

*Returned by  
M. Scanlon*

# REPORT

## LOWELL NATIONAL HISTORICAL PARK AND PRESERVATION DISTRICT

### CULTURAL RESOURCES INVENTORY

prepared for

DIVISION OF CULTURAL RESOURCES

NORTH ATLANTIC REGIONAL OFFICE

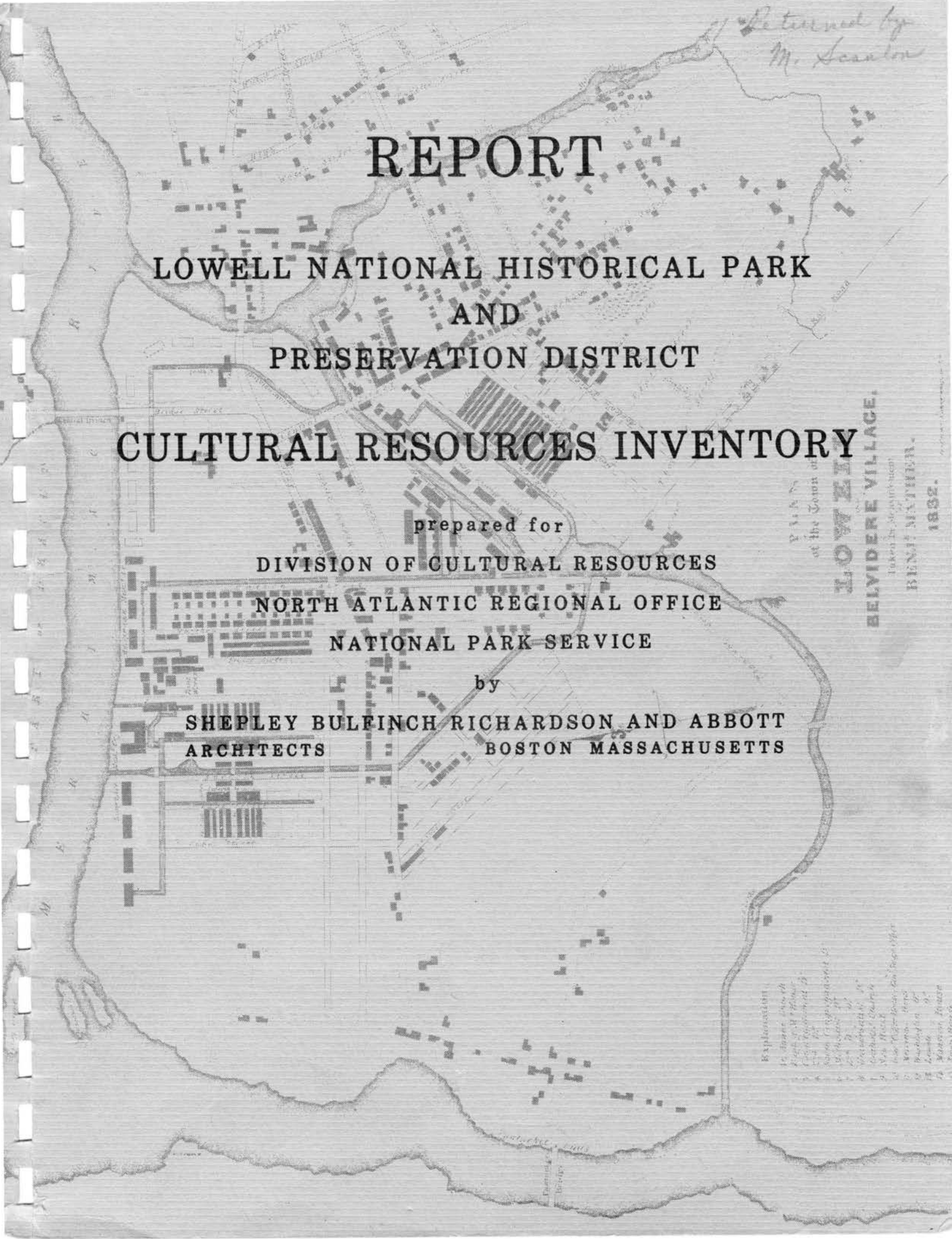
NATIONAL PARK SERVICE

by

**SHEPLEY BULFINCH RICHARDSON AND ABBOTT  
ARCHITECTS**      **BOSTON MASSACHUSETTS**

PLAN No. \_\_\_\_\_  
of the Town of \_\_\_\_\_  
**LOWELL**  
BELVIDERE VILLAGE.  
Taken by Mr. [Name]  
BENJ. NATHAN.  
1832.

- Explanation:
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Architects

Boston, Massachusetts

PROPERTY OF  
LOWELL NATIONAL HISTORICAL PARK

1980

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## PREFACE

This Report and its accompanying fourteen inventory volumes and seventeen base maps together form the end product of a \$99,980 contract (CX1600-9-0005) between the National Park Service and Shepley Bulfinch Richardson and Abbott. The purpose of this contract was to inventory and begin an architectural and socio-economic interpretation of the cultural resources of the Lowell Historic Preservation District and the Lowell National Historical Park as represented by the 895 individual properties which exist in the District and Park.

The project commenced in March, 1979, and was completed in January, 1980. To SBRA's knowledge, no other cultural resources inventory of similar depth and magnitude has ever been undertaken particularly in such a brief time span. Such pioneering work as that of the Cambridge (Massachusetts) Historical Commission and of the Vieux Carré project in New Orleans, Louisiana extended over a number of years.

That this project was successfully completed is entirely due to many dedicated people in Lowell, on the SBRA staff and at the National Park Service.

Among the latter, special thanks are due to Francis P. McManamon and to Bronwyn Krog, who acted almost like a member of the SBRA team and without whom the project could not have succeeded, as well as to Ramon A. Cintron, Contracting Officer, whose understanding of the problems involved in the project went beyond normal expectation.

In Lowell, the people who deserve special mention are the hundreds of owners of the properties being surveyed who were understanding and went out of their way to be helpful; there are so many of these that to mention one would be a disservice to others. At Boott Mills, Melvin Lezberg generously made the Locks and Canals archive and much of his time available, and Roland LaRochelle was constantly helpful. At the University of Lowell's Alumni-Lydon Library, Martha Mayo, Librarian of Special Collections, was especially helpful as well as tolerant of researchers turning the place upside down. And Edward Harley and Robert

MacLeod were equally gracious and full of information at the City of Lowell Memorial Library. We are also thankful to Helena Wright at the Merrimack Valley Textile Museum in North Andover.

Edward S. Rutsch and Michael N. Gimigliano of Historic Conservation and Interpretation, Inc. were indispensable in the research for and writing about the archaeological aspects of the project. Pauline Carroll prepared the report on the Lowell canal system.

However, there would have been no project had it not been for the SBRA staff and particularly Edward F. Zimmer, Principal Investigator. His dedication, understanding, long hours spent on the project and scholarship literally held the team together. Anne Booth, Chief Researcher was second only to Ed Zimmer in her contributions to a successful conclusion.

It is hard to single out these two when one considers the hard work put in by other members of the survey/research team: Anne Grady, Edward Gordon, Mickail Koch, Ellen Lipsey, and Brian Pfeiffer.

Last only because she never was officially a member of the team, but certainly not least, to be thanked is Constance Zimmer who proofread all of the material, collated it, prepared it for reproduction, then reviewed the final product; it is probably fair to say that she is and may remain the only person to read all of the material produced.

And, of course, there never would have been a legible final product had it not been for our three Lowell typists, Mary Christmas, Peggy Lightner and Alice Santos.

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## CHAPTER ONE

### LOWELL CULTURAL RESOURCES INVENTORY: INTRODUCTION, METHODOLOGY, PERSPECTIVES, AND SUMMARY

#### INTRODUCTION

Lowell is a city of 95,000 in northeastern Massachusetts, thirty miles north of Boston and three miles from the New Hampshire border. The city is built around the confluence of the Merrimack and Concord Rivers. At the northern side of the city, the Merrimack traverses a long rapids called Pawtucket Falls, before sweeping around a broad bend and receiving the waters of the Concord. Between the head of these rapids and the mouth of the Concord, the waters of the Merrimack drop thirty-two feet. It was this fall of water that drew to Lowell the men, the women, the money, and the technology of this country's first industrial city. Here for the first time agrarian America saw an entire town, and soon a major city spring up that drew its livelihood not from fishing or farming, lumbering or mining, nor from the shipping or buying and selling goods, but from large-scale, mechanized, highly organized manufacturing.

Within a century after its bold beginnings in the 1820s, Lowell's industrial foundation was crumbling. The major corporations that had founded the city began to relocate or to fail, closing their giant textile mills. Lowell entered the Great Depression several years before the country as a whole, and the city is still striving to regain full economic health. Within the last decade, however, there has been a renewed awareness of Lowell's significant role in American history, combined with a realization that the city's historical resources might become economic resources as well.

Awareness led to action. The first step in the early 1970s was the development and broad acceptance of the concept that Lowell should establish an urban cultural park. This park would preserve Lowell's unique historic resources, and interpret the city's history to the nation. The city government made a firm

commitment to the historic park concept, and since 1975 has spent more than twelve million dollars on activities supportive of park-oriented revitalization. The Commonwealth of Massachusetts authorized the Lowell Heritage State Park in 1974 to help preserve Lowell's historic resources and develop public appreciation and enjoyment of those resources. Several private, public, and joint projects to rehabilitate and reuse historic buildings have been completed or are underway.

In 1972 and 1973 federal legislation was introduced to create an Urban National Cultural Park in Lowell. Those bills did not pass, but in 1975 the Lowell Historic Canal District Commission was established by Congress to prepare a plan for the preservation and interpretation of Lowell's historic resources. The report of that commission, together with the cooperative efforts of the National Park Service (NPS), Paul Tsongas (first as a Congressman, then as a Senator), and the Department of the Interior, produced the legislation that was passed by Congress in 1978 and signed into law by President Carter. This law established a two-tiered federal involvement: the Lowell National Historical Park (LNHP or the Park) a unit of the National Park Service, and the Lowell Historic Preservation District (LHPD or the District)--administered by a commission under the Department of the Interior.

The Park consists of the areas planned for intensive visitor use in the interpretation of Lowell and its canal system. The District surrounds the Park as a buffer zone and enables federal assistance in the preservation and revitalization of Lowell. The Park includes within its boundaries the 5.6 mile power canal system, a portion of the central business district, and three major mill complexes. The area within the Park boundaries totals 134 acres, but present plans envision direct National Park Service ownership of only a handful of buildings, with other property remaining in private hands. The District includes the mills or mill sites of most of the rest of the major textile corporations, the remainder of the historic central business district, and areas along the Concord River where smaller factories flourished outside the main waterpower system.

The legislation establishing the Park and the District outlined the broad policies and goals of the federal commitment and drew the geographic boundaries of the two zones. Implementation of the legislative concepts requires a further process of careful planning, based upon a thorough knowledge of the specific historical resources included in the Park and the District. The Lowell Cultural Resources Inventory was therefore commissioned by the National Park Service, North Atlantic Regional Office, Division of Cultural Resources and executed by Shepley Bulfinch Richardson and Abbott, Inc. (SBRA) between March 1979 and January 1980. The information produced by the inventory will be used in Park and Preservation District planning, and is also available through local libraries to Lowell's citizens and visitors. This report is a summary and an initial interpretation of the inventory data. In the remainder of this first chapter, the goals and methods of the inventory are described, the inventory form devised for the project is discussed and illustrated, and the results of the inventory are summarized.

The second chapter describes the prehistoric human use of the area within and around the Park and the District, and assesses the area's current potential for containing archeological remains of those people. The chapter is based on documentary research and surface examination of the District and the Park by professional prehistoric and industrial archeologists.

The third chapter outlines the historical development of Lowell, particularly within the area of the Park and the District, and relates existing buildings, canals, street patterns, and other historic resources such as the foundations and yards of demolished mills and boarding houses, buried canals, trash pits, and other known and potential historic archeological features.

The fourth chapter interprets the inventory data in terms of current patterns of land use and urban activity. This chapter describes twelve distinct areas of the Park and the District, and identifies their historical resources, applying a spatial perspective to the inventory data.

This report is based in its entirety upon the principal product of the Lowell Cultural Resources Inventory--the individual inventory forms and research reports, totaling over 3,700 pages of information on 895 properties. Hopefully this report reflects the richness of the inventory data, and thereby, the bounty of cultural resources in Lowell.

#### INVENTORY METHODOLOGY

##### Staff

A team of five surveyor-researchers carried out the inventory tasks of observation, research, recording, assessment, and photography from April through September of 1979. All five have graduate degrees or have done graduate-level study in architectural history, archeology, art history, or preservation studies and were experienced in architectural research and survey procedures. Prehistoric and industrial archeologists assisted in the inventory as consultants, and a technological historian researched and wrote about the canal system. An architectural historian directed the project as Principal Investigator, and a registered architect oversaw the whole effort.

##### Inventory Form

At the start of the project basic decisions had to be made about the types of information to be sought, and an inventory form to record and present the information had to be designed. The form described below was devised jointly by the NPS and SBRA. The goal was to provide a broad data base for Park and District planners, property owners, developers, and students and scholars of Lowell. A facsimile of the inventory form used in the project follows page 12. Four categories of information were identified and arranged on the form under the headings Identification, Historical Abstract, Descriptive Data, and Visual Assessment. The following discussion of the inventory form focuses on terminology and on the sources and procedures employed. The Historical Abstract category is discussed last, because the research on which each Historical Abstract is based was performed after the field and office work of the other categories.



### Identification

The first category, Identification, includes information about the current status of an individual property, and is intended to assist the planners of the Park and the District. Most of this category's information was drawn from city records.

Property owners were identified through the City Engineer's plates. Those maps show the ownership of each parcel in the city, and are updated regularly. The ownership list drawn from these plates was also the basis for defining the individual survey units or properties. Most typically, an individually recorded property consists of a single building on a defined lot, or a vacant lot unrelated to adjacent lots in use or ownership. Secondary buildings and outbuildings are included on the inventory form of their primary building. Adjacent vacant parcels under one ownership are recorded together or with adjacent, improved property of the same owner. Where groups of adjacent buildings are under one ownership, such as in the mill complexes, an inventory form was prepared on each building.

Owner-occupants were identified through the 1977 Lowell City Directory--the most recent issue. Owners residing or operating a business in a premise were regarded as owner-occupants. The question was also answered in the affirmative when the surname of the listed owner matched that of an occupant.

Historic names were found through the research work. Many commercial and industrial buildings are named on historic maps or in directories. For most others, historic names were assigned based upon the earliest or most notable owner or occupant.

Property type relates to the original function of the structure on a property. Distinctions were made between single family dwellings (SFD), two family dwellings or duplexes (2FD), and multiple-unit dwellings (Mult dwl). Industrial structures within mill complexes (mill struc) were differentiated from buildings used for manufacturing purposes that were not part of distinct complexes (other ind). Parcels without buildings, including parking lots, were designated undeveloped (undevel), unless there was strong evidence that they contained significant archeological resources (archo).

Each property's zoning classification was determined from the city zoning map. Tax information was drawn from the City Assessor's List of Tax Takings dated April 1, 1979, and from consultation with the Assessor's Office. Properties within historic districts were identified through the Boundary Map of the Lowell National Historical Park and through records of the National Register of Historic Places.

### Photography

The field work portion of the inventory included the photographing of each property. All photographs were taken with 35mm SLR cameras using black and white film, 50mm and 35mm lenses were most frequently used. The inventory photographs of buildings are intended to record basic architectural information such as massing and roofline, and as much detail as possible. When possible, a view was chosen showing mainly the principal facade, but including an oblique view of one side and the roofline. Photographs of vacant lots record the surface condition, and locate the lot within its setting.

### Descriptive Data

This category systematically records basic information about style, structure, use, and materials. Both the Descriptive Data and Visual Assessment categories are based on the surveyor's visual observations of exteriors. (An exception is the information on square footage, which was drawn from the City Engineer's plates.) Narrative descriptions of most buildings were included at the end of the inventory form or within the more extensive research report prepared for the most significant properties.

Many buildings in the Park and the District are difficult to categorize by architectural style. Simple structures that reflect a local, traditional way of building were identified as "vernacular." Many industrial buildings, particularly of the late nineteenth and the twentieth centuries, were designated "utilitarian."

Present use of the ground floor (GF) and upper floors (UF) of inventoried buildings was judged by street-level observation. The terms abbreviated on the field version of the inventory form, such as "off" (office) and "res" (residential), are spelled out on the typed version of the form in the inventory volumes. Commercial (com) use of a building indicates retail, wholesale, or service enterprises such as beauty parlors. Warehouse (warehs) use includes storage on the upper floor of a building by a merchant operating a store on a lower floor.

Stories were counted from ground-level to the cornice or eaves. Lighted attics and the "roof story" of mansard-roofed buildings were designated as half stories.

The square footage recorded refers to the whole property, rather than to the floor space of a building on the property. The major block of a building, exclusive of small additions, forms the basis for both the plan shape and roof type recorded on the inventory form.

#### Visual Assessment

This category recorded information relative to a property's and an area's potential for rehabilitation and interpretation. The answers required the various surveyors to make consistent judgments throughout the Park and the District. Applying and maintaining consistent standards was a major concern. Each of the choices within each of the questions was defined and discussed by the whole team before field work began, specific cases were discussed by the group as the inventory progressed, and the judgments were reviewed and sometimes modified for the sake of consistency by the project director in the final editing of each form. Each of the major visual assessment questions was regarded as a continuum, and the goal was to position each property accurately, relative to the other properties inventoried.

Building condition, like all the visual assessments, was judged through exterior observation. Buildings in excellent condition included those newly built or rehabilitated, and buildings diligently maintained.

Good condition applied to structures without obvious need of repair, but in less-than-pristine condition. The intention was to reserve the "excellent" category to identify mint-condition buildings and to include a broader group of well-maintained structures within the "good" category. "Needs minor repair" designated buildings with problems such as peeling paint or a few broken windows. "Needs major repair" indicated more extensive or structural problems. The "derelict" designation described buildings that cannot be used without being virtually rebuilt.

The variety of buildings and of their states of repair throughout the District complicated the problem of making consistent judgements of condition, and necessitated some differentiation by types of buildings. A badly burned house in need of a new roof structure and major interior repairs was identified as derelict, while a large industrial building with serious fire damage confined largely to the top floor and roof was judged in need of major repair. The relative scale of the damage in relation to the size of the building was the determining factor in these decisions.

The question of "integrity of historic building fabric" addressed the quantity of surviving historic material, not its quality or condition. Sometimes poorly maintained buildings retain more original material than buildings that have been aggressively maintained, especially when the maintenance has involved removal of deteriorated elements. "Intact original fabric" identified buildings virtually unchanged in appearance since construction. "Intact with evolutionary alterations" indicated structures that had undergone various alterations which did not substantially obscure their original form, and which now present coherent designs reflecting more than one period of development. "Intact with minor changes" was the designation applied to buildings that retained most of their original fabric, but had suffered relatively minor changes or losses unsympathetic to the original design.

A building was identified as having undergone major but reversible changes if its historic fabric was largely obscured or disfigured, but enough original material appeared to survive to provide the potential for rehabilitation to a relatively intact historic

appearance. Buildings were classified as having suffered major and irreversible changes when their historic fabric was destroyed or damaged to such a degree that reconstruction, rather than rehabilitation, would be required to approximate an historic appearance.

The last three visual assessment questions involved specific properties and their surroundings. To provide useful distinctions between properties, only a few buildings or lots on each side of a property were considered in these judgments. In addition, the areas flanking a property were weighed more heavily in these judgments than those facing it or behind it.

In identifying surrounding land uses, "xway" was used to designate major, divided roadways. Other abbreviations indicate recreational (rec) and institutional (inst). Canal or river frontage was recorded when there was a clear and near view of the waterway from the property, even if a street or another lot separated the property from immediate, physical frontage on the waterway.

The question of "integrity of property's historic period setting" focused on a property's surroundings, excluding the property itself, and like the assessment of historic fabric, was concerned more with the survival of historic features than with their condition. The five choices were regarded as forming a continuum, and each setting was judged relative to other settings within the Park and the District. 1920 was chosen as a general cutoff date for the "historic period" in terms of this question, because it marks the approximate start of the city's rapid decline as a textile-producing center, and begins an era characterized by demolition rather than construction. This question sought to identify meaningful and mutually reinforcing groups of historic properties, rather than to regard negatively every change that has occurred in the history of an area, recognizing that no setting remains completely unchanged for very long.

The "intact" category of the historic setting continuum is a relative standard, identifying the most visually intact groups of historic properties in the Park and the District. A setting was designated "intact with minor intrusions and/or losses" when

most of the properties surrounding the one in question contain nineteenth or early twentieth century structures, but some notable changes are apparent. As the scope of this question excluded the property being surveyed, some vacant lots or modern, disruptive buildings were identified as having intact settings, while the historic properties around them, because of those neighbors, had settings that are intact with minor intrusions and/or losses. Combined with the response to the next question, which identifies such disruptive lots or buildings as detracting from the historic character of their areas, properties can be identified that need redevelopment compatible with their settings.

A "moderately disrupted setting" was identified when the surrounding mix of properties included as many reflections of recent periods as of pre-1920 development. A "severely disrupted setting" was one consisting primarily of twentieth century construction or demolition.

The final Visual Assessment question judged the contribution of each property to its setting. Few properties were identified as focal points. Focal points were defined as the principal elements in determining the character of their respective areas, and as visual landmarks. City Hall, the Hildreth Building, and the clock tower at Boott Mills are focal points. Integral properties together define the character of their areas, but do not individually have the visual dominance of a focal point. Middle Street consists of a fine group of late nineteenth century buildings, all "integral to character" of the street. Any historic structure retaining most of its historic fabric was identified as integral. Compatible properties were those which were appropriate to the historic character of their areas in scale and materials but, by their period of construction or present condition, did not contribute to their areas. Detracting properties were those judged inconsistent with the historic properties in their areas in terms of scale, period of construction, siting, materials, and/or condition.

### Historical Abstract

The documentary research necessary to complete the Historical Abstract on each property commenced soon after the field work of the inventory began. The sources of information most widely used were the published maps and atlases from the nineteenth and early twentieth centuries that provide general outlines of the buildings standing throughout Lowell. The maps of 1821, 1832, 1841, 1850, and 1868 were particularly useful, along with the 1879, 1896, 1906, 1924, and 1936 atlases. These were consulted on each property and the appearance, disappearance, and other changes in the building outlines were duly noted. The maps and atlases often provided other information as well, such as owners' or buildings' names, or heights and materials of structures. Many other primary and secondary sources were consulted, but the maps and atlases provided the foundation for the research on each property and, interpreted along with stylistic evidence, identified the dates of construction and of major alterations to most structures.

Construction dates and information on the lifespan of previous buildings on a property were documented by indicating the sources of the information. The researchers also recorded whether the dates were directly documented (doc) by the sources cited, extrapolated circumstantially (circum), such as from a single map and stylistic evidence, or estimated (est) without documentary support. Many construction dates could be narrowed down to a decade and were so recorded, e.g. ca. 1832-41, indicating that the structure was built within that time span, not that the construction took nine years.

In completing the historical abstract portion of each form, certain of the questions were addressed only to the current structure on a property, and so were not applicable in cases of vacant lots. Construction date, architect, and original use were not entered for previous structures on a property, but rather only for current structures.

### Additional Information

Since considerable descriptive and historical information was gathered that did not fit within the standardized inventory form, two distinct means of presenting this information were employed. In the cases of about two-thirds of the properties, three narrative sections were included with each inventory form, entitled and containing: Additional Description, Additional Historical Information and Sources, and Archeological Comment. The first two of these sections clarified and expanded upon information contained in the first four categories of the form. The archeological narrative briefly reviewed the information on past uses of the site and the present condition of the site and assessed the potential for below-ground resources in each property. Properties identified through documentary research or field observation as potentially significant archeological sites were inspected by the inventory team's archeological consultants.

### In-Depth Research

Over one-third of the properties received research attention and visual assessment in far greater depth than their neighbors. A "List for In-Depth Research" was assembled jointly by SBRA and NPS following completion of initial field and research work. Properties representing the full range of construction dates, building types and uses, and locations within the Park and the District were selected. Included were all of the major industrial complexes, most of the nineteenth and early twentieth century commercial buildings in the central business district, and many representative residences and institutional buildings. The canal system and several sites formerly occupied by important buildings or complexes were also studied.

The information sought in this in-depth research was an extension of the Historical Abstract of the inventory form, including information on the date of construction and alterations to structures, identification of designers and builders, and information on the owners, the occupants, and the uses of present and previous buildings on the property. In place of the Additional Description and Additional Historical



LOWELL CULTURAL  
RESOURCES INVENTORY

survyr	EG. & MK.
start	5 / 1 / 79
A-D cmp	5 / 8 / 79
E-F cmp	5 / 7 / 79
G comp	6 / 5 / 79
phto taken	5 / 1 / 79



# 12

A. IDENTIFICATION 1) Address 155, 157, 159 Middlesex Street

2) Current Owner John O'Laughlin owner occ: yes  no

3) Historic Name Marston Building unk

4) Current Name same unk

5) Property type: SFD canal archeo  
2FD canal struc govt  
(circle one) mult dwl mill struc other bldg  
 com other ind other  
church undevel

6) Zoning Classification I-A

7) Taxes Payments: exempt  current  delinquent since \_\_\_\_\_  
Status:  clear tax title land court

8) Within boundaries of: LNHP City Hall HD Locks and Canals HD  LHPD  
(circle all that apply) Merrimack-Middle Sts. HD Indiv NR LHPD partial

B. HISTORICAL ABSTRACT

1) Construction date 1889  doc circum est  
source on building

2) Architect or Builder/Designer George H. Marston unk

3) Historic Owner George H. Marston unk

4) Original use GF:  com ind off govt res vacant unknown  
(circle all other  
that apply) UF:  com ind off govt res vacant unknown n/a  
other

5) Moved: yes  no  date \_\_\_\_\_ doc circum est  
source \_\_\_\_\_

6) Previous bldgs on prop:  yes no date ca. 1831- ca. 1888  
 doc circum est source 1832 map & date on building

C. DESCRIPTIVE DATA

1) Architectural style: fed grk rev ital goth rev 2nd Emp  
(circle one) High Vic Goth stick Qu Anne shingle Col Rev  
Romanes Rev other n/a

2) Present use GF: com ind off warehs govt res  vacant n/a  
(circle all other  
that apply) UF: com ind off warehs govt res  vacant n/a  
other

3) # of stories 4 4) Property sq ft 3,642

5) Plan: sq  rectang polygonal( ) -shaped other \_\_\_\_\_

6) Roof:  flat shed gambrel hip endwall gable facade gable  
mansard other \_\_\_\_\_

7) Structural system: wood frame load-bearing masonry  metal frame  
reinforced concrete other \_\_\_\_\_

8) Materials, facades: R red common  
(F=front) wood clapboard  brick(color red & bond stretcher)  
(S=side) wood shingle stone(type) & coursing \_\_\_\_\_  
(R=rear) stucco other wood \_\_\_\_\_  
(A=all) asbestos other metal \_\_\_\_\_  
aluminum/vinyl other \_\_\_\_\_

trim: other metal  
 wood  cast iron  terra cotta other \_\_\_\_\_  
brick(color) stone(type) granite sills and lintels

foundation: brick concrete  stone(type) granite not visible  
other \_\_\_\_\_

9) Outbuildings (specify) \_\_\_\_\_  none

10) Notable surface and landscape elements: foundation retaining wall  none  
steps fence paved areas sidewalk mature trees other \_\_\_\_\_

D. VISUAL ASSESSMENT

1) Condition of building fabric: excel good needs minor repair  
 needs major repair  derelict

2) If deteriorated, causes: fire vandalism  lack of maintenance n/a  
(circle if all applicable) other \_\_\_\_\_

3) Integrity of historic building fabric  
GF:  intact original fabric UF:  intact original fabric  
intact w/ evolu alter intact w/ evolu alter  
intact w/ minor changes intact w/ minor changes  
major but revers changes major but revers changes  
major & irrevers changes major & irrevers changes

4) Surrounding land uses:  com  ind res recr  inst RR Xway  
(circle all applicable) canal frontage river frontage other \_\_\_\_\_

5) Integrity of property's historic period setting:  
(circle one) intact historic setting  
intact with minor intrusions &/or losses  
 moderately disrupted historic setting  
severely disrupted historic setting

6) Importance of property to historic character of area:  
(circle one) focal point in area  
 integral to character  
compatible with character  
detracts from character  
character so disrupted, question not applicable  
(circle if applicable) See Section E for comment

Facsimile of the field version of the inventory form on 155-159 Middlesex Street, the Marston Building. The presentation version of this form together with its research report is illustrated later in this chapter.

Information narratives at the end of their inventory forms, the listed properties were each the subject of a research report from two to dozens of pages in length, providing a detailed description of the property and an historical narrative. A sample research report on a single structure accompanies this discussion. Reports on single sites or structures are typically two to ten pages long, while the reports on industrial complexes include twenty to thirty pages of text and up to twice that number of illustrations. The sample report also demonstrates the presentation version of the inventory form, which consolidates the information from the field form.

The various archives used by the researchers are discussed in some detail at the end of this report, and specific sources are cited in the bibliography.

#### Mapping the Inventory

All of the inventoried properties in the Park and the District were recorded on a series of 1"=100' scale maps based on the boundary Map of the LNHP. Most properties were identified by address; the rest, such as the mill complexes and canal features, were identified by name. Property boundaries were also recorded. A line of dashes was used to signify primary boundaries, such as those enclosing individually inventoried properties or complexes such as millyards. A line of stars was used to designate secondary divisions, such as parcel lines within a consolidated property, or divisions of ownership within millyards. The number of the map sheet on which a property was recorded was noted on each inventory form.

#### PERSPECTIVES ON THE INVENTORY

The student, planner, or interested citizen making use of the volumes produced by the Lowell Cultural Resources Inventory would do well to be aware of what the inventory is and what it is not. The volumes are, in effect, a vast, annotated street directory of the Park and the District. They do not form a comprehensive history of the city, but rather provide a source of current and historic data on individual parts of Lowell's built environment. Histories of land

ownership and use, dates of construction and alterations, exterior architectural descriptions, assessments of surviving historic building fabric, and copies of new photographs and historic images of the inventory.

The inventory was shaped in certain directions by the terms of the project contract and by the boundaries of the Park and the District. Together, these factors placed the main emphasis of the effort on buildings, particularly industrial and commercial buildings.

The contract required an inventory of physical, historical resources. Lowell's canal system, bridges, and even vacant lots were among the resources inventoried and studied, and the Park and the District's potential prehistoric and historic archeological resources were researched and assessed. However, the bulk of the city's physical, historical resources are buildings, and they received most of the inventory effort. The contract also specified that the inventory record every property in the Park and the District and set the time and funds available for the study. These conditions restricted attention largely to the exterior of structures. Interiors were virtually as off-limits to the surveyors as subsurface exploration was to the archeologists on the team.

The boundaries of the Park and the District include the canal system, most of the central business district, and the major mill complexes or their sites. They do not include most of Lowell's historic residential neighborhoods, except as single streets buffering the canals or the rivers. The single exception is the portion of the Acre neighborhood which is within the District, consisting of six whole blocks, largely of houses. These characteristics of the Park and the District placed the major emphasis of the inventory on commercial and industrial structures. This focus was not, however, synonymous with a bias toward high-style buildings, nor with a concentration on the art of architecture. Buildings of all periods and types and styles were inventoried, and a broad, representative sample of properties was subject to in-depth research.

IDENTIFICATION 155, 157, 159 MIDDLESEX STREET MAP SHEET # 12  
 1) CURRENT OWNER John O'Laughlin OWNER OCCUPIED no  
 2) HISTORIC NAME Marston Building  
 3) CURRENT NAME Marston Building  
 4) PROPERTY TYPE commercial 5) ZONING CLASSIFICATION I-A  
 6) TAXES: PAYMENTS current STATUS clear  
 7) WITHIN BOUNDARIES OF LHPD

**HISTORICAL ABSTRACT**

1) CONSTRUCTION DATE 1889  
 SOURCE document: date on building  
 2) ARCHITECT OR BUILDER unknown  
 3) HISTORIC OWNER George H. Marston  
 4) ORIGINAL USE: commercial UF commercial  
 5) PREVIOUS BLDGS ON PROPERTY yes DATE ca. 1831-ca. 1888  
 SOURCE document: 1832 map and date on building

**DESCRIPTIVE DATA**

1) ARCHITECTURAL STYLE Queen Anne  
 2) PRESENT USE:  
GF vacant  
UF vacant  
 3) NO OF STORIES 4  
 4) PROP SQ FT 3,642  
 5) PLAN rectangular  
 6) ROOF flat  
 7) STRUCTURAL SYSTEM metal frame  
 8) OUTBUILDINGS none  
 9) MATERIALS:  
 FOUNDATION granite  
 FACADE front & sides: red pressed brick in stret. bond; rear: red brick in common bond  
 TRIM cast iron storefront; granite sills and lintels; wood; terra cotta  
 10) NOTABLE SURFACE & LANDSCAPE ELEMENTS none



Research Report  
 155-9 Middlesex Street  
 Marston Building  
 1889

Sitting on the corner of Middlesex and Marston Streets, the Marston Building maintains the most historically intact original fabric of any nineteenth century structure on the street. Built in 1889, it is an eclectic combination of Queen Anne and Neo-Classical Revival elements.

Rectangular in plan, it is three stories high, three bays wide, and seven bays deep. Tall and narrow, it is decidedly vertical in massing and quite rich in decoration. The front and easterly side are of red pressed brick laid in stretcher bond, while the remainder is of common brick laid in common bond (seven to one). At least a portion of the building must be of metal frame construction, judging from the wide window openings of the facade and easterly side.

Although boarded up, the ground story appears to maintain its original cast iron storefront of piers at the corners and columns flanking the central doorway. The second and third story facade fenestration (which continues around to the first two bays of the easterly side) features continuous windows divided by brick piers with decorative brickwork caps. The third-floor level is set off from the second by large paneled wooden spandrels, except on the central bay, which has a granite panel with "Marston Building" on it. Lintels of decorative brickwork cap the windows. A brick course of stretchers set at an angle divide the third and fourth stories.

The fourth-story fenestration consists of eight narrow windows with a granite sill and lintel course. Over each grouping of windows is a course of terra cotta tiles, and over the two centrally-placed windows is the date 1889. A corbelled cornice completes the building, topped with a series of projecting caps faced with terra cotta tiles on the facade and easterly side. Originally, two of these caps surmounted the central bay, with a triangular pediment between. However, this feature is now missing (Fig. 1).

The remaining five bays of the easterly side are less richly decorated. Terra cotta tiles and round-arched windows are fourth-story features, as well as the corbelled

**VISUAL ASSESSMENT**

1) CONDITION OF BUILDING FABRIC needs major repair  
 2) IF DETERIORATED, CAUSES lack of maintenance  
 3) INTEGRITY OF HISTORIC BLDG FABRIC: GF intact original fabric  
UF intact original fabric  
 4) SURROUNDING LAND USES commercial, industrial, institutional  
 5) INTEGRITY OF PROP'S HIST SETTING moderately disrupted historic setting  
 6) IMPORTANCE OF PROP TO HIST SETTING integral to character

**ADDITIONAL DESCRIPTION**

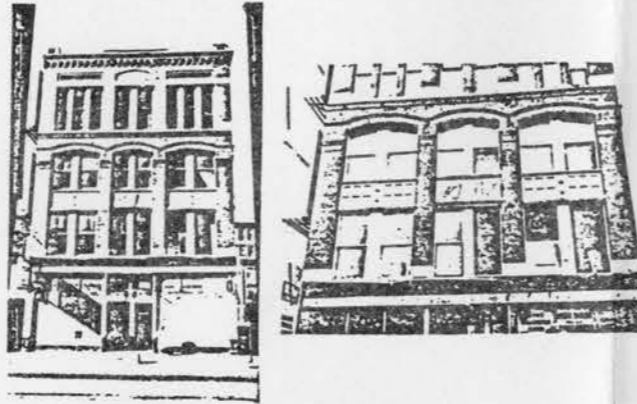
See Research Report.

**ADDITIONAL HISTORICAL INFORMATION**

See Research Report.

**ARCHAEOLOGICAL COMMENT**

This brick structure entirely covers its site; therefore, the archaeological potential is low.



cornice which continues across the entire side. Needing major repairs, this building now sits vacant.

For about sixty years, this site was occupied by a boarding house of the Appleton Company, as was much of the northerly side of Middlesex Street. In 1889, the Appleton Company sold part of this boarding house property, and this prime site was purchased by George H. Marston [1].

Marston was associated with George C. Prince in the book-selling and stationery trade on Merrimack Street from 1872 to 1889. During this period he acquired considerable real estate in Lowell, and decided to retire from his partnership with Prince and devote himself to the care of his property [2]. On his new Middlesex Street site "he has erected a fine-appearing structure known as the Marston Building. Among the notable buildings erected in this city for several years past, none exceeded this in excellence of construction and neatness of appearance" [3]. Marston was listed at this building as real estate and stockbroker from 1890-1892. He died in December, 1892. An incorporator of the Lowell Board of Trade, he also served as one of its presidents.

Also listed in the Marston Building in 1890 was A. C. Stevens, apothecary, and Costilla D. Smith, photographer. The Morning Mail Souvenir states that "Miss C. Smith, who has just moved into her new and elegant quarters in the Marston Building on Middlesex Street, is one of the few successful ladies who have made photography a paying investment. Her new parlors are admirably adapted for her peculiar business, being light and in every way suitable" [4].

In 1896, in addition to Miss Smith, the building was tenanted by Albert Cameron, confectioner; S. G. Lyford, medicines; Adeline Bonin, dressmaker; George E. Metcalf, insurance agent; and John T. Proulx, physician. By 1906, the property had passed into the hands of A. G. Wheelock, who owned considerable real estate in Lowell. In 1924, an individual named Tepfer was the owner.

The 1917 directory lists the occupants as Cameron Brothers, confectioners, Spindle City Shoe Repairing, and Josephine Bissonette, dressmaker (who had also been there in 1906). By 1975, Faber Liquors was the only occupant.

Of special significance because of its retention of its essential historic fabric, the Marston Building is another fine example of Lowell's late nineteenth century commercial

architecture. Bridging the gap between Queen Anne and Neo-Classical Revival architecture, it is also an early Lowell example of metal-frame construction.

The Marston Building stands on the first Appleton Company property on the northerly side of Middlesex Street to be developed commercially [5]. By 1902 much of Middlesex Street was dominated by similar commercial structures (Fig. 2). Unfortunately, none of the boarding houses remain to indicate the original land use. Sitting across the street, however, are the earlier nineteenth century Elliot Schoolhouse, Hamilton Schoolhouse (with its Queen Anne facade) and Lincoln Building. This block provides a clear contrast to the Marston Building and illustrates the nineteenth century development of Lowell architecture.

**Footnotes**

- 1) The Morning Mail Souvenir of the City of Lowell, 1890, p. 52.
- 2) Ibid.
- 3) Ibid.
- 4) Ibid., p. 32.
- 5) Ibid., p. 52.

**Other Sources**

- Lowell Board of Trade, 1902.
- Lowell: Past, Present and Prospective, 1891.
- Lowell Board of Trade Manual, 1905.
- 1832, 1841, 1850 maps.
- 1879, 1896, 1906, 1924 atlases.
- Lowell city directories.



Figure 2  
 From Lowell Board of Trade, 1902, opposite page 32.



Figure 3  
 1890 Lowell City Directory.

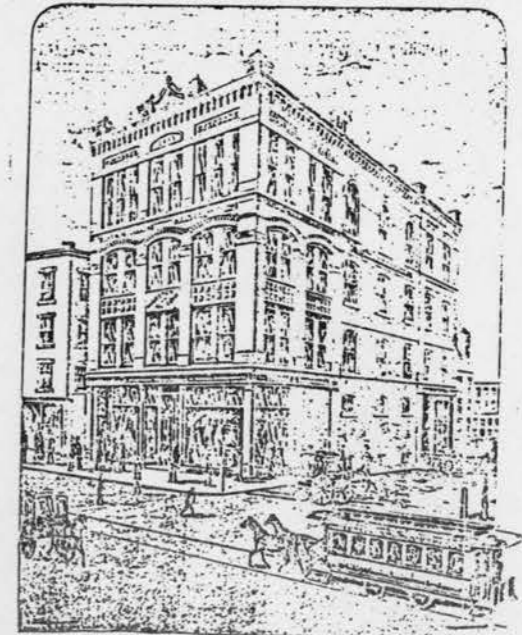


Figure 1  
 From The Morning Mail Souvenir of the City of Lowell, 1890, p. 52.

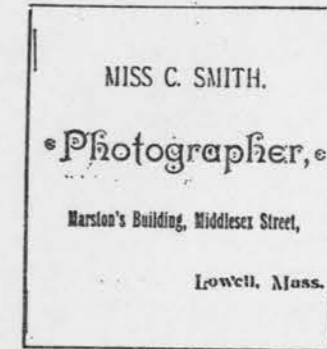


Figure 4  
 Morning Mail Souvenir of the City of Lowell, 1890, p. 33.

Facsimile of presentation version of the inventory form and research report on 155-159 Middlesex Street. Additional pages follow.

Facsimile of the research report on 155-159 Middlesex Street. See preceding pages.

### SUMMARY OF THE INVENTORY

The Lowell Cultural Resources Inventory recorded 895 individual properties, and produced 131 research reports that encompassed 305 of the individual properties. 308 residential buildings were identified in the Park and the District, of which 147 are single-family dwellings (in design, if not in use), sixty-two are duplexes, and ninety-nine are multiple-family dwellings. There are 210 structures in the Park and the District built for commercial purposes (including offices, retail stores, and service companies such as barber shops and restaurants), 130 buildings within mill complexes, and twenty-seven other industrial structures. The Park and the District include sixteen structures built as schools, nine built as churches, and twenty-four constructed to house various governmental activities. Ninety-two inventory forms record vacant lots. Some of these represent consolidations of adjacent undeveloped properties. Thirty-three separate components of the canal system were surveyed, along with eleven bridges. Theatres, parking garages, and playgrounds were among the other types of structures and sites inventoried.

These categories represent the property types identified in the inventory, which were defined as the principal, original forms and functions of properties or buildings. "Present Use" in the Descriptive Data category of the inventory form records the current use of properties, and by comparing "Present Use" to "Property Type," information can be gathered on topics such as the number of factories now used for housing, or the number of houses containing shops.

Ninety-nine tax-exempt properties were identified, but this number under-represents the tax-exempt component within the Park and the District, for each Lowell Housing Authority complex within the project area was recorded on a single form, even though most of these complexes have several structures. 134 tax-delinquent properties were identified, including forty-four against which land court action has been initiated.

