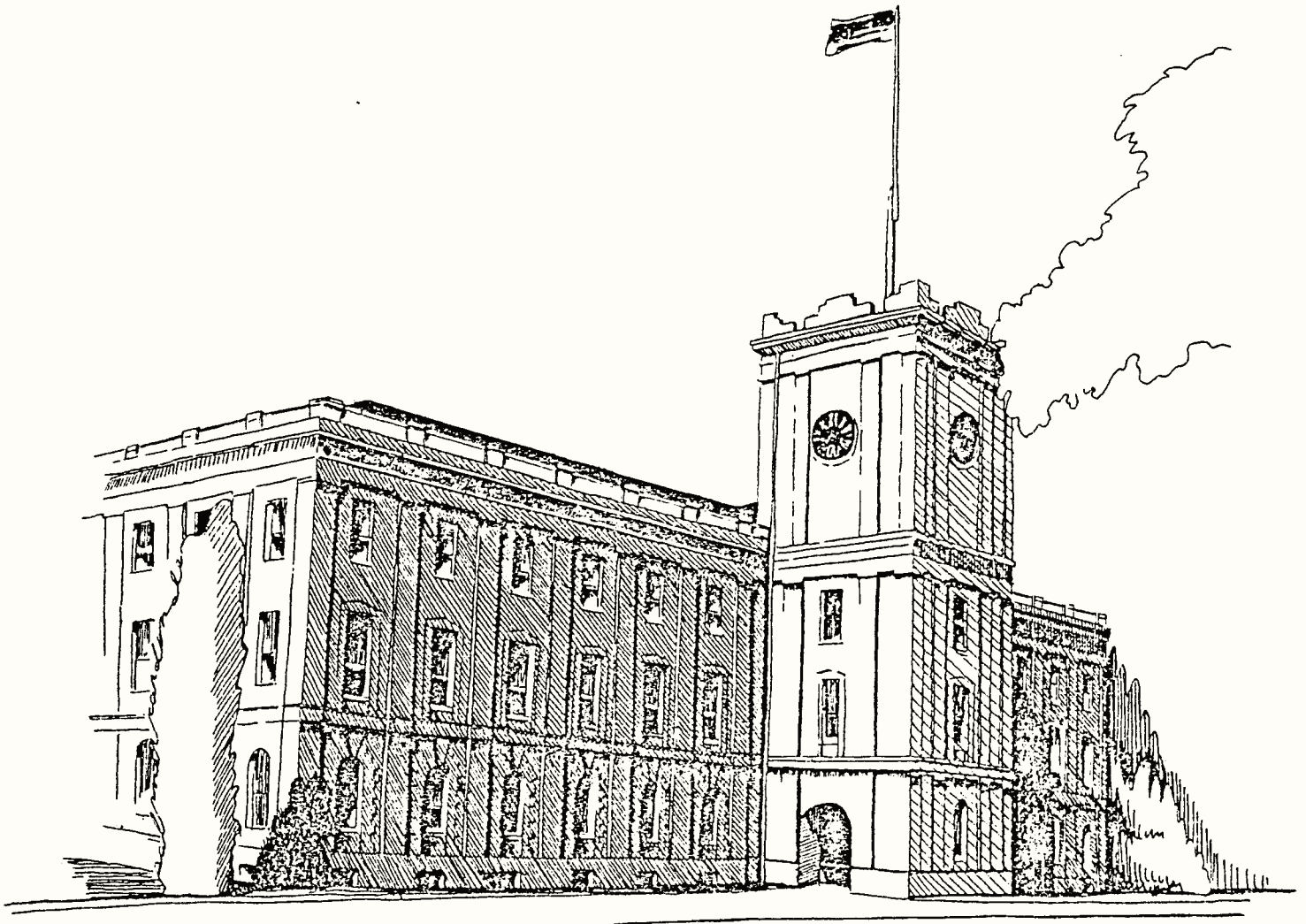
D-4



SPRINGFIELD ARMORY NHS

Interpretive Prospectus

United States Department of the Interior

NATIONAL PARK SERVICE
HARPERS FERRY CENTER
HARPERS FERRY, WEST VIRGINIA 25425

IN REPLY REFER TO:
K1817(1100-IP)
SPAR

SEP 23 1980

Memorandum

To: Regional Programs Officer, North Atlantic Region

From: Chief, Division of Interpretive Planning, HFC

Subject: Approved IP Springfield Armory NHS

The subject Interpretive Prospectus was recently approved by the Regional Director. It prescribes media applications to achieve park interpretive objectives and includes current cost estimates for implementation.

