the acquisition in 1870 of the stretch of land between Federal Square and St James Avenue. This land, the head of the Squaw Tree Dingle of old times, was valued for its capacious spring – the item which gave it the name “Spring Water Lot.” In 1881, through the efforts of Col. J.G. Benton, then commanding officer, it was arranged to have the fence on the State Street side of Federal Square set back on condition that the city undertake the upkeep of the plot thus thrown open to the public. This elm-studded strip of land, known as Benton Park, is United States property to a line marking the projection of the outside margin of the brick walk which runs along Armory Square.

Construction during the past sixty years has rigidly followed the line laid down by Lee and Ripley. Quarters #5 and #6 (1870), Guard House (1880), Quarters #2 and #3 (1894 and 1898 respectively), conformed to the building lines already established about Armory Square. The Hill Shops on Federal Square were constructed during the years 1887-1892, and still remain the center of many of principal operations.⁵⁸⁰ The Spanish War demonstrated the need of railroad connection and led in the course of a few years to the laying of spur tracks through a part of the hill plant. (1912). The World War effected the construction of a store-house link between the main building and the East Arsenal on Armory Square, and the erection of a metallurgical laboratory and an experimental building with proving ranges.⁵⁸¹ At the Watershops a considerable addition was made to the main building in 1902, and nearby a roofless range for targeting rifles was put up in 1906. The latter, proving a nuisance to residents in the neighborhood, was converted, at the end of the World War, into a storehouse, by the addition of a roof.

In keeping with the increasing complexity of all business, the activities of the

⁵⁸⁰ Memoranda on Springfield Armory, Dec. 22, 1909, in S.A.C.F.

⁵⁸¹ Annual Reports to the Chief of Ordnance, 1918-1919, in S.A.C.F.

Armory have tended to multiply. As a result of the War Department's exhibit at the Centennial Exposition in Philadelphia in 1876, a Small Arms Museum was instituted at Springfield, the exhibit furnishing the nucleus of the collection. Besides models of every small arm ever officially used by the United States, there are examples of foreign firearms – pistols, rifles, machine guns – antiques, swords, daggers, and the like, and a number of memorabilia connected with Armory history – among them a Blanchard stock lathe, one of the rifle stocks which inspired Longfellow to verse, and old maps and drawings of the establishment. The collection is probably the finest of its kind in the United States, and has recently been greatly augmented by spoils from the World War.⁵⁸²

In June, 1877 the post return shows the transfer to Springfield of about thirty enlisted men of the Ordnance Department from Rock Island, Frankford, Washington, Allegheny, and Watertown Arsenals, and the enlistment at Springfield of one other. These comprised the nucleus of the military detachment which has since formed the post garrison, thus relieving the volunteer guard of Armorers which had undertaken to protect the Armory in 1866, after the wartime guard had been released.⁵⁸³ Another manifestation of increasing consolidation of operations in the hands of military authority was the assumption by two of the lieutenants on duty at the Armory of Ordnance and Quartermaster property, respectively, in 1882, when Maj. Ingersoll retired as Military Storekeeper and Paymaster.⁵⁸⁴

In April 1891, the Experimental Department of the Armory was organized to carry out experiments in connection with small arms and small arms ammunition. For some years, work of this sort had been undertaken on special orders, and a regular personnel to take charge of it had become a logical necessity.⁵⁸⁵ To the work of the Experimental Department was shortly added the charge of proving all small arms and ammunition therefore, used by the United States. This function brought the Armory in close contact with the Rock Island Arsenal, where Springfield Rifles were manufactured

⁵⁸² The Springfield Homestead (Springfield: Phelps Pub. Co.) has issued a descriptive article of the museum. A Catalog of the Museum was published in 1909.

⁵⁸³ Post Return, Springfield Armory File. Benton to Dyer, Oct. 26; Dec. 28, 1866; S.A.C.F.

⁵⁸⁴ S.A.S.O. #27, June 30, 1882.

⁵⁸⁵ Annual Reports of the Chief of Ordnance. Washington: Government Printing Office, *passim*.

beginning in 1904, and with several private plants.⁵⁸⁶ In a literal sense, the old days of Springfield inspection were revived, except that the work was done at the Armory and only a certain percentage of the output of each plant was tested. The World War expanded the business of this branch of Armory activity many fold, and authoritatively proved the wisdom of such a unifying and coordinating move. In May, 1918, these operations were organized under the title of small arms institution. Here again, the practice of former generations showed it worth.

Incidental to the war work of the Experimental Department must be listed the Machine Gun School. Organized by Springfield men on the Mexican Border (in 1916) for the purpose of creating a technical facility for handling the novelty among firearms, it performed such valuable service that its work was continued in 1917 at Springfield among candidates for Officer Training Camps, and enlisted and commissioned personnel of the Ordnance Department. The later Machine Gun School at Camp Hancock, Ga. Connected with the Ordnance Training Center there, was a branch of that at Springfield. Another field of work which the War brought to the fore was the laboratory experimentation on steel which the Metallurgical Department was organized to handle in 1917. The importance of this work in maintaining and improving standards was so thoroughly proved by the experience of its first two years existence, that it has become a permanent part of the Armory function.

For the rest, the history of Springfield's part in the World War sounds like a retelling of that of the Civil War. The same problems of increasing the personnel were faced and solved; the same necessity for guarding against fire and enemy machinations was apparent; the same embarrassments arose out of the draft; and the same unquenchable spirit of devotion and tireless energy was shown by the whole body of co-laborers, from Commanding Officers to messenger.

CHAPTER 8 **PRODUCTION AT THE NATIONAL ARMORY**

PRODUCTION METHODS AND PROBLEMS BEFORE 1812

Among the troublesome problems which confronted the first superintendent of the

⁵⁸⁶ Frankford (Pa.) Arsenal ammunition is not proved at Springfield.

National Armory, the most immediate was that of producing arms which would justify the confidence of Congress in the institution, and at the same time be manufactured at a reasonable cost. Available gunsmiths who were expert were few in 1795, and generally reluctant to leave their home and established businesses for the problematical jobs offered by a novel establishment of a new and distrusted government. The first lock is said to have taken three days in the filing.⁵⁸⁷ During the first year, 1795, only 245 arms were made, in spite of the fact that there were forty employees. In 1796 a sample arm was sent to Samuel Hodgson, Superintendent of Military Stores, for his inspection. His comments indicate that perfection had not been reached at that date. The model which had been adopted was the French Charleville musket of 1763, a number of which had come to the attention of Washington and the other army officers, during the Revolution. Hodgson said: "Your barrel weighs five pounds eleven and half ounces, the standard Charleville but four pounds ten ounces. Yours is unevenly bored and filed. Attention has not been paid to the counter boring of the Britch so as to admit a wad introduced into the muzzle freely to pass through the screw at the Britch. The Britch or Pin is not long enough in the screw part – the notch is filed in the Britch opposite the touch hole as is usually practiced as essential. The Stock is spilt in several places, owing probably to forcing the barrel, it is besides too weak and small generally, in the grasp of the hand particularly. Muskets for Soldiers require strength in that part more than any other. The body of the Cock of the Lock is too short to look over the fence of the Pan. The Pin and Pan do not sit tight enough, the Pan Bridle is not sufficiently strong. One side of yours is already broken quite through. The side pins should be case hardened – the slit on the heads not so wide as yours. Sufficient attention has not been paid to the raising the Trigger on a level with its plate,.... The middle and lower bands are not sufficiently strong – more care should be taken in the welding to have them perfectly sound. The Bayonet should be of steel that will bear a Spring Temper, yours will not. It should be full an inch longer and tapered. Great care should be taken in welding the socket, in these particulars yours is faulty. The same objection lies against your Ramrod, the steel it was made of was no good, or it is not well tempered,.... The next you sent me I expect to be perfect. Until then I shall make

⁵⁸⁷ Sawyer, *op. cit.*, p. 204.