Only three structures within the Park and the District were found that predate 1820, excluding the basic course of the Pawtucket Canal. Twenty structures

date from the 1820s, along with the reworked Pawtucket Canal and the Merrimack and Hamilton Canals. Forty-four buildings of the 1830s still stand within the Park and the District, and the Western and Eastern Canals date from that decade as well. The Northern Canal and seventy-eight structures from the 1840s were inventoried, along with forty-five from the 1850s, and twenty-seven from the 1860s. Ninety-three buildings of the 1870s, seventy-eight of the 1880s, and 122 of the 1890s were identified. The first quarter of this century added 166 structures still standing within the Park and the District, and the second quarter added forty-five. Sixty-seven buildings have been constructed since 1950 that are within the LNHP and LHPD boundaries.

Fifty-six structures within the project area were judged to be in excellent condition, and eight were identified as in derelict condition. Since the field work of the inventory was completed, a continuing rash of fires in the Acre neighborhood has rendered several more houses derelict, and the city's aggressive demolition program has removed most of these. 412 buildings appeared to be in good condition, 244 needed minor repair, and seventy were in visible need of major repair.

The Park and the District's most important historical resources are the canal system, the remaining major mill complexes, and the central business district's nineteenth century commercial buildings. The District also includes elements of other historic industrial enterprises, particularly along the Concord River. Residential properties within the District represent most of the range of styles, forms, and periods of Lowell's architectural history, but these houses generally fall short of Lowell's historic houses outside the District in quantity, quality, and concentration.

The extensiveness of the inventory should disguise neither the significant historical resources that Lowell has lost in recent decades, nor the city's historic assets that are not included within the Park, the District, or the inventory. Four major mill complexes are now gone--Merrimack Manufacturing Company since the early 1960s, Middlesex Manufacturing Company since 1956, and Tremont Mills and the Lowell

Machine Shop, both demolished in the 1930s. Corporation-built housing, a tremendously significant part of the Lowell industrial system, survives only in scattered fragments.

Outside the Park and the District are many more historic houses than are within the boundaries, and these houses often comprise intact historic neighborhoods. Chapel Hill, Centralville, Belvidere, and the whole area presently referred to as the Acre contain significant concentrations of nineteenth century houses, as do other Lowell neighborhoods. The North and South Commons are both historically important open spaces, and are both bordered by residential and institutional structures significant to the history of Lowell. There are also industrial buildings, complexes, and sites outside the District's bounds that merit attention, such as the C. I. Hood patent medicine laboratory, several small factories west of Fletcher Street, a portion of the Wamesit Canal system off the Concord River, the house of gunpowder manufacturer Oliver Whipple and attached workers' housing, and workers' housing associated with the Massic Falls industrial site on the Concord.

Nevertheless, the inventory makes apparent the bounty of historical resources in the Lowell National Historical Park and Preservation District. The canal system that powered America's first industrial city is intact and still operates, most of the major historic mill complexes and many secondary factories still stand, and in the central business district buildings from Lowell's heyday in the nineteenth and early twentieth centuries predominate. Lowell has a future in its past.

CHAPTER TWO  
PHYSIOGRAPHY AND PREHISTORIC ARCHEOLOGY  
OF THE  
LOWELL NATIONAL HISTORICAL PARK  
AND  
PRESERVATION DISTRICT

PHYSIOGRAPHY

The present-day landscape of Lowell is as much a result of the natural environment as it is a product of man's skill and energy. Much of the discussion of Lowell's physical setting centers on the fact that it is a river city. However, to understand the why and how of Lowell's entire physical setting, it is important first to examine the region in which it lies.

The bedrock beneath Lowell averages only twenty feet or so below the ground's surface and, in many places, it is exposed. Recent summaries of the nature of bedrock do not agree concerning its composition and structure, except to call them complicated (U.S. Army 1974: vol. 4, 4-7). Basically, the bedrock is sedimentary rock changed by heat and pressure into several types of metamorphic rock, such as gneisses and schists, and igneous rock formed by the cooling of molten lava, resulting in granite, diorite, and grandiorite (Carroll 1979: 8-10). To complicate this record, the bedrock has been weathered and eroded by continuous water action for millions of years. This erosion process formed the pattern of valleys which carry rivers to the sea (Carroll 1979: 11).

This long-time development of a land surface with eroded valleys has also recently been modified on a large scale by the action of glaciers. The glacial era is thought to have occurred between 100,000 and 25,000 years ago, and to have consisted of four or five cold periods during which ice fields up to one mile thick covered the area (U.S. Army 1974: vol. 1, 23-26). Each event moved all loose material on the earth's surface, as well as scouring, rupturing, and moving much of the harder bedrock beneath.





View of the Pawtucket Dam and Falls from the northeast, 1979.

As the glacier retreated, it left behind deposits of this loose material in two basic forms: glacial till and glacial drift. Glacial till is made up of a mixture of stone, ranging in size from boulders to sand particles which was deposited as the glacier melted. Glacial till is also called hardpan (Flint 1971: 45). Glacial drift consists of similar material washed out of the glacier by streams of water as the ice melted. Glacial streams piled up drift in layers wherever the force of the current slackened sufficiently for particles to settle. Because the stream lost its ability to carry materials of different weights in direct proportion to its current or force, stones or particles of the same size tended to settle in the same place, leaving accumulations of gravel or sand in streamlined piles called kames, drumlins, or eskers.

The Merrimack River originally flowed in a valley that the last glacier left clogged with till and drift. These deposits acted as dams to the river, which found new outlets and ways to the sea. The Merrimack left its old blocked valley just upstream from Lowell, cutting a new channel that washed over the bedrock which was formerly the eastern side of the old river valley (Goldthwait 1925: 42-44). The action of water passing over this sill of bedrock has only begun its erosion work at Lowell, for the jutting bedrock ledge can still be seen at the Pawtucket Falls. Geological deposits within the Lowell area have been historically useful to man; providing sand and gravel for construction; sand for the manufacture of glass; clay for brickmaking; and iron that was smelted from deposits gathered in bogs (Wilson 1917).

The Concord River, which joins the Merrimack at Lowell, is a far smaller river than the latter. Fairly sluggish through most of its course, the Concord falls a total of fifty feet in its last mile before it enters the Merrimack (Carroll 1979: 6).

The ground of the Lowell region is covered with surface layers of soil, primarily fine sandy loams. Thick layers are found along watercourses on the rivers' terraced banks, where they have been deposited by water (Latimer and Lamphear 1924).

## PREHISTORIC PEOPLES

Native Americans lived in the Lowell region for thousands of years before Europeans arrived. Archeologists have excavated a wide number of sites in the Northeast and have established that Native American cultures changed through three major temporal periods during their habitation in northeastern North America: the Paleoindian, the Archaic, and the Woodland.

### Paleoindian Period

Evidence of early human occupation in the Northeast indicates that by approximately 13,000 before the present (BP), the region was being exploited by human groups. The term "Paleoindian" is used to describe a variety of cultural groups which inhabited North America immediately following the retreat of the Wisconsin ice sheet. These people were once commonly perceived as big-game hunters. In fact, these early inhabitants of the Northeast were probably adapted to a wide range of subsistence resources (Barber 1977; Eisenberg 1979).

The data presently available concerning the Paleoindian period in the Northeast makes it extremely difficult to predict Paleoindian site location with certainty. Recent research conducted in the Connecticut River Valley suggests that river terraces may have been preferred habitation sites during the Paleoindian period (Dincauze and Curran 1977).

Dincauze and Curran's research indicates that by 12,000 BP the environment of southern New England was in a transition period from a spruce-parkland to a spruce-woodland habitat. This evolving forest would have resulted in an environment possessing a high degree of diversity. Under such environmental circumstances, inhabitants would have preferred broad river valleys as habitation sites for several reasons. The development of rich alluvial soils in the floodplains would have supported a variety of wild plant growth for food. Location on a major river would have provided access to the upland areas

via the tributary streams. Perhaps most importantly, river valleys would have generally extended the northern limits of more productive southern habitats (Dincauze and Curran 1977).

Although no Paleoindian sites have been reported in the immediate vicinity of the project area, a single surface find of a reworked fluted point attributed to the Paleoindian period has been reported by an avocational archeologist. He collected it on the second terrace above the Merrimack in Lowell (Winters 1979). Two significant Paleoindian sites have been reported in the region: the Bull Brook site in Ipswich, Massachusetts, and the Swansee site near Keene, New Hampshire (Byers 1959; Curran 1978). Paleoindian points have also been recovered in the Concord River valley and in the Ossipee area of southern New Hampshire (Casjens 1979; Sargent and Ledoux 1973; Winters 1979).

The distribution of Paleoindian sites and fluted point "find spots" in the region, combined with the Paleo-environmental data as interpreted by Dincauze and Curran, suggest the possibility that the project area was once inhabited or at least used by Paleoindian groups. The fact that none of these sites has been recorded in the immediate vicinity of the project area may be a function of the inadequacy of archeological site discovery and sampling strategies presently being employed in the Northeast. It is reasonable to assume, as Funk suggests, that many of these early sites may be buried under deep deposits of alluvial or windblown soils (Funk 1972). However, this seems unlikely in the Pawtucket Falls area because the river has not deposited material but rather has been cutting through bedrock. Below the falls, the river's carrying capacity lessens along with its velocity, resulting in considerable silt buildup, especially along the north bank near the outside of the big bend and near the confluence of Beaver Brook.

Although some silt and eroded material was always carried over the falls, it was probably minimal during the prehistoric period compared with the silt carried off during the eighteenth, nineteenth, and twentieth centuries. This is because in the past 300 years, deforestation and cultivation has left the

land far more open and susceptible to erosion than before. Recent rates of silting are estimated at 276,000 tons annually (U.S. Army 1974: vol. 1, 63-64). The silting does not now and did not then affect the land and/or sites on the rock banks of the river in the gorge or falls area, but may well have covered the river's floodplain, which starts downstream from Lowell. In the process, downstream sites may have been covered with silt.

### Early Archaic Period

The Early Archaic period (ca. 10,000-8,000 BP) in the Northeast is, like its predecessor, poorly understood because of the paucity of information relating to this period. However, data from the Taunton River drainage in southeastern Massachusetts, combined with the recovery of Early Archaic bifurcated-base projectile points from the Concord and Merrimack River drainages, suggest that early Archaic peoples were exploiting the riverine environments of southern New England (Casjens 1979; Dincauze 1976; Barber 1977).

Data from a series of pollen diagrams suggest that the floral community was enriched gradually as the area was colonized by plant species migrating north and east from regions in which they had taken refuge during the Wisconsin glaciation. By approximately 9,500 BP the southern New England area was covered by a mixed deciduous-coniferous forest roughly analogous to the forest type found in present-day southern Ontario, but much richer in terms of species variety because of the warmer lower latitudes (Dincauze 1973). The southern New England mixed deciduous-coniferous forest included the following species listed in order of their abundance: white pine, poplar, hemlock, maple, and oak (Davis 1969).

The transition from the spruce-woodland forest to a pine-dominated forest coincides with the transition from Paleoindian to the Early Archaic period. This transition was not heralded by any dramatic alterations in cultural pattern; rather there was a continued adaptation of existing exploitative strategies to changing environmental conditions. The environment became increasingly diversified in

terms of the number of exploitable plant and animal species. The gregarious species of large animals, such as the caribou, were replaced by an essentially modern assemblage dominated by a variety of smaller solitary game animals.

The presence of Early Archaic sites within the project area is suggested by the discovery of several bifurcated-base projectile points along the Merrimack and Concord Rivers (Dincauze 1976; Barber 1977; Casjens 1979). Although Dincauze does not believe that the bifurcated base point which was recovered from stratum 5 of the Neville site on the Amoskeag Falls in Manchester, New Hampshire was deposited there by its original makers, its presence does imply that early Archaic peoples were living in the general area. More convincing evidence of the presence of Early Archaic people within the project area is a diagnostic Early Archaic projectile point that was found on an eroded surface of the Poznick site (Thorstensen 1977), which is located in Lowell on the southern bank of the Merrimack River east of the confluence of the Merrimack and Concord Rivers. This site appears to be one locus in a large multicomponent site, MHC 19-MD-47, part of which is located within the project area.

The problems inherent in locating Paleoindian sites under deep alluvial deposits along river terraces also pertain to locating Early Archaic period sites. This is graphically illustrated by the fact that the cultural deposits on the Poznick site reach a depth of five feet and are often separated by sterile flood deposits.

#### Middle Archaic Period

During the Middle Archaic period (8,000-6,000 BP), the climatic conditions in southern New England continued to change, although much less dramatically than in the preceding periods. The pine-dominated forest slowly evolved into a deciduous forest type dominated by oak and hemlock. The major rivers in southern New England, including the relevant portion of the Merrimack, appear to have reached modern levels during this period. The riverine environment was similar to present conditions, but probably

slightly richer in natural food resources (Dincauze and Mulholland 1977). In general, the environment became more stable, predictable and reliable during the Middle Archaic period.

In most ways, the climate and environment in the Lowell area did not change very much. The old river cut a new course, wearing away the bedrock in its path. The Merrimack River's course at the falls and throughout Lowell is not an old formation with a well-established floodplain and terraces but a relatively new one. This made the Lowell area with its falls a fairly uncommon type of setting even to the early inhabitants of the region. Many of their archeological sites have been found at such places where waterways are constricted, which occurred in the Lowell area at the falls of both the Merrimack and the Concord Rivers.

The recent recorded seasonal variations of the Merrimack's flow are interesting in that they give clues regarding how the Indians may have used the falls as a major food source. Since records have been kept, New England has been receiving forty to forty-two inches of rain annually (Carroll 1979: 36-37), evenly distributed throughout the year. There is great seasonal variation in the river's flow, however, caused by the amount of moisture that the ground can absorb and by the melting of snow and ice, which releases the greater part of the precipitation from the colder months at the spring thaw. The river flow is greatly reduced during the late summer months because the watershed can absorb most of the rainfall and because evaporation is at its greatest during the hot weather.

Several species of fish use these spring floods to make spawning runs into the watershed, and it is at the falls, where fish collect in numbers, that they are easiest to catch. Archeological evidence from this period suggests that the Native Americans collected large amounts of food resources in various places according to season. The significance of this practice is that it allowed people a chance to gather in larger groups. With more sophisticated food preparation and storage techniques, the spring bounty could be stretched out, allowing people to stay in one place for longer periods of time.

During the Middle Archaic period, the number and diversity of sites increase dramatically relative to the preceding periods. This increase in sites may be related to the establishment of a forest environment which contained at least 20% oak (Dincauze and Mulholland 1977). The importance of a forest type that includes at least 20% oak is that oak is a mast-producing tree. Mast (i.e., acorns in the case of oak trees) is a major food source for the white-tailed deer, which appears to have been an important component in the diet of the Archaic and later inhabitants of southern New England. Dincauze and Mulholland (1977) estimate that by 8,000 BP this important 20% oak isopoll had reached the border of southern New Hampshire.

Within the Merrimack River valley, published archeological data indicate that by the Middle Archaic period there were communities of hunter-gatherers inhabiting much of the region (Thorstensen 1977; Barber 1977). Dincauze (1976) has suggested that the Middle Archaic component found at the Neville site represents a temporary, possibly recurrently occupied site located to exploit the seasonally abundant anadromous fish. Barber (1977) has interpreted the Middle Archaic component of the Buswell site in the lower Merrimack valley as representative of a seasonal fishing station. Middle Archaic components at several sites along the Shawsheen River might represent activities different from those found at the relatively large fishing areas (McManamon 1977).

The record of Middle Archaic period remains found at Lowell contains some tantalizing clues of what may have been a major locus of habitation. Hints of this former habitation can be found in the Massachusetts Historical Commission Inventory, which notes two sites containing Middle Archaic cultural material: 19-MD-46 and 19-MD-48. The former was situated on the north bank of the Merrimack near the entry of Beaver Brook into the river; it is said to have been more than a mile long. The latter (19-MD-48) was located south of the Merrimack, extending along both banks of the Concord from its confluence with the main river. An even larger site (one mile long) on the south bank of the Merrimack between the falls and the Concord was not identified in the Inventory by cultural period. The first two sites will be mentioned again, because they also were identified as later Native American sites.



### Late Archaic Period

The climatic warming trend and forest development continued into the Late Archaic period (6,000-2,000 BP), reaching its peak about 5,000 BP. At this time the deciduous forest was dominated by the mast-producing species of oak and hickory. The climate remained essentially warm and humid until 3,000 BP, at which time there began a very slow, steady, cooling trend in climatic conditions, which has continued with minor oscillations until today (Braun 1974; Fairbridge 1977).

The cooling trend resulted in the elimination of some plant species not suitably adapted to the cool, humid environment. This trend culminated in the gradual replacement of the oak-hickory forest by the modern white pine-hemlock-hardwood forest typical of the present New England Seaboard region.

Judging from the number of known sites with Late Archaic components in the southern New England region, it might be that this period witnessed the maximum prehistoric population density (Dincauze 1975). Bullen (1949) identified a number of sites with a Late Archaic component in the valley of the Shawsheen River, a tributary of the Merrimack River. In the town of Concord a survey of the known prehistoric archeological sites produced thirty-nine sites that contained a Late Archaic component (Casjens 1979).

Within the District, at least two known prehistoric sites contained Late Archaic components: MHC 19-MD-46 and 47. Evidence from the Poznick site suggests that the site was visited repeatedly throughout the Late Archaic period, possibly for the purpose of quarrying the quartz veins in nearby rock ledges (Thorstensen 1977).

### Woodland Period

The Woodland period is the next major period which is commonly recognized in the Northeast, dating from ca. 2,500 BP to the time of European settlement. It usually is subdivided into three parts: Early, Middle, and Late Woodland.

### Early Woodland Period

The transition from the Late Archaic to the Early Woodland (ca. 2,500-2,000 BP) periods did not involve any drastic alterations in the adaptive strategies of the inhabitants of southern New England. The subsistence strategies of the Early Woodland period seem to have been a continuation of the Archaic pattern characterized by seasonal settlement shifts within a bounded territory.

The hallmark of the Early Woodland period in southern New England is the appearance of coarse, grit-tempered ceramics. This innovation was once believed indicative of a sedentary way of life; however, modern research has discredited this interpretation (Barber 1977). The social and political organization, as well as most aspects of the economic activities during the Early Woodland period, are understood poorly. Within the Merrimack River valley, Early Woodland components seem to exist at several multi component sites, including the Neville, Poznick, and Sweet Apple Tree sites (Dincauze 1976; Thorstensen 1977; Barber 1977).

### Middle Woodland Period

During the succeeding Middle Woodland stage (ca. 2,000-1,000BP), specialization in subsistence strategies has been hypothesized (Dincauze 1976). One of the arguments supporting this hypothesis is a noticeable seasonal population shift into the estuarine and coastal areas in order to exploit abundant coastal resources, such as the intertidal soft-shell clam. This increasing utilization of the coastal zone was predisposed by the stabilization of the coastal zone following the termination of the sea level rise and crustal rebounding at approximately 3,000 BP (Braun 1974). By the Middle Woodland period, the marine water temperature had cooled considerably with the result that warm-water shellfish species, such as quahogs and oysters, had been replaced by the soft-shell clam, which is adapted to cool water temperatures. Use of food resources from coastal environments also occurred during the Archaic period (Salwen 1965; Brennan 1976). However, the extent of

this Archaic use of coastal resources is difficult to calculate. In many sections of the coast the areas available for occupation during the Archaic period are now under water.

Evidence from the Wheeler site located in the estuary of the Merrimack River indicates that it was an autumn food procurement station utilized by Middle Woodland people. "The Middle Woodland use of the region seems to be marked by specialized food gathering in the estuarine zone in autumn following which the inhabitants broke into small groups and wintered inland" (Barber 1977: 54-66). In the spring, they returned to the waterways to exploit the spawning fish, whereas summer occupation was elsewhere, perhaps the coast (Barber 1977).

It is difficult to distinguish among Early, Middle, and Late Woodland components for Lowell sites recorded in the Massachusetts Historical Commission Inventory. The only site at which components can be definitely identified is the Poznick site, where material has been found that can be attributed to all three Woodland periods (Thorstensen 1977). Other sites in Lowell attributed to the Woodland Period include 19-MD-46, 19-MD-47, and 19-MD-52. Several sites also contain Archaic period components, indicating that the area supported Native American settlement over a long period. It also shows that the river has not substantially changed the configuration of its new valley, except to slowly erode the bedrock over which it flows.

#### Late Woodland Period

During the Late Woodland period (1,000 BP to Contact), horticulture began in southern New England with crops of corn, squash, and beans. The earliest recorded date for the use of cultigens in southern New England comes from a charred corn cob from a site on Martha's Vineyard radiocarbon dated to 1,160 AD, plus or minus 80 years (Ritchie 1969). Because of the poor preservation qualities of the acidic New England soils, the floral remains deposited on archeological sites do not often survive. Therefore, this single date should not be interpreted as the earliest possible date for the introduction of domesticated plants.

Agriculture probably increased sedentarism, judging from the appearance of large permanent village sites on elevated river terraces. However, it did not eliminate the necessity for seasonal shifts to exploit certain food sources, such as shellfish and other coastal resources. For example, the Morrill Point site in the Merrimack estuary represents a seasonal Late Woodland site. Barber (1977) speculates that this site may have been a specialized camp used by a small segment of the community.

### The Early Historic Period

During the Late Woodland period and continuing into the mid-seventeenth century, the area around Lowell was occupied year-round. The Pawtucket Falls were a valuable resource used in the exploitation of anadromous fish harvested during their spring runs. In 1648 John Eliot traveled to Pawtucket Falls and recorded that "...he found there a great confluence of the Indians, engaged in fishing, and in wild festivities..." (Richardson 1978). This area was utilized also for corn fields by the native inhabitants as evidenced by the large number of hoes recovered at the Poznick site (Thorstensen 1977).

During the early historic period, the area immediately south of and adjacent to the Pawtucket Falls was one of the population centers of the Pennacook Confederacy and the primary residence of the Pennacook Sachem Passaconaway (Richardson 1978). The exact political structure of the Pennacook Confederacy is difficult to reconstruct from the accounts of the English colonists. However, it appears to have been a loose amalgamation of a number of Native American groups who inhabited New Hampshire and northern Massachusetts. This system may not be representative of the political system of the Late Woodland or earlier periods, but rather a makeshift arrangement put together after the devastating plagues of 1616-19, which left much of the area depopulated and the remaining groups weakened politically. When the colonists began to expand into the territories claimed by the Pennacook Confederacy, Passaconaway and several local sachems signed a treaty with the colonial governors placing themselves, their subjects, and their possessions under colonial rule (Richardson 1978). Although

Passaconaway and his people were supposed to retain their tribal lands under this agreement, the inevitable encroachment of the colonial settlements had already begun.

As early as 1629, Passaconaway had deeded all the lands between the Piscataqua and the Merrimack Rivers to John Wheelwright. In 1643, the Massachusetts Bay Colony divided all the lands under its jurisdiction into counties, including much of the land claimed by the tribes of the Pennacook Confederacy. The following year the General Court of Massachusetts Bay Colony instructed the county courts to provide religious education to the natives within their jurisdiction. In the Lowell area this did not come to fruition until 1653, when John Eliot established one of his famous "Praying Indian Villages" at the confluence of the Merrimack and Concord Rivers (Richardson 1978). Although Passaconaway never converted to Christianity, he retained possession of his planting fields in the vicinity of Pawtucket Falls. However, the division of his lands continued with the granting of 1,000 acres on the northern bank of the Merrimack River opposite the Pawtucket Falls to Lt. Peter Oliver, Captain James Oliver, James Johnson, and Ensign John Evered. These men were all members of the Ancient and Honorable Artillery Company, and the grant thus became known as the Military Grant. This large land grant led to a proliferation of smaller grants and purchases, which culminated in the "Wamesit Purchase" of 1686. The Wamesit Purchase deeded all the tribal lands of the Pennacook Confederacy located in the vicinity at Lowell to the colonists, marking the effective end of the Indian occupation in Lowell.

The records of known sites of native American habitations after the European arrival mention the Merrimack's banks below the falls, the banks of the Concord, and the tops of some local hills, where defenses were built to protect the settlements. These are sites 19-MD-46, 19-MD-47, the "Wannalancet site" and the "aboriginal burial ground," all of which are discussed in the Inventory section below.

REVIEW OF PREHISTORIC ARCHEOLOGICAL POTENTIAL

The entire project area possesses a very high potential for containing prehistoric archeological properties. This evaluation is based on the criteria elaborated below.

Criterion A: Contains a known prehistoric site or is located in close proximity to a known prehistoric site.

The site files at the Massachusetts Historical Commission (MHC) list eight known prehistoric sites within or adjacent to the project area. In addition to these sites, John Richardson's research indicates that in 1669 Wannalancet constructed a palisaded fort on what is now Fort Hill in Lowell, for the protection of his people against the raiding Mohawks. Richardson also locates Native American burial grounds on the east bank of the Concord River between the river and the Lowell Cemetery, probably equated with MHC 19-MD-52.

Criterion B: Contains cultural artifacts or has a history of containing such artifacts.

Although the artifact lists contained on the MHC site file cards are very general in nature, they indicate that a quantity of both Archaic and Woodland period artifacts have been found within the boundaries of the project area.

Criterion C: Located on arable soil, such as exists on the floodplains of major rivers.

The majority of the project area lies within the floodplains of either the Merrimack or the Concord Rivers and possesses arable soil of the Ondawan or Merrimack soil series.

Criterion D: Located on ground that has a slope of less than 20 degrees.

The majority of the project area is located on relatively level river terraces having a slope of less than 10 degrees. In a recent survey of the town of Concord, Massachusetts, Casjens discovered that although all the prehistoric sites that were surveyed were located on ground having a slope of less than or equal to 15 degrees, the majority of sites were located on ground with a slope of less than or

equal to 3 degrees (Casjens 1979). An investigation of known prehistoric sites in Franklin County, Massachusetts, discovered that 81% of all sites were located on ground with a slope of less than 8 degrees (Dincauze et al. 1977).

Criterion E: Located near a permanent water source or wetland and possesses well-drained parts. Anthony (1978) has demonstrated that 94% of the 115 known prehistoric sites in Worcester County were located within 100 feet of a permanent water source. Similarly, in the town of Concord, all the known prehistoric sites were located within 200 meters of a permanent water source. The major permanent water sources within the project area are the Merrimack and Concord Rivers, Beaver Brook, and Hale's Brook. The vast majority of the project area, including all but one of the known prehistoric sites, is located within 200 meters of a permanent water source.

Criterion F: Located near the site of a specific resource known to have been exploited during the prehistoric period.

The historical record documents the use of the Pawtucket Falls as a major fishing station used by the aboriginal inhabitants until 1686. An analogous situation which documents the utilization of a similar natural resource as early as the Middle Archaic period is the Neville site (Dincauze 1976).

Although the background research indicates that the entire District possesses a high potential for the location of prehistoric archeological properties, the actual probability is greatly reduced by the high degree of land disturbance in the majority of the District. In a recent survey of reported sites in the lower Merrimack River valley, it was determined that of the seven prehistoric sites reportedly located in urban settings, only two could be verified (Barber 1977).

Prehistoric sites contained within an urban setting have a greater probability of being destroyed than those in rural areas. However, sites from the early periods of aboriginal occupation may be deeply buried under and hence protected by alluvial deposits or

modern fill. If an undisturbed site or part of a site can be found, it would expand the present fragmentary understanding of prehistory in the Lowell area.

A list of reported sites follows. Surface inspection of these sites or their reported locations indicates that the Fort Hill area on the east bank of the Concord River and the north bank of the Merrimack River contain the least amount of industrial-period disturbance among areas with high concentrations of reported sites. In most of the other areas, a very high degree of industrial development has occurred.

Another area of potential interest is the Lowell Manufacturing Company millyard on the north side of the Pawtucket Canal, off Market Street. The 1821 "Plan of Farms...at Patucket" (Figure 3-1) shows a pond or swampy area alongside the canal at that point. Before mills could be built there in the late 1820s, considerable filling was required, reportedly up to a level of twenty feet in some spots. (For more detailed information on the development of this site, see the Lowell Cultural Resources Inventory's research report on the Lowell Manufacturing Company.) While no specific prehistoric activities are known to have occurred in this area, it might have been usable land before the Pawtucket Canal's construction in the 1790s. Any pre-1820 deposits in that area are presumably very deeply buried, and may not have been disturbed by the subsequent development of the site.



SITE INVENTORY

Sites located within (or partially within) the Lowell Historic Preservation District (LHPD) and Lowell National Historical Park (LNHP)

Inventory: Massachusetts Historical Commission  
Inventory No. 19-MD-46

Location: Northern bank of the Merrimack River between Mammoth Road to Lakeview Avenue.  
Note: This area includes the area where Beaver Brook flows into the Merrimack. The site width is considered to include the river bank and the first terrace behind it.

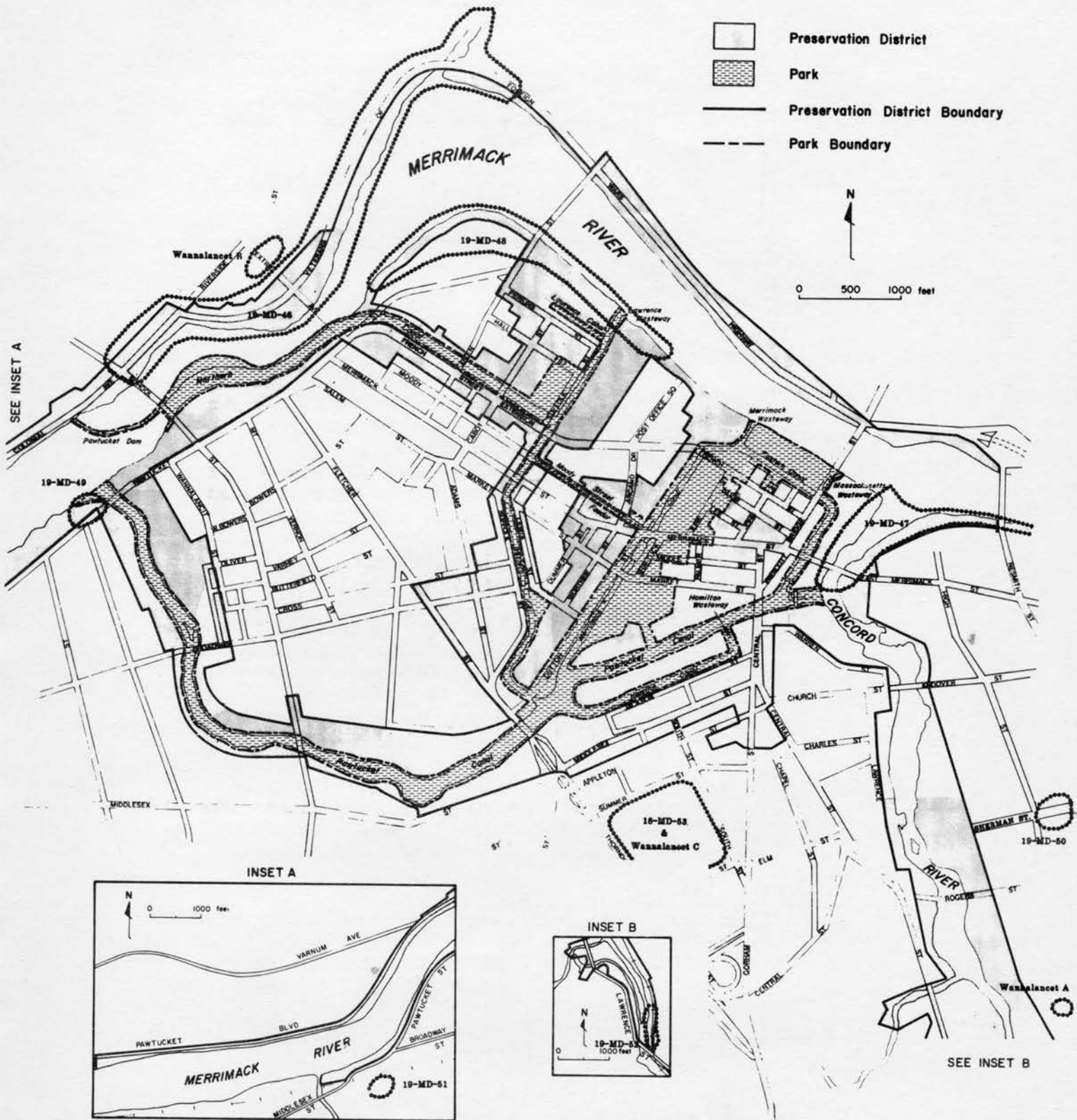
Culture: Massachusetts Archeological Society Site #25 notes that the site contained Archaic and Woodland period material, with the presence of ceramics identifying the later period. The site is described as having been "very large and important, more than a mile in length and to have included the location of fishing grounds used by aborigines in the historic period" (Moorehead 1932).

Pedestrian Survey: The entire area was traversed on foot with a close examination of fortuitous excavations, eroded banks, and cleared areas. Today, the area is traversed by a shore road, the V.F.W. Highway, which is built on a filled embankment. The surface of the area shows it to have been covered by silt-bearing flood waters. The only artifacts observed were large deposits of late nineteenth-century trash, both domestic and industrial, which is part of the road embankment.

Evaluation: Deep testing may reveal silt-covered layers of aboriginal material. A site in this area is also reported on Fishing Island (Winters 1979: personal communication).

Inventory: Massachusetts Historical Commission  
Inventory No. 19-MD-47

Location: Both sides of the Concord River near its confluence with the Merrimack River.



Map indicating reported prehistoric archeological sites in and around the LNHP and LHPD.

Culture: The Massachusetts Archeological Society Inventory lists the artifacts from this site (#26) with those from site #24. Artifacts recovered here may be in the collections of the Bronson Museum, Attelboro. They are diagnostic of the Archaic, Woodland, and Contact periods. Moorehead (1932) identified this as the site of one of the "Praying Indian Villages."

Pedestrian Survey: The area on the west side of the Concord River is completely developed as an intensively used industrial area. It is in the very heart of the historic industrial district near the mouth of the main canal. Areas of destroyed buildings and collapsed walls gave a fair view of subsurface strata in several locations. These strata were limited to industrial-period debris. On the east bank of the Concord, there is a greater likelihood that a remnant of this site may remain intact. The area has seen continuous use from the nineteenth century onward but development is in the form of terraced gardens, roads, and walks--all part of the landscaping around religious and public buildings. The property of St. John's Hospital is typical of this area (Winters 1979: personal communication).

Evaluation: No area can be tested unless substantial industrial-period material is removed first.

Inventory: Massachusetts Historical Commission  
Inventory No. 19-MD-48

Location: South side of the Merrimack River starting at the falls and extending downstream to an area close to the mouth of the Concord River. Site is said to be three-quarters of a mile long.

Culture: Massachusetts Archeological Society Site #25 does not make any cultural identification other than aboriginal. The extent and location of the collection is not noted.

Pedestrian Survey: The area lies in the most

intensively developed portion of the industrial district. The western portion of the site is completely covered by the Northern Canal. A solid row of factory structures lined the river below the bend. Areas cleared of factories today were walked-over, but no traces of aboriginal remains were observed.

Evaluation: The potential for aboriginal cultural resources to have remained undisturbed in this area is low.

Inventory: Massachusetts Historical Commission  
Inventory No. 19-MD-49

Location: South bank of the Merrimack River above the falls between the Pawtucket Canal intake and Walker Street.

Culture: Massachusetts Archeological Society Site #19 does not make any cultural identification other than aboriginal. A reference, unsupported by comment, is made to its being a "Village site." No collections were found regarding this site.

Pedestrian Survey: This area, which is slightly out of the study area, was found to contain residential, light industrial, and recreational development. The river bank (ponded by the Pawtucket Dam) shows signs of having been repeatedly shored up to prevent erosion. No surface indications of aboriginal culture were observed in the area. Some freshly turned ground and eroded areas revealed no cultural debris.

Evaluation: Test excavations might reveal whether any of the original surface contours and aboriginal cultural-period strata are present.

Inventory: Massachusetts Historical Commission  
Inventory No. 19-MD-52

Location: On the east bank of the Concord

River between the river and the cemetery, just north of Lawrence Street on the southwest end of Fort Hill.

Culture: The Massachusetts Archeological Society number is 27. It is listed as pre-historic aboriginal in origin, and because ceramics were found it is attributed to the Woodland period. Frederick Burtt, who reported the site, called it a "camp site." B. L. Smith visited the site and recovered lithic debitage but no diagnostic tools.

Pedestrian Survey: This area contains abandoned and marginally operating industry and the Lowell Cemetery. Cemetery workers reported finding no cultural material in their excavations. Surveys of the industrial area show there to be heavy concentrations of industrial material on the surface of the ground.

Evaluation: This site should be investigated in conjunction with other sites reported in the Fort Hill area.

#### Sites located near the LHPD

Inventory: Massachusetts Historical Commission  
Inventory No. 19-MD-50

Location: East of the Concord River on Sherman Street between High Street and Fort Hill Avenue.

Culture: The Massachusetts Archeological Society lists this site as #14 and #15. The site was not identified as to culture period. Reference is specifically made to a burial at this site. Records include Moorehead (1932) and Bullen (1940).

Pedestrian Survey: This area is covered with urban development, consisting of industrial toward the Concord River, and dense residential away from the river. Empty lots and unused land showed historic cultural

materials only.

Evaluation: This site may have been a single burial, but should be investigated along with the other sites reported in and around Fort Hill.

Inventory: Massachusetts Historical Commission  
Inventory No. 19-MD-51

Location: Along Middlesex Street between Burnside and Foster Streets, south of Middlesex Street and the railroad underpass.

Culture: Massachusetts Archeological Society Site #20 does not make any cultural identification other than aboriginal. Reference is made to a "village site" by Moorehead (1931).

Pedestrian Survey: This area is covered with domestic structures and light industry. A survey of several gardens, a fortuitous street excavation, and empty land showed no visible trace of aboriginal cultural material.

Evaluation: If there are any undisturbed portions, testing may reveal aboriginal remains. However, the probability of undisturbed land is small.

Inventory: Massachusetts Historical Commission  
Inventory No. 18-MD-53

Location: On South Common between Summer and High Streets.

Culture: The Massachusetts Archeological Society assigned #18 to this site. It was attributed to aboriginal culture with no identification of period.

Pedestrian Survey: This site is located in park land. No evidence of aboriginal culture was observed.

Evaluation: Testing may reveal further information.

Inventory: Wannalancet site

This site is attributed to three separate locations by nineteenth-century traditional historians. We have labeled them Wannalancet A, B, C.

Location: Wannalancet A--On Fort Hill in Fort Hill Park. This location is attributed by Cowley (1862: 12).

Wannalancet B--On the north side of the Merrimack on the north campus of the University of Lowell (S. Coburn 1922: 44).

Wannalancet C--On South Common on Roger's Hill (Old Residents' 1891: 388).

Richardson (1978) suggests that all three sites are possibilities but feels that Fort Hill is the most likely prospect. Winters (1979) concludes that Fort Hill and Roger's Hill are the same place and are the location of the village.

Culture: Wannalancet is known to have repaired to the Lowell area and built a palisaded village to protect his people from raids by the Mohawk Indians during the historic period.

Pedestrian Survey: Wannalancet A--Fort Hill is a public park. Eroded areas and cultivated ground revealed no artifacts. Although the hill would be a secure defensive position, the area lacks fresh water. Environmental reconstruction may show that water resources were present.

Wannalancet B--A drive through the campus, along with a pedestrian survey and close visual inspection of several areas of recently disturbed ground, revealed no aboriginal cultural material.

Wannalancet C--No evidence of aboriginal material was found in this area of South Common.

Evaluation: Although all three areas are outside the District boundaries, testing at South Common and Fort Hill may be very productive; testing at the campus would be less so.

Inventory: Aboriginal burial ground

Location: Between the Lowell Cemetery and the Concord River.

Culture: Richardson (1978) mentions that historic indians are reported to have used this area as a burial ground.

Pedestrian Survey: This area was checked for site 19-MD-52 with no success.

Evaluation: Further research should consider the whole Fort Hill Park area.



BIBLIOGRAPHY

Anthony, David

- 1978 Archaeological Management Overview of Worcester County, Massachusetts. Report prepared for the Massachusetts Historical Commission, Boston.

Barber, Russell

- 1977 A Quantitative Assessment of the Reliability of Archeological Site Records in Massachusetts. Report prepared for the Massachusetts Historical Commission, Boston.

Bawden, Garth

- 1977 Phase I Reconnaissance and Phase II Intensive Survey of the Sewer Line Project, Dracut, Massachusetts. On file at the Massachusetts Historical Commission, Boston.

Braun, David

- 1974 Exploratory models for the evolution of coastal adaptation in prehistoric eastern New England. American Antiquity. 39(4).

Brennan, Louis

- 1976 Coastal Adaptation in Prehistoric New England. American Antiquity 41:112-3.
- 1977 New York Academy of Sciences, Annals, 288.

Bullen, Ripley

- 1942 Forts, boundaries, or Ha-Has? Massachusetts Archaeological Society Bulletin. 4(1).
- 1949 Excavations in Northeastern Massachusetts. Papers of the Robert S. Peabody Foundation, Andover. 1(3).

Byers, Douglas S.

- 1959 Radiocarbon dates for the Bull Brook site, Massachusetts. American Antiquity. 24.

Carroll, Pauline A.

- 1979 A Geological and Hydrological History of the Merrimack River Watershed in Its Entirety, from Its Formation to the Present. Prepared for Department of Environmental Management, Commonwealth of Massachusetts.

Casjens, Laurel

- 1979 Archaeological Site Catchment and Settlement Patterns in the Concord River Watershed, Northeastern Massachusetts. Report prepared for the Massachusetts Historical Commission, Boston.

Champlain, Samuel de

- 1941 Champlain's account of the New England coast. Reprinted in the Massachusetts Archaeological Society Bulletin 3(4).

Coburn, Silas R.

- 1922 History of Dracut, Massachusetts. Courier-Citizen, Lowell.

Cowley, Charles

- 1862 Memories of the Indians and Pioneers of the Region of Lowell, Stone and Huse, Lowell.

Curran, Mary Lou

- 1978 Micro-archaeology at a Paleo-Indian site in southwestern New Hampshire; a preliminary report. Paper presented March 19, 1978, Northeastern Anthropological Association Meeting, Quebec.

Davis, Margaret B.

- 1969 A palynology and environmental history during the Quaternary Period. American Scientist. 57(3).

Dincauze, Dena F.

- 1973 Prehistoric occupation of the Charles River Estuary: a paleogeographic study. Archeological Society of Connecticut Bulletin. 38.
- 1975 The late arctic period in southern New England. Arctic Anthropology. 12 (2).
- 1976 The Neville Site: 8,000 Years at Amoskeag, Manchester, New Hampshire. Peabody Museum, Harvard University Monographs. 4.