Park management should review its development and operating programs and revise Development Package Proposals, 10-238, to reflect the approved IP and park managements' proposed five year development program. HFC-DSC will prepare estimates and schedule development related project types, Form 802, for 10-238 packages approved by Region.

Alan E. Kent

Alan E. Kent

Enclosure

cc:
Supt., SPAR w/enc.
Regional Chief of Interpretation, NAR w/enc.
DSC-MCN - Ralph Thomas Roan w/enc.
1100-M - Dixie Lee Shackelford w/enc.
DSC-PGM - Edie Ramey w/encs. (2)

Year of the Visitor

K1817(1100-IP)
SPAR

SEP 23 1980

Memorandum

To: Regional Director, North Atlantic Region

From: Chief, Division of Interpretive Planning, Harpers Ferry Center

Subject: Approved Interpretive Prospectus, Springfield Armory NHS

Your memorandum of July 29 approved the Springfield Armory NHS Interpretive Prospectus, subject to the comments which you provided to us.

Discussions were held at the Regional Director's review meeting here on August 19 on the price-tag connected with implementing the IP. Then, and in subsequent discussions with members of your staff, we have learned that you and Superintendent Lindsay want the document issued as is, with the understanding that it may not be fully implemented for some years and that, in the meantime, interim measures will be undertaken to upgrade the museum at Springfield Armory.

We have made the changes suggested in your memorandum of July 29 and are now issuing the IP as an approved document. Accordingly, ten (10) copies are enclosed with this memorandum.

Fifteen (15) copies are being sent direct to Superintendent Lindsay with his copy of this memorandum.

/s/ Alan E. Kent
Alan E. Kent

Enclosures - (10)

cc: Supt., SPAR w/encs. - (15)
Manager, DSC w/enc.
WASO-130 - Dave Wright w/encs. - (2)
WASO-530 - Dave Dame w/enc.

DENVER Service Center
Action
SEP 30 1980
2. ✓
1. /OSC-PGM-Ramey

D-4

SPRINGFIELD ARMORY NHS

INTERPRETIVE PROSPECTUS

SEPTEMBER 1980

(Amended according to Regional Director Stanton's memorandum of approval dated July 29, 1980.)

LEGISLATIVE COMPLIANCE

All actions proposed in this plan must comply with the provisions of Section 106 of the 1966 National Historic Preservation Act and Executive Order 11593 as codified in the Regulations of the Advisory Council on Historic Preservation (36 CFR Part 800). Prior to a decision to implement any provisions of this plan, these regulations require that all cultural resources in or near the project areas must be identified and evaluated in terms of the National Register Criteria of Eligibility. The evaluation must be done by appropriate professionals for the Regional Director in consultation with the State Historic Preservation Officer. Additionally, the Criteria of Effect and the Criteria of Adverse Effect (36 CFR Part 800.3a and b) must be applied by appropriate professionals for the Regional Director in consultation with the State Historic Preservation Officer and the Advisory Council Procedures completed as appropriate.

This Interpretive Prospectus will be considered as an ultimate plan. Before it can be implemented, interim measures will be taken to upgrade the museum at Springfield Armory NHS.

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SITE SIGNIFICANCE

The Springfield Armory was established by President George Washington in 1794, and production of infantry muskets began the next year. During the following 174 years, the Armory was at the very center of small arms design and production for U.S. armed forces. The technological advances implemented at Springfield were successfully adapted for other industrial uses.

The Armory weapons collection, begun in the 1870's under Colonel James G. Benton, was intended as a reference "library" for Armory engineers and designers. It grew steadily in size with the addition of new foreign and domestic designs and battlefield captures until the closing of the Armory in 1968. The collection, by formal agreement on long-term loan from the Department of the Army, now comprises an estimated 7,500 weapons plus related items. The site also has an extensive library, archival, and film collection.

A portion of the former Armory site was authorized as a National Historic Site in 1974. In March of 1978, the National Park Service acquired part of the site, including the Main Arsenal with the weapons collection, the Commanding Officer's Quarters, and the Master Armorer's House. The remaining portion of the site is administered by Springfield Technical Community College.

EXISTING CONDITIONS

Management of Springfield Armory National Historic Site is shared between the National Park Service and Springfield Technical Community College. The NPS manages approximately 20 acres of land as well as the Main Arsenal Building (containing the museum collection), the Commanding Officer's Quarters, and the Master Armorer's Quarters. The remaining acreage and associated historic structures are managed by STCC.