no report on the subject.”⁵⁸⁸

On receipt of that letter Ames must have felt that his whole effort had been a minutely dissected failure. Little by little, as the workmen became expert, the quality of the arms improved, but output remained at a low stage, until fear bred by the entanglement with France in 1798 induced Congress to find additional means of supplying the Army and the Militia with Arms. In midsummer, 1798, when the total population of the Armory was under three thousand, the Secretary of the Treasury advertised for proposals to supply the United States, on the Charleville model, to cost \$13.40 each with bayonet and ramrod, and to permit the use of seasoned stocks procurable from the public stores in Philadelphia at twenty-five cents apiece.⁵⁸⁹ The award was divided between several contractors, most successful of whom was Eli Whitney of New Haven, Conn., better known as the inventor of the cotton-gin. Thus began the practice subsidizing private manufactories of arms. It had likewise the effect of stimulating the Armory to redoubled efforts; by the end of 1798 the national manufactory had turned out a total of 3152 muskets.⁵⁹⁰ Besides, it found a new function in connection with the contracts, viz. that of inspecting the finished product of the private armories, a practice begun as early as 1799.⁵⁹¹ For many years the best of the Springfield armorers were engaged, during a part of their time, in inspecting the output of neighboring manufacturers. New Haven, Middletown, Hartford, in Connecticut, and Pittsfield, Ludlow, Brookfield, Millbury, and one or two other places in Massachusetts developed a considerable gunsmithing business, partly because of their proximity to Springfield, the center of the profession in the north.

Even this extended source of supply was felt by some to produce an inadequate number of arms, and in 1803 began an agitation for the erection of an Armory west of the Appalachians, a movement which continued intermittently for a century, and finally bore fruit in the institution of rifle manufacture at Rock Island (Ill) Arsenal, in 1904. That it required so long to accomplish a scheme for which money was available, Congress on

⁵⁸⁸ Hodgdon to Ames, Sept. 1, 1798. Reprinted in *Arms and the Man*, June 7, 1919. Washington, 1919.

⁵⁸⁹ *Hampshire Gazette*, July 11, 1798. Northampton: Butler.

⁵⁹⁰ Williams to Hodgdon, Feb. 4, 1798, quoted in Williams to Sec. of War, Nov. 28, 1801; S.A.C.F.

⁵⁹¹ Williams to Wadsworth, Dec. 10, 1799; S.A.C.F.

Mar. 3, 1803 appropriated \$25,000 for one or more arsenals on the western waters.⁵⁹² If in adequacy of properly trained labor was the principal difficulty in the way of efficient arms manufacture, it was not the only one. Raw materials had to be procured and stored in considerable quantity, no easy task in a day of primitive industrial methods. Iron was obtained wherever possible. The fact that Boston is known to have been a source indicates that a certain quantity was imported. Some was had from Salisbury (Conn.) field, fifty miles from Springfield. Walnut for the stocks was available here and there throughout the deciduous and mixed forest which covered southern New England, but the local supply was at an early date supplemented from Pennsylvania and Maryland, the Susquehanna Valley furnishing the Armory for half a century with the bulk of its walnut timber. This stock came in boats by way of Chesapeake Bay and the Connecticut River to Hartford, or even to Springfield if the stage of the water permitted. Ordinarily it was wagoned from Hartford to the stocking shop.⁵⁹³ The third principal raw commodity was fuel, needed, even in the days of water power, for the forges. Much of that used was charcoal. The earliest accounts indicate that the most of it was pine char, the remainder being maple.⁵⁹⁴ But mined coal was also used, termed in the accounts Virginia or Sea Coal.⁵⁹⁵ This undoubtedly came from the small field near Richmond, Virginia, which, because of its location near tidewater, possessed a sweeping transportation advantage over richer deposits, and which began exportation in 1789. After 1807, when shipments of Pennsylvania anthracite were first made, the lower grade Virginia product lost out in competition and by 1820 no longer figured in the Springfield supply.⁵⁹⁶

A further, and perhaps the fundamental, difficulty arose out of financial stress. The federal government of 1795 and the years following was pitifully poor, and the present-day expedition of handling financial obligations had not then been developed. Remittances of war warrants from Philadelphia were delayed, and workman's pay fell repeatedly into arrears.⁵⁹⁷ This condition may have been partly responsible for the rapid

⁵⁹² Stat. at Large, v. 3 ch. 32. seems to have been owing chiefly to the lack of skilled labor in the west; for the business was finally undertaken by a staff of men sent out from Springfield.

⁵⁹³ S.A.C.F. 1815-1830, passim.

⁵⁹⁴ Account Book of 1796, passim

⁵⁹⁵ Ibid., passim.

⁵⁹⁶ Smith, J.R.: Industrial and Commercial Geography, pp. 375-377. New York: Holt, c. 1914.

⁵⁹⁷ Williams to Hodgdon, May 20, 1800; to William Simmons, Apr. 2, 1901; Williams to Sec. of War, July 17, 1800; Prescott to Ordnance Office, Feb. 4, 1815; S.A.C.F.

labor turnover and the consequently slow development of a skilled personnel. Taking all things into consideration, the organization of the National Armory was fraught with anxiety, and the modern institution stands a tribute to the sincerity and effort of the early officers and leading workmen.

THE DECADE FOLLOWING 1812

The stimulation of arms manufacture which the War of 1812 brought in its train developed, among other things, the first rifle used by the United States forces. Although the output of this (Hall's) model at Springfield was never great, and tools and operation were worked out at Harper's Ferry Armory, where this weapon was first manufactured, Prescott reported in 1815 that 'the necessary Tools for making Rifles are nearly completed...the Manufacturing of these already commenced and will be urged as fast as possible.'⁵⁹⁸ There was at the same time considerable agitation for the substitution of a new model musket, and in 1832 this resulted in the adoption of a new smooth-bore gun, slightly shorter and heavier than the Charlevile, but, like its predecessor, of .69 caliber.⁵⁹⁹ The manufacture of the rifle had been discontinued about 1816 and the smooth-bore musket remained, in spite of its inaccuracy, the standby of the Army for forty years.⁶⁰⁰ Indeed, but this time the Springfield product was being so well made that the musket fabricated there was adopted as a model for private contractors and for Harper's Ferry Armory, as early as 1816.⁶⁰¹ The cost of manufacture of the model of 1799 during the period of Lee's administration varied from \$12.50 in 1817 to \$10.00 in 1821. As always, the adoption of the new model increased this figure, the average for the model of 1822 during the eleven years 1825-1836 being \$11.68. This was cut, by 1837, to \$11.09.⁶⁰² The contract arms were somewhat higher, and less dependable, but the test of quality and cost was secondary to encouraging private arms manufacture.⁶⁰³ Other fluctuations in the manufacturing costs were due to changes in facilities in getting raw material, variation in

⁵⁹⁸ Prescott to the Ordnance Office, Feb. 4, 1815 in S.A.C.F.

⁵⁹⁹ Ibid.

⁶⁰⁰ Morton to Lee, March 7, 1816, in S.A.C.F.

⁶⁰¹ Wadsworth to Lee, Nov. 23, 1816, in S.A.C.F.

⁶⁰² Statement showing the average cost of muskets, 1825-1835, in S.A.C.F.

⁶⁰³ Lee to Bomford, Aug. 14, 1817; Price List of Musket Parts, Jan. 1, 1818; Lee to Hon. E.H. Mills, Dec. 25, 1818; Comparison of Costs under different standards of pay, 1820-1821; Robb to Bomford, Feb. 21, 1838; S.A.C.F.

the wage scale, instability of the standard of currency, quantity of output, and adoption of machine methods. Of these influences, the wage standard was most potent and direct, and the application of machinery the most significant.

The quantity of output was in part a matter of the amount of the annual appropriation, but between 1819, when the Armories were first mentioned separately in the appropriation bill, and 1840 when the appropriation failed, the annual sum set aside for the manufacture of arms never varied far from \$380,000.00 of which Springfield received an allotment of one half. Machinery and improvements were usually provided for under separate items. The principal factor in variation of quantity output was the weather, giving rise to alternate drought in summer and ice in winter, thus reducing the efficiency of the water shops and indirectly of the whole plant. It may be inferred that unduly low water recurred every three to five years until the creation of the great pond in 1857; ice-blocked wheels were less often complained of.⁶⁰⁴

An instance of the effect of wages on cost is summed up in an analysis of the reduction of April 1820 and July 1831. Materials, contingencies, and loss remained constant within sixty-four cents on each arm. The first wage cut produced a savings in total costs of \$1.33; the second \$.84.