Dincauze, Dena F., and Mary Lou Curran

- 1977 New York Academy of Sciences, Annals. 288.

Dincauze, Dena F., and Mitchell T. Mulholland

- 1977 Early and Middle Archaic site distributions and habitats in southern New England. New York Academy of Sciences, Annals. 288.

Dincauze, Dena F., James Moore, and Dolores Root

- 1977 Research report on survey and planning grant. Prepared for the Massachusetts Historical Commission, Boston.

Eisenberg, Leonard

- 1978 Paleo-indian Settlement Pattern in the Hudson and Delaware River Drainages. Occasional Publications in Northeastern Anthropology. Department of Anthropology, Franklin Pierce College, Rindge, N. H. (4).

Emmerson, B. K.

- 1917 Geology of Massachusetts and Rhode Island. U. S. Geological Survey Bulletin. 597.

Fairbridge, Rhodes W.

- 1977 Late quaternary environment in northeastern coastal North America. New York Academy of Sciences, Annals. 288.

Fessenden, Franklin, John Ayers, and Steven L. Dean

- 1975 A Summary of the Geology of Eastern Massachusetts. Report prepared for the U. S. Army Corps of Engineers, New England Division.

Flint, Richard Foster

- 1971 Glacial and Quaternary Geology. New York.

Funk, Robert E.

- 1972 Early man in the Northeast and late glacial environment. Man in the Northeast.

Gahan, Lawrence K.

- 1941 The Nipmucks and their territory. Massachusetts Archaeological Society Bulletin. 2(4).

Goldthwait, James W.

- 1925 The Geology of New Hampshire. Concord, N. H.

Hoornbeck, Billee

- 1976 An investigation into the cause or causes of the epidemic which decimated the Indian population of New England, 1616-1619. New Hampshire Archeologist. 19(35).

La Coste, Kenneth C., and Kathleen Fiero

- 1979 Preliminary Draft, Archeological Resource Study at Lowell, Mass. U. S. Dept. of Interior, National Park Service.

Latimer, W. J., and M. G. Lamphear

- 1924 Soil Survey of Middlesex County, Massachusetts. U. S. Dept. of Agriculture, Report. 26, Series 1924.

Lull, Howard W.

- 1968 A Forest Atlas of the Northeast. U. S. Dept. of Agriculture, Upper Darby, Pa.

MacConnell, W. P., and John Noyes

- 1969 Classification of land cover types by towns in Massachusetts. University of Massachusetts, Cooperative Extension Service, Publication. 12.

Mahlsetead, Thomas

- 1977 Phase I Reconnaissance of the Market Street Garage, Lowell, Massachusetts. On file at the Massachusetts Historical Commission, Boston.

McManamon, Francis P.

- 1977 Middle Archaic Chipped Stone Variation: Collections Research and Hypothesis Testing, paper presented at Northeast Anthropological Association Annual Meeting, Providence, R.I. 1977.

Moorehead, Warren King

- 1931 The Merrimack Archaeological Survey: A Preliminary Paper. Peabody Museum, Salem, Massachusetts.

Old Residents' Historical Association

- 1891 Last of the Sachems, Contributions of the Old Residents' Historical Association. 388.

Richardson, John

- 1978 A History of the American Indian Culture that Occupied the City of Lowell. Report prepared for the Massachusetts Department of Environmental Management.

Ritchie, William A.

- 1969 The Archaeology of Martha's Vineyard. Natural History Press, Garden City, N. Y.

Salwen, Bert

- 1965 Sea Levels and the Archaic Archeology of the Northeast Coast. Ph.D dissertation, Department of Anthropology, Columbia University.

Sargent, Howard R., and Francois Ledoux

- 1973 Two fluted points from New England. Man in the Northeast. 5.

Thorstensen, S. I.

- 1977 The Poznick site: a preliminary report. New Hampshire Archaeological Society Bulletin. Spring.

U. S. Army Corps of Engineers

- 1974 Merrimack Wastewater Management: Key to a Clean River. Volumes 1 and 4 were consulted. New England Division, Waltham, Mass.

Wilson, Waters

- 1917 History of Chelmsford, Massachusetts. Lowell, Mass.

Winters, Eugene

- 1979 Personal communication. Mr. Winters is with R. S. Peabody Foundation, Andover, Mass.

## CHAPTER THREE

### HISTORY OF THE DEVELOPMENT OF LOWELL

In 1820 the area called East Chelmsford was an agrarian district with a population of about 200, living on scattered farms and at the crossings of the few roads. By 1830, the industrial town of Lowell had sprung up in the former farm fields, with nearly 6500 citizens and four large textile manufacturing corporations. Ten years later the population of the city of Lowell was nearly 21,000 and miles of canals powered dozens of textile mills. Throughout the nineteenth century and into the twentieth, Lowell continued to grow. Population peaked at 120,000 by 1920, and in the 1920s and 1930s most of the mills moved out of Lowell or failed. The hard times that hit Lowell are not yet over, but the city's revitalization is clearly underway. This chapter examines the history of Lowell's development, and describes many of the historical resources in the Lowell National Historical Park and Preservation District that reflect the periods and patterns of that development.

Following the initial contact between the native inhabitants and English settlers discussed in the preceding chapter, Lowell's development can be described in seven historical periods:

#### East Chelmsford Hamlet

From 1686, when Chelmsford farmers purchased much of the present area of Lowell from its native owners, through the first two decades of the nineteenth century, the settlement was predominantly agrarian. Very little that was built in these years still stands in the Park and the District, but the hamlet left an imprint on the area that can still be detected.

#### The Lowell Experiment

In 1821, the "Boston Associates" selected East Chelmsford as the site for the development of large textile mills. Over the next two decades, Lowell was established. Canals were dug, the streets of the central area were laid out, and a full-fledged city was built. That period gave to modern Lowell its basic plan, and to the Park and the District over five dozen buildings. The initial period of industrial establishment was completed in 1839, when the

tenth and last major textile corporation, the Massachusetts Cotton Mills, was chartered.

#### The Experiment Expands

From 1840 through 1865, the canal system, the mills, and the city itself all grew, filling in the urban framework established in the preceding decades. Among the extant historical resources from this period are the completed canal system and major buildings in most of the surviving millyards.

#### The Industrial City Matures

The post-Civil War era brought continued expansion for the textile corporations, increased industrial diversification, and an emergence of the city's commercial and political sectors into a more equal relationship with Lowell's corporate giants. Much of the present fabric of the city dates from this period, which culminated in the dedication of the grand new City Hall in 1893.

#### Multilingual Lowell

The long-established Irish and the many French Canadians in Lowell were joined in the 1890s and the early decades of the twentieth century by immigrants from a wide spectrum of European countries. Both the population and the industrial output of the city reached their peaks around 1920. The major commercial and industrial buildings surviving from that period have an air of confidence about their designs that the following decades betrayed.

#### Collapse of Lowell's Textile Industry

The industrial collapse of the 1920s and the 1930s was foreshadowed by the Bigelow Carpet Company's departure from the old Lowell Manufacturing Company millyard in 1914, and the cessation of production by the Middlesex Company in 1918. One after another of the major and minor textile mills and the Machine Shop closed in the following decades, and several were razed. The demolition of the remaining mills and boarding houses of the seminal Merrimack Manufacturing Company in the early 1960s hopefully marked the last time there was more profit in tearing down Lowell's past than in preserving it.



### Revitalization of Lowell

The opposite approach to dealing with Lowell's past characterizes the period of the city's development from the mid-1960s to the present. The adoption and implementation of the urban cultural park concept grew out of a determination that Lowell would find its brightest future in the appreciation and preservation of the resources from its past.

### EAST CHELMSFORD HAMLET: 1686 to 1820

#### History

English settlement in the general area of present-day Lowell dates to 1653, when families from Concord and Woburn petitioned the General Court for a grant of land on the Merrimack River near the Indian fishing grounds at Pawtucket Falls. They received the grant and established the town of Chelmsford. At the confluence of the Merrimack and the Concord Rivers, a triangular tract was set off from the larger grant and reserved for the sole use of Indians, who had seasonally gathered fish at those falls for centuries. There John Eliot established one of his "praying villages" for Christian Indians. The grant for that village, called Wamesit, included most of the central area of modern Lowell.

Relations between the Indians at Wamesit and the Englishmen at Chelmsford were peaceable until the mid-1670s, when King Philip's War broke out. Mistrustful of the angry and frightened English settlers and militia, the Pennacooks at Wamesit abandoned their village and fled into the woods in 1675. Throughout 1676 and 1677 they returned periodically, only to flee again. When they left behind their elderly and blind in the winter of 1676, English settlers set a torch to the village, burning the wigwams and their occupants.

Many of the Indians who survived the soldiers' attacks, the torch, and the starvation and sickness that accompanied the exile from Wamesit were captured and sold to slavery. Few of the remainder returned to Wamesit. In 1686, Wannalancit, the last sachem of the Pennacook Indians, sold the Wamesit tract to two English settlers. They transferred ownership of the "Wamesit Purchase" to a group of fifty proprietors,

who divided the land and established farms.

Throughout the next century and more, the area remained agricultural. It was informally regarded as a part of Chelmsford, paying taxes to that town and participating in its affairs until 1725. That year the General Court refused to seat a Wamesit resident who had been elected as a Chelmsford representative. When the Wamesit settlers countered with a refusal to pay taxes to Chelmsford, the area was formally annexed to the town of Chelmsford.

East Chelmsford was bounded on three sides by major rivers, so the early river crossing points did much to determine the locations of major roads (Figure 3-1). By 1774, the Concord River was bridged where East Merrimack Street now spans the river. An early ferry crossed the Merrimack River at the foot of the present Bridge Street. In 1792, the Proprietors of the Middlesex Merrimack River Bridge built the Pawtucket Bridge across the Merrimack River just above Pawtucket Falls.

The roads connecting these crossings were adopted by the nineteenth century town builders as principal streets. The road from Chelmsford ran along the south bank of the Merrimack River and extended all the way to the Town Landing at the crook of the Merrimack below the Pawtucket Falls, the same course followed by present-day Pawtucket Street. About a half mile before its Town Landing terminus, that road crossed the road leading to the Pawtucket Bridge. The bridge road was called Mammoth Road on the north side of the river, and led to New Hampshire. South of the river, the road set the general course now followed by School Street.

Midway between the Pawtucket Bridge and the Town Landing, the road from Chelmsford split and sent one fork eastward across the fields, woodlands, and orchards to the bridge over the Concord River, and from there towards Boston. This road established the course of Merrimack Street, Lowell's main thoroughfare. The way to Billerica branched south from that main road and ran along the west bank of the Concord River. The Billerica road became Central Street.

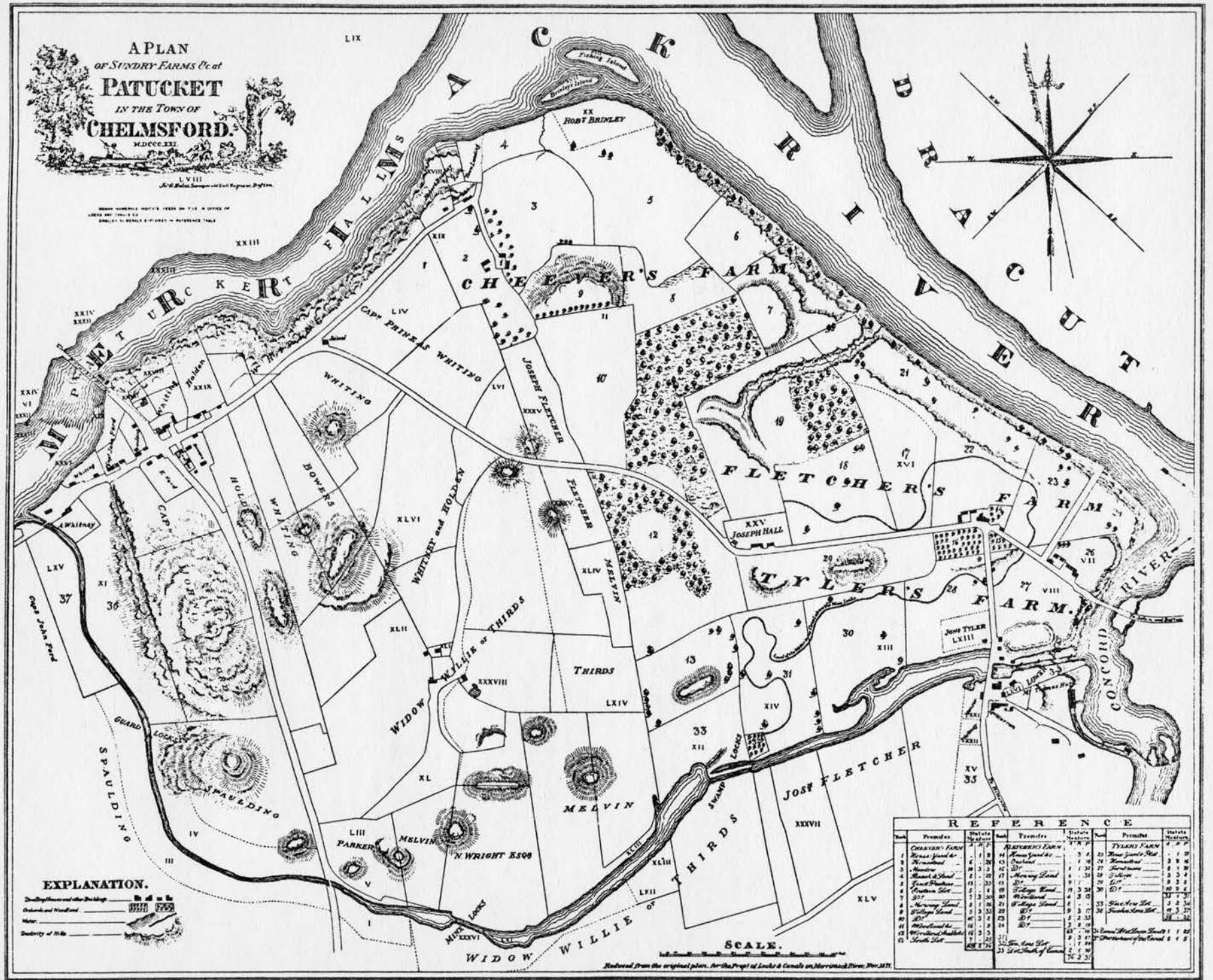


Figure 3-1 Map of East Chelmsford in 1821, by John G. Hales.

In 1792, the same year the Merrimack River was bridged, even more momentous events were afoot in the area. A group of Newburyport merchants obtained a corporate charter as the Proprietors of Locks and Canals on Merrimack River. Their purpose was to build a navigational canal around Pawtucket Falls in order to open the New Hampshire hinterlands for trade with their town at the mouth of the river. The Pawtucket Canal was completed in three years at a cost of about fifty thousand dollars. From its starting point above the falls, the 9,000 foot canal curves south and then east, skirting high ground just south of the falls, and meets the Concord River near its junction with the Merrimack River.

In 1793, a year after the Proprietors of Locks and Canals were incorporated, a competing canal corporation was chartered called the Proprietors of the Middlesex Canal. Boston interests financed this ambitious effort, expending over \$600,000 by 1803 to construct a twenty-seven mile canal linking the Merrimack River from a point about a mile above the Pawtucket Falls to the Charles River at Charlestown, and hence to the port of Boston. The longer canal circumvented not only Pawtucket Falls, but also all the lesser rapids downstream on the Merrimack River. In the face of such competition, the tolls collected and the level of the maintenance of Pawtucket Canal gradually declined.

Even before the canals brought new activity to the agrarian hamlet, other non-agricultural concerns had established themselves in East Chelmsford. As early as 1697 the Proprietors of the Wamesit Purchase had offered a plot of land to anyone who would build a mill on River Meadow Brook, a small stream that flowed into the Concord River about a mile south of the confluence with the Merrimack River. That offer was apparently not accepted, although a century later River Meadow Brook was extensively developed by Moses Hale as a waterpower source for mills. The stream is now called Hale's Brook.

In the 1730s Nicholas Sprague, Jr. built a fulling mill on the east side of the Concord River near its mouth. Small sawmills, grist mills and others followed which used the water power resources of the Concord River, River Meadow Brook, and even the

mighty Merrimack. Several of these establishments warrant mention, although none even hinted at the scale of the industrial complexes that were to come in Lowell.

Just outside the District, the Chelmsford Glass Company was established in 1802 at Middlesex Village, where the Middlesex Canal meets the Merrimack River. One of the longer-lived of early American glassworks, the factory operated there until 1839. John Ford ran a sawmill just above the Pawtucket Falls, one of the few mills to exploit the waterpower of the Merrimack River before the 1820s.

Moses Hale's mills on River Meadow Brook were more typical, as they were built on a stream far easier to harness than the Merrimack. In 1790 Hale built a fulling, dyeing and dressing mill there and in subsequent years he expanded, adding grist and sawmills and a wool-carding operation. Hale introduced the manufacture of a new product to the area in 1817 when he began grinding gunpowder on the River Meadow Brook.

Three other early waterpower developments on the Concord River took place on sites that were more fully exploited after Lowell was established. By 1820 Thomas Hurd owned most of the mills near the mouth of the Concord. The most important of these was on the west bank, immediately south (upstream) of the mouth of the Pawtucket Canal. Hurd acquired the cotton spinning mill built there in 1813 by local citizens Phineas Whiting and Josiah Fletcher, and before 1821 Hurd built a small power canal to operate a wool-weaving mill. The Middlesex Company, one of the major Lowell textile establishments, bought the site by 1830.

Upstream from Hurd, Nathan Ames, a blacksmith, established an iron forge at Massic Falls, ca. 1800. John Fisher became a partner in 1812. An island in the narrow river at those falls made the harnessing of waterpower a relatively simple matter. In the early nineteenth century, a dam was constructed from the island to the east bank, and a mill bridged out to the island from the west bank. The channel it straddled was its waterpower source. The forge operated until 1836, when Perez Richmond bought the site and established paper and batting factories.



Figure 3-2 Spalding House, 383 Pawtucket Street, built 1761, photographed ca. 1920.

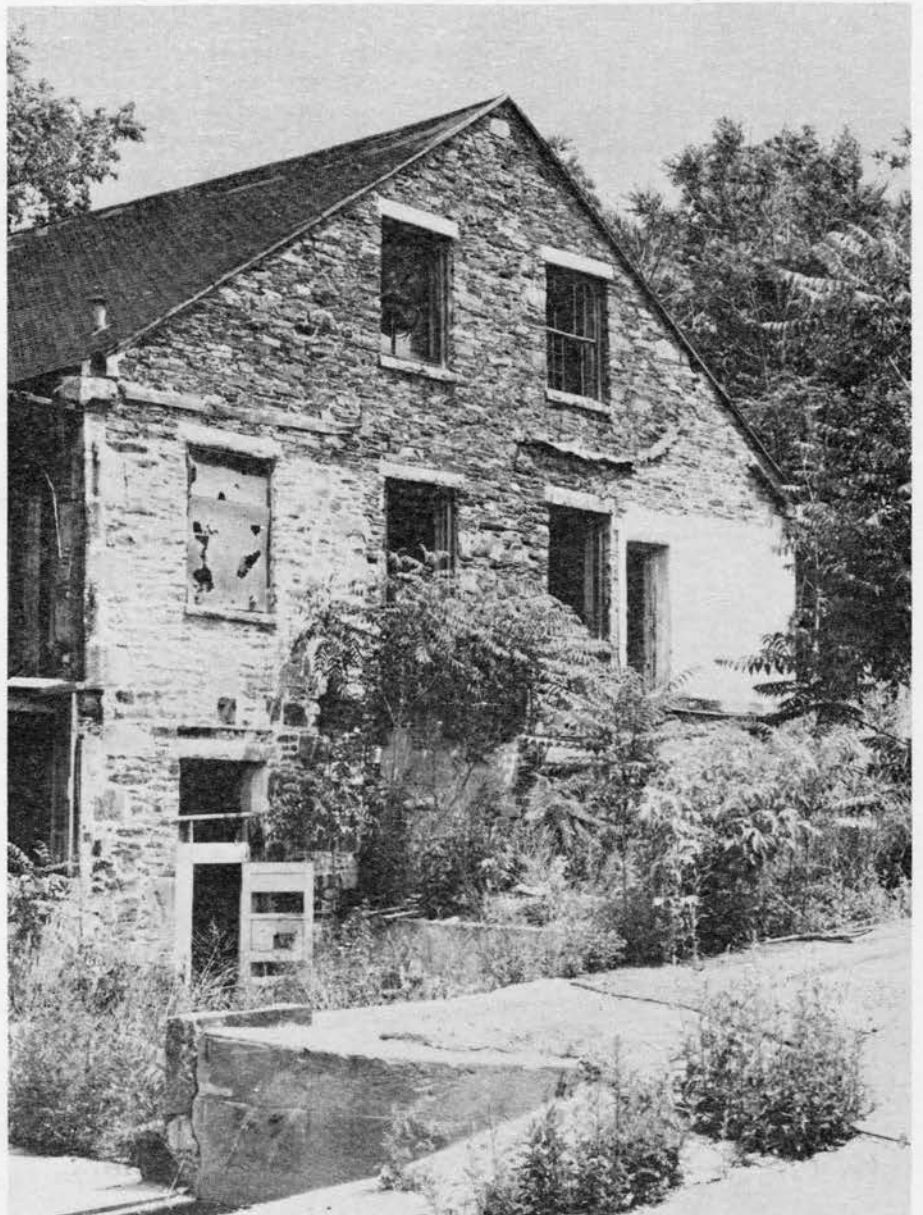


Figure 3-3 Whipple's Powder Mill, Lawrence Street, built ca. 1821, photographed 1979.

Still further upstream, Oliver Whipple built a power canal along the west bank of the Concord River just above Hale's Brook in the early 1820s. Whipple came to East Chelmsford in 1818 to manage Moses Hale's powder mill. He used the new canal to operate his own, larger powder mill. Whipple later rented out mill space along the canal and sold power to other small manufacturers.

Despite the modestly-scaled industrial activity and the two transportation canals circumventing Pawtucket Falls, the East Chelmsford hamlet was still primarily agricultural in 1820. Approximately two hundred people inhabited the area on scattered farmsteads and in small clusters of houses, taverns, mills, and stores at Middlesex Village (the northern terminus of the Middlesex Canal), Falls Village (where the Pawtucket Bridge crossed the Merrimack), and around the Pawtucket Canal's Lower Locks and nearby Concord River bridge. There were also small settlements in West Dracut across the Pawtucket Bridge from Falls Village, and in Tewksbury across the Concord River bridge on sites now within Lowell and partially within the LHPD.

#### Historical Resources

Aside from the general routes of Pawtucket, School, Merrimack, Central, and Bridge Streets, and the basic course of the Pawtucket Canal, very little remains in the Park and District from the pre-1820 period. The 1821 map of "Patucket" by John G. Hale indicates approximately sixty "Dwelling Houses and other Buildings" in East Chelmsford (Figure 3-1). Of these, only the Spalding House at 383 Pawtucket Street, built ca. 1761, survives (Figure 3-2). On the north side of the Merrimack River in Pawtucketville (once West Dracut), the Colonel Varnum House at 81-83 Varnum Avenue may date within a decade of the 1792 construction of the Pawtucket Bridge.

The only survivors among the early mills and their canals are the rebuilt Whipple's Canal and a single building of his gunpowder factory on Lawrence Street. That rubblestone mill dates to ca. 1821 (Figure 3-3).

Additional historical resources may survive from the East Chelmsford hamlet as archeological remains.

The iron forge site at Massic Falls on the Concord was redeveloped for paper and batting mills after 1836 and remained active throughout the nineteenth century. Those later mills are now also gone. Below-ground testing would be required to determine if any remains of the early use of the site are still extant. On the Whiting-Fletcher spinning mill site, where Hurd built a small canal and operated a wool weaving mill before 1821, the Middlesex Company later developed a major millyard (demolished in 1956). Middlesex drew water for power from both the Concord River and the Pawtucket Canal. The canal Middlesex used off the Concord River throughout the nineteenth century followed the course of Hurd's early canal. Beneath the parking lot now on that site, evidence of the basic course, if not actual elements of Hurd's canal, may survive.

The East Chelmsford settlers farmed the land, fished in the rivers, and traded at the river crossings. Their utilization of the resources of the area was more like that of their Indian predecessors than like the industrialists that followed. The great fall of water at Pawtucket Falls was to the settlers mainly an obstacle--useful when it blocked fish, a nuisance when it blocked boats--and the Pawtucket Canal was solely a means of circumnavigating the obstacle. In the period that followed 1820, the power of the fall of water became the area's most important natural resource, and the canal became a means of harnessing that power.



THE LOWELL EXPERIMENT: 1821-1839

History

The transformation of the hamlet East Chelmsford into the industrial city of Lowell was astonishingly quick. The 200 farmers and tradesmen of 1820 were already outnumbered by carpenters, masons, laborers, and mill workers in 1824, when the population is estimated to have been 600. Two years later, 2,500 lived in the newly chartered Town of Lowell. The burgeoning industrial development attracted 3,500 residents by 1828, and 6,500 by 1830. Additional corporations were chartered in the early 1830s, and their workers and the accompanying storekeepers, milliners, doctors, clerks, and other townspeople swelled the town's population to 12,000 by 1832.

1834 saw the first of many annexations, when Belvidere, the part of Tewksbury on the east bank of the Concord River, was added to Lowell. The town's amazing growth was acknowledged by the state in 1836, when Lowell was incorporated as the third city in Massachusetts, with a population of 17,500. 21,000 lived in the city by the end of the initial period of development in 1840.

The events that transferred East Chelmsford into the city of Lowell were not foreshadowed by Hurd's mills on the Concord River, or Hale's expanding industrial complex on River Meadow Brook, but rather by a new sort of factory that developed on the Charles River at Waltham near Boston. In 1814 a fully integrated cotton mill was established there that could perform every process necessary to transform raw cotton into finished cloth. Most American cotton mills at that time produced cotton yard, which they sent out to handweavers to make into cloth. Even the English textile industry, far more advanced technically and much larger in scale, divided the many stages of cloth production among separate establishments.

The Boston Manufacturing Company at Waltham had three other characteristics that made it unusual among American textile mills of the time. First, it utilized power looms. This English invention was decades old, but the exportation of power looms or even drawings of them from the British Isles was strictly

prohibited. The initiator of the Waltham factory, Francis Cabot Lowell, had closely observed these mechanized looms on a visit to England and Scotland and in 1814 essentially reinvented the device in Boston, with the aid of an American master mechanic, Paul Moody.

The Waltham enterprise was also atypical among American textile mills of that time in that it was well-capitalized, under the corporation form of organization. Francis C. Lowell recruited the other shareholders from among his Boston mercantile associates. This group that provided the capital for both the Waltham factories and the founding of Lowell is commonly referred to as the "Boston Associates."

Another peculiarity of the Waltham operation was its work force. The company recruited young women from the surrounding area to operate the mills' machinery and lodged them under careful supervision in company-owned boarding houses. Most American textile factories of the early nineteenth century had constant difficulty finding and keeping enough operatives, and they usually hired whole families and staffed their mills with men, women, and even children. Most of the young women of the Waltham factory worked there a few years, then left to marry or to return to their families. The use of the power loom, corporate capitalization, the fully integrated organization of the production process, and the recruitment and housing of a work force of young women were the special characteristics of the Waltham operation that would be adopted in transforming East Chelmsford into Lowell.

The most compelling result of the establishment of the Boston Manufacturing Company in Waltham for the "Boston Associates" was its immense and immediate profitability during a time when other American cotton mills were failing. With the addition of a second mill in 1818 and a third in 1820, Boston Manufacturing quickly reached the limits of the waterpower available from the Charles River at Waltham. By 1820, the "Boston Associates" began seeking a larger site with greater waterpower potential, where they could apply the Waltham formula on a grand scale and even add calico printing to their plain cotton cloth production.

Patrick Tracy Jackson, Kirk Boott, Warren Dutton, Paul Moody (Francis Cabot Lowell having died in 1817) investigated sites as far afield from Boston as Gardiner, Maine. In the autumn of 1821, they selected the area around the Pawtucket Falls on the Merrimack River at East Chelmsford. They purchased four-hundred acres of farmland within the crook of the Merrimack River, west of its confluence with the Concord River. They also bought up the shares of the Proprietors of Locks and Canals on Merrimack River, the corporation that owned the Pawtucket Canal and accompanying Merrimack River water rights. In February, 1822 the Merrimack Manufacturing Company was chartered by shareholders Jackson, Appleton, Kirk Boott and his brother John Wright Boott, and Paul Moody, the master mechanic. Land and canal ownership was transferred to the new corporation, and Kirk Boott was appointed as the first treasurer and agent, with day-to-day executive authority for the venture.

The burst of construction activity that followed must have seemed frenzied to the displaced farmers and other residents of East Chelmsford. The decrepit Pawtucket Canal was broadened and deepened, and its system of locks was redesigned. As a transportation canal it originally had four sets of locks to raise or lower vessels bypassing the Pawtucket Falls. In rebuilding the canal, three sets of locks for navigation were retained, but just two main levels were established, divided by the Swamp Locks at the midpoint. A new canal, the Merrimack, was dug north from the Swamp Locks basin to the banks of the Merrimack River over a thousand yards away. The Merrimack Manufacturing Company, the first great mill complex, was built beside the river. Its waterwheel was in motion by September of 1823, and later that fall cotton cloth was being produced.

In addition to the various mill buildings and a print works for producing calicoes, the corporation built double houses of brick and wood and longer brick rows on the streets parallel to the Merrimack Canal, directly in front of the millyard. The operatives (mostly unmarried females) were lodged in boarding houses, while the more skilled workers (usually men with families) were provided individual apartments referred to as tenements.

In 1824 a second mill was built in the Merrimack yard, and the next year a third. The first two were equipped with Waltham-built machinery. The third mill, however, was outfitted with machines built in the new Machine Shop still under construction at Swamp Locks within the fork of the Pawtucket and the Merrimack Canals.

The initial intention of the "Boston Associates" apparently was to carry out the entire East Chelmsford development under the aegis of the Merrimack Manufacturing Company, and in 1824 new mills were planned for a site southeast of the Swamp Locks. Figure 3-4 shows the plan for that project, with a new canal parallel to the Pawtucket Canal below Swamp Locks, mills along the island between the canals, and row after row of freestanding boarding houses, of the Merrimack Company's double-house type. Before that plan was carried out, however, the directors of the Merrimack Company decided that the possibilities at East Chelmsford were too vast to be developed under a single management, and two crucial changes were agreed to and implemented. First, new companies would be allowed to purchase mill sites and waterpower. In 1825 the Hamilton Manufacturing Company was incorporated and Merrimack Company sold to the new corporation a site for two mills and the accompanying waterpower rights with which to operate them. The waterpower was delivered by a new canal in the location of the one indicated on Figure 3-4.

The second part of the Merrimack Company's reorganization involved divesting itself of all its real estate (except its own millyard and housing sites), of the canal system, and of the Machine Shop. Rather than offering these assets for sale on the open market, or creating a new corporation to administer them, Merrimack Manufacturing revived the Proprietors of Locks and Canals. That corporation, which built the Pawtucket Canal in the 1790s, had been inactive since Merrimack had bought up its shares in 1821-22. Its charter was still in effect, however, so several Merrimack shareholders recapitalized Proprietors of Locks and Canals by purchasing the shares. Then the Merrimack Company sold to that corporation the undeveloped land, the canals, and the Machine Shop. Kirk Boott assumed the posts of Agent and Treasurer of the Proprietors of Locks and Canals, while still retaining the same positions at Merrimack Manufacturing Company.

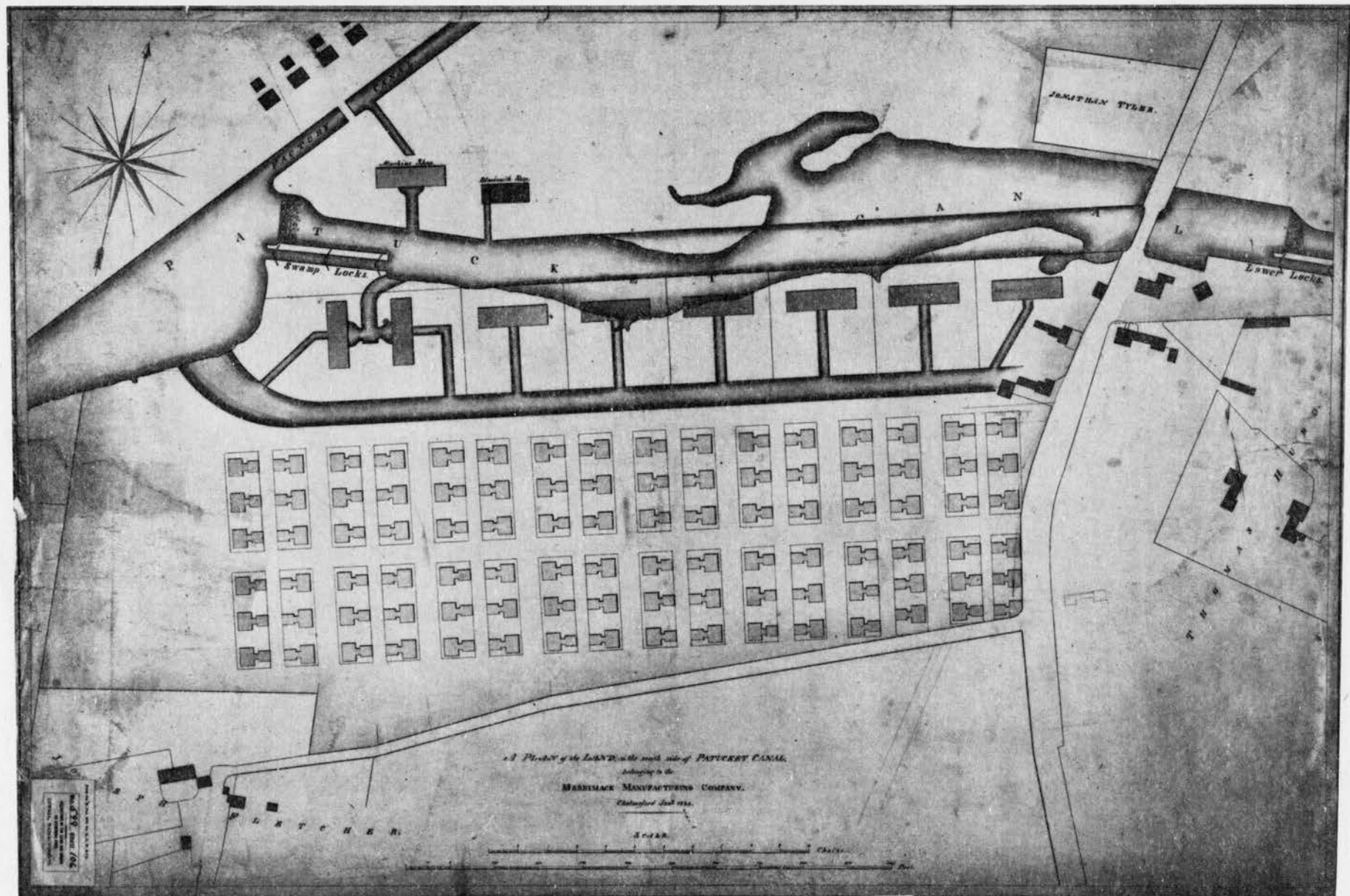


Figure 3-4 "A Plan of the Land, on the south side of the Patucket Canal, belonging to the Merrimack Manufacturing Company. Chelmsford, Jany. 1824."

Once the decisions were made to accept new manufacturing corporations, and to re-establish the Proprietors of Locks and Canals to take charge of real estate development, machine building, and the canal system, the pattern was set for the full industrial development of the area. Around the mills, the other aspects of a complete town were beginning to emerge. In 1824-25, the Merrimack Company built a stone church near its employee housing which was named St. Anne after Kirk Boott's wife. Rev. Theodore Edson, the Episcopal minister hired by Boott, later estimated the settlement consisted of about 600 people in 1824.

Anticipating the need for additional residential space for the rapidly growing population, a corporation was chartered in 1825 to build a bridge across the Merrimack River just above the Concord River confluence, to make East Dracut accessible to the burgeoning industrial community. Shops began to rise along the two main streets of the new Merrimack Street and Central Street, which followed the courses of two old roads. By 1826, the population numbered about 2,500, and the General Court granted a petition establishing the new township of Lowell out of the eastern part of Chelmsford. Nearly 3,000 acres located west of the Concord River and south of the Merrimack River formed the new town.

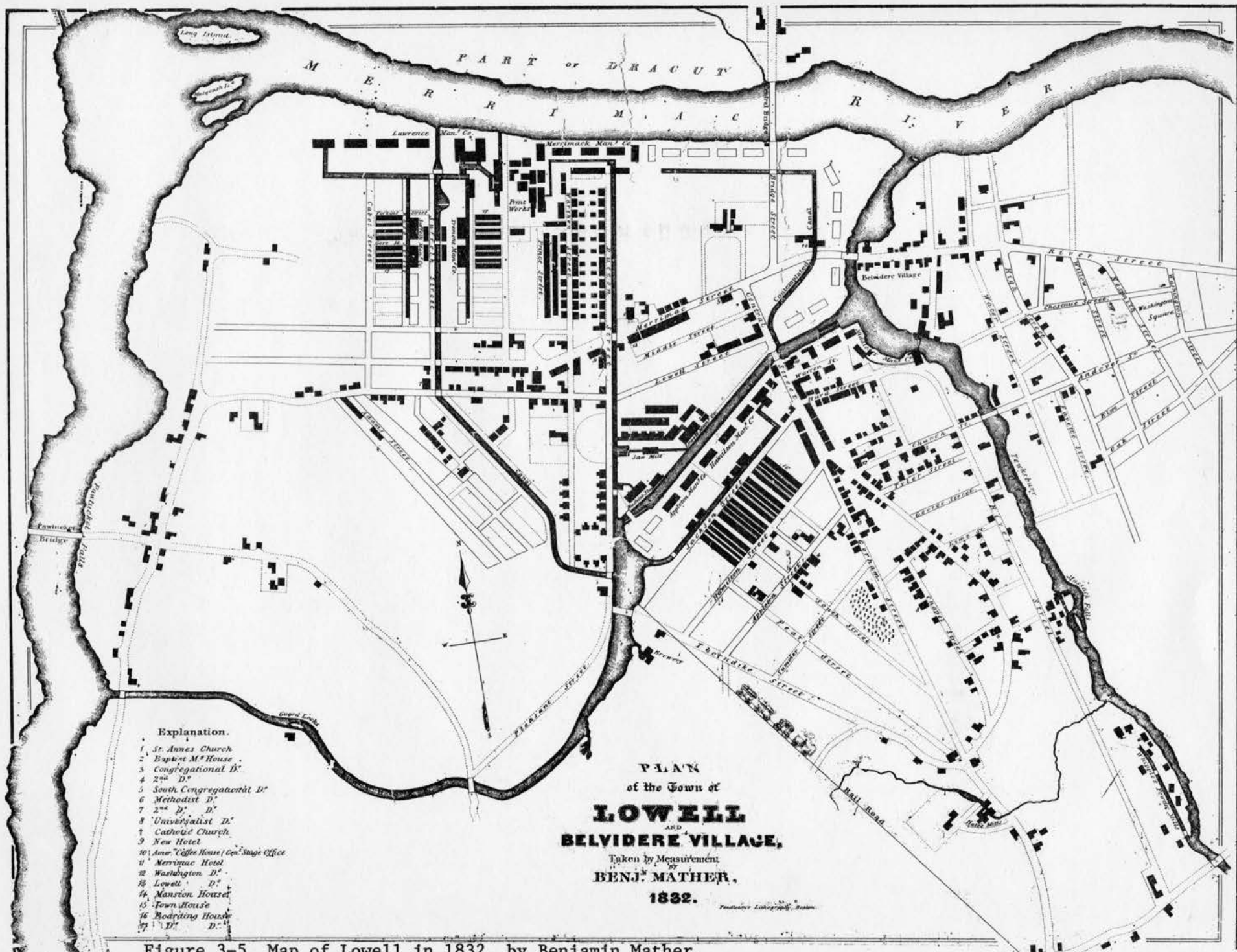
The same year as the town was established, the Hamilton Canal was completed, extending almost two-thousand feet from the Swamp Locks basin, parallel to the lower Pawtucket, and discharging back into the Pawtucket's lower level. On the "island" between the new and the old canals, two Hamilton mills were operating by 1827.

Two more corporations were chartered the next year, the Appleton Manufacturing Company and the Lowell Manufacturing Company. The Appleton Company acquired the southwest end of the power island already occupied by the Hamilton Company, while Lowell Manufacturing began building its cotton and carpet weaving mills across the Pawtucket Canal from Hamilton, between the Merrimack and Pawtucket Canals. The Lowell Canal was dug from the Merrimack Canal to the Pawtucket Canal, bringing "upper level" Merrimack Canal water through Lowell Manufacturing's breast wheels, then discharging it into the lower Pawtucket Canal, a drop of thirteen feet. Lowell Manufacturing's site was so swampy

that the first stones for the foundations were laid upon the ground, then built upon as fill was dumped around them to create a new surface at a dry and useable level. Mill sites were not chosen for ease of construction, but rather for efficient delivery of waterpower.

In 1828, the town's population topped 3,500. Two years later, the town's population reached 6,500, and a brick Town Hall was erected across Merrimack Street from St. Anne's Church. The digging of the long Western Canal had begun in 1828, but was halted by the depression of that year. In 1830 the work resumed, to bring water from Swamp Locks basin to new mill sites on the Merrimack River, just west of the Merrimack millyard. Helping finance that work were several investors who were new to Lowell, including Amos and Abbott Lawrence, Boston's leading textile merchants. The Lawrences received a charter as the Middlesex Company in 1830 and began woolen textile production on Thomas Hurd's Concord River site. The Lawrences became shareholders and selling agents of many of the Lowell mills, and gave their name to the mill town which sprang up in the 1840s and in the 1840s helped found the mill town that bears their name located eight miles downstream from Lowell on the Merrimack River. The Lawrences invested in all three Lowell textile corporations chartered in 1831--the Proprietors of the Tremont Mills, the Suffolk Manufacturing Company, and the Lawrence Manufacturing Company. By 1832 all three of these new companies could utilize Western Canal waterpower at their sites west of the original Merrimack millyard.