The museum is, and will continue to be, the prime visitor attraction. At present, the museum consists of old dissimilar cases and displays offering little in the way of security and interpretation.

VISITOR PROFILE AND SPECIAL POPULATIONS

Annual visitation to Springfield Armory NHS is estimated to be around 20,000, with summer being the peak season. Family groups comprise approximately half of the visitation, with individuals and organized groups sharing the other half. It is estimated that over half of the visitors are from out of state. The average park visit is about one hour, but weapons enthusiasts might spend two or three hours in the museum.

The park experiences no unusual incidence of handicapped, minority or foreign-speaking visitors. The museum is accessible by ramp, and any structural modification will keep the needs of the handicapped in mind.

The weapons enthusiast must be considered as a special audience, and all interpretive developments must take this factor into account. Former Armory employees and local residents are likely to comprise a significant core of repeat visitors.

INTERPRETIVE OBJECTIVES

1. Promote an understanding of the historic significance of the Springfield Armory and its products.

2. Use the Armory's renowned weapons collection to show the evolution of military small arms.

3. Illustrate Springfield Armory's role in industrial history.

4. Provide for the various levels of visitor interest, ranging from the casual tourist to the gun enthusiast and arms scholar.

5. Provide for the security and preservation needs of all artifacts and historic structures.

THE PLAN

The museum will be the prime interpretive experience at Springfield Armory National Historic Site. Located on the first floor of the main Arsenal Building (building 13), the museum will focus on the history and significance of the site and on displaying the internationally renowned arms collection. This rich collection of arms, machinery, military accouterments, historical film footage, and archival materials, will support a large exhibit area totaling nearly 12,000 square feet of space.

The design of the museum will retain the historic character of the arsenal. The original wood flooring, the pressed tin ceiling, and the support columns will be retained. The museum will attempt to capture a feeling for the building's historic use as a warehouse. Accordingly, a contemporary look of chrome and plastic will be avoided in favor of an appearance more congruous with gun stocks and shipping crates.

The museum will be designed with two distinct types of visitors in mind -- arms enthusiasts and general recreational tourists. These two elements will be integrated throughout the entire museum rather than designating separate areas for the different audiences.

The preservation and security of the artifacts displayed will be a major concern. Exhibit cases must insure the necessary environmental and physical security requirements of the artifacts. Transparent materials should be employed in fabricating the cases to both permit inspection of the weapons from all perspectives, and also to enhance security, by enabling visual contact throughout the museum.

Operational efficiency is another important consideration, since the museum may at times be staffed with just one person. The information desk should be centrally located to enable one employee to greet visitors from the desk, yet be positioned to observe most of the museum, to operate the audiovisual equipment, and to oversee the sales area.

An introductory motion picture is designed to provide general orientation to the park story. This short film will be shown in the auditorium, which can double as a multipurpose room for talks and lectures. The portico section will be designed for administrative offices and an employee lounge. A more detailed description of media proposals is provided below.

INTERPRETIVE MEDIA

AUDITORIUM:

An auditorium will be partitioned off from the rest of the museum, to allow the presentation of an orientation film, and to accommodate special lectures and demonstrations, without distracting the entire museum. This room will be located near the information desk. Its design is dictated by the load bearing pillars throughout the museum. A rectangular room, 1½ columns wide and 3 columns long (approximately 20' x 40') is proposed. Using bench seating, this arrangement will have a capacity for approximately 50 school children. The exterior walls of the auditorium will be graphically treated with illustrations of the "organs" of weapons. This wall treatment will help create a warehouse feeling.

MOTION PICTURE:

A 12-15 minute orientation film will be presented in the auditorium. Done in the filmograph technique, the film will rely extensively on visuals from the photographic resources of the Armory. The film will present an overview of the history and significance of Springfield Armory, mentioning Springfield's long standing reputation for excellence and precision work. The film will briefly discuss Springfield's role in the American Revolution and its selection in 1794 as the first federal armory (with Harpers Ferry) by President George Washington. Even before its establishment as an armory, the site gained notoriety as the focal point of Shays' Rebellion, a short-lived agrarian protest which emphasized the need for a strong federal government to replace the weak Articles of Confederation.

The film may also illustrate the physical development of the complex in the form of the "Grand National Armory" envisioned by Superintendent Roswell Lee and carried out by James Ripley and others. The relationship between the Town of Springfield and the Armory should be portrayed. The Armory, both by its commanding geographic position and its social activities, was always a focal point of the town. By the same token, the armory was an instrument of social change fostering religious and social tolerance upon the city. These are but minor elements to be communicated in the film.