The changes in materials cost can be less easily detected, because they evolved from accessibility of areas of production, from labor costs in the United States and in Europe, and from improvements in production and transportation methods. For gunstocks the Armory had to go farther and farther afield. In 1818 an Ordnance Officer stationed at Frankford Arsenal near Philadelphia, procured gunstocks for the Armory, and until 1824 purchases directed were confined to Pennsylvania.⁶⁰⁵ After 1823 new dealers in other parts of the country were swung into the orbit of Armory's requisitions but the center of the marketing business still remained in Philadelphia, wherever the trees may have been felled.⁶⁰⁶ Forest timber was considered too soft, spongy, and coarse-grained to be suitable, and an effort was made to obtain stock from 'old field trees.'⁶⁰⁷ The cost was

⁶⁰⁴ Lee to Wadsworth, Oct. 26, 1816; Han. 18; Mar. 1, 1817; Dec. 31, 1819; S.A.C.F.

⁶⁰⁵ C. Irvine to Lee, Oct. 3, 1816; Whitney to Lee, Jan. 1818; J.H. Rees, Capt. Ord. Dept. to Lee, Feb. 9, 1819; Lewis Enters, purveyor, to Lee, Apr. 6, 1819; S.A.C.F.

⁶⁰⁶ Foot to Jesse Griswold, Lockport, N.Y., Mar. 8, 18924; Lee to Chester King, Huron, Ohio, Oct. 21, 1825; S.A.C.F.; S.A.C.F. passim, to 1835.

⁶⁰⁷ Robb to F.H. Taylor and Co. , New Burgh, Ohio, in S.A.C.F.

about twenty-eight cents a stock, although occasionally a contract could be made as low as twenty cents.⁶⁰⁸

The difficulty in getting fuel, experienced in earlier years, disappeared in 1880, for in that year the superintendent posted a notice that he would not buy any charcoal not previously contracted for.⁶⁰⁹ There is no mention of trouble in obtaining all the anthracite needed. Iron on the other hand, presented a grave problem. The Salisbury output was small, and needed to be blended with the product of other and more distant mines. The most of this supplementary supply appears to have come, before 1825, from Juniata Forge, in the Susquehanna Basin, by way of Baltimore and Hartford. Many vicissitudes befell shipments of two and a half to three tons of iron from the mine to the Armory. Long periods of storage awaiting shipment at Baltimore, transshipment at New York, and again at New Haven, the intercession of agents at two, or even three way stations, and the payment of heavy freight charges, were among the snags encountered.⁶¹⁰ As a means of escape from these perplexities, Lee established an agency in Canton, Mass., for the procurement of imported iron, and somewhat later he dealt through a German importer for German steel.⁶¹¹ Certain tools, particularly files, were imported customarily from England.⁶¹²

This long distance system of procurement in an age of medieval transportation and business methods necessitated the regular employment of agents at Boston, Hartford, New York, Philadelphia, and Baltimore. These men not only took care of the Armory's need for raw materials, but supplied food for the workmen as well, one more illustration of the isolation and lack of facilities for interchange was characterized the period. Flour and whiskey figure importantly in the trade, both coming from Baltimore.⁶¹³ With the development of more efficient business methods, and particularly with the coming of the steamboat and the railroad, this system gave way to the current scheme of making

⁶⁰⁸ Foot to Griswold cit.; Bomford to Lee, July 12, 1827; S.A.C.F.

⁶⁰⁹ Notice dated July 12, 1820, in S.A.C.F.

⁶¹⁰ Ripley and Deming (Lee's agents at Baltimore) to Lee, June 7; July 1 and July 25; Aug. 12; Oct. 23; Nov. 24, 1816; Receipt of Hosea Day, ship's captain, Sept. 27, 1816; S.A.C.F.

⁶¹¹ Jonathan Leonard to Lee, Sept. 27, 1816 in S.A.C.F. J.G. Swift to Lee, Apr. 21; A. Halbach to Lee, July 25, 1825; S.A.C.F.

⁶¹² Blake and Cunningham to Superintendent U.S. Armory, Aug. 7; J.C. Neilson to Bomford, Nov. 18; Wadsworth to Neilson, Nov. 23, 1816; W.T. Wickham to Lee, Feb. 10, 1817; Morton to Lee, Feb. 25; Wadsworth to Lee, Aug. 4, 1818; Sep. 29, May 6, 1819; S.A.C.F.

⁶¹³ S.A.C.F. passim.

contracts direct with producers and utilizing the standardized transportation facilities as needed.

MACHINE PRODUCTION IN THE ARMORY

The change in general business methods contingent upon the industrial revolution went hand in hand with a startling evolution within the walls of the plant itself – the substitution of machines for hand labor. As the pioneer of manufacturing plants in the heart of America’s first industrial district, the Armory early felt the urge of machine production. In fact the beginning of operations on a water power site was in itself a recognition of the approaching new order. It has been asserted by some that mechanics at the Armory gave to the world the prime contribution of American to industry, vix. the idea of interchangeability of parts which has made possible the Elgin watch, the Hoe press, the Ford automobile, and the Springfield rifle. By others this honor is assigned to North of Middletown and Whitney of New Haven. As a fact, nearly every manufacturing plant in New England made its contribution to this evolution during the first half of the nineteenth century, and the importance of gunsmithing among industries during that period yields to Springfield and rival armories the lead in the matter. The genesis of the idea must be sought in those individual patents which standardized the production of parts, thus making interchangeability feasible for the first time in history.

One of the earliest improvements in machinery at the Armory was the introduction of the trip hammer for welding barrels. This innovation seems to have been made by the Water factory in 1809, and by gunsmiths in Lancaster and Reading, Pa., at about the same time.⁶¹⁴ The first trip hammer was installed at the U.S. Watershops in September, 1814, and by 1819 six were in operation there. This improvement reduced the price of a barrel from the handwork figure of sixty-three and one half to forty-one cents.⁶¹⁵ In 1825 it was planned to weld the barrels by rolling, but the necessary mill was not completed until the winter of 1827-1828, and although private firms had success in using rollers and anthracite coal, experiments at the Armory turned out badly for a

⁶¹⁴ Lee to Bomford, June 25, 1818, in S.A.C.F.

⁶¹⁵ Robb to Talcott, Feb. 11, 1840, in S.A.C.F.

number of years.⁶¹⁶

A far more significant invention having to do with barrels was the turning machine, which made it possible to turn out the irregularly shaped barrel by forcing the cutters to conform to a pattern fixed in the machine. The first lathe of this type was put out by Dana and Olney of Boston. Harper's Ferry had one of their devices as early as February, 1817, and about a year later Lee reported to the Chief of Ordnance that the saving in cost amounted to eighteen cents on the barrel, and that by using two machines, one man could produce twenty-five barrels a day.⁶¹⁷ Before October, 1818, Thomas Blanchard of Millbury reported completion of 'a macheen for turning the barrel the whole length & changes from turning round to turning flat & oval of its self and turn them so well that the draw-grinding will grind them in 3 minutes & turnes very fast.'⁶¹⁸ This was presumably an improvement on the earlier invention, for Lee reported that a Blanchard machine subsequently installed at Springfield saved four cents a barrel over the previous minimum cost.⁶¹⁹ Its real significance, however, lay in the step which it led Blanchard to take in contriving a machine to turn gunstocks. This was in a sense an adaptation of the barrel turning machine, but the practical application of the idea to so irregular a form laid the foundation for milling operations which now constitute a considerable part of the work in wood and iron manufactories and which made possible the consummation of interchangeability of parts. Gun stocking had from time immemorial stood as one of the most difficult mechanical arts, and yet the best stockers were unable to produce two articles which were more than approximately alike. In the winter of 1818-1819 Blanchard invented a machine 'for turning gunstocks and cutting in the locks and mounting,' a working model of which he took to his friend Col. Lee for inspection and criticism.⁶²⁰ His first full-size machine was installed at Harper's Ferry, however, in the spring of 1819, and it met with much favor in the eyes of the superintendent there and with the Ordnance Department as well, that he spent the autumn erecting its counterpart in

⁶¹⁶ Foot to Lee, July 29, Wade to Lee, Oct. 5, 1829; Lee to David Wilkerson, Feb. 19; J.W. Wright to Lee, Dec. 15, 1828; Lee to Henry Burden, Oct. 23, 1832; S.A.C.F.