The 1832 "Plan of the Town of Lowell and Belvidere Village" drawn by Benjamin Mather provides an excellent reference for assessing Lowell's first decade of growth and examining the basis for some later patterns (Figure 3-5). Mather records both actual and planned development on such sites as the Suffolk, Tremont, and Lawrence millyards, but generally shows them as they were built. In the northeast corner of Lowell, he even shows a "Contemplated Canal" where the Eastern Canal would be built three years later, and indicates mills along its east and north sides, where the Massachusetts and Boott Mills were established later in the decade. Mather shows a "Rail Road" exiting from Lowell toward the southeast, complete with an



- Explanation.
1. St. Annes Church
  2. Baptist M<sup>o</sup> House
  3. Congregational B<sup>o</sup>
  4. 2<sup>nd</sup> D<sup>o</sup>
  5. South Congregational D<sup>o</sup>
  6. Methodist D<sup>o</sup>
  7. 2<sup>nd</sup> D<sup>o</sup> D<sup>o</sup>
  8. Universalist D<sup>o</sup>
  - † Catholic Church
  9. New Hotel
  10. Amer. Coffee House / Genl. Sarge Office
  11. Merrimack Hotel
  12. Washington D<sup>o</sup>
  13. Lowell D<sup>o</sup>
  14. Mansion Houses
  15. Town House
  16. Boarding House
  17. D<sup>o</sup> D<sup>o</sup>

PLAN  
of the Town of  
**LOWELL**  
AND  
**BELVIDERE VILLAGE,**  
Taken by Measurement  
by  
**BENJ. MATHER,**  
**1832.**

Figure 3-5 Map of Lowell in 1832, by Benjamin Mather.



engine and top-hatted engineer, a passenger car and two baggage cars. The Boston and Lowell Railroad was under construction along that route by 1832, but the first train did not run until three years later.

Lowell's population exceeded 12,000 in 1832, and Mather's map shows the uneven patterns of development resulting from this extremely rapid growth combined with the strategically scattered siting of millyards. The routes of the principal streets were all inherited from the rural hamlet of East Chelmsford, as was the arc of the Pawtucket Canal. The major new elements were the fan of canals from the midpoint at the Swamp Locks basin, and the mills positioned along them according to the dictates of waterpower. Water had to be delivered at a high level to the breast wheels, then flow away unimpeded. These requirements placed the mills around the Swamp Locks, and along the Merrimack River below the bend.

Arrayed in front of each millyard was the company-owned housing built for the workers in the mills. The boarding houses' proximity to the millyards was necessitated by the long, fourteen-hour workdays, and also expressed the paternalistic relationship of the corporations toward the female workers. Unless the corporations could safeguard the young women's reputations, few would be willing to leave home to work for the mills.

The housing built by the seminal Merrimack Manufacturing Company differed architecturally from that of later companies, but set the spatial relationship of housing in relation to the millyard copied by the others. Merrimack's housing consisted mostly of double houses or four-unit buildings, in either brick or wood, set along Dutton and Worthen Streets perpendicular to the millyard. The Dutton Street houses are visible at the center of Figure 3-6. Only Prince Street had Merrimack Company housing in longer rows.

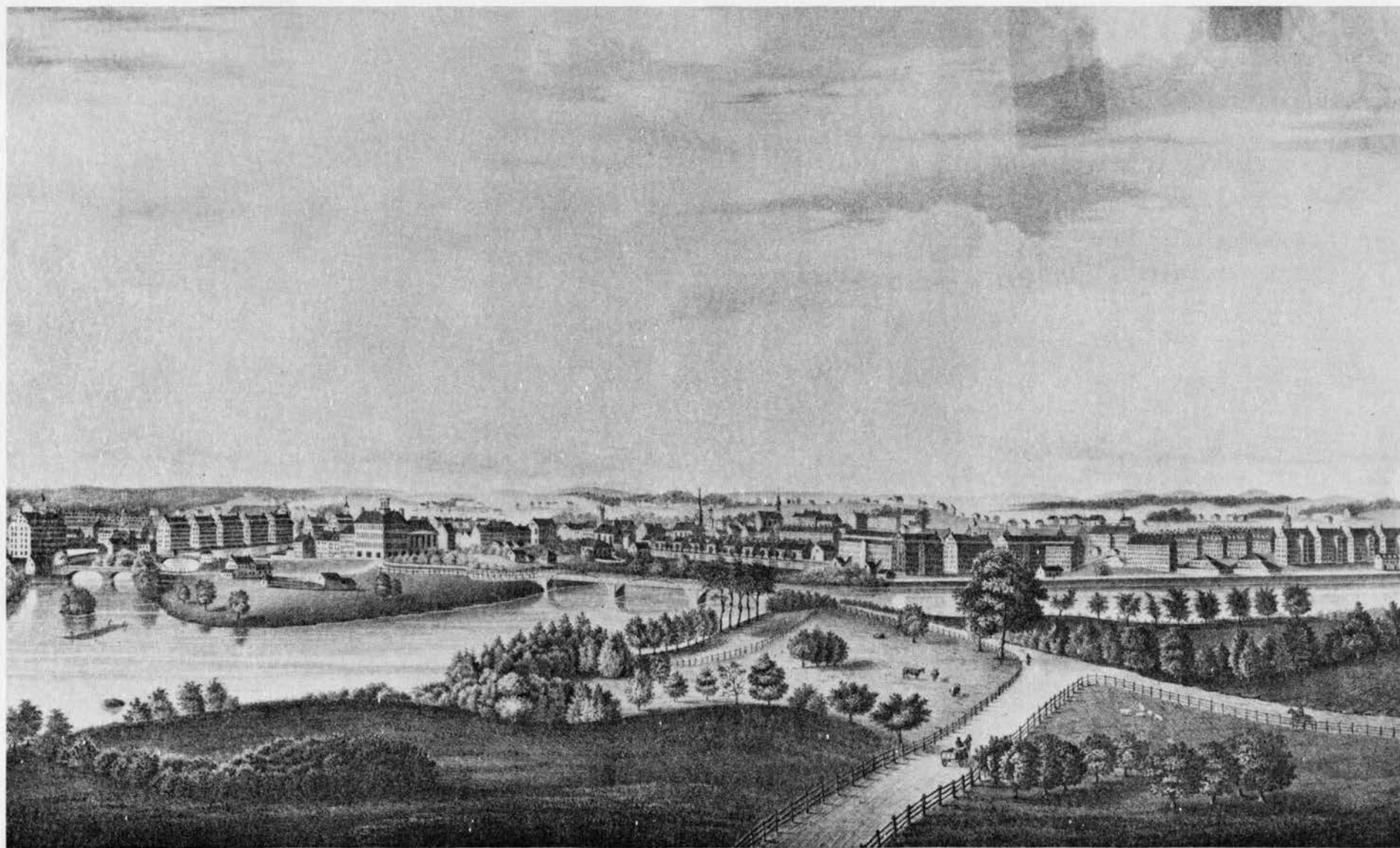
The Hamilton Company's housing adopted the overall siting introduced by the Merrimack Company and set the precedent more widely followed in terms of building type. That company built pairs of block-long brick rows set back-to-back across the Hamilton Canal from the millyard. As Mather's map shows, Appleton, Suffolk, and Tremont Mills generally followed this pattern. Lawrence and Boott Mills would later adopt

the same model, as would the Massachusetts Mills, although the pattern had to be altered somewhat to fit the latter's L-shaped millyard. Lowell Manufacturing had an irregularly-shaped millyard between the Merrimack and the Pawtucket Canals, and built rows on a less rigid configuration. The Machine Shop's work force was predominantly male, so the employee housing the Proprietors of Locks and Canals provided to those employees consisted of double tenement houses more suitable for families. They were placed along Dutton and Worthen Streets and around a court off Dutton, between the Merrimack and Western Canals. Most of the corporations placed the agent's house near the boarding houses symbolically between their operatives and other elements of the town.

The Middlesex Company apparently built no conventional boarding houses. The company did own considerable real estate in the neighborhood of its millyard, and perhaps lodged employees in buildings originally constructed for other purposes.

By 1832 two concentrations of shops, offices, and institutional buildings had formed in Lowell near the the corporation housing of the established mills. Merrimack Street around the Merrimack Canal could rightfully claim to be the town center. On the east side of the canal were St. Anne's Church, the new Town Hall, and several shops. On the west side were the town's leading hotel, the large, brick Merrimack House; the Bank block, said to be the town's first brick commercial building (1826); the Congregational Church; the Merrimack Company's school; and more shops. The Boston and Lowell Rail Road located its depot at the corner of Dutton and Merrimack (Figure 3-7), and after the line opened in 1835 the importance of this area of town was even more firmly established. Philander Anderson, a cartographer and engineer for the railroad, signed the design for the depot. Its three sides of Doric colonnades must have made it one of the most stylish Greek Revival buildings in town, until a train would pull directly through the "temple."

The other concentration of commercial buildings lined Central Street from Merrimack Street on the north to beyond the Gorham Street intersection on the south. Before 1820, there had been a tavern or two located near the Lower Locks of the Pawtucket Canal along the



VIEW OF LOWELL, MASS.

TAKEN FROM THE HOUSE OF ELISHA FULLER, ESQ. IN DRACUTT, BY E. A. FARRAR.

Figure 3-6 "View of Lowell, Mass. Taken from the House of Elisha Fuller, Esq: In Dracutt, by E. A. Farrar." Pendleton's Lithography, Boston, 1834.

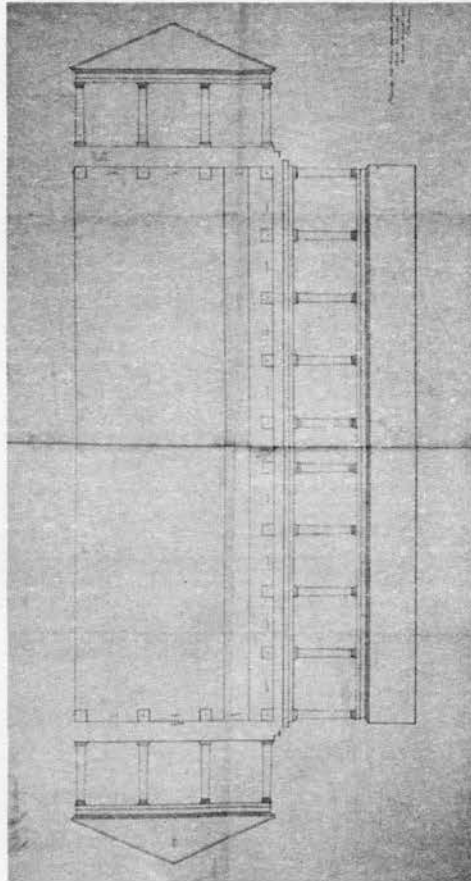


Figure 3-7 Plan and elevations for the Boston and Lowell Rail Road station, Lowell. Drawn by Philander Anderson, 1835.

road that became Central Street. By the early 1830s several hotels and substantial brick blocks graced Central Street, which was advantageously sited between the Middlesex millyard on the east and the Hamilton and Appleton Companies on the west.

Throughout the entire central area of Lowell, including both Merrimack and Central Streets, deeds to parcels bought from the Proprietors of Locks and Canals contained explicit restrictions specifying a set back for sidewalks and requiring that buildings over twelve feet tall be built of brick or stone and roofed with slate or other incombustible material. Two kinds of structures initially resulted from these restrictions--substantial brick blocks, usually three stories tall, which contained shops, offices, and living quarters; or modest, wood-frame shops, called "ten-footers" for their careful avoidance of the height restriction on wooden buildings.

The two types were not necessarily the products of different builders or different types of investors. In 1836 Tappan Wentworth, a prominent Lowell lawyer, hired Horace and Samuel Howard, a housewright and a mason, respectively, to build shops and houses on Merrimack near Kirk Street. The contracts describe a three-story brick building flanked by five or six small shops, to be built ten feet tall of "lath and plaster."

The Proprietors of Locks and Canals' ownership of most of the central area of town not only affected the form of buildings erected on lots the company sold, but also influenced broader patterns of the town's growth. The Proprietors retained large undeveloped parcels through the 1830s that were neither used for mill sites nor available for private residential or commercial construction. By the early 1830s many merchants, storekeepers, tailors, milliners, doctors, lawyers, teachers, and others had come to Lowell to serve the growing population of industrial workers. These townspeople mostly settled primarily outside the central area where most undeveloped land was still owned by the Proprietors of Locks and Canals.

Chapel Hill, the largest early non-corporate residential area, was on the southeast side of town, beyond the Central Street commercial area and the Hamilton

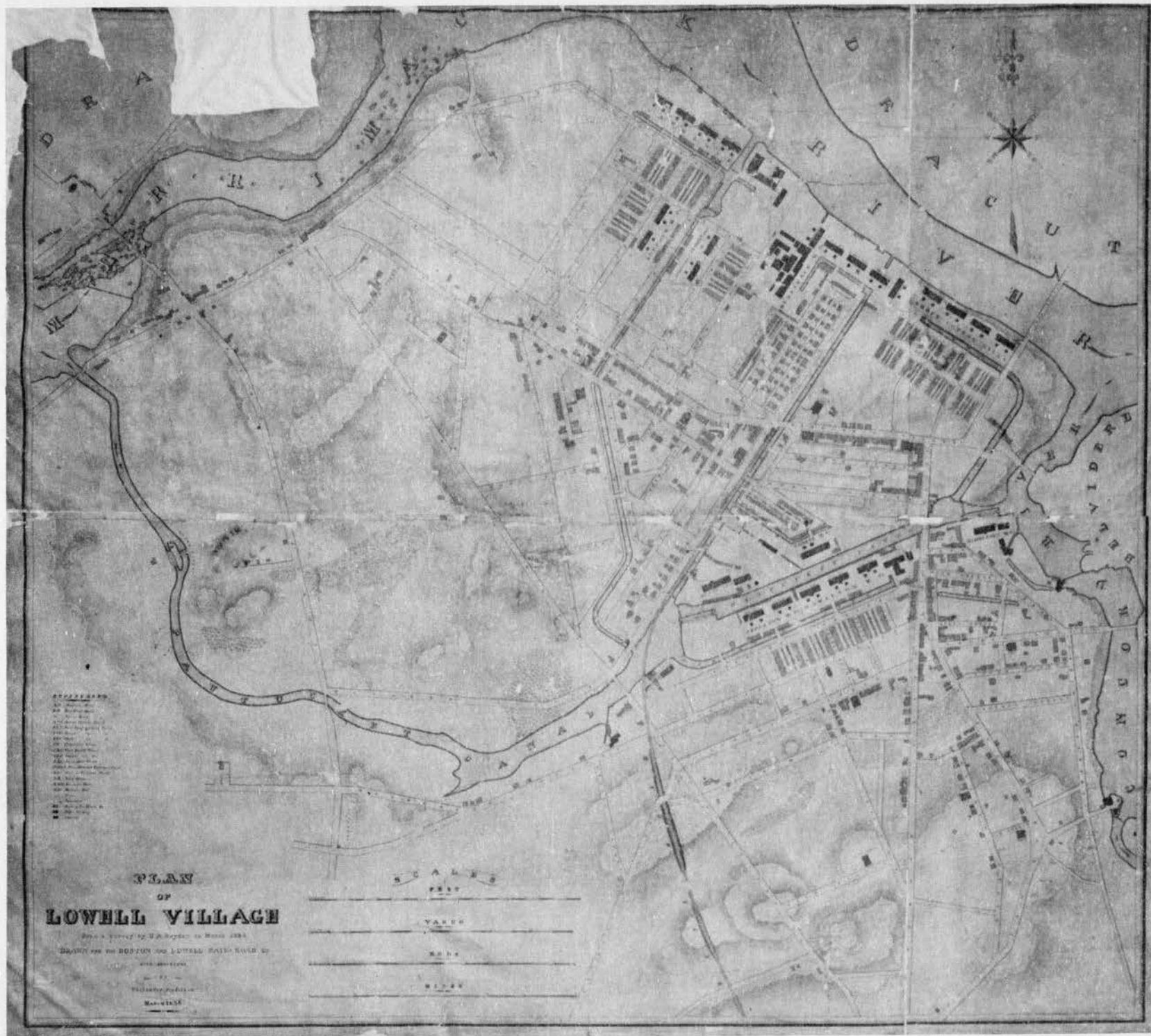
and Appleton millyards. The Universalist Church built in this area by 1832 gave the section its name. It was east of Chapel Hill on the Concord River that independent manufacturers such as Ames and Fisher and Whipple built their establishments, whose workers bolstered the residential growth at Chapel Hill.

Various other residential concentrations existed. Belvidere Village on the east side of the Concord River was part of Tewksbury until 1834, when it was annexed to Lowell. On the opposite side of town, the pre-1820 settlement at Falls Village saw added residential development, and a fine stone hotel was built on Pawtucket Street in 1824, called the Stone House (Figure 4-34).

Another important residential area was not well indicated on Mather's map nor on a more accurate and detailed map drawn in 1835 (Figure 3-8). Only a few houses are shown on the western side of the Western Canal, where it strikes off at a diagonal from the Swamp Locks basin. The Lowell directories of the early 1830s indicate, however, that most of the town's sizable Irish population lived in that area called the Acre. Contemporary accounts describe the housing as huts built on a tract which was kept off the market by a dispute over ownership. Apparently the huts and the social standing of their occupants were too humble to gain Mather's attention and recording. Saint Patrick's, the church of the Irish Catholic community, is indicated by Mather. This wooden church was built on land donated by Kirk Boott for the Proprietors of Locks and Canals and was dedicated in 1831.

Lowell's rapid growth in the 1820s accelerated in the 1830s. The Boott Cotton Mills were chartered in 1835 and like most of its predecessors, entered into a contract with the Proprietors of Locks and Canals to have four mills built and equipped. The Boott Mills were situated on the Merrimack River between the Merrimack Company and Bridge Street. Waterpower was supplied by the new Eastern Canal, which flowed north from the Pawtucket Canal just above the Lower Locks, paralleling the last stretch of the Concord River, then turning ninety degrees to parallel the Merrimack River. In that stretch the canal flows west while the river flows east. The Eastern Canal and the first of the Boott Mills were in operation by mid-1836.

Figure 3-8 "Plan of Lowell Village from a survey by U. A. Boyden in March 1834. Drawn for the Boston and Lowell Rail-Road Co. with additions by Philander Anderson March 1835."



The construction of Boott Mills and its accompanying boarding houses necessitated the removal of Kirk Boott's own house, which had stood alone on the large tract of land between Merrimack Street and the Merrimack River, west of Bridge Street. The house was moved to Falls Village near Pawtucket Street, and John Street was laid out north from Merrimack Street across the former houselot to the millyard. This new street and the new mill spurred the commercial development of the northern side of Merrimack Street, which had lagged behind the southern side, but most of the former grounds of Boott's house were not sold by the Proprietors of Locks and Canals until 1845.

In 1836 the town's population exceeded 17,500. A commission appointed by the town recommended that a city form of government be adopted. The Massachusetts General Court concurred and chartered Lowell as the third city in the state, following Boston and Salem.

The new city, in conjunction with the Middlesex County government, built a combined public market and courthouse on Lowell Street (renamed Market Street) which was opened in 1837. Behind the Market House was the town landing on the Pawtucket Canal where produce, lumber, bricks, and other supplies were unloaded from rafts and small boats that had made their way down the Merrimack River from New Hampshire, or that had travelled up from Boston via the Middlesex Canal.

Kirk Boott died suddenly in 1837 at age 47. As agent of the Merrimack Manufacturing and of the Proprietors of Locks and Canals he had been the most influential individual in the early planning of the town. His death came near the end of the initial period of Lowell's development, for it was in 1839 that Massachusetts Cotton Mills, the last of the large Lowell textile corporations to be initiated, received its charter. Massachusetts bought the mill site between the Boott millyard and the Concord Rivers. The Proprietors of Locks and Canals contracted to build four mills, and by 1840 the first was in production. That year the city's population had reached 21,000, a hundredfold increase in twenty years.

By the early 1840s, the mills were straining the capacity of the canal system, and the city's rapid and



uncontrolled growth was made all the more uneven by the Proprietors of Locks and Canals' retention of sizable undeveloped tracts in the heart of the city. These problems were confronted and to a degree solved in the ensuing decades, in a distinct, second phase of Lowell's development.

### Historical Resources

Considering the very substantial development in Lowell since 1840, it would not be surprising if the city retained very few structures dating from the 1820s and 1830s. The twenty buildings within the Park and the District constructed in the 1820s, and forty-four built in the 1830s that still stand constitute an historical resource of the highest importance to Lowell.

Growth of all the elements of Lowell in the 1820s and 1830s is striking, but it was the mill complexes of the major textile corporations that dominated the new city and were its reason for existence. Five major complexes were built in the 1820s--Merrimack, Hamilton, Lowell Manufacturing, Appleton, and the Machine Shop--but none of their structures of that first decade remain. The rebuilt Pawtucket Canal, the Merrimack Canal, and the Hamilton Canal are the most important extant elements of the industrial infrastructure of the 1820s. The Lowell Canal, dug in 1828 to power Lowell Manufacturing's mills, has been covered over since ca. 1910, but remains in operational condition beneath the pavement.

Some of the millyards built in the 1830s--Suffolk, Lawrence, Boott, and Massachusetts Mills--contain major buildings from their original construction campaigns. Two others of that decade have been razed--the Middlesex Company and the Tremont Mills. In the Suffolk millyard only the Counting House (562 Suffolk Street) and a boarding house (199 Cabot Street, Figure 4-10) still stand from the 1830s. Both are built of brick with granite trim, have pitched roofs and very little decorative trim. The oldest mills to survive in one of the major millyards in Lowell are Mills No. 3 and No. 4 of the Lawrence company. They date to the millyard's initial development in 1833-34. They have since been joined by a connector mill, and



Figure 3-9 Mill No. 2,  
Boott Cotton Mills.  
Built 1835, top floor  
added ca. 1880,  
photographed 1979.

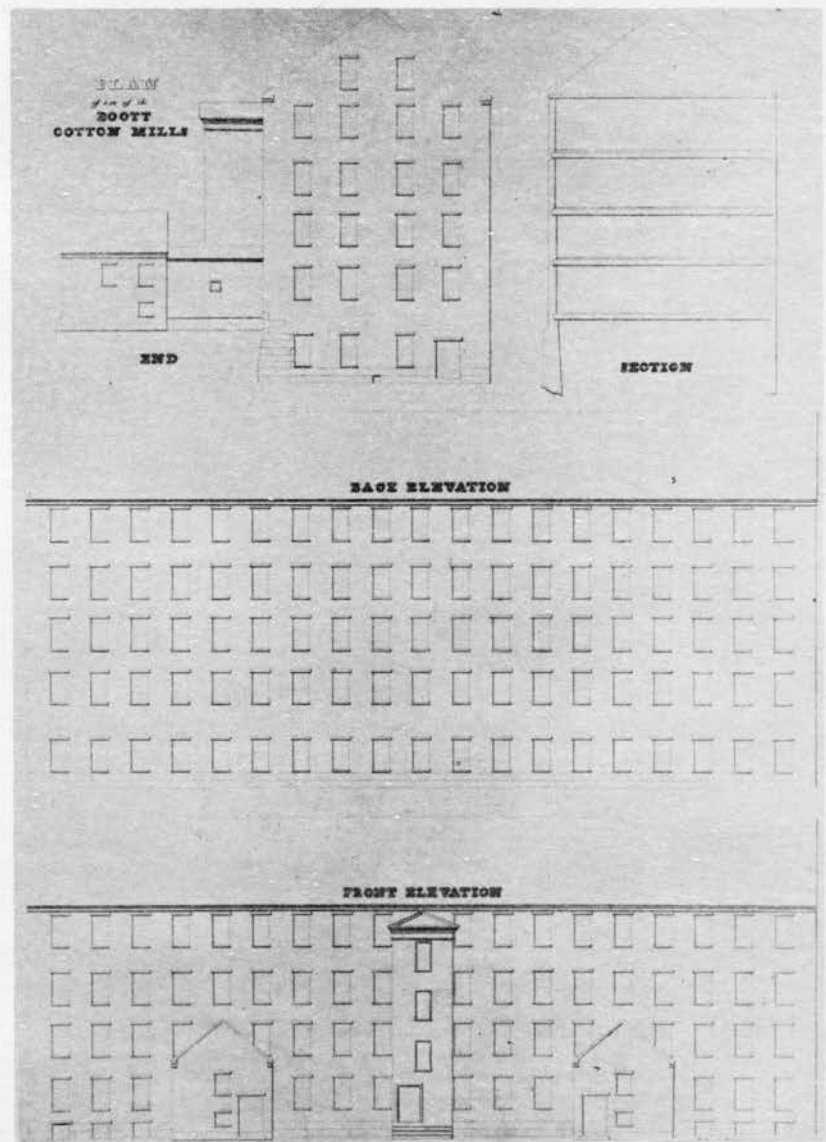


Figure 3-10 "Plan of  
one of the Boott Cotton  
Mills," 1835.

have had stories added. A portion of a cotton storehouse built ca. 1833 also survives in that millyard.

The Boott millyard retains the most complete group of initial buildings. All four original mills and the Counting House still survive. They are now joined by connector mills into two long structures, and increased one floor in height (Figure 3-9). These brick mills were originally four stories tall, 150 feet long, and 45 feet wide--typical dimensions for Lowell mills of the 1820s and 1830s (Figure 3-10). Their original end-wall gable roofs were lost when the flat-roofed upper floors were added, and central stair towers were removed after the connector mills with new stair towers were built. The four original mills in the Massachusetts millyard also survive, dating from 1839-41 (Figure 4-8). The Western Canal, its short spur, the Lawrence Canal, and the Eastern Canal all date from the 1830s as well.

The major component missing from all of the mill complexes is the corporation boarding houses and tenement rows. The pairs of boarding houses, set perpendicular to the millyards, were a crucial part of the architectural framework of Lowell's early industrial plan. Only fragments of these housing schemes survive.

The Suffolk Company retains the greatest number of relatively intact examples of corporation housing--namely two. The boarding house at 199 Cabot Street previously mentioned was fortuitously saved through conversion to industrial use when the neighboring rows were torn down. A Suffolk rowhouse at 113-131 Cabot Street was built ca. 1845-50, and is described later in this chapter. A former Massachusetts Mills boarding house is the most prominently sited of the surviving boarding houses. Built ca. 1839-40, the long brick row at 28-56 Bridge Street is commonly called the Bridge Street Boarding House. It has been converted to storefronts on the ground floor, but retains most of its paired, parapet-linked chimneys, and even some of its dormers. Adjacent on Bridge Street (#70-96) is the Surf Building, an apartment block with a commercial ground floor. At its core are two Boott boarding houses built ca. 1835, linked together and thoroughly remodeled ca. 1900. Traces of the two former boarding houses can only be seen on the back walls, but they do preserve, albeit somewhat faintly, the historic relationship of residential buildings to

the millyard. Another Boott boarding house used by H. & H. Paper Company stands west of the Surf Building, separated by a long parking lot that was the site of four more boarding houses. It too has been drastically altered, but like the Surf Building, demonstrates the original relationship of boarding house and millyard.

Four agent's or superintendent's houses of the 1821-1839 period are extant. The earliest is the wooden house at 243 Worthen Street, built about 1825 for Paul Moody, superintendent of the Machine Shop. At that time Worthen Street had not yet been laid out, and Moody's house faced Dutton Street across a large decorative, semi-circular pool. The Lawrence Company agent's house at 119-121 Hall Street is an imposing rubblestone mansion occupied by the Lowell Day Nursery. It was occupied by Lawrence or Tremont agents for nearly a century, from 1833 to 1926. The rectory of St. Jean the Baptist Church at the corner of Merrimack and Austin Streets (outside the LHPD) was built ca. 1835-40 by the Suffolk Company as its agent's house. More modest is the brick house behind St. Anne's Church, built ca. 1835 for the first agent of Boott Mills, Benjamin French. French may have had the house built with his own funds, for he continued to live there through the 1840s, after Linus Child had become Boott Mills' agent and Boott and Massachusetts Mills had built a double house for their agents on Kirk Street.

Important examples of alternative forms of company-owned housing have been found at two locations just outside the District. On either side of Wamesit Court off Dutton Street near Fletcher are three small, wood-frame cottages, one-and-a-half stories tall, linked into trios by lateral wings. Circumstantial evidence suggests that five of these cottages were built by the Lowell Manufacturing Company alongside the Lowell Canal in 1828-32 and were removed to their present site after 1850. If these cottages are former corporate housing, their idiosyncratic form in Lowell may relate to Lowell Manufacturing's recruitment of carpet workers from Medway in southern Massachusetts, where similar wooden cottages were built in the early nineteenth century as workers' housing.

Oliver Whipple's house stands at the corner of Moore and Whipple Streets near his powder works and canal (but beyond the District). It is a two-story, wood-frame Greek Revival house with a long ell at the rear, built in the 1820s. The rear ell is outlined on maps as early as 1832. There are entrances to several dwelling units along its length. It is probable that Whipple housed some of his workers there behind his own residence, in sharp contrast to the major Lowell corporations separation of different classes of workers into different types of housing.

While most of the buildings now standing along the main business streets of Merrimack and Central were constructed much later in the nineteenth century, Lowell retains excellent examples of commercial and institutional architecture from the 1821-1839 period. St. Anne's Church and rectory and the Old Town Hall are most prominent. The First Unitarian Church at 72 Merrimack Street built in 1832 as a freestanding structure, but now part of the continuous block of buildings, has bold Greek Revival cornice and pilasters.

The Bank Block of 1826 (350-376 Merrimack Street) exemplifies the basic form employed for commercial construction throughout Lowell's early years. The trabeated granite ground floor accommodating storefronts, the two brick upper floors, the end-wall gable roof, and the long rectangular plan were typical of many early structures long since replaced. The brick building at 509 Market Street, built in 1833-34 by bricklayer Joel Davis, is a similar structure, although it has been more altered on the ground floor and is more symmetrically composed on the upper floors. Its location and date of construction link it to the establishment of the Suffolk, Tremont, and Lawrence Mills nearby.

A highly idiosyncratic building in the same general area (582 Merrimack Street) was erected in 1832 for one Doctor John B. Barnes. It stands just west of the Western Canal. It was refaced with buff-colored brick in the 1920s, but its side and rear walls show the original load-bearing, rubblestone construction and four-story height that earned the building the nickname "Barnes' Folly." One of the contracts for its construction is recorded in the Registry of Deeds.

It states that the structure was built to accommodate shops below and residences above.

The Union Block at the Corner of Central and Middlesex Streets and the Nesmith Block at the corner of John and Merrimack Streets employ the same basic elements as the Bank Block, but add a curved-corner motif favored by Lowell builders for decades thereafter (Figure 4-17). Its use may have been inspired at least in part by the city's irregular street plan, which results in numerous acute and obtuse-angled corners. The Union Block was built before 1832. Originally about twice the length that survives today, it shows a rather tentative use of the motif, responding to an oblique-angled intersection with a simple, rounded, right-angled plan. The Nesmith Block, built soon after 1835, adopts its acute-angled intersection precisely, and displays equivalent facades to both of the streets it faces (Figure 4-14).

The Central Street area retains more buildings of the 1821-39 period than Merrimack Street due to more intensive redevelopment of the latter. At least a dozen buildings of that period stand on or near Central Street within the District. The Old Market House (40 Market Street) is the most prominent among the dozen. It is similar in its simple Greek Revival styling to the original form of the Old Town Hall, and has received considerably less alteration. The Mansur Block at 101 Central Street bears the name of an early Lowell grocer and real estate developer (Figure 3-12). When built in ca. 1836, the building was twice its present length, extending to the corner of Market Street.

136 Central Street is a fragment of the American Hotel building, which was built and has been demolished in several stages. The portion now standing on Central Street owes its appearance to remodelings of ca. 1860-70, but an inn and tavern occupied the site much earlier, and may survive in fragmentary form in a small brick building dating from the 1830s which is attached to the rear of the main block.

Two other early hotels which retain more of their original appearances are located in the Tower's Corner area where Central and Gorham Streets meet. J. J. Turner's Hotel at 278 Central Street is a brick



Figure 3-11 The Coburn Row, 100-126 Appleton Street, built ca. 1832-34, photographed 1979.



Figure 3-12 The Mansur Block, 101 Central Street, built ca. 1836, photographed 1979.

structure, built ca. 1825. Mrs. Betsey Hildreth operated a private boarding house in the building in the 1820s. Later it was a hotel called the Union House, and still later, the Farragut Hotel. The porch and mansard roof are additions, but the outline of the double, parapet-linked end-wall chimneys are visible beneath modern aluminum siding.

The Lowell Hotel stands nearby on Gorham Street (#80) in part of a trio of early Lowell buildings that is unmatched anywhere in the Park and the District (Figure 4-19). The three-story hotel was constructed of brick ca. 1831, with trabeated granite storefronts. One of its early owners was Horace Howard, the housewright who helped build the store and "ten-footers" for Tappan Wentworth on Merrimack Street. Howard was occasionally listed in the city directories as a designer or architect, and he is known to have drawn the plans for the city-county Market House. He was also an early owner-occupant of the middle house in the Gorham Street trio (#72-76), which was built ca. 1832. This two-story double house is highly unusual for its early construction of ashlar granite. 62 Gorham Street is a two-story brick structure, built ca. 1830. Originally a house for a tailor (who had a shop elsewhere), it had storefronts by 1850, and perhaps earlier. All three buildings in this group have incurred some alterations, particularly to the ground floors, but they retain their original forms, and even more significantly, their original relationship to one another.

The Gorham Street trio originally marked the approximate boundary between the predominantly commercial district of upper Central Street, and the residential area south of it. Numerous Greek Revival houses from Lowell's early decades still stand south of the LHPD in the neighborhood historically called Chapel Hill and now known as Back Central Street.

There is an important early residence near this area and within the LHPD. The rowhouse at 100-126 Appleton Street was built ca. 1832-34 by Cyril Coburn (Figure 3-11). The facade is of brick with granite trim, while the sides and rear are of local rubblestone, a combination occasionally seen elsewhere in Lowell. The original eight dwelling units of the row were owned by individuals until the mid-1840s, when



the Hamilton Company bought up the row to house skilled workers and their families, demonstrating the compatibility of Lowell's private and corporation-built housing.

The narrow southward extension of the District along the Concord River includes some historical resources dating from the 1821-1839 period. Luther Lawrence built a brick-ended house in the early 1830s on Lawrence Street (#48). He was a brother of Amos and Abbott Lawrence, the textile merchants and financiers. Luther served as the second mayor of the new city of Lowell, before dying from a fall into a Middlesex Company wheelpit in 1839. Tappan Wentworth, a prominent lawyer and developer, later bought and remodeled the house, and his heirs occupied it into the twentieth century.

There are a few other houses of the 1821-1839 period further south on Lawrence Street related to the industrial development along the Concord River. The house at 202 Lawrence Street was built ca. 1840 near Richmond's paper and batting mills. It is a one-and-one-half story cottage with then stylish Greek Revival features such as a front-facing gable roof and a recessed entryway flanked by engaged Doric columns. The house at 8 Clarks Court, between Lawrence Street and the Concord River, is more old-fashioned with its end-wall gable roof and centered entry. It was built ca. 1834-37 by William Stickney, a carpenter who worked nearby at Whipple's Powder Mills. The other far-flung reach of the district that contains resources from the 1821-39 period is the northwest portion, on both banks of the Merrimack River along the Pawtucket Falls. The Old Stone House (267 Pawtucket Street) is the most imposing (Figure 4-34). The large rubblestone structure was built in 1824 as a hotel. Much more modest is the Federal-style house at 279 Pawtucket Street, a wood-frame structure built in 1827 for Jones Dow, a tailor. Across the river on Riverside Street, three brick houses of the 1820s or 1830s mark the small settlement that continued to develop on the Dracut side of the Pawtucket Bridge.

Among certain types of structures important in the initial development of Lowell, such as boarding houses, archeological resources may be of more

consequence than the few buildings that still stand. The Merrimack, Middlesex, and Tremont millyards and the Machine Shop yard, all major components of the Lowell Experiment, have been demolished. The potential these sites have for containing important below-ground archeological remains of the 1821-1839 period varies considerably. The Merrimack Company's mills were the first to be built, and were the most recently demolished. Only a portion of the millyard is within the District, however, and most of the included area has recently been redeveloped. The new Lowell High School Annex, under construction in 1979, occupies most of the Merrimack Company housing sites contained in the District. An office of the Union National Bank and three tall apartment towers have been built in recent years on the former millyard. Their parking lots may cover subsurface millyard remains, but this possibility cannot be confirmed without below-ground testing.

The Middlesex millyard, between Warren Street and the Concord River, actually predates Merrimack as an industrial site. A cotton-spinning mill was established there in 1813 and a wool-weaving mill before 1821. Several structures from the Middlesex Company's development of the millyard in the early 1830s survived until the millyard was razed in 1956. The parking lot pavement now covering the site is ridged and pitted, indicating uneven settling of fill over subsurface features of the old yard. Above-ground the retaining walls on the Warren Street side of the yard include parts of building foundations. On the other side of the millyard a heavy stone arch projects out of the ground near the Lower Locks of the Pawtucket Canal. The arch is related to Middlesex's raceway off the Pawtucket Canal. These features are indications of the survival of considerable below-ground remains on the Middlesex site. These remains probably relate not only to the 1821-1839 period, but to the whole history of development on that site, since the millyard underwent gradual, evolutionary change from the 1810s until demolition in 1956.

The Tremont millyard is even more promising than the Middlesex. The millyard has not been redeveloped since the demolition of most of its structures in the 1930s. Many foundations and cropped walls are visible throughout the yard. A one-story ruin of mill

and wheel house stands at the southern end of the millyard, containing four 1919-24 electric generating turbines in place. Like Middlesex, the Tremont millyard has remains from several periods of mill construction.

The Machine shop site appears to offer little in the way of accessible, below-ground remains of its early structures. The yard underwent intensive redevelopment throughout its productive years, sacrificing the majority of its earliest fabric to expansion until the yard was razed in the early 1930s. Much of the yard has been redeveloped, and the parking lots on the remainder do not reveal uneven settling suggestive of below-ground foundations.

Other millyards have undergone more selective demolition. Among them, the Hamilton millyard may contain below-ground remains of some interest. A print works was constructed on the eastern end of the millyard in 1830, and its structures were demolished in 1935 and 1936. Photographs taken during demolition show substantial footings and foundations still in place when the filling of the site began, which must still exist today.

The importance of company-owned boarding houses to the comprehensive planning of Lowell and the paucity of surviving examples enhances the significance of any archeological remains of these structures. There are numerous boarding house sites that have not been redeveloped. Robert Schuyler's excavation in 1977 of Merrimack Company boarding houses, now the site of the new High School annex, adds to knowledge of the daily lives of Lowell mill operatives. Four Boott Mills boarding houses were demolished in the 1930s and their sites are used as paved parking lots. The site of the parking lot east of Elliot Street and south of Jackson contained Hamilton Company boarding houses until ca. 1930, and has not been redeveloped. Lawrence Company boarding houses stood on the block bounded by Hall, Perkins, Suffolk, and Cabot Streets, and most of that area is now paved and used for parking.

Elsewhere in the District, some secondary industrial sites potentially contain significant 1821-39 remains, though redevelopment affected many of these sites. The Belvidere Woolen Company millyard opposite the

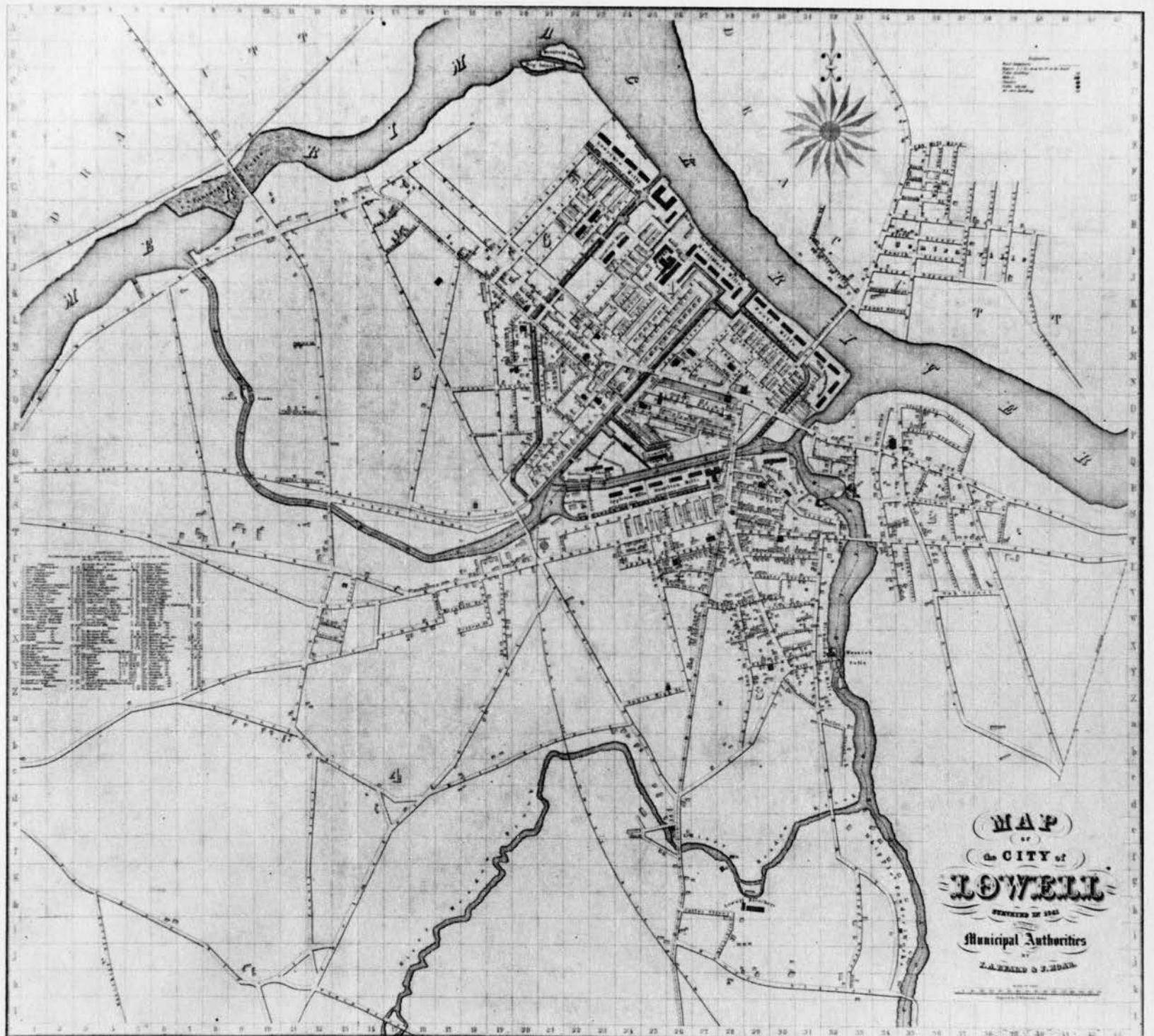
Middlesex Company site across the Concord River was largely razed in the 1930s, except for one last Company storehouse at the foot of Chestnut Street, which was recently removed. Many of Belvidere's buildings still standing in the early twentieth century dated from the 1850s, but the industrial use of the site and some of its structures dated to development in the 1820s and 1830s. A parking lot now covers the site, and it is uncertain how extensive below-ground features might be.