The real significance of Springfield Armory centers on its productivity and innovation. Mention must be made of the key figures in the story -- Blanchard, Allin, Garand, and the products they produced -- The Trapdoor Springfield, The '03 Springfield, the M1, and the M14. This topic will be the prime emphasis of the film. The film should also briefly allude to the Armory's closing in 1968.

EXHIBITRY:

Exhibits will focus in three directions -- the history of Springfield Armory, the manufacturing and industrial processes that took place there, and the display of the weapons collection. The museum will be designed to optimize visibility from the visitor information desk. Visitor flow will be unstructured, with a free flow exhibit area and nonsequential presentations. The specific exhibit themes are discussed below:

The Organ: The stand of arms, called "organs" by Henry Wadsworth Longfellow, provide a stunning visual feature in the museum. Since much of the building was used for the storage of weapons, an attempt should be made to simulate the magnitude of weapons stored in that manner. The original organ, with a complement of arms, will be prominently displayed. Unused wallspace,

such as the exterior of the auditorium, should be graphically treated with illustrations of the organs.

Site Model: Springfield Armory was a complex entity. Besides the present Historic Site, the Armory's physical plant extended to the machine shops on Federal Square; the water shops a mile away, and even had testing sites a considerable distance from the city. The existing three dimensional model will be rehabilitated or replaced to illustrate these complex physical relationships. The model may be modified with textured surfaces to accommodate the needs of the visually handicapped.

The model should be located near the information desk, so interpreters can use it as an orientation device.

Genius of Springfield: This topic will be explored by a series of exhibits centering on three sub-themes: 1) interchangeable parts; 2) the work of selected individuals; and, 3) the practical application of Springfield technology. The following paragraphs suggest the general approach of these exhibits, and the key personalities to be interpreted.

Thomas Blanchard's Eccentric Lathe, enabling the mass production of irregular shapes, was a quantum leap in technological innovation in the arms industry, and helped meet the goal of truly interchangeable manufacturing. The principle is still employed today as a basic manufacturing technique used in the production of baseball bats and furniture among other things. The lathe has received special recognition from the American Society of Mechanical Engineers. Blanchard's other inventions include: an apple paring machine; a tack making machine; shipbuilding apparatus; steamboat designs; a horizontal shearing machine for woolen cloth; wood bending principles; improved school slates;

cigarettas -- a kind of cigarette; and a scoop-shovel. Illustrations or original artifacts of these inventions may be incorporated into the exhibit.

Cyrus Buckland's inspection instruments were important developments in precision manufacturing. His improvements in quality control added immeasurably to Springfield's reputation. While various inspection parts and equipment will be included in another exhibit, mention should be made of Buckland's efforts in connection with developing official standards for weights and measurements.

John Garand, a native of Quebec, demonstrated his mechanical talents early in life. At the age of 13 he patented a telescopic screw jack and an automatic painting machine for bobbins. Additional youthful inventions include patents on motorcycle engines, attachments for machine tools, and others.

Garand submitted his first gun design to the government in 1916. He was subsequently employed by the Bureau of Standards to build a rifle. He later came to work at Springfield Armory in 1919. His most notable accomplishment was the designing of the M1 rifle, the first semi-automatic shoulder weapon to be issued as a standard military weapon.

Weapons Evolution: Since much of Springfield Armory's story revolves around technological innovation, attempts should be made to present the intricate detail of weapons development and manufacture.

Exhibitry will trace the development of shoulder weapons from the earliest to the M14, emphasizing, but not necessarily limited to, Springfield products. The exhibit will also define weapon nonmenclature providing a basic glossary of terms. An exploded view of a weapon might also be included.

A related exhibit will illustrate the differences in performance of various weapons. Speed, range, accuracy, and firepower will be graphically displayed, showing the improvements of weapons design over time.

Weapons Testing: A multi-media exhibit highlighting weapons testing will be designed. Selected silent film footage will be presented through a visitor-activated videotape unit. The program will be captioned to identify the specific weapons presented. Exhibitry will embellish the presentation and state that the clips are actual footage from the armory's archives. These slow motion films have great fascination and will appeal to both the gun enthusiast as well as the general interest visitor, thereby providing an insight into the armory's role in research and development of new weapons.

Production:

The subject of arms production is a topic barely dealt with by the present exhibits at the museum. Since this is the heart of the Springfield story, considerable emphasis should be placed here. Using a variety of exhibit techniques, the following themes will be presented: the process of arms production; machinery and equipment; the inspection process; and the workers of Springfield Armory.