⁶¹⁷ Stubblefield to Lee, Feb. 28, 1817; Lee to Bomford, May 27, 1818; S.A.C.F.

⁶¹⁸ Blanchard to Lee, Oct. 13, 1818, in S.A.C.F.

⁶¹⁹ Lee to Wadsworth, Feb. 22, 1820, in S.A.C.F.

⁶²⁰ Blanchard to Lee, Feb. 5, 1819, in S.A.C.F.

Springfield.⁶²¹ The Springfield machine was put into operation in February, 1820.⁶²² Lee's first reaction toward the device was favorable, but the opposition of the workmen, irritated by a succession of inventions which threatened their positions and destroyed their independence, led shortly to a reversal of judgment.⁶²³ Blanchard saw the peril and recognized its source in the enmity of the mechanics. He therefore begged for an opportunity to see that the machinery was being run properly.⁶²⁴ At this stage only the rough cutting could be accomplished by machinery, hand work being still required for the finishing. After having installed a third machine at the armory of Lemuel Pomeroy in Pittsfield, Blanchard was prepared to undertake the half-stocking (as the machine operation was called) of the Springfield muskets, thus giving his machinery a fair test and himself an opportunity to make improvements in it.⁶²⁵ Lee felt that the machine was fairly satisfactory, but he was cautious about fixing the price which Blanchard should receive as royalty on his patent. The machine had been patented Sept. 6, 1819.⁶²⁶ Lee felt that the machine was fairly satisfactory, but he was cautious about fixing the price which Blanchard should receive as royalty on his patent. The machine had been patented Sept.. 6, 1819.⁶²⁷ Although at first Lee and Stubblefield had jointly recommended payment of eight cents for the barrel turning and stocking of each gun, the saving was shortly found to be only about seven cents at the maximum. To play safe, the War Department awarded him six cents to the end of the year 1822.⁶²⁸ In 1823 the inventor himself began the half stocking of all the Armory's output, in a building that had been temporarily fitted up for him at the Lower Watershops. He hired his own men and received thirty-seven cents a musket for his labor, on each stock passing inspection as acceptable to the United States.⁶²⁹ This sum seems to have been reduced to thirty-two cents the following year, and it was contemplated to return to the royalty basis in 1825.⁶³⁰ For some reason the contract arrangement was continued, and in consequence, Blanchard

⁶²¹ Wadsworth to Lee, June 4; Blanchard to Lee, June 9; Lee to Blanchard, June 18, 1819; S.A.C.F.

⁶²² Lee to L. Pomeroy, Feb. 5; Foot to Lee, Feb. 21, 1820; S.A.C.F.

⁶²³ Lee to Blanchard, Mar. 25, 1820, in S.A.C.F.

⁶²⁴ Blanchard to Lee, Apr. 29; May 29, 1820; Feb. 19, 1821; S.A.C.F.

⁶²⁵ Blanchard to Lee, Feb. 11, 1822; Lee to Bomford, June 19, 1822; S.A.C.F.

⁶²⁶ Lee to Blanchard, Feb. 19 1822, in S.A.C.F.

⁶²⁷ Lee to Blanchard, Feb. 19, 1822, in S.A.C.F.

⁶²⁸ Bomford to Lee, Sept. 25, 1822, in S.A.C.F.

⁶²⁹ Blanchard to Lee, July 25, 1822; Mar. 13, 1823, S.A.C.F.

⁶³⁰ Disputed by Robb to Bomford, Apr. 15, 1836, in S.A.C.F. Foot to Lee, Feb. 13, 1824, in S.A.C.F.

was involved in the fire which destroyed a number of the buildings at the Lower Watershops in July, 1825.⁶³¹ His loss was about a thousand dollars and six weeks time, the period devoted to rebuilding the machinery.⁶³² This misfortune was turned to good account by making improvements in the new equipment, which consisted of eight machines:

1. for facing and cutting off the stock;
2. for turning stock;
3. for grooving stock for the barrel;
4. for fitting on the breech plate;
5. for gauging the groove for the barrel;
6. for fitting on bands and smoothing stocks between them;
7. for fitting in the lock;
8. for drilling side and tang pin holes.⁶³³

With this new outfit Blanchard continued to half-stock the muskets until the end of 1827, receiving the old price of thirty-two cents. Beginning January, 1828, the work was taken under the direction of the Armory authorities, Blanchard receiving a royalty of nice cents a stock, total cost of the operations under government control being figured at seventy-two cents.⁶³⁴ During Blanchard's period of service the hand stockers had been paid fifty cents for finishing the stocks, making a total cost of eighty-seven cents until 1825, and then eighty-two cents until 1828. When the whole operation had been done by hand eighty-nine cents was the total cost. The money saved effected was therefore inconsiderable until the work was taken over by the Armory. The real contribution was the improvement in the machinery which its inventor had been able to make in watching the practical application of his ideas. So great was this, that an up-to-date duplicate of the Springfield equipment was installed at Harper's Ferry, replacing the first of the stocking

⁶³¹ Lee to Blanchard, March 2, 1825, in S.A.C.F.

⁶³² Lee to Bomford, July 12; to Blanchard, Aug. 21, 1825; S.A.C.F.

⁶³³ Lee to Bomford, Nov. 12, 1825, in S.A.C.F. As the machinery had all been burnt, it must be supposed that the stocking lathe in the Springfield Armory Museum is #2 of the above list, and was made in 1825, not 1822, as is stated in the description of the machine.

⁶³⁴ Robb to Bomford, Apr. 15, 1836; Jan. 12, 1839; S.A.C.F.

machines ever built.⁶³⁵

During the whole of the decade marked by this momentous improvement in machinery, interchangeability of parts had been the conscious ideal of the Ordnance Office. As early as 1815 North of Middletown had been trying to achieve interchangeability for the locks of the pistols which was producing on government contracts.⁶³⁶ In 1819, shortly after Blanchard's models had appeared, Lee wrote: '....my instructions are to make the Muskets with that exact uniformity, that the several component parts will fit one Musket as well as another. Relative to the practicability of this course, experience must decide. With regard to the utility of the measure to the extent require by the Government, the fidelity as well as the respect due to the authority from which I receive instructions and have the honor to hold my present station, forbid me to express and unfavorable opinion except it be to that authority when required....'⁶³⁷ From which it may be inferred that Lee doubted the practicability and scouted the utility of the scheme. Nevertheless, by 1828 great strides toward accomplishment had been taken. A comparison of four muskets from each of the National Armories, representing the work of the four quarters of the year 1828, brought forth the comment that while the Springfield product weighed slightly more, the materials were almost of equal quality, and the workmanship about equal. Preference was given to the Springfield bayonets, mounting, stocking and browning, and to Harper's Ferry barrels.⁶³⁸ The continuation of this type of report, covering the years 1829-1830, and the first quarter of 1831, declared that 'the uniformity of the muskets made at those armories (Springfield and Harper's Ferry) is much nearer than...heretofore. Some of the barrels of the muskets from one Armory would fit tolerably well in the stocks of the other Armory, more of the parts of the Locks and Bayonet could be shifted than formerly.'⁶³⁹ It is difficult to believe that such rapid advance toward complete interchangeability could have been made without Blanchard's invention.