The site of Richmond's paper and batting mill, established in 1836, has been cleared of buildings except for a ca. 1850 storehouse and a ca. 1870 mill. On the rest of the site, the grade has been changed through the addition of fill, beneath which there could be remains of the earlier millyard.

Whipple's Powder Mills were active throughout the 1821-1839 period. The area was extensively redeveloped in the later nineteenth century, leaving a single rubblestone building of the old powder works, and probably little potential for the survival of other 1821-39 material, even below the ground.

The unfolding of the "Lowell Experiment" from 1821 to 1839 was and is still viewed as a period of astonishingly rapid growth and achievement. The streets and canals built in that period determined the urban form framework of central Lowell. While most of the early buildings are gone, several mills, a few agent's and boarding houses, and many commercial and institutional buildings are still in use within the Park and District. Over the next twenty-five years, the city grew substantially within the industrial city plan already established.

Figure 3-13 "Map of the City of Lowell" in 1841, by Beard and Hoar.



THE EXPERIMENT EXPANDS: 1840-1865

History

The severe economic depression that struck the United States in 1839 checked but did not halt the rapid growth of Lowell and the Lowell textile corporations. The population of nearly 21,000 in 1840 exceeded 33,000 in 1850 and neared 37,000 in 1860. The slowed growth in the 1850s reflected the national economic troubles of the mid-'50s. The spindles turning in the city more than doubled between 1843 and 1868, from about 200,000 to over 450,000.

Massachusetts Cotton Mills, chartered in 1839, proceeded with the construction of its mills despite the 1839 depression, pressing the first one into production by 1840. The depression years were even profitable at Lowell Manufacturing Company, where an ingenious employee named Erastus Bigelow succeeded in developing the first power loom for carpets between 1839 and 1842. Of broader importance to the future development of the city were the studies of the power canal system commissioned by the directors of the Proprietors of Locks and Canals. In 1839 James F. Baldwin carried out an assessment of the system, and in 1840 James B. Francis, the British-born chief engineer of the Proprietors of Locks and Canals, repeated the study and concurred with Baldwin's conclusions. As Locks and Canals had hoped, Baldwin and Francis proved that the various corporations were drawing considerably more water than allocated under the terms of their mill power contracts. On the basis of this evidence, the Proprietors of Locks and Canals renegotiated the agreements with the corporations, increasing the number of mill powers for which rents were paid from about sixty-five to nearly ninety.

Both Baldwin and Francis reported that the system was operating at its maximum capacity. They found that the canals were carrying so much water that it created turbulence which depleted available power. In the dry months, several of the companies, especially Lawrence, Suffolk and Tremont Mills on the Western Canal, were not receiving the water they needed. The engineers' major recommendation was that another canal be built to supplement the Pawtucket Canal and that water rights upriver be bought. The new canal's course would run parallel to the Pawtucket Falls before turning inland. It would be a costly project,

and it was not until the mid-1840s that the decision was made to dig the canal.

The final sale of a mill site on the Lowell canal system was made before the Northern Canal was begun. In 1844, the Prescott Manufacturing Company was chartered and it purchased a lot between the Eastern Canal and the Concord River south of the Massachusetts millyard (Figure 3-13). From the start, the investors in the Prescott Company overlapped with shareholders of the Massachusetts Mills, and in 1847 Massachusetts bought out Prescott.

In 1844 Uriah Boyden, James Francis' assistant at Locks and Canals, installed and tested an experimental turbine in an Appleton Company mill. Francis witnessed the tests, and was convinced of the superiority of the turbine over the breast wheels used by all of the Lowell mills. Turbines produce more useable power with a given amount of water than breast wheels, and occupy far less space. Turbines are also less subject to variable water conditions than wheels. Francis' endorsement caused most, if not all, new mills built in Lowell after that time to be powered with turbines and the gradual conversion of existing mills. Boott Mills, for example, installed turbines in the massive mill it built in 1847-49, and by 1859 had replaced all the breast wheels in its earlier mills (Figure 3-14).

It was the corporations' eagerness to expand that spurred both the plans for the new canal and the concern with making the most efficient use of the available water power. In 1845 the Lawrence Company began construction on a new mill over 250 feet long, the Merrimack Company was building a mammoth new mill, and the Hamilton Company started work on a mill over 300 feet long. The standard length of the Lowell mills of the 1820s and 1830s was 150 feet. In the Suffolk, Tremont, Hamilton, and Appleton millyards, mills were constructed which linked pairs of existing structures, an action made feasible in part by advances in fireproofing technology. The connector mills were generally more richly detailed than the mills they linked, and were designed to appear as central pavilions of long, freestanding mills.

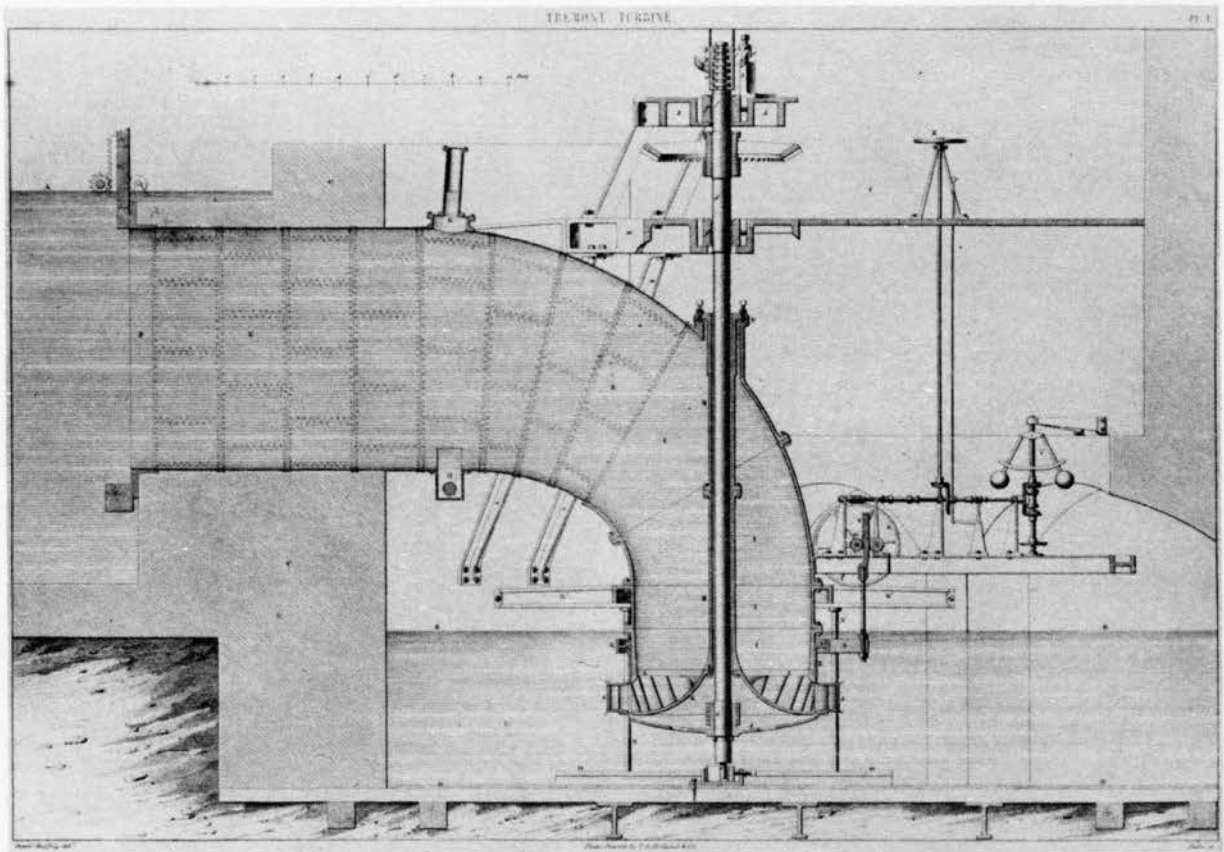


Figure 3-14 "Tremont Turbine." Plate I in James B. Francis' Lowell Hydraulic Experiments, 1855.



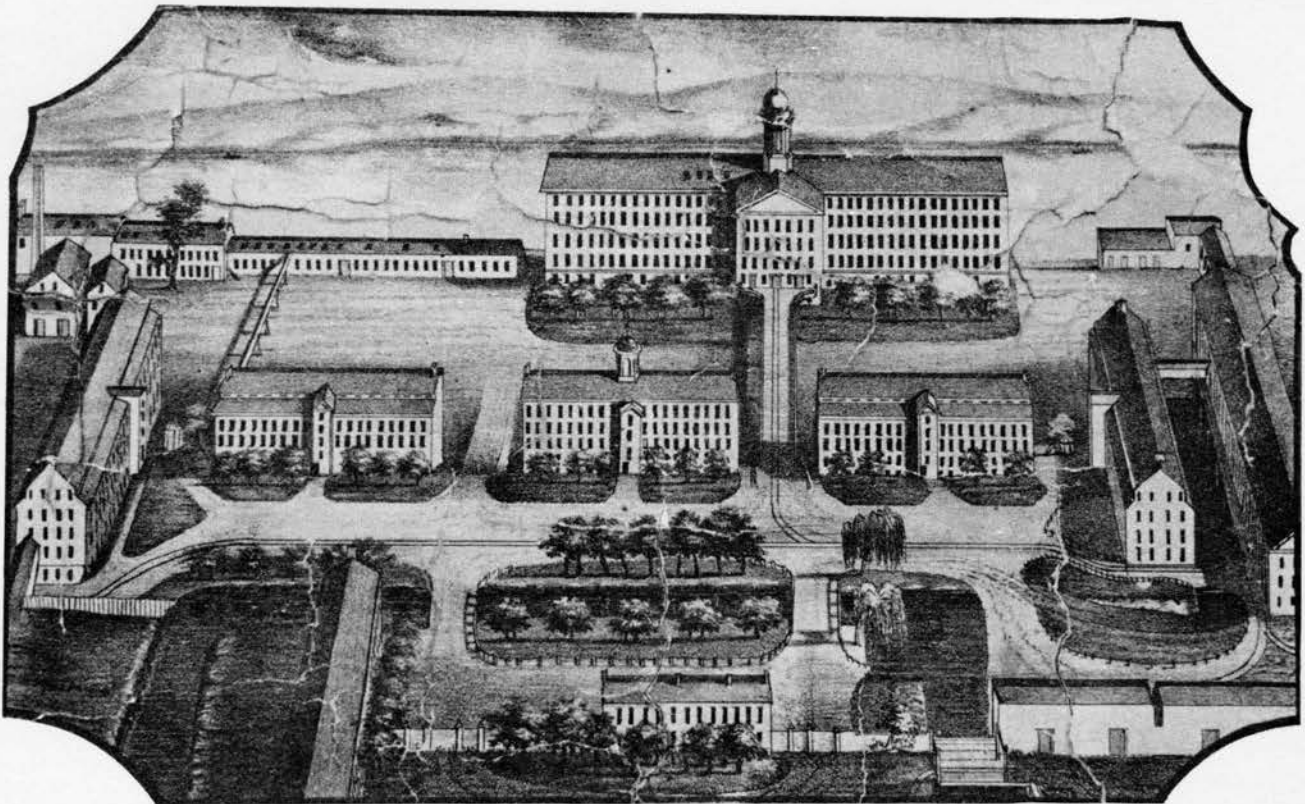


Figure 3-15 Millyard of Merrimack Manufacturing Company, 1850. From "Plan of the City of Lowell" by Sidney and Neff.

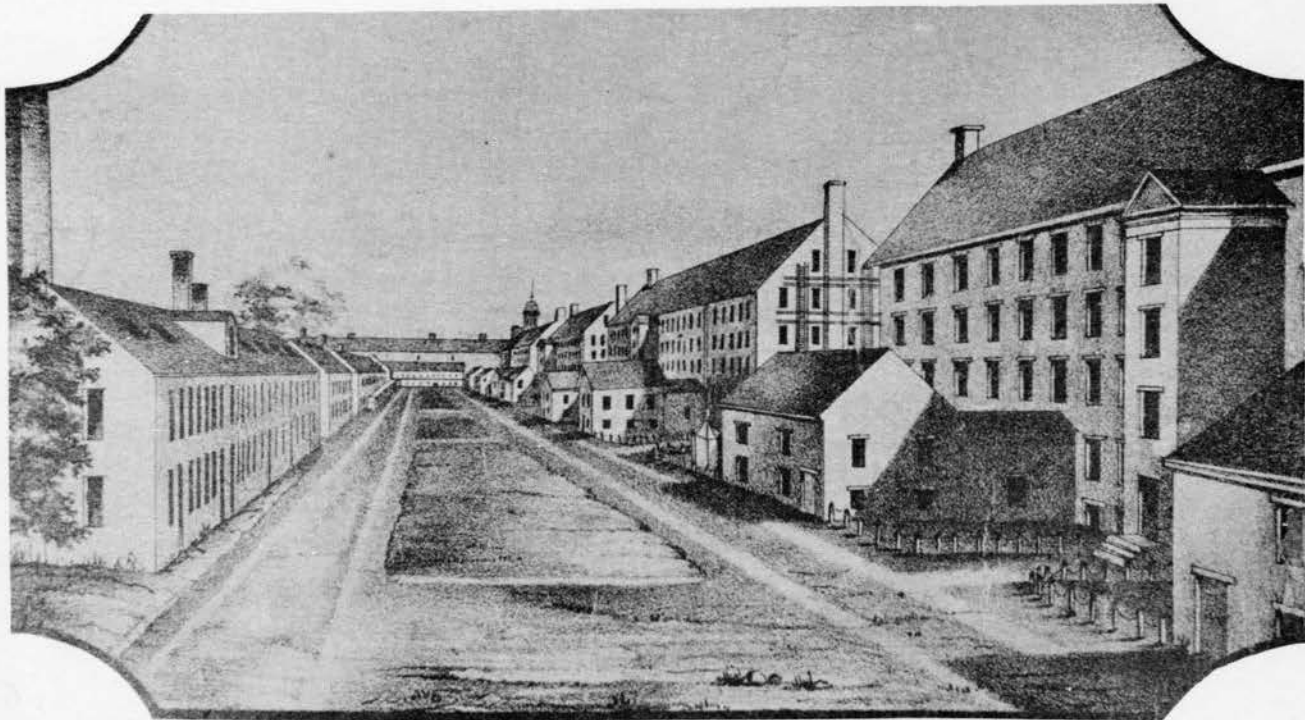


Figure 3-16 Boott Mills, 1850. From "Plan of the City of Lowell" by Sidney and Neff.

In 1845, the Proprietors of Locks and Canals initiated the Northern Canal construction. They capitalized the project by selling at auction the many undeveloped parcels of land they still owned throughout central Lowell, and also sold the Machine Shop to a new corporation, chartered as the Lowell Machine Shop. Nearly \$500,000 were raised by these sales, approximately the amount spent to build the Northern Canal.

Agents for the Proprietors of Locks and Canals acquired lands and water rights in New Hampshire in 1845. The purpose of these acquisitions, and of the various dam building and channel development projects that followed, was to augment the flow of the Merrimack River in the dry summer months by using New Hampshire lakes as reservoirs.

After the Proprietors of Locks and Canals sold the Machine Shop and the undeveloped real estate, the corporation itself was purchased from its former shareholders by the textile companies for \$600,000. It was reorganized into a service corporation whose sole function was to maintain and operate the canal system for the various companies. The Proprietors of Locks and Canals on Merrimack River's time as "The Shop that Built a City" was over. In this modified form, it began the construction of the Northern Canal in 1846, under the direction of J. B. Francis. Within two years, a channel 4,374 feet long, 100 feet wide, and 20 feet deep was built (Figure 3-17). Much of the canal had to be cut through bedrock, while the portion along the Pawtucket Falls was carried behind a high wall footed on ledge that was submerged beneath the river when the project began.

The building of the Northern Canal was the most dramatic engineering feat in the industrialization of Lowell. The course of the canal parallels the Merrimack River along the Falls, then turns inland just above the river's bend and runs southeast to meet the Western Canal. The Northern Canal supplied water power to the Suffolk, Tremont and Lawrence millyards, all formerly served by the Western Canal. The Northern Canal's waters reversed the direction of the flow of the western Canal at their junction, turning the older canal into a feeder back to the Swamp Locks basin. Under Moody Street a tunnel was constructed in 1847 connecting the Western to the Merrimack Canal, supplying additional water from the Northern

to the Merrimack Company's millyard. A smaller underground tunnel was built in 1848-49 connecting the Merrimack and Eastern Canals, to increase the water at the end of the latter canal where maintaining adequate water levels had previously been difficult.

Francis carefully evaluated the flow of water through the revamped system and on the basis of his findings the Locks and Canals Company was able to increase the number of mill powers sold to the corporations (for which an annual maintenance fee was received) from ninety-seven to one hundred thirty-six. Additional water was available for a set fee during the months when the Merrimack River ran high.

In the course of his study of the reworked canal system, Francis discovered what he felt was a considerable threat to the city. The construction of the new Northern Canal and its gatehouse, and a simultaneous widening of the abutments of the Pawtucket Bridge partially obstructed the flow of the Merrimack River over the Pawtucket Falls. Francis determined that in the event of flooding, these new obstructions would divert a destructive torrent down the Pawtucket Canal and into the center of the city. Between 1848 and 1850 he directed a complete rebuilding of the upper Guard Locks including a massive wooden guard gate that could be dropped against a flood. His calculations were questioned and the guard gate was derided as "Francis' Folly" until 1852, when the gate held back flood waters that exceeded any in living memory.

The increased water power gained by the construction of the Northern Canal was eagerly put to use by the mills. The Prescott Company built a weaving mill and a spinning mill in 1846, each over two hundred feet long. The Middlesex Company built a new mill in 1846 enabling it to double its production by 1849. Boott Mills began construction of No. 5 Mill in 1847 which stretched five hundred feet along the riverbank. No. 5 Mill was powered by turbines from the time of its completion in 1849, increasing the millyard's capacity by sixty percent. A new weaving mill and other buildings were erected by Lowell Manufacturing in 1848, to utilize the new Bigelow power loom for carpets.



Figure 3-17 Aerial view of the Northern Canal, 1979.

Massachusetts Mills built a "Union Mill" in 1851 that linked two of its four original mills, and the Lawrence Company built a pair of connecting mills in 1854 and 1855. These connecting mills were all decidedly Greek Revival in style, each crowned by a gable roof treated as a broad pediment. Massachusetts Mills broke new stylistic ground in 1862 when its second connecting mill was built in the Italianate style, with segmental hoods over the windows and octagonal stair towers (Figure 4-8).

Corporation housing reflected the dramatic increase in scale as well. In the mid-1840s, the Merrimack Company replaced six of its wood-frame, two-and-one-half story double houses with one massive brick "New Block" three-and-one-half stories in height (Figure 3-39).

Reflecting the growth of the textile mills, the newly-independent Lowell Machine Shop underwent a major expansion in the late 1840s. Among its new products were steam boilers, which supplemented and eventually supplanted water power as Lowell's main source of motive power.

The major corporations and the canal system were not the only aspects of the city which grew substantially in the 1840-1865 period. In 1846, the same year "Whipple's Best Powder" was blasting out bedrock along the course of the Northern Canal, Oliver Whipple was rebuilding and lengthening his own canal on the Concord River. In its new form the canal generated about 500 horsepower. Rather than undertaking a major expansion of his own powder works, Whipple opted to rent mills along his canal to a variety of manufacturing enterprises and to sell water power to his tenants. A bolt factory, a print shop, carpet manufacturers, bobbin makers, dye houses, and others quickly established themselves in "Whipple's Mills." Whipple sold his powder works in 1855 to a bolt factory, but the thriving industrial community along the canal continued even after his active involvement ceased.

A new mill was built in 1854 by Belvidere Woolen Manufacturing Company on the east side of the river opposite the Middlesex millyard. Belvidere Woolen was incorporated only a year before, but its millyard had been the site of small mills since the 1810s. The new three-story brick mill measured only fifty-one feet by ninety feet.

The city's pattern of rapid population growth continued through the 1840s. The 1840 population of 21,000 swelled to 33,000 by 1850, exerting great pressure on Lowell's housing supply. When the Locks and Canals Company auctioned its real estate in 1845, the lots were snatched up immediately and almost as quickly built upon, mostly with houses for the burgeoning population. The area between Merrimack Street and the Boott Mills boarding houses, nearly vacant in 1841 (Figure 3-13), was solidly built by 1850 with churches, schools and houses, most of brick or stone. The city bought two sizable parcels northwest and south of the city center, designating them the North Common and South Common respectively. Housing rapidly surrounded them, along with a forbidding new jail and a courthouse building at the South Common.

A health report written by a Lowell doctor named Josiah Curtis in 1849 describes seriously overcrowded living conditions in the central area of Lowell. Curtis makes mention of both the Acre neighborhood and the Middle Street area as especially congested and unhealthy. Lowell's foreign-born inhabitants, a group constituting roughly one-third of the population by the mid-1860s, suffered from particularly poor living conditions.

Most of Lowell's early immigrants were Irish who continued to reside in the Acre around St. Patrick's Church. Much of that area had been unavailable for purchase before the 1840s, forcing the Irish to squat there in crude shelters. The Locks and Canals Company land sale of 1845 and a resolution of a decades-old dispute over land ownership finally put the Acre's house lots on the market. More substantial housing was quickly built, though overcrowding apparently remained a problem. The Irish community's increasing numbers as much as increasing wealth per capita may explain its ability to replace the wooden St. Patrick's Church of 1831 with a massive stone church begun in 1854.

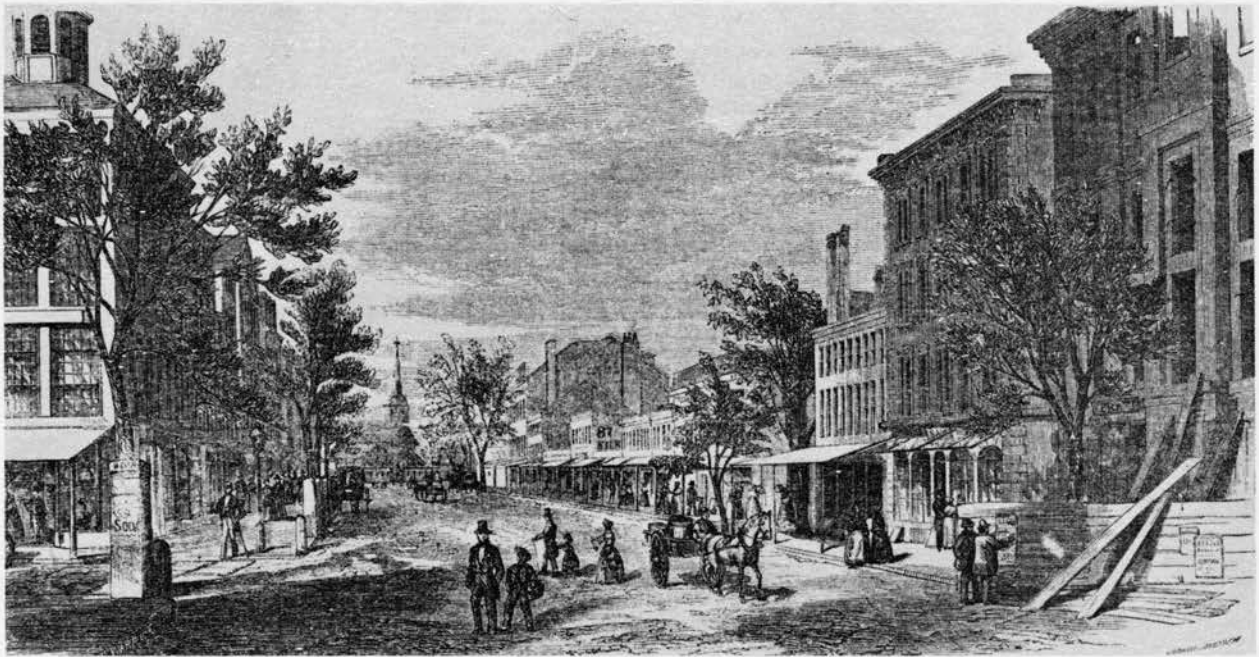


Figure 3-18 "View of Merrimack Street, Lowell, Mass." in 1856.



Figure 3-19 View from the east along Merrimack Street, 1979.

The city's commercial districts along Merrimack and Central Streets followed the general trend toward larger buildings (Figures 3-18 and 3-19). Both of those streets were considerably built up before 1840, but after that date the redevelopment of lots began. In 1846, Boston investors built a new commercial block on the corner of Kirk and Merrimack Streets, replacing a brick structure previously on the site. The curved-corner Welles Block (175 Merrimack Street) resembles the commercial buildings of the 1830s in materials and general form, but differs from them in scale. The three stories of the Welles Block stand considerably taller, for instance, than the three-story Nesmith Block, built ca. 1836.

The Nesmith Building constructed ca. 1844 on John Street next to the corner Nesmith Block represented a bolder departure in both scale and style (Figure 4-14). Its taller three stories tower over the three of the corner block, and the building is Italianate in style rather than the familiar Federal/Greek Revival style. Perhaps for the first time on a Lowell commercial building, Italianate corner quoins, bracketed cornice, round-headed windows, and segmental-arched storefronts replaced the severe detailing, flat stone lintels, and trabeated granite ground floors of Lowell's earlier commercial buildings.

This shift in scale and in style is clearly illustrated by the first two "manufacturing laboratories" James C. Ayer built to house his prospering patent medicine business. The first, built in 1852 on Jackson Street (#28), was a brick structure of three stories, with an end-wall gable roof and flat granite lintels and sills above a trabeated granite ground floor. Ayer's business was growing so fast that by 1858-59 he built a new headquarters on Market Street across from the millyard of Lowell Manufacturing (#165, Figure 3-22). That building stands in marked contrast to the Jackson Street structure in scale, with its greater length and four-story height, and in style, with its Italianate cornice and flat roof, cast-iron storefronts, and segmental-arched windows with decorated brickwork caps. Those caps in particular were a hallmark of Lowell buildings, particularly industrial buildings, for decades.



Lowell annexed Centralville in 1851, prompting public purchase of the Central Bridge in the mid-1850s. The former Dracut neighborhood continued to be predominantly residential.

The city government was growing as well, and in 1853 a joint effort of the city government and the Boston and Lowell Railroad replaced the outgrown, original train depot at Dutton and Merrimack Streets with a much larger station. It was commonly called Huntington Hall, after one of the two public meeting halls it housed along with space for city government offices and the train station. It spanned the block between Dutton and Shattuck Streets, at Merrimack Street.

The city's and the corporations' growth slowed in the mid-1850s, when the Depression of 1857 disrupted the economic life of the whole country. In the decade between 1845 and 1855, the number of spindles operating in the Lowell mills had doubled from 200,000 to 400,00. In the next ten years, a relatively modest 50,000 spindles were added in the city. The effects of the mid-fifties downturn were also reflected in the 1860 census, which counted 36,000 Lowell residents. That number represented an increase of ten percent over 1850, compared to population growth of nearly fifty percent during the 1840s.

Lowell's population actually dropped between 1860 and 1865, falling to 31,000. The drafting or enlistment of young men into the army was one cause. Two Lowell soldiers, Luther C. Ladd and Addison O. Whitney, were the first casualties of the Civil War when they were killed in Baltimore in April, 1861. Another cause of Lowell's decline in population was that most of the Lowell textile corporations severely curtailed production or shut down entirely during the Civil War, once they ran out of their basic raw material, cotton from the American South. Ten thousand operatives were reportedly dismissed. Some of the corporations attempted at considerable expense to convert from cotton to woolen production, but these attempts were generally costly failures, at least in the short run.



Figure 3-20 View from the southeast  
in the Boott millyard, ca. 1870.

Several of the corporations used the war years to carry out major rebuilding campaigns in their mill-yards, demonstrating the corporations' pre-war profitability and their confidence in post-war recovery. As mentioned, Massachusetts Mills built a second connecting mill in 1862. Boott Mills closed down three times for rebuilding and improvements between 1861 and 1863. New construction in that millyard included connecting mills with new stair towers between both of its pairs of original mills, and a large new Cotton House (Figure 3-20). Upper floors were also added to a number of Boott buildings, including No. 5 Mill. Appleton added a fourth mill to its millyard in 1861. Both Suffolk and Tremont Mills took down their original mills in 1862, and rebuilt long new mills in their places.

Woolen mills flourished during the Civil War because of the continued availability of wool and the wartime need for woolen products such as blankets and cloth for uniforms. The Middlesex Company, the only major Lowell corporation originally to specialize in woolen goods, had collapsed financially in 1858 due to mismanagement and the Depression of 1857. Reorganized and recapitalized, largely by the drug manufacturer J. C. Ayer and Benjamin Butler, a Civil War general, the Middlesex Company built a large new mill and other buildings in 1862.

Belvidere Woolen found its site opposite Middlesex too constricted for expansion, and in 1862 erected a whole new complex further upstream on Whipple's Canal. Within the next two years, three new enterprises built woolen mills along Whipple's Canal. Charles Stott, Belvidere Woolen's agent, owned one of the companies, while the others belonged to Alfred Chase and L. W. Faulkner.

Another expression of confidence in the city's future was the chartering of the Lowell Horse Railroad Company in 1863. It inaugurated service in 1864 on four miles of tracks through the city streets, laid at an investment of nearly \$70,000.

The post-war years fulfilled the expectations of a return to growth and productivity, and in the ensuing decades much of the historic fabric of present-day Lowell was built. The 1840-1865 period is also

well represented in the modern city, however, as described below.

#### Historical Resources

The Park and the District include seventy-eight structures built in the 1840s and forty-five built in the 1850s, reflecting the effect on construction of the Depression of 1857. Only twenty-seven buildings of the 1860s were inventoried, but these include many major industrial buildings.

The foundation of Lowell's continued expansion in the 1840-1865 period was improvements in the canal system, and the greatest of those, the Northern Canal of 1846-47, is the premier historical resource surviving from that period in Lowell. Its Gatehouse and Great River Wall are particularly handsome utilitarian constructions (Figures 3-17 and 4-33). The Francis Gate complex on the upper Pawtucket Canal is not an engineering masterpiece on the order of the Northern Canal, but the careful observation of the interaction of natural and man-made factors that prompted James B. Francis to build the Guard Gate exemplifies the foresight and the scientific methodology brought to his work on the canal system. The Moody Street Feeder, and its controlling Merrimack Gatehouse, both built in 1848, typify the increased complexity and efficiency of the revamped canal system.

The canal started by Oliver Whipple in the 1820s and expanded in 1845 is the District's most intact water power feature outside the main canal system. The present form of that canal, which runs north beside the Concord River and then turns ninety degrees west to parallel Hale's Brook emptying into that stream, is largely a product of the 1840s. Most of it is within the LHPD, but a portion near Hale's Brook is not.

Most of the structures built by the major corporations between 1840 and 1865 have been lost due to millyard redevelopment or to twentieth century demolition, but several typical examples do survive. Hamilton's Mill #4 of 1846 most clearly represents the new long mills first built in the 1840s. A top floor with segmental-arched windows was added in the 1880s, but the rest of the floors display granite sills and lintels. Unlike the rectangular lintels used in preceding decades,

these are slightly peaked. They also project forward from the wall plane, and rest on projecting granite blocks. All of these modifications are Greek Revival in flavor, and they contribute to a livelier wall surface than seen on mills of the 1820s and 1830s.

In the Boott millyard, the No. 5 Mill of 1847-49 still extends most of the combined length of the four original mills. Several of the alterations to that mill, including modification of its central pavilion and addition of an upper floor, probably were made during the Civil War. Conspicuous Civil War-era additions in the Boott millyard are the connecting mills between the pairs of original mills, and the wooden stair towers which flank those connector mills. One of those four towers has been removed, and the other three have lost their capping balustrades, but the clock and belfry atop the tower flanking No. 2 Mill remain a major landmark in the city. (Compare Figures 3-20 and 4-7.)

At the Lawrence millyard one of the two connecting mills (Mill No. 7) built in the mid-1850s still survives. Its Greek Revival detailing like that of the Massachusetts Mills' 1851 "Union Mill" (Mill No. 5), provides an interesting contrast to the other Massachusetts connecting mill (No. 6), built in 1862 with Italianate detailing. The Boott connecting mills of the early 1860s are rather Greek Revival in their heavy use of granite, but have decidedly Italianate stair towers.

The single Merrimack Company building that still stands dates from ca. 1860. The Yorick Restaurant on Dutton Street at (#91) Merrimack Street was built to house Merrimack Company employees. It originally contained three tenements or apartments and probably accommodated executives or overseers and their families.

The 1840-1865 period was one in which private and small corporate industrial enterprises grew in number and size. Structures representing a cross-section of these still stand in the LHPD. Some of these factories produced supplies used by Lowell's textile giants. One of these was D. C. Brown's handsome rubblestone Reed Factory that still stands on Church Street (#242) at the corner of Warren Street. It was built in

three stages between 1840 and 1853, for the manufacture of reeds, heddles, harnesses, and other power loom parts and accessories.

James C. Ayer's patent medicine business was unrelated to the textile corporations, unlike Ayer himself, who published criticisms of corporate mismanagement and made substantial investments in Middlesex and other corporations. All three of the buildings constructed for his business still stand, including the two already discussed which date to the 1850s. Twenty-eight Jackson Street of 1852 was subsequently raised a fourth story, and 165 Market Street of 1857, was lengthened by a few bays in the early 1860s (Figure 3-22).

The introduction of gas lighting was an event of considerable importance to mid-nineteenth century Lowell. Replacing smoky whale oil lamps, gas light improved health conditions in the poorly ventilated mills. The gas illumination of the city streets in 1850 was a source of civic pride. The gasworks on School Street north of the Pawtucket Canal were constructed in 1849. One of the two striking stone and brick buildings in that yard dates to ca. 1865. The headquarters of the Lowell Gas Light Company at 22 Shattuck Street, built in 1859, is a late example of Lowell's favorite rounded-corner form (Figure 3-21), updated through an increased use of decorative brickwork and decreased reliance on stone trim. The windows are segmental-arched with brickwork hoods, and the building is topped with an arched, corbelled cornice.

Only one of the Civil War-era woolen mills on Whipple's Canal still survives, Mill No. 2 (645 Lawrence Street) of the Belvidere Woolen Company (Figures 4-26 and 4-27). Built of brick in 1862, Mill No. 2 is conservative in its use of rectangular granite lintels. Except for the major loss of the mill's unusual gambrel-with-double-clerestory roof, which was replaced when an additional story was added in the 1880s, this modest-sized establishment is remarkably intact. The storehouse, mill, stair tower, and power house all still stand. The LHPD boundary extends through this complex, excluding the mill itself while including the others.



Figure 3-21 Lowell Gas Light Company, 22 Shattuck Street, offices of the Lowell Historic Preservation District Commission. Built 1859, photographed 1979.



Figure 3-22 J. C. Ayer & Co. Building, 165 Market Street, built ca. 1858, photographed 1979.

The number of commercial and institutional structures still extant within the LHPD from the 1840-1865 period is surprisingly small, though several of these structures are noteworthy. The reasons for this paucity are unclear, although the Depression of 1857 and the Civil War must be factors. In addition, the 1845 Locks and Canals Company land auction was more a spur to residential development than commercial, since few of the parcels were located on the main commercial streets.

The Wentworth Block, built ca. 1844, faces the intersection of Merrimack (#256) and Shattuck Streets with a curved corner. Its mansard roof was probably added following an 1865 fire. Down Shattuck Street from that building, The Lowell Institution for Savings Building of 1845 (18 Shattuck Street) was substantially altered in the early twentieth century and again recently, but it retains its Greek Revival cast-iron balcony and basic, twin curved-corner form. The Welles Block of 1846, has also been somewhat altered in the early twentieth century and recently, but its sweeping curved corner remains the boldest in Lowell.

The Nesmith Building presents dual facades on Merrimack (#65) and John (#25-35) Streets. The L-shaped plan cradles the corner Nesmith Block (Figure 4-4). The John Street side was built first in ca. 1844, and may have introduced Italianate motifs to Lowell commercial architecture. At least one of its original storefront arches survives, and more may exist beneath later coverings. The Merrimack Street portion, built about ten years later and linked behind the corner block to the John Street building, has lost half of its originally symmetrical facade, and the first and second floors have been substantially altered as well.

Two other commercial buildings of the 1840s are relatively reserved in their handlings of corner sites. Simpson's Block, now called the Kearney Square Building (1-5 Merrimack Street), occupies the short block between Paige and Merrimack Streets on Bridge Street. Built ca. 1847, its unadorned brick walls trace the angles of the intersections. Its most striking features are the rubblestone rear walls. One hundred two Central Street is a similar structure of about the same date. Called Martin's Building, it is brick



throughout. Its greatest asset is its site alongside the Pawtucket Canal, though a low storefront now bridging the canal hides this relationship.

The District includes a pair of schools and a pair of churches from the 1840s and 1850s. The Worthen Street Methodist Episcopal Church at 200 Worthen Street is now the Lowell Girls' Club. The church has been considerably altered since its 1842 construction but retains the basic form and some of the detailing typical of Lowell's wood-frame, Greek Revival churches. The west end of the Shrine of St. Joseph the Worker at 37 Lee Street was built in 1850 as the Lee Street Church, a Gothic Revival edifice in rubblestone with granite trim.

The little brick building at 138-140 Middlesex Street is the Elliot School of 1845, now nearly hidden by siding and wings (Figures 4-22 and 4-23). The Colburn School at 122 Lawrence Street is much more visible. Its simple, Greek Revival form is typical of Lowell public buildings of the 1830s and 1840s. Built in 1846, the Colburn is the oldest school in Lowell still serving its original function.

Among the houses in the LHPD built between 1840 and 1865, the ones located in the areas sold in the 1845 Locks and Canals Company land auction can be discussed as a distinct group. Before the sale, streets such as Worthen Street north of Broadway (then called Mechanics Street) and Middle Street were developed with individually owned houses. Two hundred eighty-four Worthen Street was built ca. 1840 for Erastus Douglass, a bobbin maker in the Locks and Canals Company sawmill and bobbin factory near the Machine Shop. A double house of brick with granite trim, it was owned and occupied by Machine Shop employees throughout the nineteenth century. At 222-224 Worthen Street next to the Methodist Episcopal Church there is another double house built of wood ca. 1850. With its broad facade gable and classical ornament around the entry, it is a residential version of its ecclesiastical Greek Revival neighbor.

Middle Street was another area that was built up with houses in the 1830s and 1840s, but a subsequent redevelopment in the 1880s and 1890s replaced almost all of them. The exception is a three-story brick

building at 194 Middle Street. Built ca. 1844 and owned by Charles Hovey, an apothecary with a shop in City Hall, it probably originally was rented as residences, though it was occupied by stores and small manufacturers' shops.

The land sale of 1845 touched off very rapid residential development in several areas. Both sides of Kirk Street from Merrimack Street to French Street were quickly built up, and on the east side several houses survive in various states of preservation. The most important and intact is the double house built in 1846 by the Boott and Massachusetts Mills to accommodate their agents. That site was actually purchased for those corporations shortly before the general auction. Designed by local architect James H. Rand, the house follows the long-established pattern favored for Lowell corporation-owned residences, consisting of the end-wall gable form with twin parapet-linked chimneys and rectangular stone sills and lintels. In this case, the status of the occupants was acknowledged by the generous proportions, the use of newly popular brownstone rather than granite, and such details as the broad stone enframements of the entries.

South of the Agents' House on Kirk Street are two more brick blocks built after the 1845 sale and before 1850. Forty-five to forty-nine Kirk Street consists of three dwelling units, rather than two, but adopts the same general form as the Agents' House of end-wall gable roof, twin, linked chimneys, and two-story height. Twenty-one to twenty-nine Kirk Street, a far more damaged row, contained six dwellings. Only the northernmost two remain in residential use with the rest of the row serving as storage space for a nearby department store. Originally the northernmost three units were three stories tall and flat roofed, and the southerly trio were two-and-a-half stories tall with an end-wall gable roof. Nearby on Paige Street (#29-31), two units of a row built soon after the land sale exemplify a modest version of brick houses of that time.

Away from the central Kirk-John Streets area, most of the land sale houses which remain are more modest wooden structures, though the double house at 39-41 Moody, built before 1850, is a substantial

brick structure. More typical is the story-and-a-half wood-frame house at 44 Race Street, built soon after 1845, and a double two-story house at 120 Cabot Street, also built of wood at about the same time. Both are Greek Revival in their facade gable form, and they bear vestiges of ornament characteristic of that style. The Race Street house is one of a trio of similar cottages, the remainder of which stands just outside the LHPD boundaries.

As mentioned, the land sale was only one spur to development in the Acre. Settlement of the long-standing legal dispute over the ownership of the area made numerous lots available for purchase and improvement. Some houses along Suffolk and Adams Street (Figure 4-13) remain from the development that followed. On Marion Street, just north of Broadway Street, a story-and-one-half Greek-Revival cottage faces a low shed across a granite-paved driveway. That house, the shed, which was cut down from a similar cottage, and the paving are all that visibly survive of Donohoe's Court which was built ca. 1847-1852. It contained fifteen dwelling units in four buildings. The extant remnants symbolize the achievement of the Irish immigrants as they worked their way out of the terrible conditions of the early Acre.

One of the potentially most significant archeological resource within the LHPD from the 1840-1865 period is the site of Donohoe's Court in the Acre. Above-ground only half of one of four buildings and the cut-off remnant of another still stand. However, the other structures were removed only in recent years, and none of the site has been redeveloped. The building of the Court in the late 1840s and early 1850s perhaps eradicated any remains of earlier huts which might have stood on the site, but recovering domestic remains of even mid-nineteenth century vintage would add to our knowledge of the daily life of Lowell's Irish settlers. Such information could be compared with Robert Schuyler's findings on boarding house sites.

Other potential archeological sites dating to the 1840-1865 period are more difficult to assess. The Belvidere Woolen Manufacturing site on the east bank of the Concord included a mill built in the 1850s which was demolished in the twentieth century, but

as mentioned in the discussion on the preceding period, the degree and condition of remains on the Belvidere Woolen site are uncertain. The pitted parking lot over the former Middlesex millyard is a clearer indication of potential subsurface remains which must include the footings of the No. 2 Mill built there in 1862. The Prescott millyard was primarily a product of 1840s development, but the conspicuous fragment of a building which forms the retaining wall on the Concord River side of that site is a remnant of the 1911 Power House. Other remains of that yard may survive beneath the parking lot pavement.