Arms Production: The basic components of production will be presented in a two-minute videotape presentation. The presentation will be visitor-activated, and will be viewed from a standing position. A series of fast cuts will show rows of machinery, rods of metal, and blocks of wood eventually forming a finished product -- a Springfield rifle. This film will also show k e y pieces of machinery operating such as the Blanchard Lathe. Exhibitry will complement the presentation, possibly highlighting key processes and equipment.

Generally speaking, when interpreting this subject, it should be pointed out that arms development has been in the forefront of technological and industrial advancement throughout history. In a very real sense, weapons development is an indicator of a nation's technological and industrial capacity. The fact that the products of the Springfield Armory were implements of destruction should not be glossed over.

Equipment: The few pieces of equipment on hand at the museum will be displayed, and exhibits will illustrate their role in the manufacturing process. Since it is impossible to recreate the setting of the machine shops and production area, the equipment will be arranged in a gallery type display rather than a period setting.

The idea that technological innovation was the hallmark of Springfield Armory will be presented. A complementary exhibit might present, through graphics, the evolution of equipment over time and the initial reluctance of employees to accept mechanization. Then as today, workers feared that automation would eliminate jobs.

Inspection and Proving: This is another area where Springfield Armory excelled. Master machinist, Cyrus Buckland, led the way in the development of precision gauges, enabling the measurement of minute tolerances. It is interesting to note that the Armory's rate of parts condemned after inspection was considerably less than that of government contractors, a fact that confirms the Armory's excellent quality control procedures.

Exhibitry will show various types of inspection gauges and proving equipment, illustrating several inspection processes. The possibility of employing some sort of participatory element will be considered. Conceivably, visitors could

re-enact steps of the inspection process -- checking barrel caliber and other critical tolerances. Reproduction calipers, gauge plugs, weights, and pattern weapons will be employed to give visitors a very real feeling for the "PASS-NO PASS" inspection of minimum and maximum tolerances. Visitors could look down gun barrels into a mirror, as the early inspectors did.

Inspectors and provers literally put their name on the line in the course of duty. They put their initials on all pieces approved and were held accountable for all errors. The inspector's mark on a weapon added a personal touch to the product of an impersonal manufacturing process.

The Workers of Springfield: Arms production traditionally was a craft-oriented occupation up until the early Nineteenth Century. Weapons were generally made entirely by one gunsmith, possibly assisted by an apprentice. As a result, weapons were individually crafted and were unique unto themselves. Although Springfield Armory appears to have operated under this tradition during its early years of operation, it quickly broke new ground and revolutionized the craft with the introduction of machinery.