No one was better aware of their value than the inventor himself. In 1834 his

⁶³⁵ Lee to Stubblefield, June 25, 1827; Contract between Blanchard and the Superintendents of the Armories, quoted in letter Bomford to Lee, Sept. 24, 1830; S.A.C.F.

⁶³⁶ Dyer to Ripley, Sept. 13, 1863, in S.A.C.F.

⁶³⁷ Lee to Asa Waters, June 8, 1819, in S.A.C.F.

⁶³⁸ Unsigned report in S.A.C.F.

⁶³⁹ Report of Weatherhead to Lee, June 31, 1831, in S.A.C.F.

patent on the stocking machinery ran out. By sheer audacity he succeeded in getting Congress to renew it, but not until the following June. In the meantime the Armories had continued using it, and the renewal of the patent gave Blanchard an opening to claim excessive royalties for the period since the expiration of the original grant. In 1837 Robb took up the controversy actively, but the case dragged on until finally settled by a joint investigation and report to the War Office by the superintendents of the two Armories. This was in 1839. Blanchard accepted their award, which, while generous, did not meet his expectations, doubtless to avoid a reopening of the issue in Congress, where there was opposition which bade fair to result in revocation of his patent.⁶⁴⁰

In 1835 a new model musket was adopted, and this move was attended by great strides toward interchangeability. The new weapon was slightly longer and heavier than its predecessor, but its outward appearance was so very similar that only significant differences in methods of manufacture can account for its adoption. In 1838 eight model muskets of the new type were sent to Springfield from Washington Arsenal, along with a set of verifying gauges.⁶⁴¹ Work was at once begun on machinery for the new type, under the direction of the Master Armorer, Thomas Warner, who had replaced the inefficient Bates the year before. Changes were directed by the Ordnance Office before this preliminary work had been completed, but in 1840 the new arm was finally put out. It is therefore known as the model of 1840.⁶⁴² During these years the idea of interchangeability at least found practical expression in the Armory. A.H. Waters of Millbury, member of a famous house of gunsmiths which had intimate dealings with the Springfield plant from its inception, gives to the United States Armories credit for the origination and execution of the system.⁶⁴³ Certainly many of the mechanical contrivances which made interchangeability practicable, as well as persistent elevation of the standard of the output, can be credited to the Armory, even the idea may have been the common property of the whole industrial world of the day. Upon these foundations

⁶⁴⁰ Illes, George: *Leading American Inventors*. New York: Holt, 1912. The patent dispute is covered by the following correspondence: Robb to Bomford, Apr. 15, 1836; Bomford to Robb, June 12; Sept. 18; Blanchard to Robb, Sept. 29, 1837; Robb to Bomford, Mar. 13, 1838; Jan. 12; Apr. 16; Robb to Talcott, May 14; to Blanchard, May 24, 1839; S.A.C.F.

⁶⁴¹ Bomford to Robb, Dec. 31, 1838, in S.A.C.F. As Washington Arsenal was a storage depot and not a manufacturing Armory, it must have received the muskets and gauges from elsewhere. Harper's Ferry suggests itself as the place of genesis of the new arm.

⁶⁴² Warner to Robb, Jan. 29, 1840, in S.A.C.F.

⁶⁴³ Waters in the *Boston Herald*, Oct. 31, 1905.

has been created the standardized product whereby goods of American make are recognized the world over.

With the perfection of machine methods and interchangeability, the ideal military arm became a possibility but no gun yet made has altogether satisfied its users in the field. The early models under the new system were no exceptions to this rule. Lee, with trenchant insight, expressed the irreconcilability of the viewpoints of the armorer and the field officer: 'It is difficult to make Muskets perfect in any point,.... But I know by experience that the greatest fault is in the person who uses or has the charge of them.... I very well know that (parts break) even by fair usage, but more frequently by treatment very improper and unfair.'⁶⁴⁴ In that day, however, the burden of proof rested upon the manufacture, and the salutary, if unjust condemnation of arms by officers in the field exerted the pressure of arms by officers in the field exerted the pressure necessary to bring about improvement in quality of the product.

Once interchangeability was an established fact, based firmly on machine methods of production, a new era in gun manufacture opened. The cost of manufacture was lessened, and even the contractors were forced to suffer a reduction in their charge to the government.⁶⁴⁵ On the heels of this satisfactory situation came the development of steam power and with it far-reaching reactions upon the Armory .

ADVENT OF STEAM FOR POWER

Most direct of these effects was the introduction of steam driven machinery into the Armory itself. In 1844 came the steam engine and in 1845 the steam hammer.⁶⁴⁶ The latter was not an immediate success, but the engine made it possible to carry on heavy operations on the hill, and so released the Armory from dependence upon the uncertain and moody Mill River. This emancipation was not realized at once, however, for the steam engine proved almost as capricious as the flow of water. After five years of experimentation, it was deemed wise to improve the water power, and less than a decade later the present Watershops Pond was created. Here is proof enough that steam had not yet achieved its leadership, even in the heart of industrial America. Even the stress of

⁶⁴⁴ Lee to Wadsworth, Oct. 22, 1818, in S.A.C.F.

⁶⁴⁵ Talcott to Ripley, June 13, 1842, in S.A.C.F.

⁶⁴⁶ Report of Operations, 1845; Ripley to Merrick and Towne, Mar. 27, 1845; S.A.C.F.

Civil War, although it added more engines, was unable to improve their quality very much, and low water toward the close of the conflict threatened the output of the plant, which was still chiefly dependent upon the ancient source of applied power.⁶⁴⁷ It was not until 1890 that the building of the Hill Shops on Federal Square signaled the fact that steam had become the principal dependence of the Armory for power.

Even before the introduction of the first steam engine into the Armory, transportation in the vicinity of Springfield had received a tremendous impetus from this same novelty. First came steamboats on the Connecticut. The early companies were stimulated by the construction of the canal around the shallows below Springfield, which was completed in 1829, after a prolonged effort on the part of western Massachusetts, in which the Armory itself figured prominently. The canal permitted vessels of sixty tons burden to reach Springfield, but one effort after another to maintain permanent trading facilities failed, and in 1850 Hartford was once more definitely announced as the head of navigation by the 'The Steam Boating Co.' organized in that year.⁶⁴⁸ Very likely the canal could not hold the trade against the railroads, the first of which had come from Worcester in 1839. The line paralleling the Connecticut was built to Springfield in 1844. The railroads reestablished Springfield as an important pass way, and the improved transportation into the town was marked by the gradual concentration of manufacturing there, drawn thither by the junction position of the town and by its skilled labor supply, which the Armory had created in the course of three quarters of a century. The products of the city of today reflect the significance of the Armory's reservoir of labor – revolvers, machine guns, skates, magnetos, motorcycles, street cars, airplanes – all of them commodities which an expert gunsmith could easily learn to turn out, but which cannot be produced at all without highly skilled labor.

Alongside the expansion of manufacturing on a basis of steam power came (after 1840) a swift development of manufacturing methods. This was natural, because steam made practicable a whole series of new operations. The most important of these changes was the successful introduction of barrel rolling, in place of barrel welding. In 1858 Superintendent Whitney commissioned his friend and counselor, James T. Ames, of

⁶⁴⁷ Dyer to Ramsay, July 30, 1884, in S.A.C.F.

⁶⁴⁸ Dewey, R.M.: Early Navigation of the Connecticut River, in 1 Conn. Vall. Hist. Soc. Papers and Proceedings, 1876-1881. George W. Moore to Ripley, Apr. 22, 1850, in S.A.C.F.

Chicopee, to visit English armories for the purpose of procuring machinery and artisans for rolling barrels. Within a year the installation had been made, and early returns showed saving over welding of nearly fifty percent...besides diminished condemnations in proof.⁶⁴⁹ In addition to this major improvement, dozens of new machines were built during the score of years preceding the Civil War.