On Whipple's Canal the sites of the Civil War-era woolen mills were redeveloped in the 1880s. The American Bolt Company bought one of Whipple's powder mill buildings and converted it for its own use. The building still stands, but American Bolt's additions are in ruins. The site may contain remains of early powder production as well as early bolt manufactory.



Figure 3-23 Detail of "Birds Eye View of Lowell" in 1876, by Bailey and Hazen.

THE INDUSTRIAL CITY MATURES: 1866-1893

History

The Lowell cotton mills were quick to resume full production following the Civil War, and the city began again the kind of rapid growth that characterized its early decades. After the wartime low of 31,000, the population reached nearly 41,000 by 1870. The next decade brought the largest increase recorded for any ten years before or after, a jump of almost 19,000 to nearly 60,000. Growth in the 1880s was also substantial, with over 77,000 residents recorded in the city in 1890.

Some of the increases in population were tied to the substantial annexations of this period. Three annexations in 1874 more than doubled the city's acreage. Two hundred acres of Belvidere were annexed from Tewksbury. Chelmsford gave up over 1,000 acres at the west side of Lowell, including Middlesex Village at the head of the defunct Middlesex Canal. The largest annexation added over 2,000 acres that had been in Dracut, including both Pawtucketville and more of Centralville. Another section of Belvidere was annexed to Lowell in 1888.

While this pattern of rapid growth is familiar in Lowell's history, there were three important changes taking place in the post-war city. First, the work force of the mills was changing from a group mainly composed of young women from New England, who worked in Lowell to earn cash wages for a few years, to a permanent operative class made up largely of immigrants. These immigrants had no nearby families and farms to which they could return in times of layoffs and wage cuts. The Irish first came to Lowell in relatively small numbers in the 1820s to work as laborers. Refugees of the potato famine swelled the ranks of the Irish in Lowell in subsequent decades, and by the 1840s there were Irish women working as operatives in the mills. The Yankee operatives remained in the majority until the Civil War. However, by 1863 two thirds of the births in Lowell were described as "of foreign origin" reflecting both the size of the immigrant community (perhaps as large as one-third of the population) and the large component of unmarried women workers in Lowell's native-born population.

Writing in 1856 the Lowell chronicler Charles Cowley stated that a great virtue of the city was that it had no permanent operative class, that..."a majority of our operatives were not born as such, and do not die as such." When he wrote again of Lowell in 1868, Cowley already recognized "...that our operative population has become less migratory." Cowley was observing that many of the workers employed in the mills after the Civil War were French-Canadians, replacing Yankee operatives who went home when the mills shut down or reduced production during the war and did not return.

The French Canadian community was large enough by 1868 to purchase its own church, the former Lee Street Church off Kirk Street. The church was renamed St. Joseph's, and French-speaking Oblate Fathers made up the staff. Most of the French Canadians lived in a single, crowded district called "Little Canada," located north and west of the Lawrence millyard, within the great bend in the Merrimack River.

A second evolutionary change in the city's previous pattern of development was the wide adoption of steam power by the major corporations to supplement water power. A steam engine had been tried unsuccessfully in the Prescott millyard in the late 1840s, and steam power was successfully used at Lowell Manufacturing by 1848. After the war, steam was the power source that allowed the mills to continue to grow, and by 1885 steam engines supplied more horsepower to Lowell manufacturers than did water power.

The third key difference between the pre-war and post-war city was that, while the major textile corporations remained the dominant economic resource of the city through the nineteenth century, other industries, commercial interests and political forces came into their own, beginning with the incorporation of Benjamin F. Butler's Wamesit Power Company in 1865 and culminating in the dedication of the new City Hall in 1894.

If Kirk Boott was the most conspicuous figure in Lowell's initial development and James B. Francis the guiding spirit behind its continued growth in the 1840s and 1850s, Benjamin F. Butler symbolized post-Civil War Lowell. Son of a boarding house

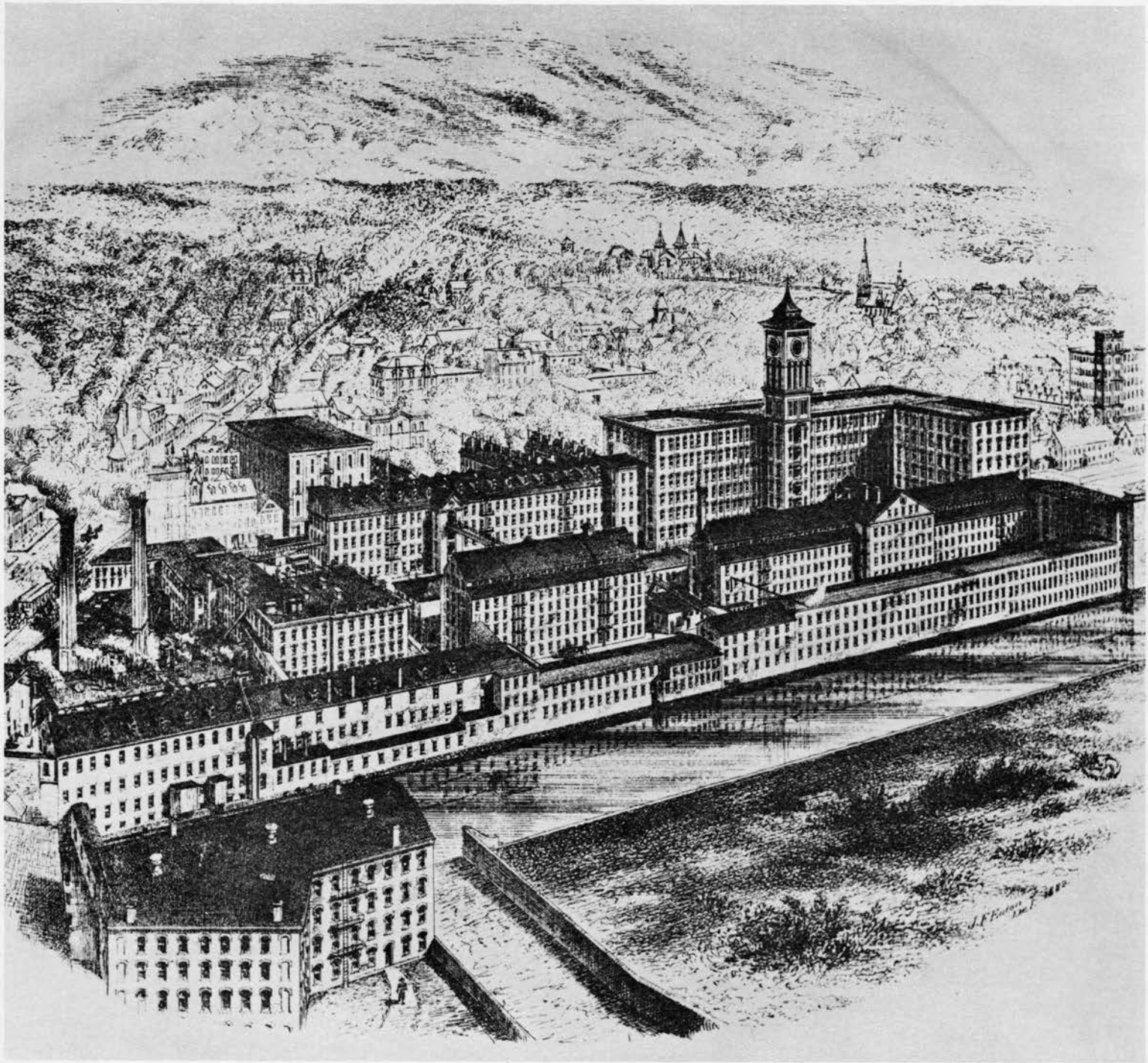


Figure 3-24 Hamilton Manufacturing Company, 1882.



keeper, he was a lawyer, militia officer turned Civil War general, major political figure in state, and occasionally, national politics, and a wealthy industrialist. Much of his success came through support of the labor force in their struggles with the established textile corporations. In 1865 Butler bought Whipple's Canal and most of the mill sites along it for the Wamesit Power Company. He participated in the chartering of the company, which could develop and sell steam and water power and lease mill sites as well as engage in manufacturing. A new surge of development began around the renamed Wamesit Canal. Butler owned major interests in at least two of the new factories, U. S. Cartridge Company and U. S. Bunting Company. His political connections brought in government customers for ammunition and flags and assured both enterprises of success.

The Hamilton Company led the way in post-war construction among the major corporations by erecting two large storehouses ca. 1868. The one between Jackson Street and the Hamilton Canal is 473 feet long, and features segmental-arched windows with Italianate brickwork hoods or caps, a motif followed throughout Lowell for most of the rest of the century (Figure 3-26). The other new storehouse was a ten-story brick pile on the south side of Jackson Street (Figure 3-24). Soon after, most of the millyards followed the Hamilton Company with major construction programs. New buildings or major alterations were started virtually every year between 1869 and 1884 in the Lawrence millyard. A four story, Italianate-style mill was built in 1870, probably as a knitting mill. The woolen products that had been a fiasco for the Lawrence Company and several other Lowell yards when attempted as mid-war conversions became a mainstay of Lawrence's production soon after the war. In the Lawrence millyard, as in all the others, new top floors were added to enlarge and update older mills. Octagonal stairtowers were also added, a striking feature of many Lowell millyards.

At Boott Mills, a large new mill was built in 1871, and another later in the decade. Boott had at least one steam engine by 1873, probably to help power the new mill. Massachusetts Mills made additions in the early 1870s that increased the spindles in that yard by nearly sixty percent between 1870 and 1876 and

almost doubled the 1870 figure by 1883. Steam power played a major role in that yard by the 1870s. At Lowell Manufacturing, a new Brussels Dye and Dry House was built in 1870.

The Suffolk Company and the Tremont Mills emerged from the war years in feeble condition. In 1871 controlling interests in both were purchased by Frederick and James Ayer. They combined the two yards administratively into one, and embarked on major building campaigns under the name of the Tremont and Suffolk Company.

Appleton joined in the general expansion with its large New Mill of 1873 built across Jackson Street from its main millyard (Figure 3-25). Steam engines freed this mill not only from the main yard, but also from the power island between the Hamilton and Pawtucket Canals. Applied on a grander scale this flexibility of location allowed by steam power helped wipe out the Lowell textile industry. As availability of waterpower declined in importance as a factor in the location of mills, other factors such as nearness to raw material, fuel and cheap labor became paramount, putting Lowell at a competitive disadvantage.

The 1872 depression briefly slowed construction throughout most of the city. However, the Lowell Machine Shop yard underwent a major expansion trying to keep abreast with orders for new machinery from mills retooling during the slowdown in production. Some other industrial construction went on in the 1870s, but most major projects were not underway until the 1880s. A major spur to development in several of the millyards in the 1880s was a joint project undertaken in 1882 by the city and several of the corporations to define the channel of the Merrimack. One of the results was that the riverside millyards were able to fill their portions of the riverbank, gaining new space for expansion. The Lawrence, Boott, Massachusetts, and Merrimack Companies all made additions on filled land in the 1880s or early 1890s. Several of the buildings Lawrence constructed in the 1880s had a peculiarly old-fashioned appearance because they used rectangular granite lintels, a feature popular in the first half of the century.



Figure 3-25 Appleton Company's "New Mill" on Jackson Street , built 1873, photographed 1979.

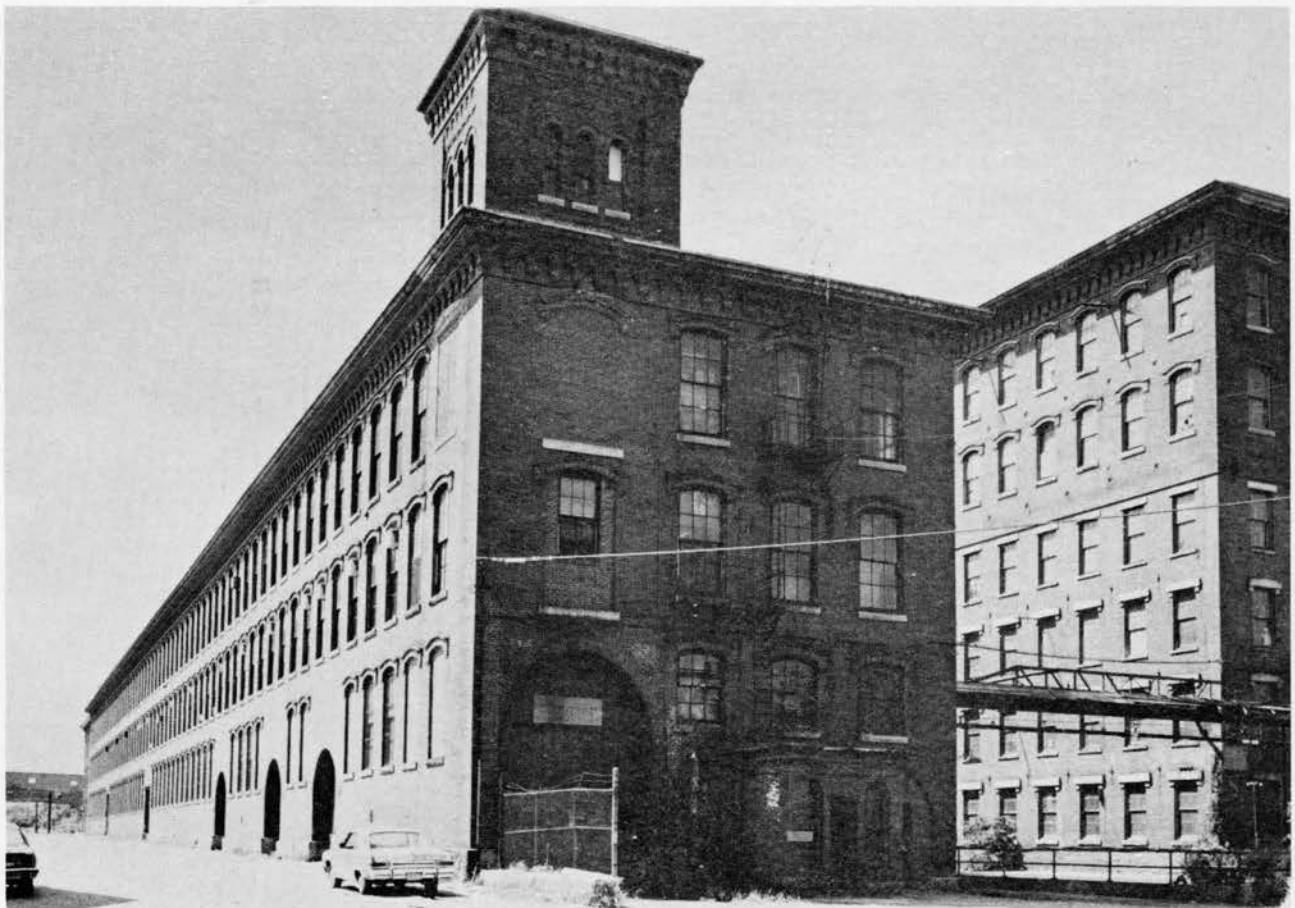


Figure 3-26 Hamilton Manufacturing Company's storehouse on Jackson Street, built ca. 1868, photographed 1979.

As the millyards were filling up, demolition preceded construction in several cases. In 1881 the Machine Shop took down its original Building #1 of the 1820s, and put a much larger new structure in its place. In 1882 the Machine Shop foundry rebuilt and enlarged. In the Lowell Manufacturing yard a Brussels Weave Mill was built in 1882 on a site where company-owned housing had stood. That company's elimination of housing for its operatives preceded the general trend in that direction by only about a decade. The Hamilton Company, which had even earlier eliminated a boarding house for a storehouse site, still had some underutilized space within its millyard, and built there a large new mill in 1881-1882. Its six-story height and even taller clock tower dominated one end of the millyard.

The smaller mills also rebuilt and expanded in the 1880s. Stirling Mills on the Wamesit Canal took down its ca. 1860-65 mill in 1880 and built a new and larger structure (Figures 4-24 and 4-25). A fire destroyed the neighboring Chase and Faulkner Mills in 1880. Faulkner rebuilt in 1881, and expanded onto the Chase site in 1887.

In 1885, a national census of industries indicated that steam engines were producing more horsepower for Lowell's mills than was water power by a margin of about 13,000 to 11,000. A single corporation, Lowell Manufacturing, had steam engines capable of producing 1,550 horsepower in 1882. Despite the cost of fuel and equipment, the availability of power in such quantity was irresistible to the expanding millyards.

While the millyards were erecting Italianate buildings by leaps and bounds, Lowell's commercial districts were also putting on a new face. The earliest among the post-war commercial buildings closely resembled the simple Italianate industrial structures, slightly enriched with the addition of bracketed cornices. The Richardson Block at 295 Dutton Street, built in 1870, and the similar Robbins Building at 102-110 Merrimack Street of about the same date (now Prince's Books and Office Supplies) illustrate the type. Greenwood Brothers Store at 573 Lawrence Street, built in 1872, explores more ornate possibilities with its mansard roof, cast iron storefronts and especially

its window trim, cornice decoration, and signboards of cast concrete.

Neither Lowell merchants nor the city fathers were content for long to build in their generally restrained pre-war manner or to merely hint at the decorative possibilities of the current architectural styles. When a large new schoolhouse was needed in 1870, George Meacham, a Boston architect, was employed to produce a Second Empire design. The Green School (408 Merrimack Street) was constructed in brick with bold granite trim. A bank building constructed at the corner of John and Merrimack Streets ca. 1870 was even more ornate than the Green School (Figure 3-27). Constructed of marble of various colors in the High Victorian Gothic style, it was called the Marble Bank.

Another building that led the way for Lowell's merchants was the Masonic Temple built in the center of the Merrimack Street business district (#134) in 1871 (at left in Figures 3-28 and 3-29). Hocom Hosford, a successful dry goods merchant, sponsored the building, which contained stores, Masonic meeting halls, and the City Library. Boston architect Nathaniel J. Bradlee designed the Second Empire style building (Figure 3-30), which was constructed with a granite facade and cast iron storefronts. Earlier Lowell buildings had used those materials, but never in such a richly decorative fashion.

The 1872 Depression slowed commercial construction, just as it did industrial. Several major new buildings within the Central and Merrimack Streets commercial areas marked the economic recovery of the mid and late-1870s. Central Street entered into its period of greatest prominence with the construction, in rapid succession, of a new train station for the Boston and Maine Railroad, built in 1876 (#238-254), the Fiske Building, erected ca. 1877 with elaborate cast iron decoration (#219), and the Appleton Block, a large High Victorian Gothic structure, built in 1879 (#166). All appear to be architect-designed, but none of the architects are known. Otis Merrill, a carpenter-turned-architect who later achieved local prominence with his design for the new City Hall, took an office in the new Fiske Building and may have been its architect.

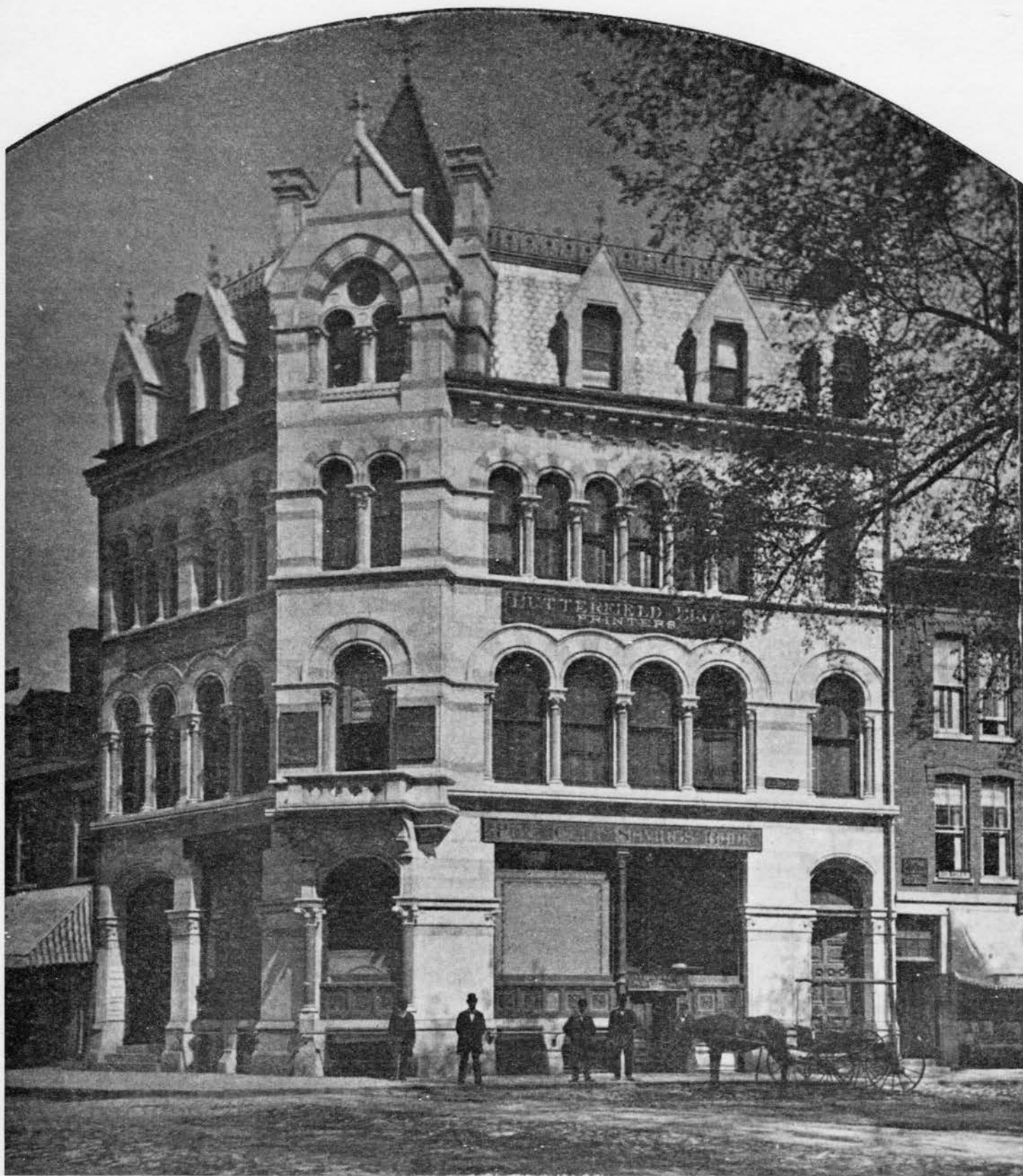


Figure 3-27 "Marble Bank" at the corner of Merrimack and John Streets, built ca. 1870. From an undated stereograph.



Figure 3-28 View from the east along Merrimack Street, ca. 1884.



Figure 3-29 View along Merrimack Street, 1979.

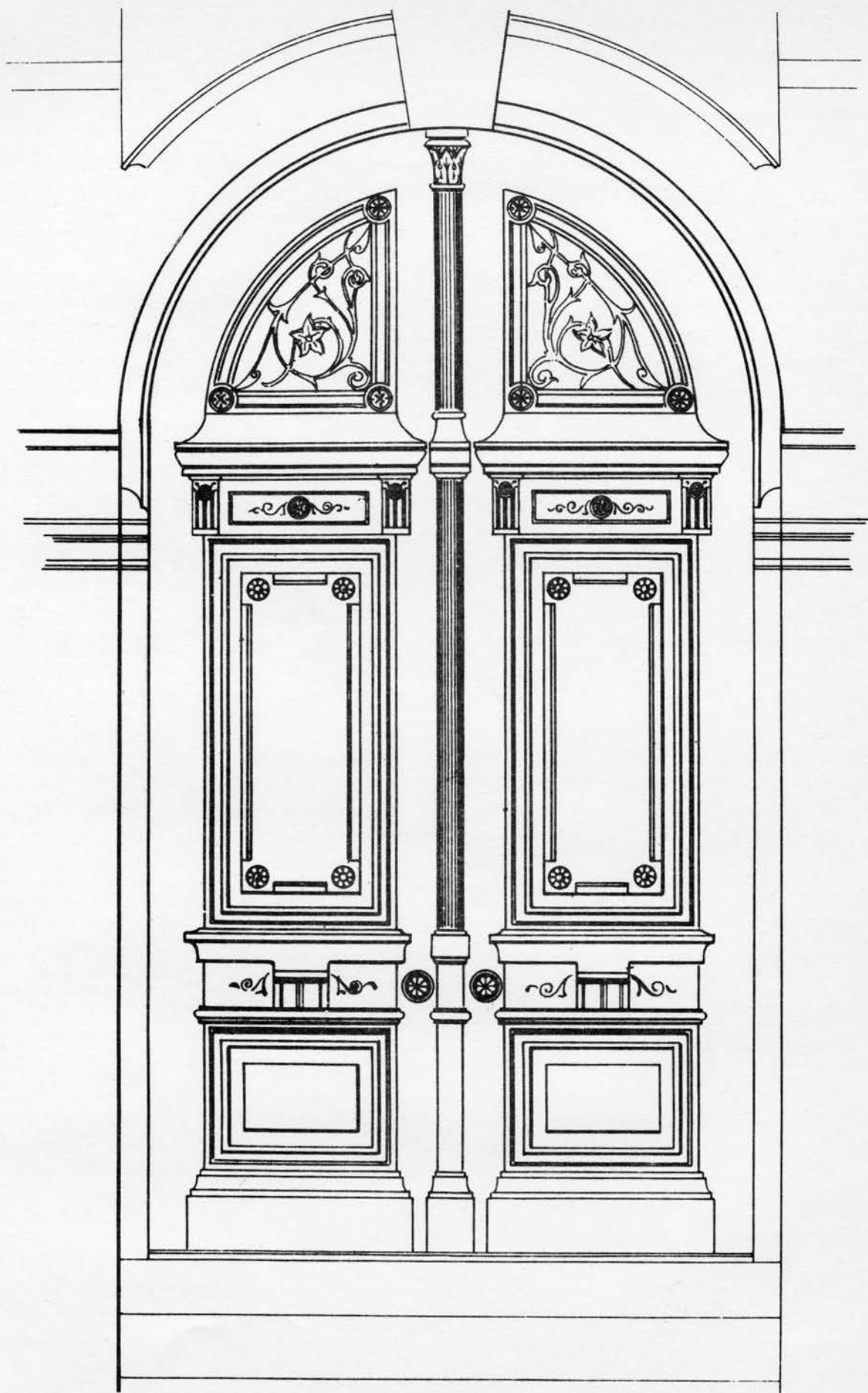


Figure 3-30 Detail for the doorway of the Masonic Temple (Hosford Building), drawn by Nathaniel J. Bradlee, 1871.



At the critical intersection of Merrimack and Central Streets, the brick, stone, and cast iron Wyman's Exchange was erected ca. 1880 to a four-story height (and raised to six stories ca. 1907-09). It replaced the original Wyman's Exchange, a daring building of ca. 1832 that used granite piers and lintels to achieve such open walls and large windows that local residents doubted its stability.

The 1880s and early 1890s brought more major new commercial structures than can be recounted. As in the millyards, earlier structures were sacrificed to clear sites, and in several cases boarding houses were demolished and their lots redeveloped with stores and offices.

The largest and most prominent of the commercial buildings of the 1880s is the Hildreth Building, constructed between 1882 and 1884 according to plans by Howe and Van Brunt, a prominent architectural firm from Boston. The Hildreth Building had a surface rich with brickwork and stone and metal ornament. It was the epitome of Queen Anne-style commercial architecture in the city. Most of the new construction of the 1880s and 1890s followed this stylistic lead, though on simpler buildings brickwork alone often provided all the decorative effects.

The Central Block, designed by Lowell architects Merrill and Cutler and built in 1881 between Market and Middle Streets on Central, was similar to Hildreth in scale and general style. The Bon Marché Building at 143 Merrimack Street built about a decade later in 1892 in a more restrained version of the same style.

Two areas that were almost wholly redeveloped with Queen Anne commercial buildings in the late 1880s and early 1890s were the northwest side of Dutton Street from Market to Broadway and all of Middle Street. Along Dutton Street many of the three and four-story structures were and are free-standing or semi-detached. On Middle Street, a fire in 1888 that destroyed the old firehouse gave impetus to the redevelopment. The Central Engine House was rebuilt in 1889 following a Romanesque Revival design by Merrill and Cutler. The handsome building itself, the protection it afforded, and the new street, Palmer, cut through to provide access from the firehouse to Merrimack and Market

Streets all encouraged the rapid redevelopment of Middle Street. Commercial and light industrial structures were built, arranged in two nearly solid rows of four and five-story structures, varying in the details of their fenestration and decoration but highly compatible in overall effect (Figure 4-5).

Most of Lowell's residential development in the 1865-1893 period occurred in the areas annexed in 1874 and 1888, entirely outside the LHPD. The Acre was the site of some new construction during this period, particularly along Broadway, which was extended west from Suffolk Street in the mid-1860s. The wood frame houses built shortly thereafter are either late Greek Revival or Second Empire in style, and each was designed to provide a number of dwelling units (Figure 3-31).

Another residential area within the LHPD that received quite a different kind of residential construction in this period was Pawtucket Street. There were houses along that road before Lowell was founded. In the 1870s and 1880s the scenic views of the river and the prevailing westerly wind, which blew the smoke of the mills away from this area, brought a new wave of house building to Pawtucket Street. West of School Street relatively modest frame houses for middle class occupants were built, while east of that line large houses and even mansions prevailed. Most pretentious of all was the Ayer Mansion, built in 1870 of brick and stone for Frederick Ayer from the designs of a Boston architect named Woodcock who had designed the Ladd and Whitney memorial obelisk on Monument Square. Smaller but still sizable wooden houses were built east of the Ayer Mansion along Pawtucket Street, such as #295 (Figure 3-33).

The growth of the city in area and population fostered plans for a larger city hall, both to accommodate the growing government and to provide an appropriate symbol of the prosperous city Lowell had become. In the late 1880s committees were formed, competitions were held, and eventually a design by the local firm of Merrill and Cutler was selected.

As the monumental Romanesque Revival structure was completed and dedicated in 1893, another severe depression disrupted the economic life of the city

and the country. In the years following that depression, the number and diversity of immigrants to Lowell greatly increased, and a new period in the city's history began.

#### Historical Resources

The structures built or substantially altered in the 1865-1893 period survive in such numbers within the LHPD that they establish the principal historical character of the area. Both earlier and later structures stand out as exceptions within this context of a late-nineteenth century city. There are ninety-three buildings dating from the 1870s in the LHPD, seventy-eight from the 1880s, and over one hundred built in the 1890s.

All of the standing millyards retain major structures from this period. Almost all the mills surviving in those yards from earlier periods were capped with upper floors and flat roofs between 1866 and 1893. The long Hamilton Company storehouse on Jackson Street, built ca. 1868, is an excellent example of the scale of post-Civil War industrial buildings, (Figure 3-26), and the attached Counting House translates the same motifs into a more human scale. Across Jackson Street and slightly to the west, the Appleton Company's "New Mill" of 1873 typifies the flexibility steam engines brought to the siting of mills (Figure 3-25). It also demonstrates the mill builders' tendency to concentrate decoration on the stair towers and the cornice.

Most of the Suffolk millyard, aside from the early Counting House and the surviving boarding house, dates from the 1860s, 1870s, and 1880s. The exterior face of the Lawrence millyard along Perkins Street is largely of 1870-1890 vintage, including the faintly High Victorian Gothic Counting House. Within the Lawrence millyard, most of the focal points such as the stair towers, octagonal chimneys and top floors date from the 1870s and 1880s. Most of the Lawrence buildings surviving from this period, and most in the other millyards as well, are simply decorated with brickwork hoods over the segmental-arched windows. Lawrence built several buildings in the 1880s in the pre-1850s manner with rectangular granite lintels, and the 1882 Warper Building (#16) and the 1883 Yarn Dyeing Building (#17)

are survivors from this anachronistic group.

Most of the exterior faces of the Boott millyard date from the 1870s and 1880s, and within the yard the four original mills and their connecting mills were all topped with Italianate upper floors, ca. 1880. Boott's wooden stair towers and belfry date from just before this period, but the octagonal stair towers and chimney date from the '70s and '80s, as do Mills No. 6, 7 and 9, No. 1 Cotton Storehouse, and other structures and additions in the millyard. The Massachusetts Mills' yard is almost as indebted to that period as Boott, although that yard also contains some major structures built in the subsequent period.

The Lowell Manufacturing millyard contains several structures from the 1866-93 period and some major structures from the subsequent period, but no structures earlier than 1865. The Brussels Weave Mill of 1882, a long structure with one narrow end toward Dutton Street, is the most prominent of the Lowell Manufacturing buildings of this period (Figure 4-15).

Aside from the major millyards, several other industrial buildings and complexes of the 1865-93 period still stand in the LHPD. The Stirling Mills (also called Sterling) off Lawrence Street on the Wamesit Canal is an intact woolen mill complex, consisting of a mill, office wing, carbonizing building positioned over Hale's Brook, and storehouse. The major building, the mill, dates from 1880; the others range from a decade earlier to a decade later.

Two of Lowell's smaller mills of the early 1890s, the John Pilling Shoe Company at 33 Shaffer Street and the Whittier Cotton Mills at 50 Stackpole Street have new leases on life as residences for elderly people. The Pilling Mill has been rehabilitated and is occupied as the Francis Gatehouse Mill, while construction work continues on the Whittier Mills.

In many cases, structures within Lowell commercial districts that appear to be strictly commercial structures and are now used as such were built for light manufacturing purposes. A brick building at

50-56 Middlesex Street, decorated with a variation of Lowell's standard Italianate trim, was built ca. 1870 as the Hills Brothers Carriage Manufactory. The third of the Ayer patent medicine company buildings, built ca. 1886, stands at 176-190 Middle Street (Figure 4-5). Many of the Middle Street buildings originally combined light manufacturing and wholesale activities.

Commercial and institutional buildings of the 1866-1893 period dominate Merrimack, Central and adjacent streets. The Old Post Office at the corner of Gorham and Appleton Streets and the New City Hall with its companion Memorial Library on Merrimack Street stand at opposite ends of the commercial district within the LHPD, bracketing this area. All three are built of granite in a Richardsonian Romanesque style; all were completed in 1893. Between these somewhat homogenous bracketing buildings the structures of the post-Civil War years demonstrate the rich variety of styles and materials that characterized the period. The following discussion can mention only a fraction of those buildings.

Opposite the Memorial Library are the Green School (408 Merrimack Street) and First Congregational Church (#400), the former built in 1870 (and shorn of its high mansard roof following a fire in the 1960s), and the latter constructed in 1885. Both use red brick as their basic material, both are rather richly trimmed with contrasting stone, but the school makes use of granite and is Second Empire in style, while the church employs brownstone in the High Victorian Gothic style.

The Bon Marché Building of 1892 (143 Merrimack Street) and the Lowell High School nearby on Kirk Street (#30), the older, southern part of which was also built in 1892, introduce yellow brick to Lowell construction. The department store displays an eclectic mix of decorative motifs in a style best described as commercial Queen Anne, while the High School, appropriately enough, is a much more academic design based upon Classical and Renaissance motifs. The Masonic Temple/Hosford Building like the Green School, lost its mansard roof following a twentieth-century fire.

The Wyman's Exchange at the corner of Merrimack and Central (#9) Streets, built ca. 1880 in red brick with cast iron and light stone trim in a High Victorian Gothic style, must have dominated that intersection when first constructed. However, very soon thereafter that building lost its pre-eminence to the Hildreth Building, built on the opposite side of Merrimack Street (#45) between 1882 and 1884. Even though most of the rich carving of its brown-stone trim has since spalled away, the Hildreth Building still dominates lower Merrimack Street with its great length and varied Queen Anne decoration. Two additional floors were added to Wyman's Exchange ca. 1907-09, perhaps in an attempt to re-establish the building's lost domination of the corner.

The foot of Merrimack Street at Kearney Square is anchored by the Runels (now Fairburn) Building (2-14 Kearney Square) and the Howe Building (#11), both products of the early 1890s. Prescott Street extends only a block from that intersection to Central. At its Central Street end are two four-story brick buildings that combine features of Italianate and Queen Anne styles. Called the Southwick (#66-82) and the Claflin (#58) Blocks, they were built ca. 1880. Both retain their original facade features to an unusual degree, including iron storefronts.

Along Central Street the major structures of the 1866-1893 period are McQuade's at #91 (originally the New Mansur Building, ca. 1885), the Appleton Block at #166 (1879), the Fiske Building at #219 (ca. 1877) and its neighbor Gray Furniture (originally Cook and Taylor's Building, 1884), the Rialto at #238-254 (formerly the Boston and Maine Railroad Station, 1876), and the Shedd Block at #295 (ca. 1883-1884). All are red brick buildings with trim of stone or cast iron. The 1870s structures represent variations on the exuberant High Victorian Gothic style, and all have lost cresting and pinnacles from their roof-lines. The Boston and Maine Railroad, in fact, has lost two mansardic towers. The Central Street buildings of the 1880s employ brownstone trim and decorative brickwork in a Queen Anne manner.

Extending off Central Street Middlesex Street retains a number of brick commercial or commercial/residential buildings from the 1870s and 1880s. Middle

Figure 3-31  
Michael Rourke Building,  
174-180 Broadway Street,  
built ca. 1870-75,  
photographed 1979.



Figure 3-32  
L. McFarlin House,  
681 Broadway Street,  
built ca. 1870-75,  
photographed 1979.

Figure 3-33  
Rogers House, 295  
Pawtucket Street, built  
ca. 1873, photographed  
1979.



Street consists almost exclusively of structures built between 1886 and 1893. Queen Anne features such as varied window size, shape and placement and decorative brickwork characterize both streets' buildings. An exception to the rule on Middle Street, in terms of both style and original function, is the Central Engine House at the corner of Palmer Street, which was built in 1889 in the Romanesque Revival style.

Elsewhere in the LHPD any list of characteristic 1866-1893 commercial and institutional structures should include the 1872 Greenwood Brothers Store at 573 Lawrence Street. Another is the Kirk Street School at 31 Kirk Street, built in 1881-1882, which provides a sharp contrast to the LHPD's other nineteenth century primary schools, the Green School on Merrimack Street and the Colburn School on Lawrence Street. The City Stables on Broadway at Fletcher was built in 1877 from plans by Otis Merrill, who a few years later prepared considerably grander designs for the new City Hall.

While the city as a whole abounds in residences built within the 1865-1893 span, the LHPD contains only a small sample. The main concentrations of these are in the Acre neighborhood, particularly along Broadway Street, and on Pawtucket Street. 174-180 Broadway Street, a multiple-family frame building in the Second Empire style, is typical of Acre houses built in the 1870s (Figure 3-31). Further out Broadway in the Francis Gate area #673, #676, and #681 are representative of the several small, single-family cottages built within the LHPD in that area (Figure 3-32). If the little cottages out on Broadway represent a step up the social ladder from the multiple-family blocks in the Acre, the larger and more richly decorated frame house at #415 Pawtucket Street, built for the family of an overseer in 1872, was up another step. This side-hall plan house, with its ornate doorhood and five-sided bay window, follows a very common Lowell form.

Many of the larger houses built along Pawtucket Street northeast of School Street in the 1870s and 1880s have been converted from residential to institutional or commercial use. Frederick Ayer's grandiose Second Empire mansion of brick and stone, built in 1870 is now the Franco-American School.



The large wood-frame Second Empire house at #295 Pawtucket Street, built a few years later for a banker and his family, is now a mortuary, as are other houses of the period along Pawtucket Street (Figure 3-33).

Indicative of Lowell's increasingly urban character in the 1866-1893 period was the construction of several brick apartment blocks, particularly along Middlesex and Appleton Streets. The Bancroft Block at 90 Appleton is a good example within the LHPD. Constructed in the early 1880s in the Queen Anne style, the block was originally built as an investment property for George Runels, a prominent Lowell businessman and one-term mayor.

The potential archeological resources within the LHPD from the 1866-1893 period mostly occur in sites previously mentioned. The Tremont and Middlesex mill-yards and the Machine Shop yard all underwent significant development in the period. The remains of those buildings could be expected to form a major component of the below-ground remains in those demolished yards. One site within the LHPD that was developed almost exclusively in the second half of the nineteenth century is the Faulkner millyard on the Wamesit Canal. The two woolen mills built there during the Civil War, probably on the sites of earlier powder mill buildings, both burned in 1880. Within that decade a single, larger mill complex was built on the combined yards. Woolen goods were manufactured there until the 1930s, and in 1937 the complex was demolished. As with all historic archeological resources, the significance of potential finds on the Faulkner site must be evaluated in terms of the information they might yield that could not be gained from other sources. In this case both the mills that burned in 1880 and the complex that replaced them are quite well documented in terms of building size, use materials, and locations, and a purposeful archeological study of the site would need to address other questions.

MULTILINGUAL LOWELL: 1894-1923

History

When writers in the first two decades of the twentieth century wrote of the changes Lowell was then undergoing, the word they often used to describe the city was cosmopolitan, not so much in the modern connotation of sophisticated, but rather in a more literal sense of being not limited by national boundaries. In their places of birth Lowell's citizens certainly were cosmopolitan; Frederick Coburn wrote in 1920 that one could ask directions of a dozen successive passers-by on the street, and hear replies in a dozen different languages, none of them English.

Lowell's population increased by one quarter between 1890 and 1900, from 77,000 to 95,000, with many immigrants among that number. The physical area of the city also grew, with a 1906 annexation of 1,000 acres from Tewksbury, along the eastern side of Lowell. By 1910 the city had 106,000 residents, and in 1920 the population of Lowell reached its peak, at nearly 113,000. Lowell's mills also continued the relentless expansion characteristic of their entire history, with a work force made up largely of the diverse immigrants. The mills' annual production of textiles, like the city's population, reached its highest point around 1920, but events of the preceding years foreshadowed the disaster that was to strike almost all the major textile corporations by the third decade of the twentieth century.

The city had seen a decided increase in labor disputes in the late 1880s, but the economic Panic of 1893 threw so many out of work that no one holding a job was likely to risk it. George Kennigott, a Lowell minister and sociologist who published a useful, though biased social study of the city in 1912, linked the increase in labor strife to the "newer immigrants" who were flooding the city, but it is equally true that the corporations used new groups of immigrants to break strikes by earlier residents and that language barriers made labor organizing difficult.

By the first decade of the twentieth century Lowell's immigrants included representatives of at least forty countries, but the largest new groups were Greek,

Polish, Portuguese, and European Jewish from several countries. All started settling in Lowell in sizable numbers in the 1890s, though the major influx of Greeks, by far the largest of the new groups, came in the first decades of the new century.