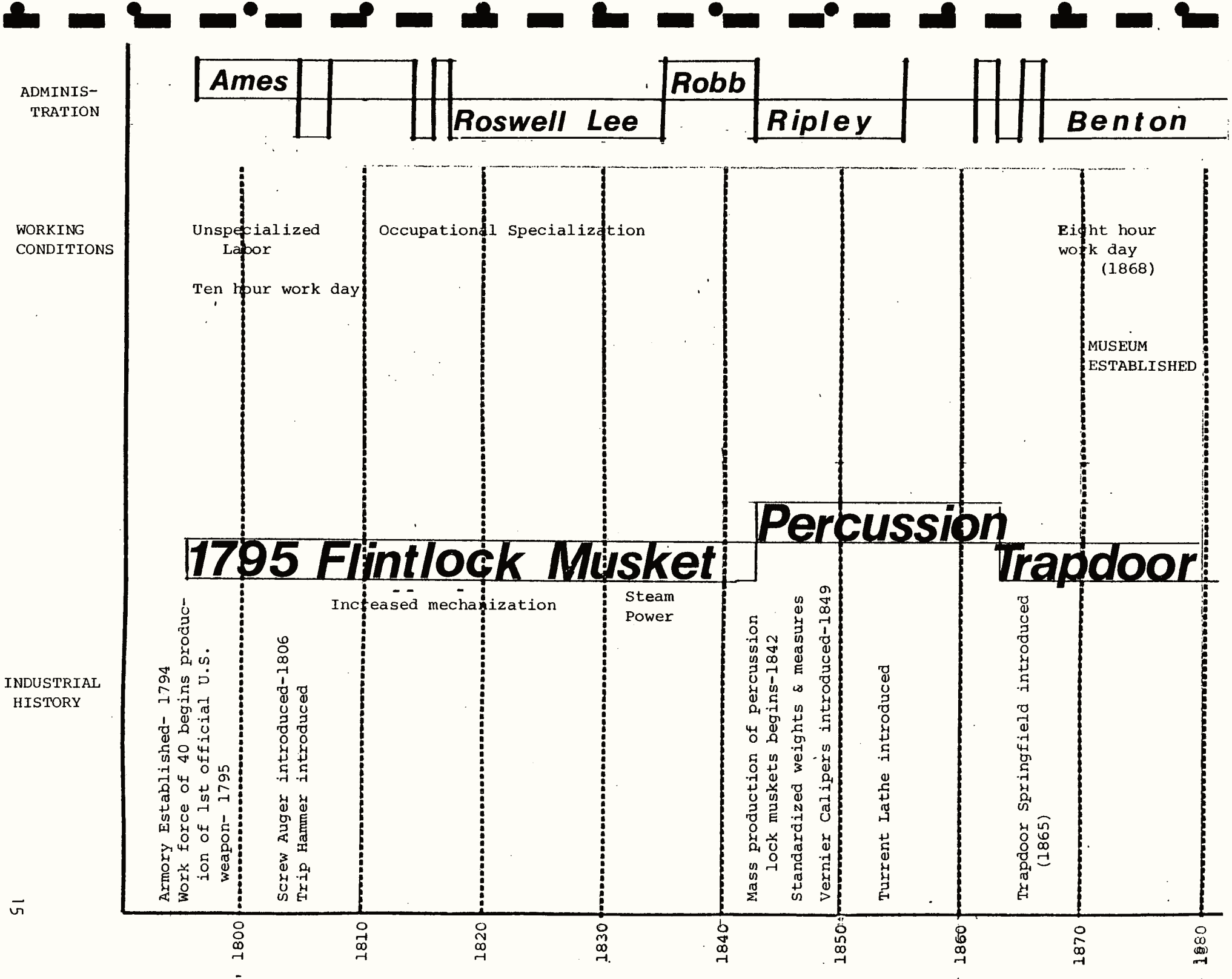
New machinery was generally resisted by armory workers, largely due to the fear of the loss of jobs due to automation. Nevertheless, management of the armory supported new manufacturing techniques, and Springfield Armory developed from the craft-oriented world of the gunsmith to the era of industrialization.

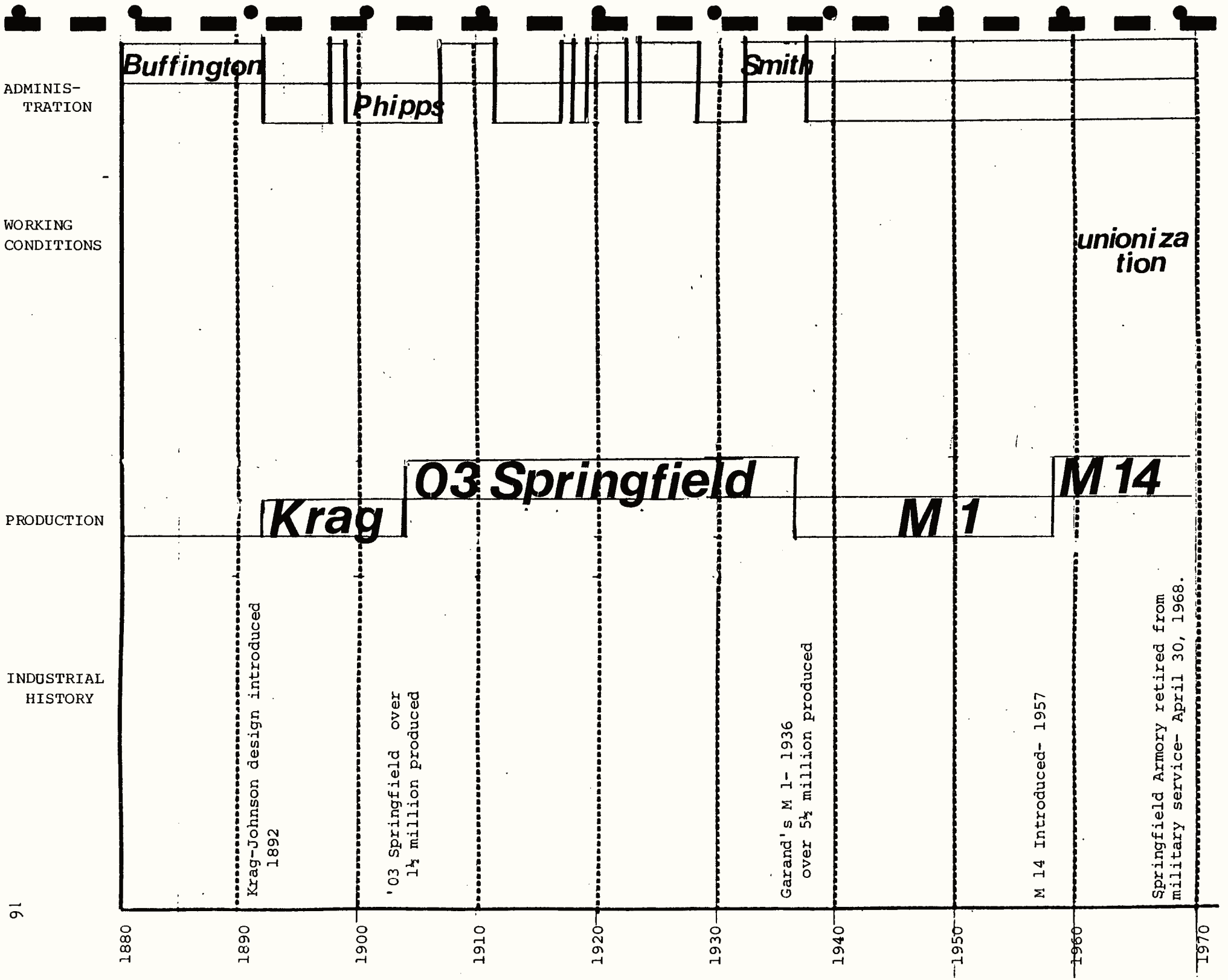
This new approach to weapons manufacture required new skills, new techniques, and new workers. The gunsmith, knowledgeable of every part of a weapon, was replaced by specialists -- the machinist, the inspector, the foreman, and others. Men became more closely associated with machines and the actions of the worker were dictated to a large extent by the machine. Working areas