IMPROVEMENTS IN THE ARM

Naturally this progressive activity in the industrial life of the Armory and the country at large, resulted in ongoing improvements of the guns manufactured. It marked the initiation of a series of invention which revolutionized infantry tactics during the fifty years between 1840 and 1890. The chief of these improvements were (a) the percussion lock, (b) the rifled barrel, (c) the breechloader, and (d) the magazine. Correspondingly great improvements in small arms ammunition occurred between in 1855 and 1903, but they are not discussed here, since they do not belong to the history of Springfield Armory. No comparable advance in the military art had been made since the introduction of gun powder.⁶⁵⁰ Two of these profound improvements, the adoption of the percussion lock was simplest and, in itself, least noteworthy. The substitution of percussion caps for the flint occasioned slight changes in the lock, and it reduced the amount of powder and ball for the charge, but the admirable interchangeable model of 1840 was not materially altered by this change, which was introduced two years later, under the guise of the model of 1842. A special priming device, the invention of one Dr. Maynard, was experimented upon from 1847 to 1854, when a model prepared at the Springfield Armory was adopted for the service in the rifle of 1855.⁶⁵¹ This contrivance added materially to the time and expense of manufacture, and was discontinued in 1861, under pressure of the Civil War, in favor of the old-fashioned percussion cap. For some years, beginning in 1849, a part of the workmen were occupied with altering the old model flintlocks to percussion. All the arms of a later date than 1830 were to be rejuvenated in this fashion,

⁶⁴⁹ Whitney to Ames, Jan. 1; Agreement between William Onions of Birmingham, Eng., and Ames, May 6, 1858; Whitney to Craig, Jan. 17, 1858; S.A.C.F.

⁶⁵⁰ Tidball, Brig. Gen. J. C.: "Report on Rifle Target Practice in the Army," June 29, 1883, in Report of the Chief of Ordnance to the Sec. of War, 1883. Washington Govt. Ptg. Office, 1884.

⁶⁵¹ Duff Greene to Ripley, Nov. 25, 1847; Craig to E.S. Allin, Sept. 27, 1854; S.A.C.F.

but the outbreak of war in 1861 found the work incomplete.⁶⁵²

It seems quite possible that the work of altering flint-locks was suspended or diminished as a result of the greater changes contingent upon the adoption of the rifled barrel in place of the old smooth-bore. Rifled guns had been known in Central Europe since 1500, and by 1750 'long guns' of rifled bore were in common use on the American frontier.⁶⁵³ Rifles had even been made for the Army in both the national armories, prior to 1820, and sporadic attempts to replace the inaccurate smooth-bore arms by the accurate rifle were made throughout the first half of the 19th century. That so obviously wise a course was postponed so long seems strange. It was, however, natural. The Army is, in the nature of its organization, a conservative institution; armies of all European nations had used the smooth-bore gun from the introduction of firearms. In early American wars the users of rifles were the volunteers, from whom the Regular Army had to suffer much, and whose methods were therefore highly unwelcome. The expense of equipping the Army with a new set of weapons is staggering, and is hard to justify to the peace-loving United States. New machinery must be adopted for the manufacture, and the rifling of barrels by machinery had never been satisfactorily accomplished. As long as private armorers were receiving fat governmental contracts, their lobby could be counted on to discourage an improvement so difficult and so costly. Even the workmen in the public armories fought every advance tooth and nail, because it compelled them to learn new methods of work. That the introduction of the rifle in the United States Army took place at all seems to have been made possible by the existence of the national armories, where hand rifling could be practiced in a small way, regardless of expense, until much time as necessary machinery for the operation could be developed by experimentation. As a fact, the United States Army was forced to adopt the rifled arm, not as a result of American wars with organized powers, for they all shared the handicap of the smooth-bore weapon, but by the Indians, who, accustomed to a century to the use of rifles, could take deadly aim with little fear of retribution from the 'soldier's gun.' This was the case is borne out by the fact that the first arm to enjoy the rifled barrel was the carbine, for use

⁶⁵² Talcott to Ripley, Apr. 13, 1849, in S.A.C.F.

⁶⁵³ Sawyer: *op. cit.*, pp. 34-44

by cavalry on the open plains of western United States.⁶⁵⁴

The question of going over to the rifle was settled in the spring of 1855. On March 5, the Chief of Ordnance addressed Superintendent Whitney as follows:

‘...the process of rifling our Musket Barrels should be entered upon at the Armories as soon as practicable.... You can take muskets already finished, or the parts not yet put together, for this purpose, adopting the course that will expedite the work.

‘As for the mode of Rifling, you will use the seven grooves – land and grooves equal – Dept. of grooves .15 – Twist uniform and in Turn in six feet. If you possess facilities for giving varying depth of grooves you may make then .020 at the breech and .015 at the muzzle. The hind sights will be modifications of those use on the first of our rifles that were prepared for long ranges. They will be made agreeable to plans to be arranged at the Springfield Armory. The Ramrod will have Steel or Iron heads.’⁶⁵⁵

The new venture involved three principal changes: new barrels, new sights, and new ammunition. The elongated Ball was introduced for the rifle of 1855 and the caliber was reduced from .69 to .58 for all rifles manufactured since 1842. The new ball was being developed elsewhere, and the sights with little difficulty modified to suit. The process of rifling was being crowned with success at the very moment the foregoing letter was written. Two weeks later Whitney was able to write that several barrels made with the decreasing groove “perform much better than the groove of uniform depth.”⁶⁵⁶ This work was done by hand, however, and machinery had still to be developed. Within a few days the idea for this was perfected, and it remained only to await the decision of the Ordnance Department before undertaking the manufacture of both machinery and guns.⁶⁵⁷

So weighty was the change felt to be that no agreement could be reached by the interested Ordnance officers as to caliber and certain other details of the proposed arm.

On May 1 the manufacture of parts for the current model of the musket was discontinued, and of the parts already completed, only three hundred more guns were to be assembled.⁶⁵⁸ This order, which would promptly have closed down the plant, elicited a vigorous protest from the superintendent, who declared that “There are employed in this

⁶⁵⁴ Three hundred rifled carbines were manufactured at Springfield during the fiscal year 1855, and 720 the following year, all for immediate issue. Lt. Col. W.S. Peirce, commanding Springfield Armory, to the Chief of Ordnance, Dec. 29th, 1914, in S.A.C.F.

⁶⁵⁵ Craig to Whitney, in S.A.C.F.

⁶⁵⁶ Whitney to Maj. G. Hagner, Mar. 23, 1855, in S.A.C.F.

⁶⁵⁷ Cyrus Buckland, Master Mechanic, to the Superintendent of the Armory, Mar. 27, 1855, in S.A.C.F.

⁶⁵⁸ Craig to Whitney, May 1, 1855, in S.A.C.F.

Armory many of the best mechanics in the country, and it would be a serious loss to the Government....should they be left for any considerable time destitute of work.... ..want of employment here would drive these mechanics into the hands of private contractors who are now supplied with work for Foreign Governments, and many of the better class, will probably never return unless induced to do so, by largely increased prices for their labor,... I apprehend, however, but little difficulty, should the dimensions of the barrel be settled upon & we be suffered to proceed with their manufacture....”⁶⁵⁹ Ten years earlier a board of Ordnance officers had held sessions in Washington for three weeks, in part to settle upon the proper caliber of small arms, but nothing came of it beyond the undertaking of experiments at Springfield.⁶⁶⁰ In this crisis, no better mode of averting the catastrophe suggested by Whitney could be devised than a similar board. This one, however, was directed to convene at Springfield, to settle moot points on the ground of experimentation.⁶⁶¹ It sat from June 7 to June 15, inclusive.⁶⁶² Upon adjournment the rifled arm had for the first time become the standard weapon of the United States Army, and production at Springfield upon a considerable scale was immediately undertaken.

The men who had been chiefly instrumental in perfecting this improvement were Major Hagner, in command at Frankford Arsenal where the ammunition was being devised, Lieutenant Benton, afterward commanding officer of the Springfield Armory, who carried on the experiments connected with the firing of the rifle, and Cyrus Buckland, Master Machinist of the Armory since 1842, who had been responsible for many of the improvements in gun machinery dating from 1839 – interchangeability, the percussion lock, and the arms equipped with the Maynard Primer, to mention the more important products of his activity.⁶⁶³ It was Buckland who invented the machine to rifle to an increasing depth, and in the discussion which followed his proposal to patent his machine against private pirates, was established the principle that the United States had “unrestricted right to the use of any machine produced in the Government workshops, by

⁶⁵⁹ Whitney to Craig, May 2, 1865, in S.A.C.F.