Like the Irish and the French-Canadians who had preceded them, the new groups tended to settle in concentrated areas. The Acre, by then largely under Irish-American ownership, became the primary settlement of the Greek population, and dozens of coffee houses lined its principal streets, particularly Market Street to the west of Dutton Street. The Greeks adhered to a pattern common to many immigrant groups, in that young men arrived well in advance of women or whole families. Of the eighteen hundred Greeks in Lowell in 1900, only about fifty were women. The coffee houses were the center of Greek social life, and above many of them were rented rooms. In the early years most of these were overcrowded, poorly maintained and grossly unsanitary. Health problems, particularly tuberculosis, were rampant.

Many of the Polish settled in Centralville, particularly along the banks of the Merrimack River around Lakeview Avenue. The Portuguese, who mostly came from the Azores or Cape Verde Islands rather than from Portugal itself, were concentrated south of the Central Street business district.

Of Lowell's 1900 population of 95,000, only about a fifth were native-born of native parents, and many of those were descendents of the Irish immigrants who arrived in Lowell before 1850. At least partially because of the influx of non-English speaking immigrants, most of the corporations divested themselves of their company-owned housing in the mid-1890s. Before that time, several of the corporations had demolished a boarding house or two to clear the way for expansion, but the divestiture in the 1890s was concerted and nearly complete. It extinguished the last aspect of the paternalistic "Lowell Experiment," which in most ways had been discarded once the work force was no longer young women from New England. Two principal reasons were cited by mill agents for selling the apartments provided to the better-paid employees and the operatives' boarding houses. Among the more skilled employees, there had been a

trend to reside away from the mills, in the outlying neighborhoods of their social peers. The boarding houses, on the other hand, were becoming increasingly difficult to manage according to their rather strict regulations and dormitory-style bedrooms because of the increasing diversity and demands of the operative population.

The Machine Shop retained its housing into the 1920s, and some of the Lawrence Company and Tremont and Suffolk Company boarding houses remained in corporate ownership until ca. 1910. Most of the tenements and boarding houses were in private hands by 1900. Some were quickly demolished, but most were rented out, under increasingly crowded conditions. Around 1900 Saiman Sirk, a Boston investor who bought many of the boarding houses from Boott, Merrimack and other companies, extensively remodeled two Boott boarding houses, joining them together into an apartment building called the Sirk Block (now called Surf's Building).

Other aspects of Lowell's development were also quick to reflect the wave of immigration. The new immigrants built churches when they had barely settled into the city, just as the Irish had built St. Patrick's in 1831 and the French-Canadians had purchased the Lee Street Church and made it St. Joseph's in 1868. The most prominent of the new churches was the Greek Orthodox Holy Trinity, completed in 1908 in the center of their settlement, just across the Western Canal from St. Patrick's.

Housing development and redevelopment also reflected the growth of the population and the movement away from the company housing. The 1,000 acres annexed from Tewksbury in 1906 are all outside the LHPD. Inside the District Clare Street was laid out in the early 1890s and almost wholly built up by 1900 with single and double houses and a few larger blocks (Figure 4-32). Litchfield Terrace, a few blocks west of Clare Street, was laid out and built with several small Colonial Revival cottages around 1910 as an investment by a Lowell dentist. On the east side of Perry Street in Belvidere a group of simple, two-family houses was developed under one ownership around the turn of the century.

While these developments were dispersing the city's population and providing an increased supply of small, single-family houses, the portion of the Acre within the LHPD was undergoing considerable redevelopment to larger structures to accommodate more people.

"Triple deckers" with three dwelling units on three floors were the smallest of the new buildings, and frame structures up to five stories tall were built (Figures 3-37 and 4-13). Most of this building post-dated 1906, and probably reflected the ability of the Greek community to afford better housing.

A change in industrial business practices was to precipitate sweeping changes in Lowell. In 1893, the charter of the Massachusetts Mills was changed to allow the corporation to do business outside the state. Production of coarse white goods was immediately transferred to mills in Lindale, Georgia, where in 1896, 1898, and 1902 the company built new mills.

Steam power had freed the mills from the need to locate near great falls of water and southern sites had advantages over the older northern ones such as proximity to supplies of cotton, availability of cheaper labor and newer mills. As the Middlesex Canal was used to deliver the ties and engine parts of the Boston and Lowell Railroad that superseded it in the 1830s, some of the earnings of the Lowell mills went to build their southern competitors, protecting the investors but speeding the demise of Lowell as the "City of Spindles."

The mill buildings and the canal system could not be moved south, of course, and they represented a vast investment. Most of the corporations therefore modernized their millyards in the 1894-1923 period. The founding of the Lowell Textile School in 1895 by several mill owners and officers was another attempt to keep Lowell competitive, by training skilled workers in the areas of textile mechanics, chemistry, engineering, and design.

The most dramatic of the modernization campaigns occurred at the Appleton Company, which virtually rebuilt its millyard between 1898 and 1919. Directing the effort was Alexander Cumnock, one of the founders of the Lowell Textile School. He had



Figure 3-34 Massachusetts Mills Storehouse C on Bridge Street, built 1910, photographed 1979.

served as the Boott agent for thirty years before becoming the Appleton treasurer in 1898 at the age of sixty-eight. He switched the production of the millyard from sheeting to finer goods, and directed twenty years of rebuilding that left within the main millyard only a few fragments of the nineteenth century structures. Most of the Cumnock-era buildings were built of simple utilitarian design, with wide, segmental-arched windows and little or no decorative trim (Figures 4-20 and 4-21).

The old Lowell Manufacturing Company millyard was also considerably rebuilt in the early years of the twentieth century. Lowell Manufacturing was the first of the original group of Lowell textile corporations to go out of existence when Bigelow Carpet Company bought it out in 1899. Bigelow Carpet embarked on a sizable rebuilding campaign building the new weave mill which constitutes the northern face of the millyard in 1902. In 1905-6 the original 1829 Cotton Mill was replaced with a six-story worsted mill, and all of the buildings along the Pawtucket Canal were rebuilt between 1909 and 1911. Bigelow Carpet had further rebuilding plans, but scrapped them in 1914 and relocated its Lowell operations to Thompsonville, Connecticut. The millyard was leased by U. S. Cartridge Company during the First World War, was vacated in 1920, and was the first of the major millyards to be sold piecemeal.

The other millyards made some improvements during the 1894-1923 period, and further corporate changes were made as well. The Lawrence Company sold its secondary millyard east of the Western Canal to the Tremont and Suffolk Company in 1896 and turned solely to the production of knitted goods. Some new construction followed between 1905 and 1910 including Mill #12, a brick and frame structure that stood on the former site of the millyard's clock tower.

The Hamilton Company built one of the largest Lowell mills of the early twentieth century, choosing metal-frame construction rather than reinforced concrete, which was coming into favor in Lowell during that period. Mill #7 was raised in successive stages in 1911 and 1919 and finally measured 653 feet by 135 feet. The premier example of the new reinforced concrete construction was Massachusetts Mills'

ten-story Storehouse C, built in 1910 (Figure 3-34).

In 1911-1912 the Lowell Machine Shop merged with three other firms to form the Saco-Lowell Shops. The new company built reinforced concrete buildings on the foundry yard in 1920 and across Dutton Street on the sites of former company housing in 1923. As the last major buildings erected by one of the eleven Lowell corporations, they mark the end of an era.

Beyond the main corporations, similar consolidations and improvements took place. The Faulkner Mills on Wamesit Canal were incorporated in 1897 and then absorbed into the American Woolen Company in 1899. Frederick Ayer of Lowell was the president and a founder of American Woolen, which set out in the late 1890s to consolidate as much of the woolen industry in this country as it could. Elsewhere on the Wamesit Canal new mill buildings were erected early in the century by the Wamesit Power Company and leased to industrial clients. Waterhead Mills operated in a brick and wooden mill near the head of the power island formed by the Wamesit Canal, (900 Lawrence Street, rear). Further north just off the canal, U. S. Cartridge built new brick mills (685 Lawrence Street) after a severe explosion damaged its previous structures in 1903. Both of those complexes used brick construction, but consolidated the load of the building on thickened piers, which allowed wider segmental-arched windows to be opened between the piers. This modified masonry-bearing form of structure was widely used in other New England textile centers around 1900 but seldom appeared in the main Lowell millyards.

Some new structures were built in the commercial/ industrial district along Merrimack and Central Streets between 1894 and 1923, but not in numbers matching the activity of the preceding period. A 1911 description of the city suggested that Lowell had few major office buildings because the control of its major enterprises was centered in Boston. The tallest building in the city at that time (and for many decades thereafter) was built for a local company, the Lowell Sun newspaper. Its ten-story tower was built in 1910 (8 Merrimack Street), designed by Boston architect Clarence H. Blackall (Figure 3-35).



Figure 3-35 Lowell  
Sun Building, as it  
appeared when built  
in 1910.

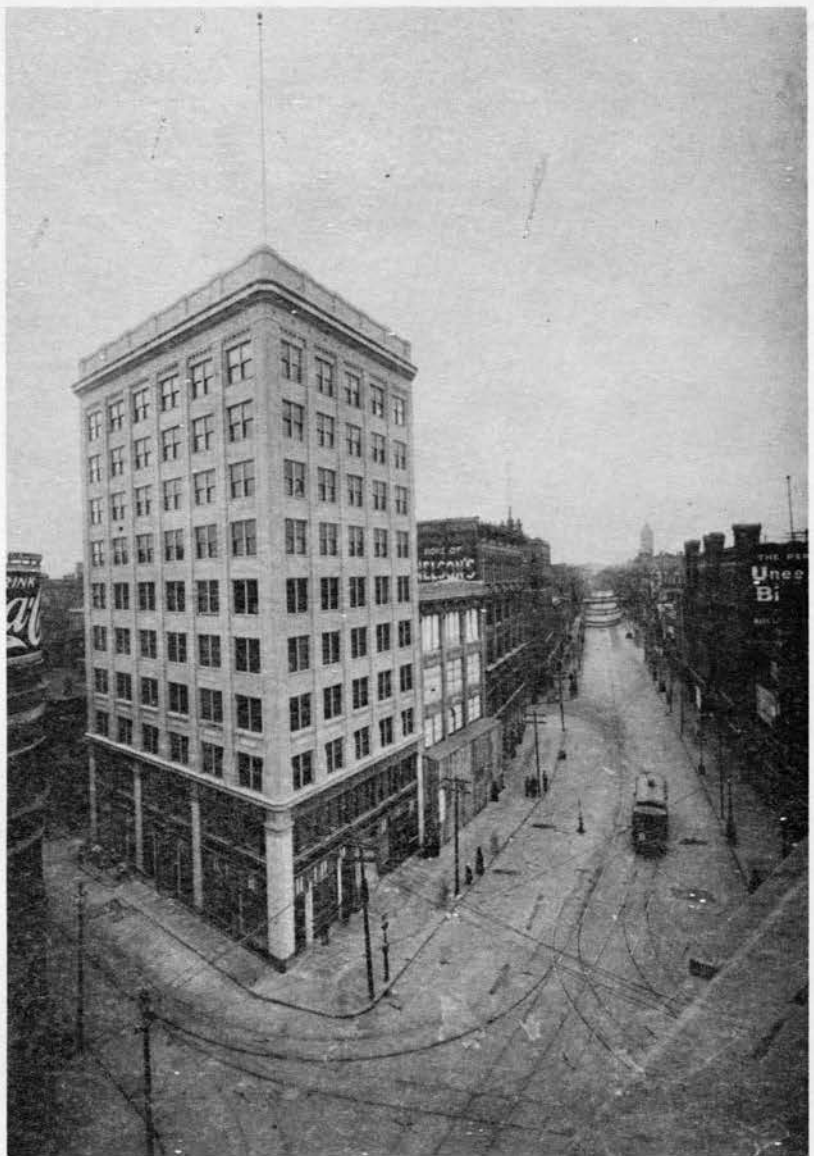


Figure 3-36  
Lowell  
Memorial  
Auditorium,  
as it  
appeared  
when built  
in 1923.



The Sun Building was the exception rather than the rule, for only a few of the commercial and institutional buildings of the early twentieth century exceeded the scale established in the preceding years. The 1922 addition to the Lowell High School with its considerable length overwhelmed the original 1892 building. The Memorial Auditorium was built in 1923 of appropriately monumental scale (Figure 3-36). More typical of the period was the Bradley Block in 1912 on Central Street (#135-187). The site was purchased from the Hamilton Company, whose print works had been an industrial intrusion on commercial Central Street since the 1830s. The long Bradley Block is only two stories tall, and like the conversion of the Boston and Maine Railroad Station to a New England Telephone office in 1896 and a movie theatre in 1915, it represented a decline in the intensity of use of the site. The railroad had relocated to a new depot on Middlesex Street beyond Thorndike Street in 1894, removing the Central Street stations' original function less than twenty years after it opened.

These breaks in Lowell's previous pattern of expansion did not yet apply to population growth, largely due to continued immigration from Europe. By 1910 the census recorded over 106,000 in the city, of whom only one-fifth were native born of native parents. The 1920 census recorded almost 113,000 residents, a total not exceeded since that date.

The purchase of Lowell Manufacturing by Bigelow Carpet, and the exodus of Bigelow from the city in 1914 marked only the beginning of an accelerating pattern that touched all the major mills within the next few years. The Middlesex Company leased a major portion of its manufacturing space to the Ipswich Hosiery Company in 1913, and when that lease was renewed in 1918 Middlesex ceased manufacturing textiles; its sole business became the leasing of space in its millyard. The closings or major reductions in operations that affected the rest of the major Lowell textile corporations and most of the minor ones as well came in the 1920s, within the next period discussed.

### Historic Resources

The Appleton and the Lowell Manufacturing/Bigelow Carpet millyards contain the greatest concentrations of industrial buildings of the 1894-1923 period within the District. Appleton demonstrates the challenges of rebuilding a millyard within a constricted, pre-determined site. The Lawrence, Massachusetts, and Boott millyards also contain structures or additions dating from that period. Massachusetts Mills' Storehouse C, built on former boarding house sites on Bridge Street in 1910 represents a new generation of mill buildings in its great height and length, and its reinforced concrete construction (Figure 3-34). Virtually the only Lowell Machine Shop/Saco-Lowell buildings that survive are the two reinforced concrete structures built in the early 1920s. Hamilton's Mill #7, built in two campaigns in 1911 and 1919, still occupies one whole side of that yard, facing mills built in the 1840s and 1880s.

Aside from the main millyards, factories of the period survive in various states of repair on the Concord River. The brick portion of the Waterhead Mills stand and is used as a furniture store (900 Lawrence Street, rear), but the wooden part burned down decades ago. This mill is quite unusual in its use of English bond brickwork. The U. S. Cartridge buildings on the opposite side of Lawrence Street (#685) suffered a major fire in recent years, but still present intact facades to Lawrence Street. A non-textile related industrial structure of considerable interest is the Father John's Medicine building on Market Street (#73-91). When the medicine manufacturer moved to that location in 1920, three distinct buildings stood on the site. The present unified facade was based on the design of the original central building, and was extended across the fronts of the two other buildings which otherwise were left intact.

The tall Sun Building of 1910 (Figure 3-35) and the long Bradley Block of 1912 (now the Saab Building) both still stand, representing two dimensions of 1894-1923 commercial building. The Colonial Building of 1906, facing Wyman's Exchange across Central Street at 24 Merrimack Street, is another prominent example of the period. The Neo-Classical Union National Bank Building of 1924, with granite facades



Figure 3-37 View of the west side of Adams Street, between Lagrange and Broadway Streets in the Acre neighborhood, November 1979.

on Merrimack (#61) and John Streets (#39) is comparable in scale to the adjacent Nesmith Building of the 1840s and 1850s which it imitates in plan (Figure 4-4). The Lowell Five Cents Savings Bank (36 John Street), built in the early 1920s opposite the John Street facade of Union National, is similar to the other bank in style but is built of brick with stone trim.

The Strand Theatre of 1917 still stands at 128-136 Central Street and is the last surviving major downtown movie theatre. Much of its ornate cast-ceramic marquee on Central Street is hidden behind a white metal screen. Several important public buildings of the period remain. An important city landmark, the Old City Hall, was transformed from a public to a commercial building in 1896 by means of a thorough, Colonial Revival-style remodeling. Lowell Trade High School on John Street (#64) at Paige Street retains its original exterior appearance (Figure 3-42) while the massive addition of 1922 to the main High School on Kirk Street dwarfs the original portion. The Memorial Auditorium built by the city in 1923 beside the Concord River on East Merrimack Street (#50) still serves as the terminus of that end of the central business district (Figure 3-36).

The LHPD contains several small areas developed with houses in the 1894-1923 period. Clare Street retains all of the original buildings from its initial development in the 1890s and early 1900s (Figure 4-32). Litchfield Terrace, a much smaller group, still has all seven of its houses, built ca. 1910. North of the Merrimack River, half-a-dozen larger houses built in the 1910s and early 1920s stand above the V.F.W. Highway. Both their view of Pawtucket Falls and their Colonial Avenue addresses (#22-92) predate the Highway. Within the Acre frame residential blocks built in the first decades of this century are the most common predominant building type (Figures 3-37 and 4-13). The four-story, wood-frame Panagiotopoulos Building at 172-178 Adams Street, built ca. 1900-1905, and some of the small, two-story houses along Marion Street between Lagrange and Broadway Streets represent two extremes within this period and type.

No archeological sites of potential significance dating primarily to the 1894-1923 period were identified within the LHPD.



Figure 3-38 View of the foundry of the Lowell Machine Shop during demolition, ca. 1932.

COLLAPSE OF THE LOWELL TEXTILE INDUSTRY: 1924-1969

The Bigelow Carpet Company's abandonment of the Lowell Manufacturing millyard in 1914 and the end of Middlesex Company's production of textiles in 1918 initiated the dissolution of Lowell's textile industry. The Boott Mills and the Merrimack Company remained in operation on a reduced scale into the 1950s. For most of Lowell's textile corporations, however, the 1920s were the decade of the general collapse. In 1920, the Lowell historian Frederick Coburn could still optimistically write in his History of Lowell:

There were those who in 1890 foresaw a shrunken village where once spindles had been counted by the hundreds of thousands. Such catastrophes rarely befall, and Lowell has shown the energy and adaptability characteristic of American municipalities. It has stood up under competition; it has yielded to no "fell clutch of circumstance."

Ten years later, the city was not "a shrunken village," but its population had fallen by a full 12,000 to just over 100,000, and its major corporations were dissolved, or operating at a reduced scale. The Hamilton Company halted production in the early 1920s, and by 1930 the millyard was owned by Marden and Murphy, "Industrial Liquidators." They demolished the last of the Hamilton boarding houses in 1934 and razed the Print Works in 1935-36. The Appleton, Massachusetts, and Tremont millyards had all ceased production by 1929 and sold their equipment, and in the 1930s Merrimack Manufacturing bought the Tremont millyard and razed its buildings. Saco-Lowell Shops closed the Machine Shop yard in the late 1920s, and most of it was razed in the 1930s (Figure 3-38).

The Lawrence Company was purchased in 1926, and much of the millyard was then sold off piecemeal between 1927 and 1939. The Suffolk millyard continued to operate under new ownership into the 1930s, then it too was closed in 1936. The Middlesex Company, which had not produced textiles since the 1910s, finally was liquidated in 1946, and the remaining mill buildings were demolished in 1956. The Merrimack Company operated in reduced fashion and with reduced buildings until a reorganization in 1952, then closed



shortly thereafter. Much of its millyard and housing survived into the 1960s (Figures 3-39 to 3-41), then were demolished.

The Boott Mills remained in operation through the 1940s, with as many as 1,200 operatives employed, up from a Depression low of 725. Cotton manufacturing continued until 1956, when the millyard began to be rented to a variety of smaller manufacturing concerns.

The smaller textile mills suffered fates similar to the major establishments. The Faulkner Mills were producing until about 1932, then were demolished in 1937. Stirling Mills ceased textile production in the mid-1930s, and has rented space to manufacturers since that time. Belvidere's two millyards were separated by a reorganization in 1914, and neither of the two yards produced textiles through the 1920s.

The little new construction that occurred within the District in the 1930s was government-sponsored. A new Post Office was built on East Merrimack Street in 1930-31, a Neo-Classical design of gray granite, with an entablature and balustrade of matching gray terracotta. It stands between the Concord River and the Eastern Canal, on land formerly occupied by a Massachusetts Manufacturing building. An annex to the Trade High School was built in 1939 at the corner of John and French Streets (Figure 3-42). The architect was Harry Prescott Groves, who had designed the original Trade High School next door in 1900.

Perhaps the most significant of the Depression-era building campaigns was the construction of the North Common Housing Project in 1939 and 1940. Much of the northern part of the Acre was razed for this project, portions of which are within the LHPD Boundaries.

The city's population increased by about 1,000 between 1930 and 1940, reaching just over 101,000. A decline of about 4,000 was recorded by the 1950 census, and by 1960 the population had dipped to 92,000, almost 3,000 below the 1900 figure. By 1960, some of the decline must be attributed to increased ownership of automobiles, and the accompanying trend toward suburbanization.

Figure 3-39  
Merrimack Manufacturing  
Company's "New Block"  
boardinghouse row on  
Dutton Street, built  
ca. 1845, photographed  
1960.

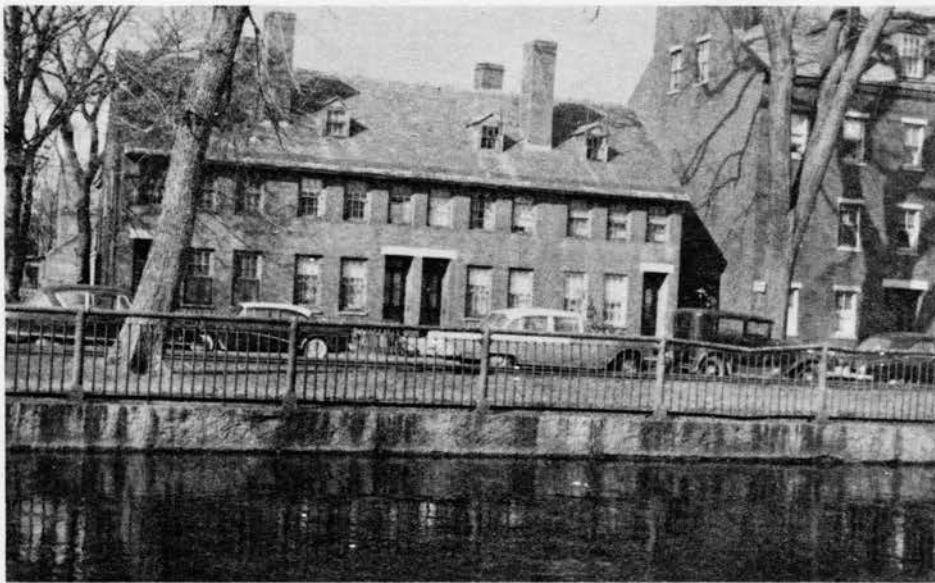
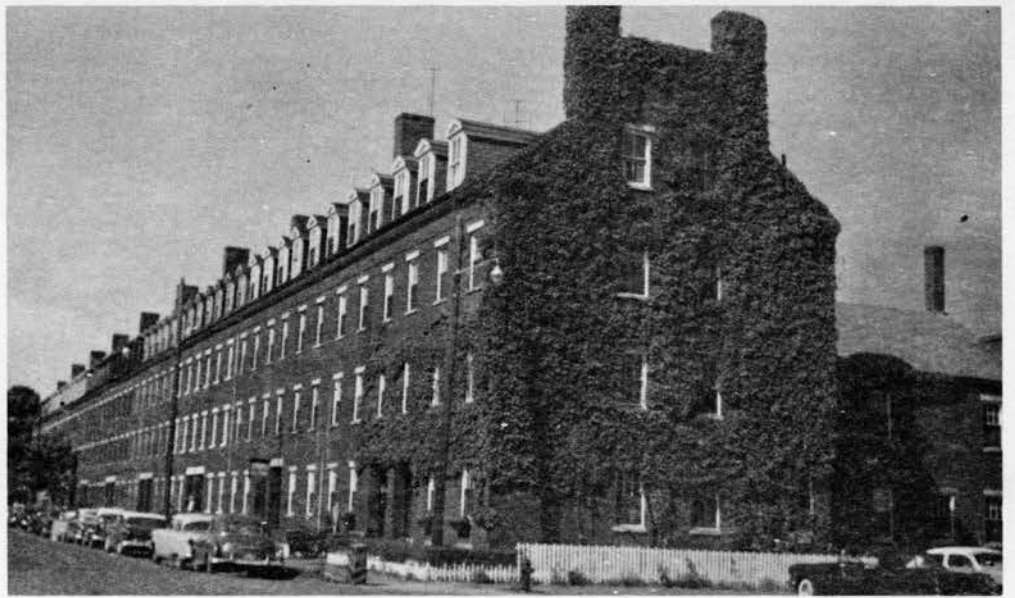
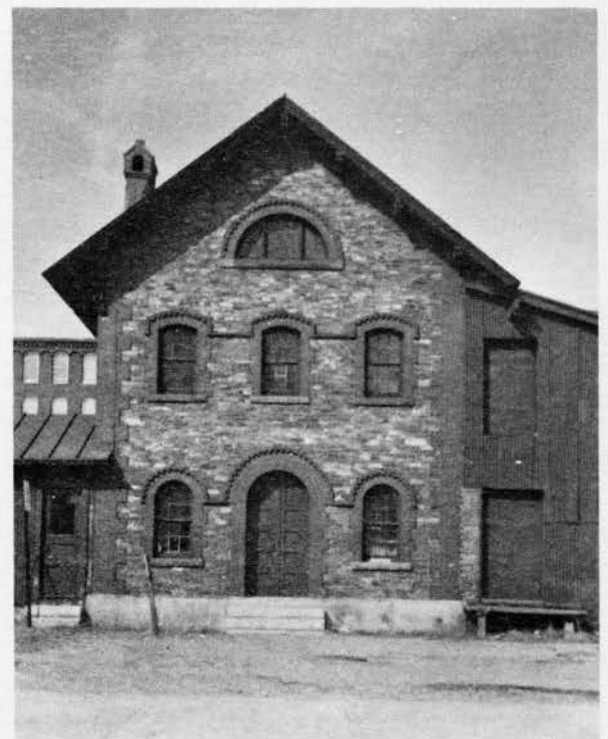


Figure 3-40  
Merrimack Manufacturing  
Company boardinghouse  
on Dutton Street, built  
ca. 1822, photographed  
1960.

Figure 3-41  
Proprietors of Locks and  
Canals "Grist Mill" on  
French Street at the foot  
of Anne Street, built in  
1883, photographed 1960.



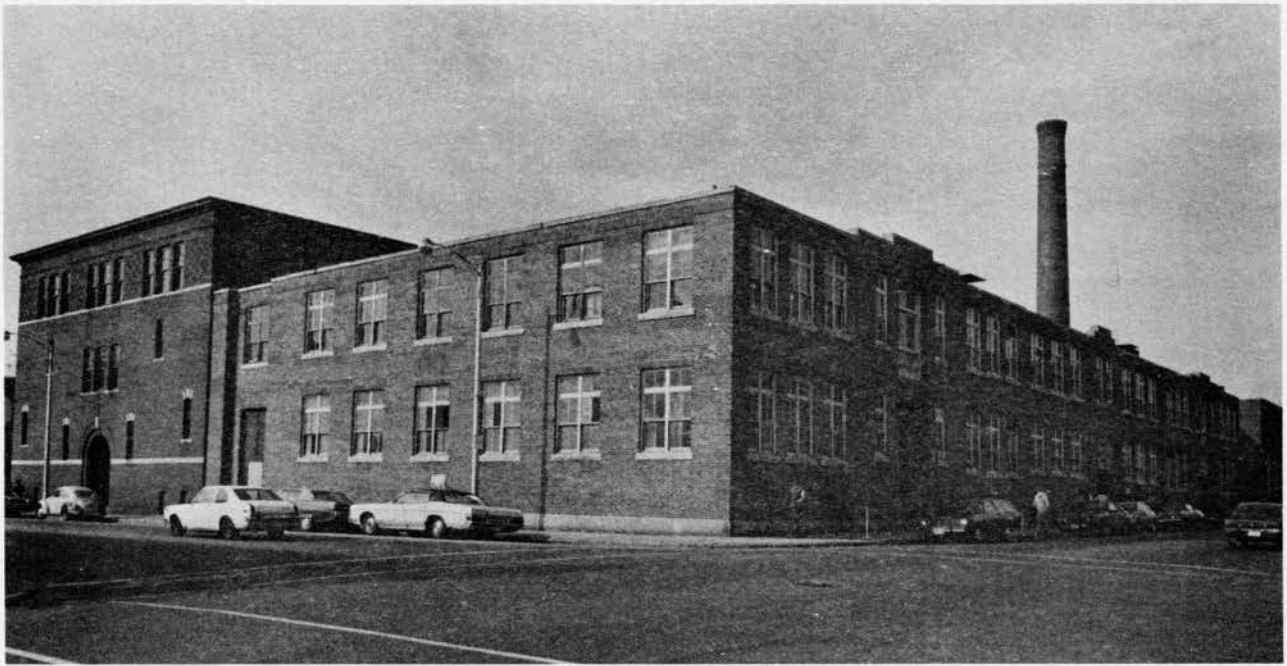


Figure 3-42 Lowell High School Annex, John and French Streets, built in 1939, and the old Trade High School (left) built in 1900. Photographed 1979.



Figure 3-43 View from John Street of the Cherry and Webb store, remodeled in 1953, photographed 1979.

Lowell's development in the 1924-1969 period is symbolized not by buildings, but by parking lots from which buildings were removed. Within the business district, new construction was rare, although projects involving remodeling, refacing, or adding and subtracting stories were (and are to the present day) fairly common. The Cherry and Webb Store at the corner of Merrimack and John Streets incorporates portions of at least three early buildings behind its 1953 metal facade, including whatever remnants of the "Marble Bank" that had survived earlier remodelings (Figures 3-43 and 3-27). No matter what the external appearance of a building in the central Lowell area, it is wise to suspect the existence of older building fabric within.

If the characteristic legacy of the 1924-1969 period in Lowell is the parking lot, a corresponding debt must be acknowledged for the preservation of the vast quantity of historic resources that did survive. The canal system, seven of the eleven major millyards, whole neighborhoods of nineteenth century houses, a central business district rich and varied with historic buildings, and countless other irreplaceable historic resources were not demolished. On these resources and on the "energy and adaptability" of Lowell's citizens described by Coburn in 1920, the revitalization of Lowell will be based.

REVITALIZATION OF LOWELL: 1970 to present

The demolition of the Merrimack Company millyard and boarding houses in the early 1960s confirmed a local conviction that Lowell was on a wrong course, that the city was destroying those features that make Lowell a special place. By the early 1970s, initial planning and demonstration projects based on Lowell's unique historic resources were underway, supported by the Model Cities Program and other agencies and foundations. In 1971, the non-profit Human Services Corporation was established in support of the goals of using the city as an educational resource, enhancing its environment, and pursuing economic revitalization through the preservation and presentation of Lowell's historic resources. Also toward these ends, legislation was introduced in Congress in 1972 and 1973 to create an Urban National Cultural Park in Lowell. Also in 1972, the City Council passed a resolution designating the cultural park concept as the basis of local planning efforts. A tangible result was the commitment of substantial funds to park-oriented revitalization efforts, totalling \$12 million between 1975 and 1978.

In 1973, the state authorized the City Hall Historic District Commission. It was empowered to review all exterior changes to buildings within the designated District.

The publication in 1973-4 of Lowell Urban Park, a product of the Human Services Corporation, helped crystalize the planning effort. The Commonwealth of Massachusetts authorized the Lowell Heritage State Park in 1974, with goals of preserving Lowell's historic resources and fostering their appreciation and enjoyment by the public. In 1975 Congress established the Lowell Historic Canal District Commission and charged it with preparing a plan for the preservation and interpretation of Lowell's historic resources. Published in 1977, the report of this commission, together with the cooperative efforts of the National Park Service, the Department of the Interior, and Paul Tsongas (first as Congressman from the Lowell district, then as a Senator) produced the legislation that Congress approved in 1978 and President Carter signed into law. Designated Public Law 95-290, "An Act to provide for the establishment of the Lowell



Figure 3-44 View of the Lowell National Historical Park office on Merrimack Street in the Welles Block, 1979.

National Historic Preservation District. Both of these entities took active form in Lowell during 1979. (Figure 3-44).

These public efforts have had a private counterpart in restoration and rehabilitation projects, particularly in the central business district. In some cases aided by a facade improvement grant from a fund established by local businesses, owner-occupants as well as developers have rehabilitated many structures in recent years, and work is underway on several others in 1979.

Lowell has survived, and has found in its past the means to prosper again. The challenge it faces lies in maintaining a strong local voice in the discussions of the city's future.

## CHAPTER FOUR

### PATTERNS OF RESOURCES, PATTERNS OF USE: THE PARK AND THE DISTRICT TODAY

The task of coalescing the information on the 895 properties recorded by the inventory into a comprehensive picture of the Park and the District resembles the challenge Humpty Dumpty presented "all the king's horses and all the king's men." The preceding chapter adopted a chronological approach to that task. This chapter focuses on the present-day Park and District and describes how the historical resources relate to one another and to current patterns of land use and activity in Lowell.

Twelve more or less discrete areas within the LHPD can be identified. These do not necessarily correspond to neighborhoods within the city as a whole, since the Park and District boundaries apply their own organization, based largely on the canal system, to the city. The factors which determine these twelve areas are geographic divisions, patterns of activity and land use, and concentrations of historic resources. Fewer, larger areas could have been described, but a "finer grained" approach was chosen to permit discussion both of major concentrations of resources in central areas, and of historical features important to lesser-known parts of Lowell. The twelve areas are outlined on a fold-out map at the end of this chapter.

#### AREA 1--CENTRAL BUSINESS DISTRICT

The Central Business District (CBD) is pre-eminent within the Park and the District for its present-day vitality and its rich historic fabric. This area extends from the Memorial Auditorium on the east, along Merrimack Street to City Hall and the Memorial Library on the west, and from French Street on the north to Market Street on the South. Middle, Palmer, and Shattuck Streets south of Merrimack, and



John, Paige, Lee, and Kirk Streets north of Merrimack are within the CBD. It is a busy area of stores, banks, restaurants, and private and governmental offices but also includes numerous underutilized structures. There is an encouraging trend in the area toward rehabilitation and fuller occupancy rates. In addition, a number of buildings are undergoing conversion to subsidized housing, under the auspices of the Section 8 Program of the Department of Housing and Urban Development.

The heart of the CBD and the heart of the city is Merrimack Street, Lowell's "Main Street." It is lined by a varied collection of commercial and institutional structures, dating primarily from the nineteenth century. Red brick is the predominant material, but granite, yellow brick and Lowell's characteristic rubblestone construction are also represented along the street.

The most prominent landmark on Merrimack Street is the "New" City Hall, which with its companion Memorial Library was completed in 1893 (407 and 415 Merrimack Street, respectively). When City Hall was built, Monument Square was a fitting forecourt to the impressive granite building (Figure 4-1). Among the buildings enclosing the Square in 1893 were a leading hotel, a train station, a large new office building, and some handsome houses owned by the Merrimack Manufacturing Company. Of those buildings only a single house still stands, and the modern Square is primarily a wide traffic intersection (Figure 4-2), flanked by open lots or low buildings including a self-service gas station and a tire store and automobile repair shop. The City Hall and the Library are by no means without neighboring historic structures, however. Across Merrimack Street are the Bank Block of 1826 (#350-376), the First Congregational Church of 1884 (#400, now the Smith Baker Center), and the Green School of 1870 (#408). This diverse row of buildings is characteristic of the variety that is a delight and a strength of the CBD.



Figure 4-1 View of Monument Square from the east, ca. 1895.



Figure 4-2 View of Monument Square from the east, 1979.

Across the Square from City Hall a pair of mid-nineteenth century structures beside the Merrimack Canal serve as reminders of the industrial foundation on which the city was built, as does the canal itself. It was dug in 1822 to power the mills of the Merrimack Manufacturing Company. A restaurant now occupies the brick structure that same company built ca. 1860 as housing for employees (91 Dutton Street). In front of the restaurant is the Merrimack Gatehouse on the bank of the canal. Since 1848 the gatehouse has controlled the flow of water into the Merrimack Canal from the Moody Street Feeder, an underground tunnel off the Western Canal.

On the other side of the canal, a pair of major Lowell landmarks face one another across Merrimack Street. On one side are St. Anne's Church and Rectory (237 Merrimack Street and 8 Kirk Street, respectively), built in the mid-1820s. St. Anne's is distinctive on predominantly commercial Merrimack Street for its clearly ecclesiastical form, gray rubblestone material, and spacious, fenced lawns. Adding to the openness of the churchyard is the adjacent Lucy Larcon Park and the Merrimack Canal. Across Merrimack Street from St. Anne's Old City Hall (#226) retains its original Greek Revival scale and basic form. The 1829-30 building underwent a Colonial Revival remodeling in the mid-1890s which changed the windows and applied considerable new decoration to the building.

East of St. Anne's and the Old City Hall Merrimack Street is walled in by solid ranks of commercial structures. On three key intersections there are early buildings with rounded corners, a favorite Lowell motif. The Wentworth Block (#256) of ca. 1844 stands on the Shattuck Street corner, modified by the addition of a mansard roof. The Welles Block (#175) of 1846 occupies the corner of Kirk and Merrimack Streets, and the Nesmith Block (#83) has stood at Merrimack and John Streets since the mid-1830s. A sample of the eclectic group of buildings on Merrimack Street also includes structures of the 1850s--the "New" Nesmith Building of ca. 1850-56 (#65); the 1860s--the Robbins Building occupied by Prince's Books (#102-110); the 1870s--the Masonic Temple of 1872, now called the Hosford

Building (#134 and Figures 3-28, 3-29, and 3-30); the 1880s--the Hildreth Building of 1882-4 (#45) and Wyman's Exchange of ca. 1880 (#60); and the 1890s--the Runels/Fairburn Building of ca. 1892 and the Howe Building of ca. 1894 (both on Kearney Square at the foot of Merrimack Street). Early twentieth century buildings important to the streetscape are the Colonial Building of 1906 (#24) and the ten-story tall Sun Building of 1910 (#8 and Figure 3-35), the first Lowell skyscraper and the only one in the CBD. No other Lowell street has so many historic structures representing such a comprehensive range of styles and dates.

Merrimack Street's greatest strength lies not in its individual structures, however, but rather in the vibrant streetscape they form as a group. The long block between Central and Palmer Streets is particularly well composed, with the granite facade of the Hosford Building near its center flanked by ranges of brick buildings. The cohesiveness of the block could be considerably enhanced by a sympathetic rehabilitation or refacing of the Executive Building at #100 (Figure 4-3). Its present blue and pink metal and glass facing was installed in the early 1960s over two nineteenth century buildings. A re-exposure of these structures, if possible, or else a more compatible new facing would constitute a substantial contribution to the whole CBD.

Another significant Merrimack Street group wraps around the corner of John Street, and extends east towards Bridge Street (Figure 4-4). The corner Nesmith Block presents a curved facade to the John and Merrimack Streets intersection. Two other structures with twin facades on Merrimack and John Streets wrap around the ca. 1836 Nesmith Block. The "New" Nesmith Building has lost half of its Merrimack Street facade (#65, built ca. 1850-56), but retains all of its oddly asymmetrical John Street front (#35-35, built ca. 1841-50). On the John Street side one of the original arched storefronts is still visible and others may survive beneath the glass and metal panels. The other "wrap-around" building was constructed for the Union National Bank in 1924, and displays Neo-Classical granite facades on John Street (#39)



Figure 4-3 View from John Street to the south side of Merrimack Street, 1979.



Figure 4-4 View of the Nesmith Buildings at the corner of John (left) and Merrimack (right) Streets, 1979.

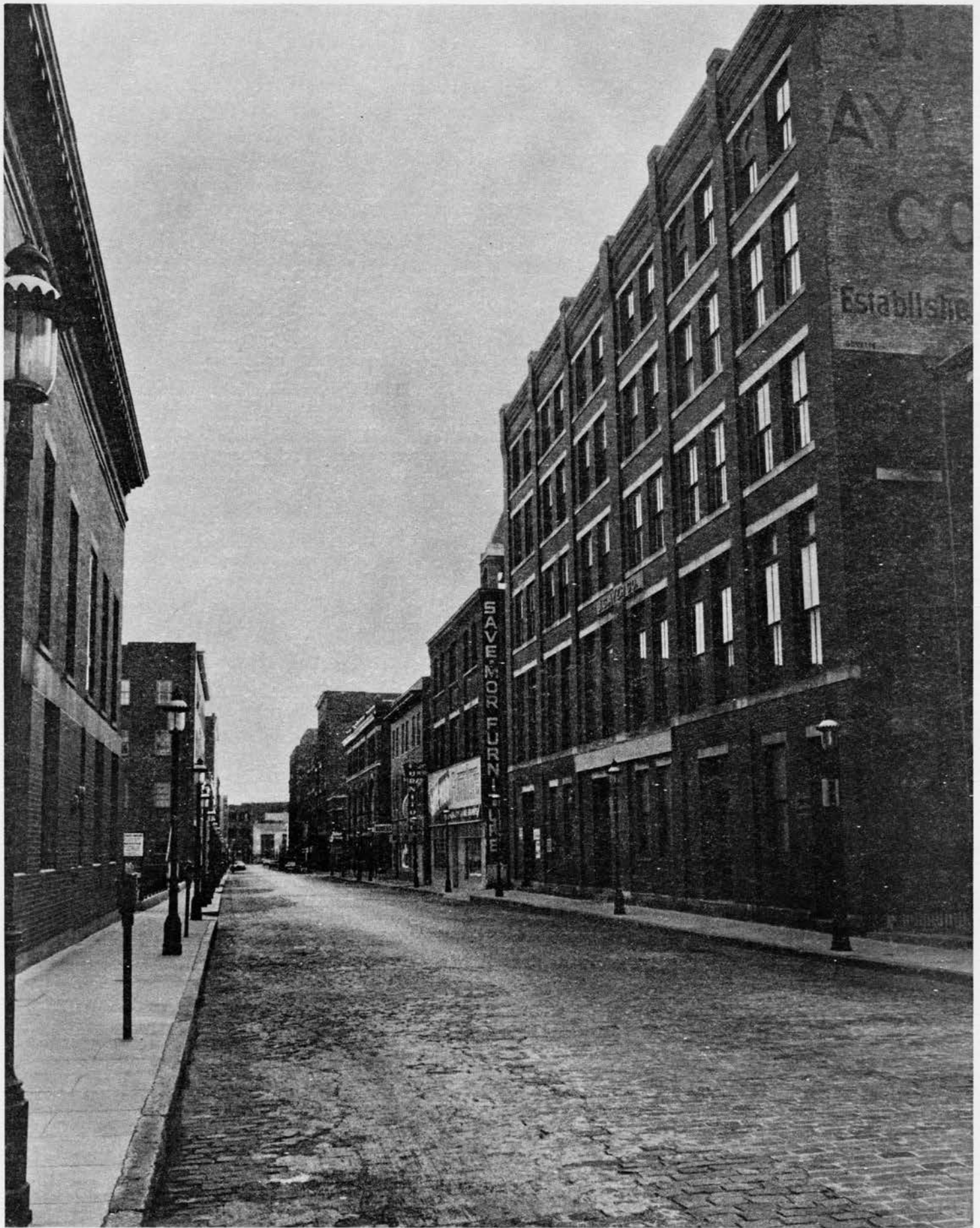


Figure 4-5 View east on Middle Street, 1979.

and Merrimack Street (#61). Completing this Merrimack Street group is the Hildreth Building (on the far right in Figure 4-4). In scale and materials it is a fitting culmination to this diverse collection of buildings. This group would be enhanced by a re-exposure of the red brick and granite trim of the corner Nesmith Block and a restoration of the stuccoed facades and John Street storefronts of the wrap-around Nesmith Building. Two one-story storefronts and a vacant lot separate the Hildreth Building from the corner Simpson Block (1-5 Merrimack Street) at Bridge Street. Sensitive new construction of three or four-story height could bridge the gap between the Hildreth and the corner building and make of the whole block a richly varied, cohesive urban design.