became larger over time, noisier with the introduction of additional machinery, and hotter with the advent of steam power. Many employees were paid by-the-piece rate, apprenticeships disappeared. Yet, workers of Springfield Armory could boast of better than average working conditions and better than average salary. Exhibitry illustrating the contribution of all levels of Springfield workers needs to be developed.

One possible exhibit topic might be the women of Springfield Armory. World War I brought limited numbers of women from all walks of life into the shops; by World War II, 8,667 women were employed -- nearly 70% of the total workforce. Some of the women hired during the 40's had worked at the armory during World War I. It is interesting to note their comments on the improved working conditions that developed over the quarter century. Lighting facilities, ventilation, equipment, and the attitude of men toward women workers had improved for the better over time.

Another approach might be to use a time line illustrating various factors such as the armory administration, arms production, working conditions, and industrial history - see illustration below. Photographs or graphics might embellish the display or perhaps visitors could browse through armory scrapbooks (reproduction materials only).


ADMINIS-
TRATION
Ames
Roswell Lee
Robb
Ripley
Benton
WORKING
CONDITIONS
Unspecialized
Labor
Ten hour work day
Occupational Specialization
Eight hour
work day
(1868)
MUSEUM
ESTABLISHED
1795 Flintlock Musket
Percussion
Trapdoor
Increased mechanization
Steam
Power
INDUSTRIAL
HISTORY
Armory Established- 1794
Work force of 40 begins production of 1st official U.S.
weapon- 1795
Screw Auger introduced-1806
Trip Hammer introduced
Mass production of percussion
lock muskets begins-1842
Standardized weights & measures
Vernier Calipers introduced-1849
Turrent Lathe introduced
Trapdoor Springfield introduced
(1865)
1800
1810
1820
1830
1840
1850
1860
1870
1880


ADMINIS-
TRATION
Buffington
Phipps
Smith
WORKING
CONDITIONS
unioniza
tion
PRODUCTION
Krag
'03 Springfield
M 1
M 14
INDUSTRIAL
HISTORY
Krag-Johnson design introduced
1892
'03 Springfield over
1½ million produced
Garand's M 1- 1936
over 5½ million produced
M 14 Introduced- 1957
Springfield Armory retired from
military service- April 30, 1968.
1880
1890
1900
1910
1920
1930
1940
1950
1960
1970

ARMS COLLECTION:

The arms collection of Springfield Armory has a worldwide reputation and an international audience. A considerable portion of the museum will be devoted to the presentation of this collection. While some exhibits will be devoted exclusively to weapons, the weapons will also be integrated into the exhibits described in the preceding pages.