⁶⁶⁰ Talcott to Ripley, Apr. 9, 1845, in S.A.C.F.

⁶⁶¹ Craig to Whitney, May 31, 1855, in S.A.C.F.

⁶⁶² Pencil notations on letter to Whitney to Craig, June 12, 1855, in S.A.C.F.

⁶⁶³ Whitney to Hagner, Mar. 23, 1855, in S.A.C.F. Chapin: *op. cit.*, p. 87. Craig to E.S. Allin, Sept. 27, 1854, in S.A.C.F.

the skill and labor of persons there employed.”⁶⁶⁴ Since that day the United States government has come to see that its own interests are subserved by protecting those of its employees, and it undertakes to patent free of charge all inventions of its workmen, reserving always the right staked out by Col. Craig in 1855.

By the end of the year 1855 it had been determined to confine the operations of the Armory at Springfield to the rifled musket, machinery adapted solely to other arms being transferred to Harper’s Ferry.⁶⁶⁵ Between fabrication of new rifles, and conversion of old muskets into rifled guns, the Armory was kept as busy as the appropriations would allow until the opening of the Civil War. This titanic struggle was waged on the Northern side chiefly with rifles of the model of 1855, as modified to suit war exigencies.

During the war no suggestions for further improvement could be acted on, but in 1866 the tide of progress again began to rise. This year saw the adoption of the breech-loading gun for use by the Army. The first of them were converted from the cal. .58 rifles of the previous decade. J.G. Benton, now Major, was assigned to command of the Armory on May 3, 1866, and he naturally pushed the projected improvement. For about two years the work went on, after which attention was turned to the fabrication of new model rifles.⁶⁶⁶ Improvement was constant to the year 1873, when the caliber was reduced to .45 in a new model arm which became known the world over at the “Springfield Rifle.” For nearly two decades this gun was the undisputed king among military arms. Its near approach to perfection seems to have resulted from a combination of favorable conditions. In the first place, the military superintendency, now finally established, enable army officers to undertake and carry out long term experiments. The whole period between 1866 and 1903 is notable for the amount and variety of experimentation which was being carried on by officers stationed at the Armory. Furthermore, the happy practice of convening boards of Ordnance at the Armory became habitual, and there had been a long succession of them, working in cooperation with the armorers. All this activity was stimulated by the alert and expert fostering of Col. Benton, who was, more than any other person, the father of the Springfield Rifle of 1873. Finally,

⁶⁶⁴ Craig to Whitney, Apr. 1855; CF. Buckland to Supt. of the Armory, Mar. 27; Whitney to Craig, Mar. 31, 1855; S.A.C.F.

⁶⁶⁵ Craig to Whitney, Dec. 1, 1855, in S.A.C.F.

⁶⁶⁶ Pierce to the Chief of Ordnance, Dec. 29, 1914, in S.A.C.F.

when the Armory might have been satisfied with its product, it was forced out of complacency by patent suits. These, however unpleasant, compelled recourse to ever greater improvements at the Armory, in order to avoid infringements of private individuals.⁶⁶⁷ It was the Springfield Rifle which made feasible modern target practice, and the establishment of the Creedmoor competition in 1873 was not an accident, but bore a direct relation to the quality of the new arm.⁶⁶⁸

Once a satisfactory breech-loading gun was in common use, its increased rapidity of fire over the muzzle-loading type urged still further improvements, and before the model of 1873 had been placed in the hands of all the troops a number of inventors had laid before the Ordnance Department models for magazine guns. Beginning in 1878 a long series of experiments on the relative merits of these weapons led to the adoption in 1892 of the Krag-Jorgensen system.⁶⁶⁹ For the first time since the Charleville had been discontinued, a non-American model was adopted by the American Army. It involved a reduction of the caliber to .30, plans for which had been on foot since 1887, adoption of a new rear sight (devised at Springfield), and the use of a jacketed bullet with a charge of smokeless nitro-glycerine powder.⁶⁷⁰ Once again, as in the years after the adoption of the breech-loader, as in the years after the adoption of the new breech-loader, this basic arm was modified and improved until 1903, when a new Springfield Rifle was devised, founded on the Krag-Jorgensen principle, but individual enough to receive a separate patent. Thus the United States Army came into possession of the most perfectly machined and one of the most effective arms in the world. It has stood the test of nearly two decades of service, including the World War, with no further change than that made necessary by the adoption in 1906 of a sharp-pointed bullet in a cupro-nickel jacket, carrying a pyro-cellulose charge. This splendid achievement, in these days of swift evolution in implements of war and tools of industry, is the work of Springfield officers and armorers, and it was made possible by the indefatigable efforts of their predecessors during a century and a quarter.

⁶⁶⁷ Reports of the Chief of Ordnance to the Sec. of War, especially 1869, 1872, 1873, and 1875.

⁶⁶⁸ Cf. Tidball: *op. cit.*

⁶⁶⁹ Report of the Chief of Ordnance, 1878. Report of the Chief of Ordnance, 1892.

⁶⁷⁰ Report of the Chief of Ordnance, 1889.

PRODUCTION STATISTICS

The output of the Armory has varied in accordance with the amount of the annual appropriations for the manufacture of arms. When new models have been on the point of adoption the number of arms made has usually fallen. War has been the chief factor in stimulating production. Indeed, during both the Civil and World wars there was practically no limit to the available appropriations, and output was therefore limited only by the scarcity of material, machinery, and skilled labor. A brief comparison of the two periods of national struggle may yield additional evidence that like conditions breed like responses.

The problems connected with personnel have already been touched upon. Scarcity of materials was no less a puzzle. In 1862 the Commanding Officer was compelled to dispatch a trusted adviser to Cincinnati and Indianapolis to purchase "all of the seasoned green stocks not exceeding fifty thousand" which could be found.⁶⁷¹ In December, 1863, the difficulty of finding black walnut suitable for stocks was complicated by the delay in shipment. This was so acutely felt that the Secretary of War was asked to instruct the railroads to put through sixteen carloads a month, the current requirement. This was done, and the railroads were thereafter kept up to their instructions by demands and admonitions.⁶⁷² All this is delightfully reminiscent of the appeals in 1917-1918 that people cut and sell to the government black walnut for gunstocks, and the authority of the War Department over the railroads in the sixties seems to be only a shade less pronounced than that exercised by the United States Railroad Administration in the newer century. To get good iron was as difficult as to get good walnut. Stimulated by the war demand a number of firms in the United States undertook to supply the Armory. None of them could, however, produce the necessary quality for fine work, and recourse was had to England, which had always been an important source of the Armory's supply.⁶⁷³ In spite of swift progress in iron production in America since the Civil War, it was found expedient to set up a laboratory for testing the iron used for the rifles which served in the World War. In both wars every effort was made to conserve all scrap.⁶⁷⁴ Space under

⁶⁷¹ Dyer to C. C. Chaffee, May 20, 1862, in S.A.C.F.

⁶⁷² Dyer to Ramsey, Dec. 22; Ramsay to Dyer, Dec. 30, 1863; Dyer to several railroads, 1864; S.A.C.F.

⁶⁷³ Dyer to Ramsay, Oct. 27, 1863; S.A.C.F.