CHANGING EXHIBITS:

The exhibits focusing on the arms themselves, will be arranged thematically. Some of the themes to be interpreted are listed below. Since it will be impossible to exhibit all these displays at once, the cases should be designed to accommodate periodic changing of the displays. Such change would benefit the site's repeat visitors.

There is a need for some interpretation indepth, especially to interest the arms enthusiast. While most of the exhibit label copy will be short, a few of the more significant displays should receive more detailed treatment. These selected cases may be designed with side panels offering detailed text and illustrations.

Other themes to be presented in the arms collection are:

The products of Springfield Armory

Development of a selected model

Springfield Armory's arms library

U.S. vs. opponent's weapons

Edged weapons

Comparison of Springfield Armory vs. Harpers Ferry weapons

Experimental pieces

Demonstration models

Field captures

Freaks and oddities

Gunlore

Aircraft weapons

Pre-gunpowder weapons

Handguns

Target and sporting weapons

Rapid fire weapons

Special purpose weapons

Guns associated with famous people

Soldier art

Bazookas and Rocket weapons

Foreign weapons

Training weapons

Signal devices

Lyle Gun

RESEARCH NEEDS

Springfield Armory NHS is different from most NPS areas in that it represents a significant research resource. It has an outstanding arms collection, library, archives, and film and photograph collection. Considerable attention must be devoted to cataloging, storing, and preserving these materials. While the arms collection has received considerable attention, more effort must be devoted to the other areas before they can be utilized to their fullest potential. It is recommended that the library be cataloged and that all film materials be duplicated. The Harpers Ferry Center will assist the park in accomplishing these tasks.

In an attempt to document the recent history of the Springfield Armory, an oral history program should be developed to interview former employees (of all levels) and members of the community to gather factual data, reminiscences, and anecdotes of the armory. Interviews should focus on the physical appearance, working conditions, and the closing of the armory.

The privately held John Garand papers need to be examined with two thoughts in mind. First, to determine whether any of the material pertains to Springfield Armory and, secondly, whether any of the materials should be acquired by the park.

SALES

There appears to be great potential for sale of interpretive materials at Springfield Armory NHS. This would be an excellent method to appeal to the arms enthusiast, yet at the same time attract the general visitor. In addition to the usual assortment of slides and postcards, the sales outlet could distribute a variety of publications ranging from mimeographed weapon specification sheets to reprinted military manuals. Weapons periodicals, posters, and books dealing with weapons might also be sold. A good assortment of this type of material is already available on the market. Initially, the operation should begin on a small scale, conducted either from the information desk or in a specially designed area nearby. This sales area should include an informal resting area. In either case, an agreement with a cooperative association would have to be negotiated.

COST ESTIMATES

			GROSS
06	Preliminary Exhibit Planning		$ 23,000
51	Exhibit Planning		97,500
52	Exhibit Production		1,170,000
53	Museum Services		38,000
06	Preliminary AV Planning		5,000
61	Audiovisual Planning		22,500
62	Audiovisual Production		113,000
		TOTAL	$ 1,469,000

PLANNING TEAM MEMBERS

Doug Lindsay, Superintendent, Springfield Armory NHS

William Meuse, Curator, Springfield Armory NHS

Roger Buck, DCP Team Captain, Denver Service Center

Richard Turk, Historic Architect, Denver Service Center

Ed Kallop, Regional Curator, North Atlantic Regional Office

Shary Page Berg, Planner, North Atlantic Regional Office

Richard R. Krepela, Assistant Chief, Division of Audiovisual Arts, Harpers Ferry Center

Jim O'Rourke, Exhibit Specialist, Harpers Ferry Center

Arthur C. Allen, Chief, Division of Museum Service, Harpers Ferry Center

Michael Paskowsky, Interpretive Planner, Harpers Ferry Center
Team Captain

Larry Lowenthall, Historian, Springfield Armory NHS

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United States Department of the Interior
NATIONAL PARK SERVICE
North Atlantic Region
15 State Street
Boston, Massachusetts 02109

IN REPLY REFER TO:
K-1817
NAR(OI)

July 29, 1980

Memorandum

To: Manager, Harpers Ferry Center

From: Regional Director, North Atlantic Region

Subject: Interpretive Prospectus for Springfield Armory National Historic Site

We have reviewed the Interpretive Prospectus for Springfield Armory and approve it subject to certain changes that are noted in memoranda from the Superintendent as well as from those in this office who also reviewed the document. Most of these changes are minor and technical in nature, and are designed to make a good document even better.

Richard L. Stanton

Enclosure