⁶⁷⁴ C.A. Dana, Sec. of War, to Gen. Ripley, presumably, in Purchases for Current Stores, 1861; S.A.C.F.

roof was at a premium, and new construction was undertaken during both war periods. The Armory could not aspire to furnish nearly all the arms required by the fighting forces, and the patterns and gauges were therefore turned over to a number of private armorers, who made the Springfield Rifles under contract. In order to insure uniformity of product, officers of the Armory were detailed to inspect the output of such plants.⁶⁷⁵ Except that private armories did not attempt in 1817 and following to produce the Springfield Rifle, but made instead a modified form of the less complex English Enfield, the foregoing statement might be repeated for the epoch of the World War. Finally, in the matter of demobilization at the end of the war there was the most striking similarity. Night shifts had been in operation during both times of stress, ten hours for each shift, although not all departments worked at night.⁶⁷⁶ During the Civil War, work seems to have maintained at full blast until Lee's capitulation, when drastic reductions had to be ordered. In compliance with instructions of April 28, 1865, arrangements were made to reduce the output to 250 a day.⁶⁷⁷ This meant the discharge of about nine hundred men, for which two weeks notice was given.⁶⁷⁸ The introduction of the breechloader seems to have held up further reductions until conversion from muzzle-loaders was halted in March, 1868. At that time 124 workmen were discharged, the remaining 530 being temporarily engaged in cleaning and repairing arms, machinery, and tools. Further smaller reductions were made as these jobs were completed.⁶⁷⁹ In June of the same year full return to a peace-time basis was signaled by the passage of an act establishing an eight-hour day for all men in the employ of the national government.⁶⁸⁰ This is, in essential outline, the story of demobilization after the World War. The great machine which had been built by the war-time energy was slowly taken apart, after the Armistice of November 11, 1918. The heavy guard was discharged in December. The night shift was the first of the working groups to go; then followed a gradual reduction in forces, somewhat retarded by the cleaning and repairing of small arms and machine guns which began to be received from camps and the fighting zone in February, 1919. As this work

⁶⁷⁵ Ramsay to Dyer, June 20, 1864; in S.A.C.F.

⁶⁷⁶ Dyer to Ramsay, June 25, 1864, in S.A.C.F.

⁶⁷⁷ Dyer to Laidley, Apr. 28, 1865, in S.A.C.F.

⁶⁷⁸ Undated Springfield Armory Order signed by Laidley, in S.A. Books of Orders, cit.

⁶⁷⁹ Benton to Dyer, Mar. 3, 1868, in S.A.C.F.

⁶⁸⁰ Act quoted in Adjutant General of the Army's General Orders #31, July 6, 1868.

progressed, the number of workmen was diminished until peace-time conditions were reestablished.⁶⁸¹

An analysis of the production statistics for the two war periods shows that the Armory is capable of tremendous expansion without seriously jeopardizing the quality of the output. This is partly due to the machinery, which makes it possible for unskilled persons to perform many of the operations. This fact should not be overemphasized, however, for in the Springfield community there is a tradition of gunsmithing technique which makes possible rapid expansion of skilled labor, experts who instinctively guard against flaws in workmanship.

The persistent efforts of officials and workmen at the Armory to improve the quality of their output and the efficiency of their plant has resulted in a record of splendid achievement along both lines. The plant of today has proved in the test of war its flexibility and its capacity for undreamed expansion; the product it turns out is above reproach. Industrial United States can well afford to remain represented by one of its most perfect expressions – The Springfield Rifle.

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. supplying with arms the armies of the United States in time of war? Constant manufacturing 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 additional 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

⁶⁸¹ Annual Report of Operations to the Chief of Ordnance, 1919, in S.A.C.F.

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, has 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 upon the finished product and in 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 then 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 through any economic adversity, because of the Armory's position above 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 secondary consideration.

In the third place, which 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 level of manufacturing practice and in furtherizing 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 manufacturing cities. On the social side, the effect has been even more pronounced. The Armory effected an interweaving of the pioneer aristocratic New England with the latter 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? The 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. 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 will enhance 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, had 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 solely 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 molded the Armory, and has by the Armory been molded in turn. To divorce them would be to sacrifice their joint history.

CHAPTER 10. **BIBLIOGRAPHY**

PUBLISHED MATERIAL

Of published matter bearing on the history of the Springfield Armory, accounts of the institution might be assumed to rank first. As a fact, this is not the case. There have been a few newspaper articles, chapters in local histories, and even one or two separates purporting to cover part or all of the history of the Armory, but they have in the main missed the significant elements in their subject, and have contented themselves with reciting anecdotes, or with lauding the establishment in an uncritical fashion. Indeed, repetition of stories and jokes connected with the early days of this place comprises most of the published history of one of the nation's great institutions.

Closely akin to intentional accounts of the Armory are passing references and paragraphs which occur throughout every history of Springfield and vicinity that purports to cover any portion of the period subsequent to the Revolution. From the range of these works the browning historian may find here and there a succulent morsel which serves to spice an otherwise plain diet of dusty leaves.

Much more useful than either of the foregoing sources, are the official publications of the United States government which refer to the Armory. For the last half century, particularly, the fullness and accuracy of certain of these printed official documents have largely obviated references to less accessible sources. For the whole period of national life, discussion of the Armory and of the War Department, by members of Congress, furnishes a framework into which otherwise unrelated details can be fitted.

For this or that period special types of published repositories have been referred to. The era of the Continental Congress has been almost wholly unknown to annalists of the Armory and of Springfield, in spite of the fact that the outline of its history appears in published letters of the men concerned with the Revolutionary Laboratory, and in published journals of the Continental Congresses. This matter is widely scattered, and the information furnished is incomplete without additional data to be found only in manuscript. The hectic controversy between Major Ripley and Charles Stearns brought out a little library of argumentative pamphlet literature which is invaluable, because it comprises most of the sources necessary for an understanding of this period of strife. Newspaper files have fulfilled their usual function of throwing contemporary sidelights on matters otherwise in deep shadow. The Springfield Republican, in particular, has for decades stood firmly behind Armory activities.

A few titles which were of use do not fall under any of the heads thus far listed. Chief among them is Sawyer's critical and intelligent study of firearms in the period which closed with the inception of the National Armories at Springfield and Harper's Ferry. If an attempt were made exhaustively to study the technical aspect of the Armory, several works not used in the present undertaking would have to be consulted, e.g. the technical studies of ordnance experts.

MANUSCRIPT MATERIAL

Without belittling the very real service of material in print, it can be said that the study of the Springfield Armory under hand was made primarily from manuscript sources.

The period before 1795 would be hopelessly incomplete but for manuscripts in the possession of the Connecticut Valley Historical Society and the Springfield City Library in Springfield, the Massachusetts State Archives in Boston, and the Library of Congress in Washington. Mr. Harry A. Wright of Springfield was instrumental in procuring additional needed documents from private collections in Boston. For the years of organization and development of the National Armory, the Springfield Armory Files have been the principal source of information. There are probably few business houses in the United States which have preserved intact a complete record of their activities for more than a century. That of the Springfield Armory dates back to 1813, and comprises incoming correspondence, orders, pay-rolls, work records, requisitions, and official reports. Until after the Civil War most of the essential information was yielded by the correspondence of the Superintendent, and by that of the Paymaster. Since 1865 the amount and variety of papers have multiplied many fold. For the years before 1813 the Superintendent's correspondence is missing. This loss, although very considerable, is partly made good by other extant documents, especially the correspondence of the Paymaster, who in that day was a figure nearly as important as the Superintendent. Unluckily, Prescott, while admitting that he removed these precious papers as a result of his strained relations with Lechler, left no clue as to their whereabouts. If they be still extant, they doubtless contain priceless information about the murky years before the war of 1812.

The quality of the correspondence, and the luminosity, depend upon the frankness and the literary ability of the several writers of it. Throughout there was an increasing tendency to formalize War Department communications, until by 1890 they became rigidly prescribed. This tendency was not marked during most of the period preceding 1865. As a result, many of the letters, while exclusively devoted to the business in hand, carry a flavor of humanity which impinges upon the reader so subtly that he does not notice it, until he finally is aware that he is touching life.

To sum up: the Armory files have served as the chief source for chapters four and

following. Most of the published material may be found in the Springfield Room of the Springfield City Library Association. The manuscript collections of this Association, of the Connecticut Valley Historical Valley, and of the State of Massachusetts, the official documents of the federal government, and published correspondence and diaries, have furnished most of the remaining material.

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