Even some of the discordant notes along Merrimack Street are nineteenth century in origin. The block between Kirk and John Streets has three and four-story buildings at either end, then steps down to one-story storefronts at mid-block. Historic views of the street show that the present jagged profile of this block replicates the late nineteenth century outline, and many of the modern-looking buildings may have older cores.

Not all the historical buildings in the CBD are located on Merrimack Street. Middle Street was largely redeveloped in the 1880s and 1890s, and since that date has retained most of its four and five-story brick structures. These now comprise the most homogenous and concentrated street of nineteenth century commercial structures in the city (Figure 4-5).

Other streets in the CBD have suffered more recent redevelopment and more extensive demolition, and only scattered historic structures survive. On the north side of Market Street, between Central and Dummer Streets, the key historic buildings are three industrial structures-- the Father John's Medicine Building at #91, a 1920 reworking of three earlier structures; the J. C. Ayer and Company patent medicine factory at #165, built ca. 1858-9; and the Gates Block at #307, a leather belting factory built in 1881.

North of Merrimack Street, important institutional structures and fragments of mid-nineteenth century residential development are the major historical features of the underutilized northern edge of the CBD. The old portion of the Lowell High School on Kirk Street (#30, built in 1892), the Shrine of St. Joseph the Worker on Lee Street (#37, built in 1850 and enlarged in the 1870s), the former Kirk Street Primary School (#31, built in 1881, now the AHEPA Center), and the old Trade High School at the corner of Paige and John Streets (64 John Street, built in 1900), are the major structures in that area. They all remain in institutional use. The smaller residences along Kirk and Paige Streets are less well-preserved, but serve as important reminders of the original residential component in this neighborhood. The most significant of the houses on these streets is the double house built in 1846 for the agents of the Boott and Massachusetts Mills (Figure 4-6), but that structure is more properly included with the industrial area north and east of the CBD.

#### AREA TWO--BOOTT AND MASSACHUSETTS COTTON MILLS

The Boott and Massachusetts millyards north and east of the CBD comprise a distinct area of historic importance and future promise for the city. The agents' house at 63-67 Kirk Street (1846) and the Massachusetts Mills boarding house at 28-56 Bridge Street (ca. 1840) can properly be included in this area. Lowell has lost almost all of its company-owned housing, increasing the significance of these remaining structures.

The feature that historically linked and still joins the Boott and Massachusetts millyards is the Eastern Canal. The mills retain their historical relationship to this canal, drawing its water to drive electrical generating turbines. The massive granite blocks of the wall of that canal in front of the Boott yard, and the swiftly flowing waters themselves are conspicuous historical assets of the Boott/Massachusetts area.

Both millyards are among Lowell's most intact, retaining major original buildings and typical later structures and alterations (Figures 4-7 and 4-8). The four original mills in each yard



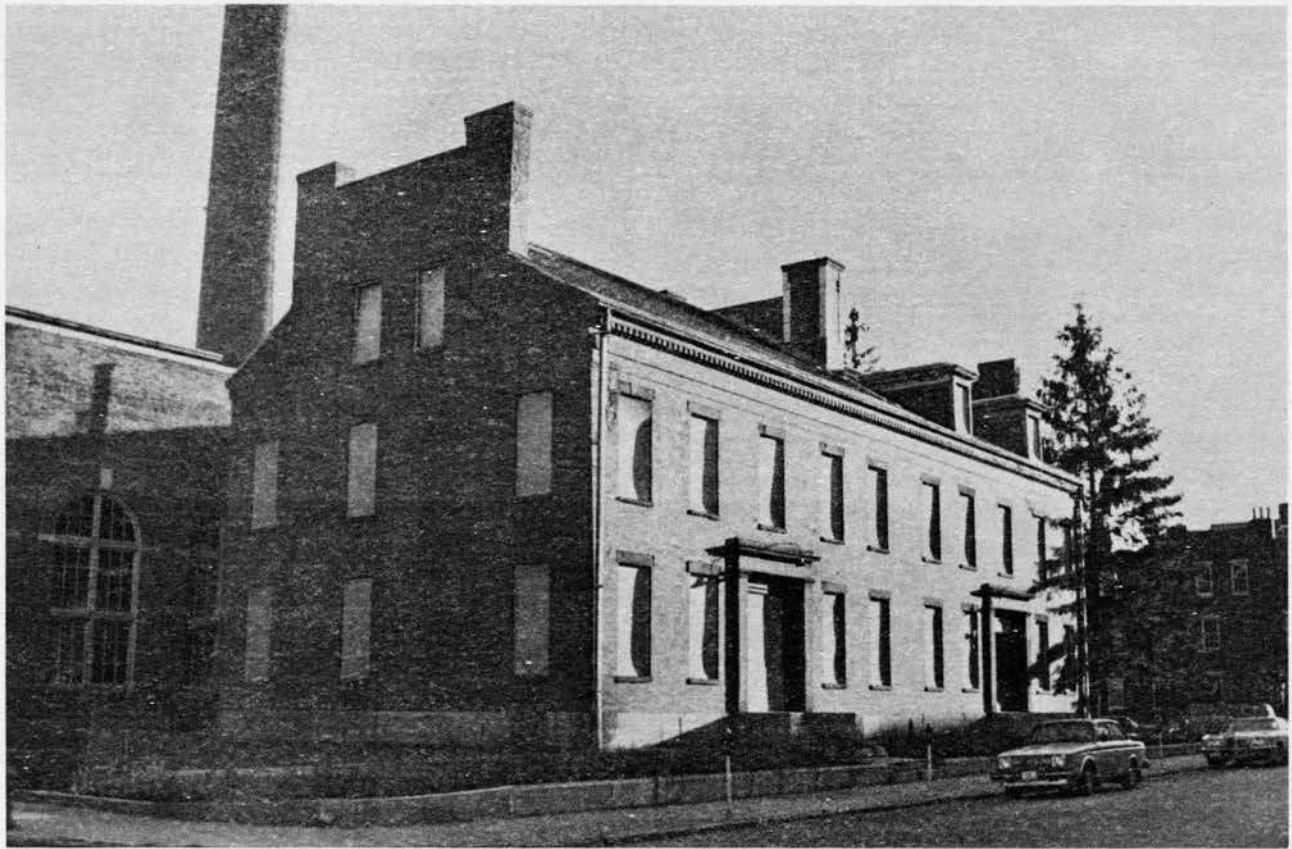


Figure 4-6 Massachusetts and Boott Cotton Mills Agents' House, 63-67 Kirk Street. Built 1846, photographed November 1979.

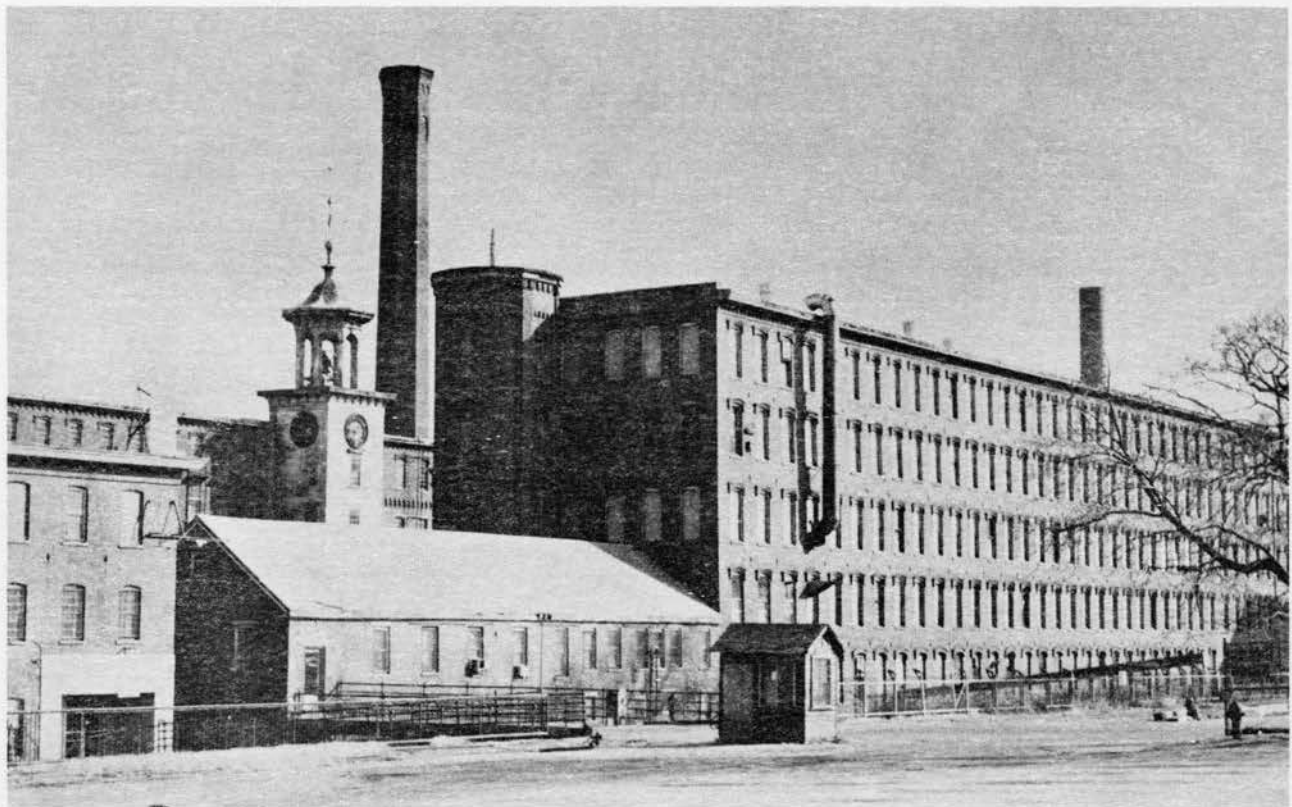


Figure 4-7 View of Boott Mills from the west, 1979.

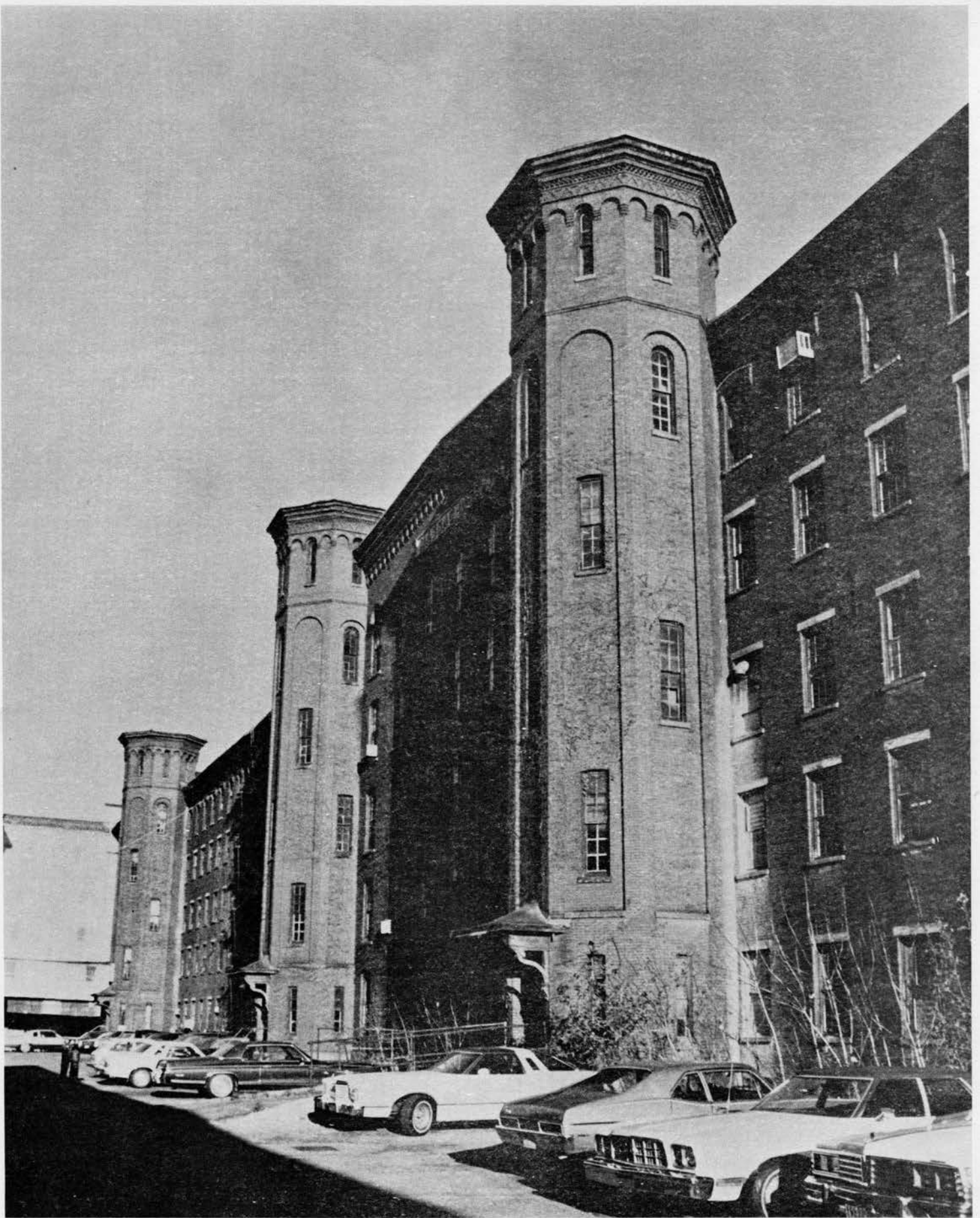


Figure 4-8 View of Mill No. 1, Massachusetts Cotton Mills, 1979. Right and left sections built 1839-40, center section 1862, left stair tower 1872.

have been linked into longer units and increased in height, but are still clearly discernable (Figures 3-9, 3-10, 3-16, and 3-20). These additions to the first mills, and the extensive later construction surviving in both yards testify clearly to the continuous growth and increasing scale of the Lowell mills in the nineteenth century. The millyards are still busy places, with a variety of industrial and commercial tenants occupying nearly all the habitable space, but both also have empty buildings in need of rehabilitation.

Due to the size of their structures and their riverbank locations, these two mills are major visual landmarks of central Lowell when seen from the north, east, and southeast. Their clock and stair towers and chimneys are particularly prominent and positive contributors to the Lowell skyline.

#### AREA THREE--LAWRENCE AND SUFFOLK MILLS

Northwest of the Boott Mills, beyond the former site of the Merrimack Manufacturing Company, is another major industrial area of the Park and the District. It includes the razed Tremont millyard and the Lawrence and Suffolk mills. The Northern Canal runs through this area, and South of the canal there is a handful of houses within the LHPD. The character of this area both north and south of the canal is determined by a combination of significant historic structures, vacant lots disrupting the historic development patterns, and new construction which is generally incompatible with the older buildings in material and scale.

The most important historical features of the area are the broad Northern Canal and the Western Canal into which it flows, and the Suffolk and Lawrence millyards. Most of the Suffolk structures date to rebuilding projects of the Civil War period and later (Figure 4-9), although three important earlier buildings do survive. The Counting House, 561 Suffolk Street at the entrance to the yard was built in 1831 and extended in 1844, and is little changed since then,

except for the loss of its dormers. To the rear of the yard off Cabot Street (#199) is one of the very few extant Lowell boarding houses, built in 1831-2, and converted to industrial uses in 1904 (Figure 4-10). Across the Northern Canal from the main millyard, another row of formerly Suffolk-owned housing still stands at 111-131 Cabot Street. This two-and-one-half story brick row was built ca. 1845-50, probably to accommodate skilled workers and their families in separate "tenements" or apartments.

Two modern-day occupants lend further importance to the main portion of the Suffolk millyard. The nascent Lowell Museum uses Suffolk mill buildings to house its interpretive displays on the history of the city. Elsewhere in the yard, Wannalancit Textile Company represents living history, producing textiles with the most traditional equipment of any mill in the city. This operation is a significant asset to the Park, and its continuation should be a LNHP goal.

The other major millyard in the area, that of the Lawrence Manufacturing Company, is the largest of the standing millyards (Figure 4-11). It retains structures dating from the 1830s to the early twentieth century in a complex pattern indicative of the almost unceasing growth of the Lowell mills in their first century. Like all of the major millyards, Lawrence now contains underutilized buildings, but the mills are by no means idle and the yard can still count textile manufacturers among its occupants.

The most unique structure of the Lawrence Manufacturing Company buildings is the Agent's House, standing outside the main yard at 119-121 Hall Street (Figure 4-12). Built in 1833, its construction of rubblestone with granite trim is not unusual in Lowell, but these materials were infrequently used by the major corporations. Its scale, even as a double house, is also grander than most of the known agents' houses in Lowell. The house has served as the Lowell Day Nursery since the 1920s.



Figure 4-9 View inside the Suffolk Manufacturing Company millyard, 1979.



Figure 4-10 View of the Suffolk boarding house on Cabot Street, built 1831-32, photographed 1979.

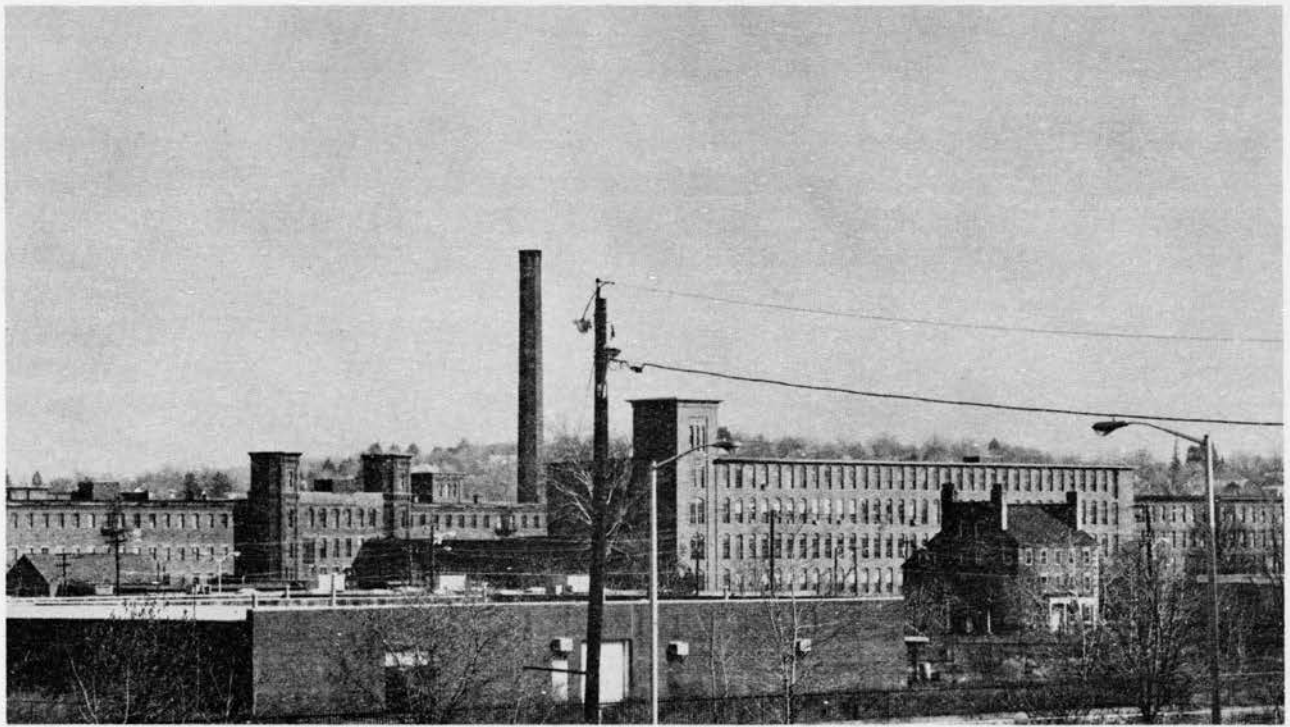


Figure 4-11 View of the Lawrence Manufacturing Company from the west, 1979.



Figure 4-12 Lawrence Agent's House, 119-121 Hall Street, built 1833, photographed 1979.

The Tremont millyard is a potential resource of the Lawrence/Suffolk area. Razed in the 1930s, the yard has not been redeveloped and could provide a site for an interpretive excavation of a major millyard, exposing foundations, waterways and other features of a water-powered textile factory not visible in the intact millyards.

Relatively recent events have altered the way the Lawrence/Suffolk area relates to the city. The replacement in the 1960s of narrow Ford Street with the wide French Street Extension has isolated this industrial district. In addition, the demolition of the Merrimack yard and of the secondary Lawrence yard that stood southeast of the Western Canal removed the middle from Lowell's "Mile of Mills", creating a wide gap between Massachusetts and Boott on the southeast and Lawrence on the northwest. Viewed from the Centralville side of the river, however, even this broken "Mile" is an awesome expression of the scale of Lowell's industrial enterprise.

#### AREA FOUR--THE ACRE

The Acre neighborhood is south of the Lawrence-Suffolk industrial area and west of the Central Business District. It is one of the very few areas included within the LHPD primarily for its historic importance as a residential section. Irish laborers pitched their tents and built their huts here in the first decades of Lowell's development. By mid-century more substantial houses accommodated a predominantly Irish populace. Towards the end of the nineteenth century and in the early twentieth, Lowell's growing Greek population settled in the Acre, eventually gaining ownership of most of the houses. In recent years, Hispanic immigrants have perpetuated the Acre's traditional function as Lowell's entry neighborhood.

The Acre historically included lands south of Market Street and north of Broadway on both sides of the Western Canal, and the area south of Broadway to Fletcher Street. Most of the northern portion of the Acre was redeveloped in the late

1930s as the North Common Public Housing Project. A few of the structures of that early public housing project are included in the LHPD, bordering the Western Canal. Adjoining the project buildings and facing each other across the canal are two monumental churches, symbolic of the two major historic groups to settle in the Acre and testaments to their deep religious faiths. The Irish Catholic community built St. Patrick's between 1853 and 1874, replacing with stone their original wooden church. Greek immigrants built Holy Trinity on the east bank of the canal between 1906 and 1908, less than a decade after the first substantial influx of that group into Lowell.

The southern portion of the Acre was not included in the North Common project. That area bounded by Cross, Fletcher, and Suffolk Streets is one of the most historically important and currently endangered residential areas in the LHPD. None of the original settlers' huts still stand, but the small houses that replaced them are represented (77 Adams Street, ca. 1845 and One Marion Street, c. 1851), along with much larger multi-family residences built in the later nineteenth century (236-246 Broadway and 28-30 Marion, both ca. 1870) and the still larger buildings constructed to house Greek immigrants in the early twentieth century (172-178 Adams Street, ca. 1900-05). Figure 3-37 illustrates a group of late nineteenth and early twentieth century houses in the Acre, while Figure 4-13 includes houses dating to the mid-nineteenth century.

Historic accounts of living conditions in the Acre in the 1830s, 1850s, and 1900s sound warnings of overcrowding and poor health conditions that still apply today. The combined forces of neglect, vandalism, and arson are now solving the problem of the Acre in a fashion that serves neither the residents nor the historic character of the city. During the time in which this inventory was conducted, at least seven nineteenth or early twentieth century structures were demolished in the Acre, and those removed in the last few years bring the recent total to well over a dozen. As long as abandoned buildings represent a fire





Figure 4-13 View of the east side of Adams Street between Lagrange and Broadway Streets, in the Acre, 1979.

hazard that threatens neighboring, occupied structures, this aggressive demolition must continue, but without a general reversal of the current trend there will soon be no Acre.

AREA FIVE--GREATER DUTTON STREET

The roughly triangular area framed by the Western Canal, the Pawtucket Canal, and Market Street was originally developed with major industrial complexes and related housing northwest of Dutton Street. The area retains some of its historic industrial structures and is still an important industrial center of Lowell. Some historic houses survive along Worthen Street, and Dutton Street has a fine row of nineteenth century commercial buildings.

The canals which enclose this area are some of its most important historic resources (Figure 4-14). The canals fan out from the main Pawtucket Canal to the scattered mill sites, and at the center of the fan is the Swamp Locks, the heart of Lowell's two-tiered waterpower system.

Within the spreading fan were key industrial complexes. The most important among these, the Lowell Machine Shop yard at the junction of the Merrimack and Pawtucket Canals, was demolished in the 1930s. Most of its yard is now used for parking, or as sites for low, modern industrial buildings. A few late Machine Shop structures still stand, and one, the large reinforced concrete structure at 305 Dutton Street, has certain symbolic importance. Built by the Machine Shop (then the Saco-Lowell Shops) in 1923, it is the last major building erected by one of the eleven, main-line Lowell corporations.

A far more intact complex of late nineteenth and early twentieth century industrial buildings stands at 491 Dutton Street. It housed the Kitson Machine Shop, once the world's largest producer of cotton-picking machinery. The buildings are now occupied by the Pellon Corporation, which also has modern buildings in the former Machine Shop yard.

The most historically important of the extant industrial complexes in the Dutton Street area is the millyard of the Lowell Manufacturing Company, located off Market Street between the Merrimack Canal and Pawtucket Canals. Lowell Manufacturing originally produced both cloth and carpets. In the late nineteenth and early twentieth centuries, the Bigelow Carpet Company owned and operated these mills. The Lowell Canal which supplied waterpower to the millyard was an open channel until ca. 1910, when it was covered over. Several buildings have been removed along Market Street, and all of the surviving structures date from the post-Civil War period through the early twentieth century. Most notable among these are the Brussels Weave Mill of 1882 (Figure 4-15), and the #2 Weave Mill (1902) along Market Street. The latter constitutes a major industrial presence along one side of the Central Business District, and terminates the important Shattuck Street vista from Merrimack Street.

Along Dutton Street opposite the Lowell Manufacturing Company is a fine group of late-nineteenth century brick structures. The earliest among them is the Italianate Richardson Block, built as a grocery store and residential block in 1870. Most of the rest of these two, three and four-story buildings were constructed in the late 1880s and early 1890s to house stores or small manufacturing establishments. They provide a useful comparison to the larger structures of similar purpose and style along Middle Street.

At the north end of this block, separated by a wide vacant lot from the nineteenth century structures, is Haffner's Gas Station and Lubritorium (215 Dutton Street). Built in 1935 and since diluted in impact by the loss of its matching canopy over the pump area, the gas station is incompatible with its neighbors in style or scale, but nevertheless is an interesting representative of its own period. The same firm operates another "period" gas station just outside the LHPD, on Appleton at South Street.

Paralleling Dutton Street to the northwest is Worthen Street, which contains a small, diverse

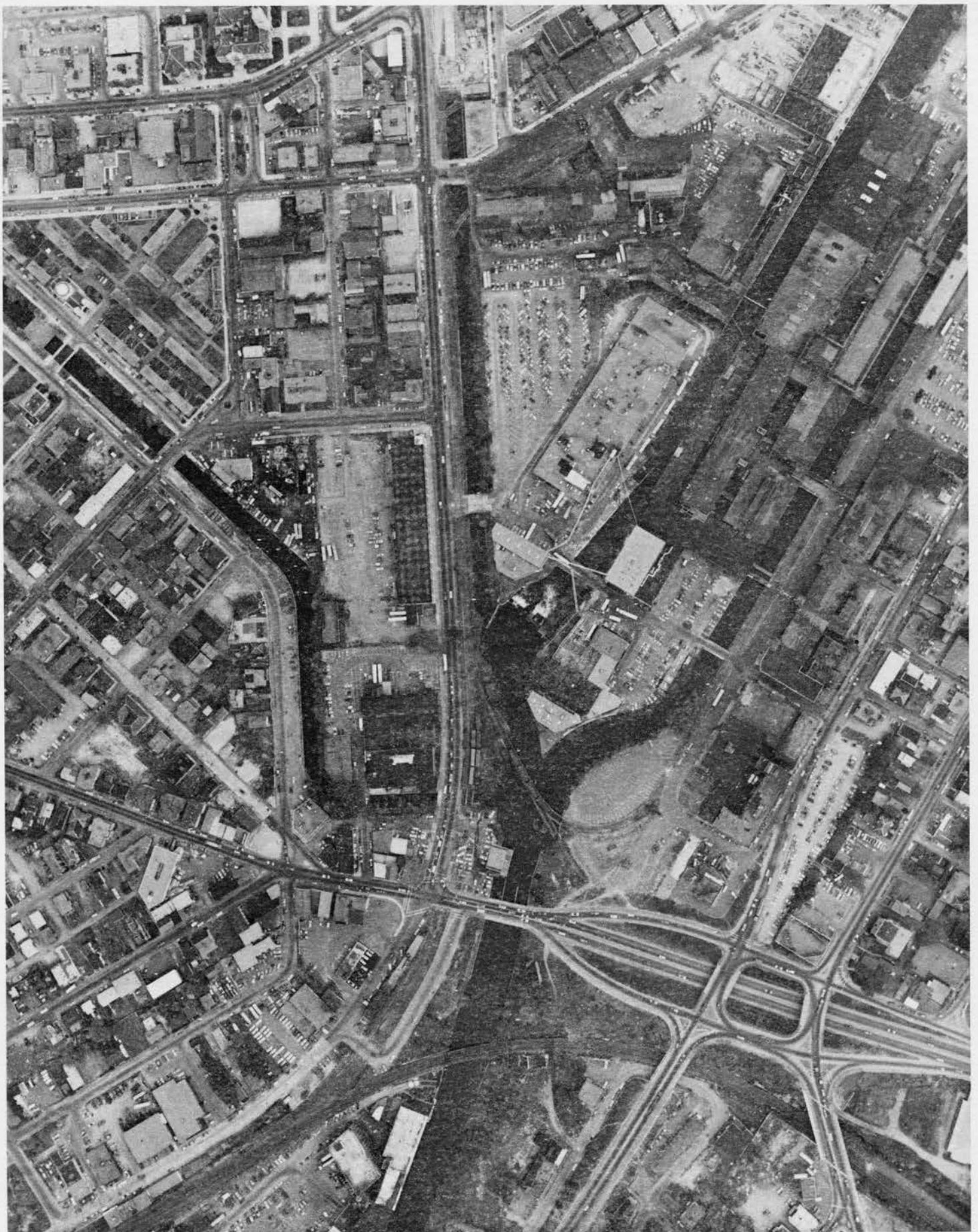


Figure 4-14 Aerial view of the central portion of the Lowell canal system, 1979. Swamp Locks are at center, and Pawtucket Canal extends from bottom center to upper right. Hamilton Canal branches to the right, Western to the left. Merrimack Canal is at top center.

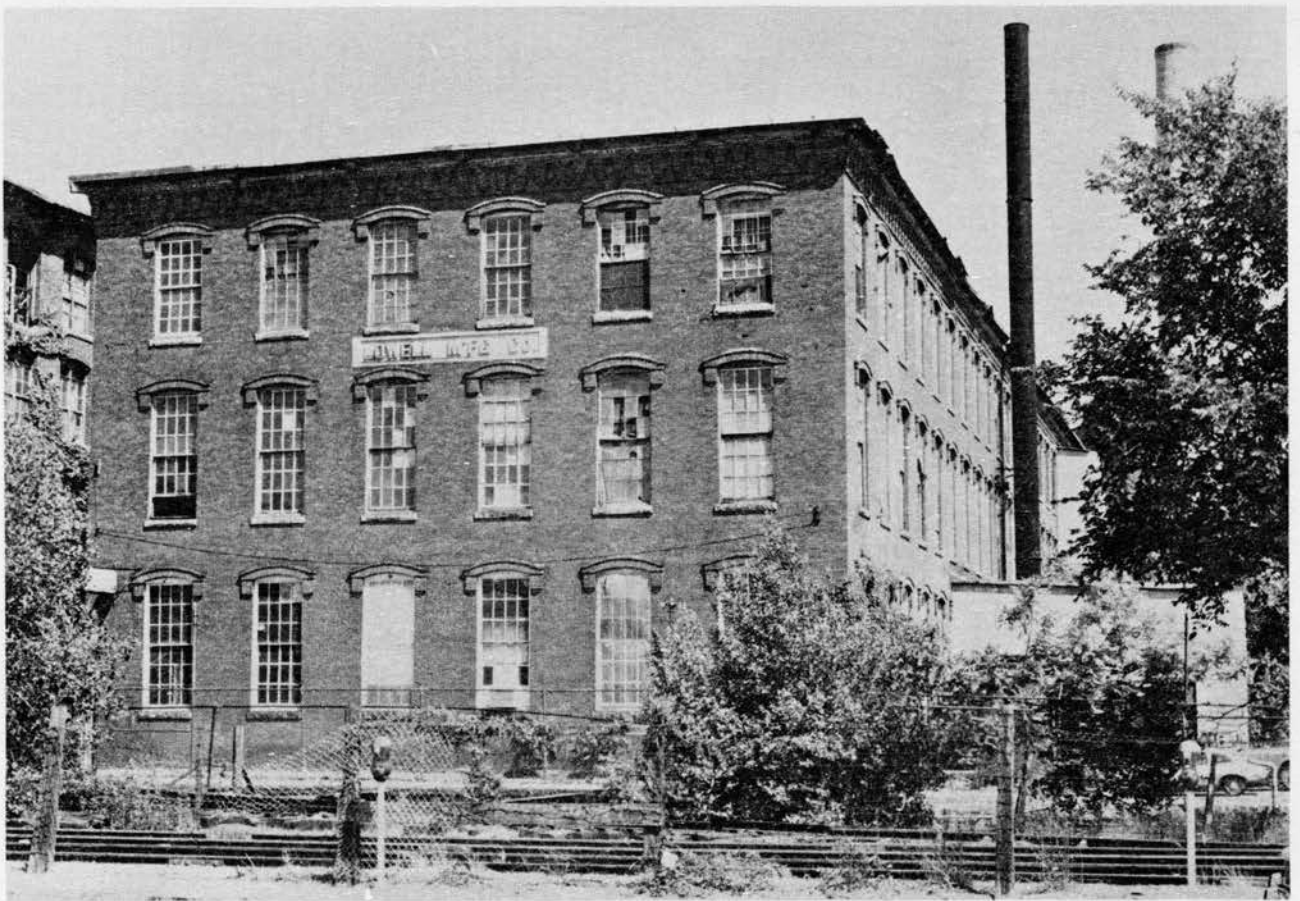


Figure 4-15 Brussels Weave Mill #1 of the Lowell Manufacturing Company, facing Dutton Street. Built 1882, photographed 1979.



Figure 4-16 Douglass House at 284 Worthen Street. Built ca. 1840, photographed 1979.

group of residences related to the nearby industrial sites. Pre-eminent among these is the wood-frame Moody-Whistler House, built in the mid-1820s for Paul Moody, the first superintendent of the Machine Shop. Now the headquarters of the Lowell Art Association, the house is best-known as the birthplace of James McNeil Whistler, the avant-garde nineteenth century artist. His father, Captain George Whistler, was more important in Lowell's history. He was the Chief Engineer who directed the Lowell Machine Shop's production of locomotives during the infancy of railroads in America. Across the street from the Moody-Whistler House are two wood-frame Greek Revival buildings, one originally the Worthen Street Methodist Episcopal Church (#200, built in 1842 and now the Lowell Girls' Club) and the other a double house (#222-224, built ca. 1850). Contrasting with that pair in style and materials is the brick double house at 284 Worthen Street, built in 1840 for a Machine Shop employee (Figure 4-16).

#### AREA SIX--GREATER CENTRAL STREET

The roughly counter-clockwise course of this discussion leads next to the Greater Central Street area. The portion of Central Street within the LHPD is a commercial area closely related to the Central Business District, but historically and in its present character it asserts a distinct identity. The short length of Prescott Street is part of this area on the north, as is Gorham Street on the south and the Old Market House on Market Street on the west.

The historic structures of this area are fewer in number than those of the CBD, and Central Street shows more intrusions and losses than Merrimack Street, but among the area's historic buildings are some of great interest. On Prescott Street, the adjoining Southwick Block and Claflin Building (#58 and #66, respectively, both erected ca. 1880) are among the city's most conspicuous and intact commercial blocks of that period, retaining even their cast iron storefronts. Both are only partially occupied and are in need of the most careful kind of rehabilitation.

Similarly, the Old Market House, just off Central at 40 Market Street, has the least altered exterior of Lowell's major institutional structures of the 1830s, and should be rehabilitated and returned to productive use. The vacant Strand Theatre's Central Street facade (#128, built in 1917) is mostly hidden behind a metal screen, but the extravagance of the visible terra cotta ornament is more than matched by the interior decoration.

The Old Mansur Block at 101 Central Street (Figure 3-12) and the New Mansur Building at #91 (now McQuade's) provide a clear illustration of the changes in style and scale commercial structures underwent between the 1830s and 1880s. If the proposal is carried out to open up the Central Street views of the Pawtucket Canal by the removal of #111 and of the building south of 104 Central, the view of the south end wall of the Old Mansur Building with its characteristics double, parapet-linked chimneys will also be enhanced. However, in evaluating that proposal careful consideration should be given to maintaining the visual continuity of the wall of facades along Central, since the street has been flanked with solid rows of buildings since the 1840s, when the first shops were built on platforms over the canal. Replacement of the buildings over the canal with elements which suggest a continuous opacity, such as heavy, cast iron fences, might achieve the dual purpose of providing a canal view and maintaining the integrity of the block faces when viewed in perspective up and down the street.

Two High Victorian Gothic buildings on Central Street were once among the finest examples of that style in Lowell. Both are now in need of assistance. The Appleton Block of 1879 (#166) has lost its original storefronts and the pinnacles, pediments, and cresting that enriched its roofline. However, the decorative brickwork and polychromatic trim that remain on the body of the building are arguments for removal of the metal screen and paint which conceal the main facade of the structure. The Boston and Maine Depot of 1876 at 238-254 Central Street has also lost towers and cresting that originally enlivened



Figure 4-17 View of the Central Street block between Middlesex and Jackson Streets, 1979.



Figure 4-18 Sketch of Central Street, suggesting a new building at #241.



its roofline, but it is unique as Lowell's only surviving historic train station. Both the structure and the street would profit by a more sympathetic display of its surviving features.

The west side of Central Street opposite the old B. & M. Depot contains one of the city's architecturally richest and most diverse commercial groups (Figure 4-17). At the Middlesex Street end is the Union Building (1-5 Middlesex Street and 249 Central Street), a curved corner building erected ca. 1830. It was originally about twice as long on Central Street and the remaining portion has undergone numerous evolutionary changes, including the installation of a cast iron storefront and alteration of the gable roof to a mansard. The Union Building retains its essential simplicity, however, especially when compared to the Fiske Building of ca. 1877 (#219) at the other end of the block. Like the Appleton Block and B. & M. Depot, this High Victorian Italianate structure has lost its original storefronts and roofline cresting, but with its cast iron cornice and window trim, it is still the most exuberant Victorian building in the city. Adjacent to the Fiske Building, Cook and Taylor's Building (Gray Furniture, #231) of 1884 demonstrates the rapidity of changes in architectural fashion in late nineteenth century Lowell, countering Fiske's highly decorated style with more restrained brownstone and copper ornament in the Queen Anne style.

The adjacent structures on Middlesex and Jackson Streets add to the visual and historic richness of this block. The Union Building is abutted by a small handsome Italianate building (9 Middlesex Street) constructed of brick in 1877 for Eli Hoyt, manufacturer of Hoyt's German Cologne. The Fiske Building abutts 28 Jackson Street the first factory James C. Ayer built (in 1852) to manufacture patent medicine, which in turn adjoins the small, brick, Greek Revival building (#32) which housed David Dana's brass foundry as early as 1832.

The universal use of red brick and the gradualness of the shifts in scale maintain the compatibility of this stylistically diverse concentration of historic buildings. The block does suffer one severe intrusion, however, the Saab Annex at 241 Central Street. In style, scale, and materials, the Annex clashes sharply with the rest of the block. That property is an excellent example of an appropriate site for new construction in an historic streetscape. Figure 4-18 illustrates how a sensitively designed new building could mend this block.

The individual and group strengths of the Central Street area do not end with the Union-Fiske block. The much altered J. J. Turner's Hotel at #278 is the oldest building in the area, dating to 1825, and recalls the early concentration of hotels on Central and nearby streets. Further south on Central Street, the Queen Anne-style Shedd Block of 1883-84 (#295) looms over the small shop beside it, built ca. 1830 (now Helen's Hair Haven, #289-291). On Gorham Street, which continues the line of Central Street where the latter curves slightly eastward in front of the B. & M. Depot, a visual terminus to the LHPD is provided by the Old Post Office at the corner of Appleton Street. That gray granite, Richardsonian Romanesque building (89 Appleton Street) is similar in material and style to the City Hall and Memorial Library, and opened the same year, 1893.

The Old Post Office does not quite complete the list of major historic resources scattered throughout the Greater Central Street area. Cater-cornered across the intersection from the Post Office is a trio of masonry buildings, all constructed ca. 1830 (Figure 4-19). The northernmost, a two-story brick building, was originally a tailor's house (#62). The central building, highly unusual in Lowell for its early construction of ashlar granite, was built as a double house (#72-76). The blocks of its facade are finely dressed, while the side walls are rock-faced. The southernmost brick structure, a full three stories tall, was built as the Lowell Hotel (#80). Nowhere else in the LHPD is there such a concentration of commercial/residential structures from Lowell's earliest period of



Figure 4-19 View of 62, 72, and 80 Gorham Street (left to right), all built ca. 1830, photographed 1979.



Figure 4-20 View of  
Appleton mills along  
the Hamilton Canal,  
1979.

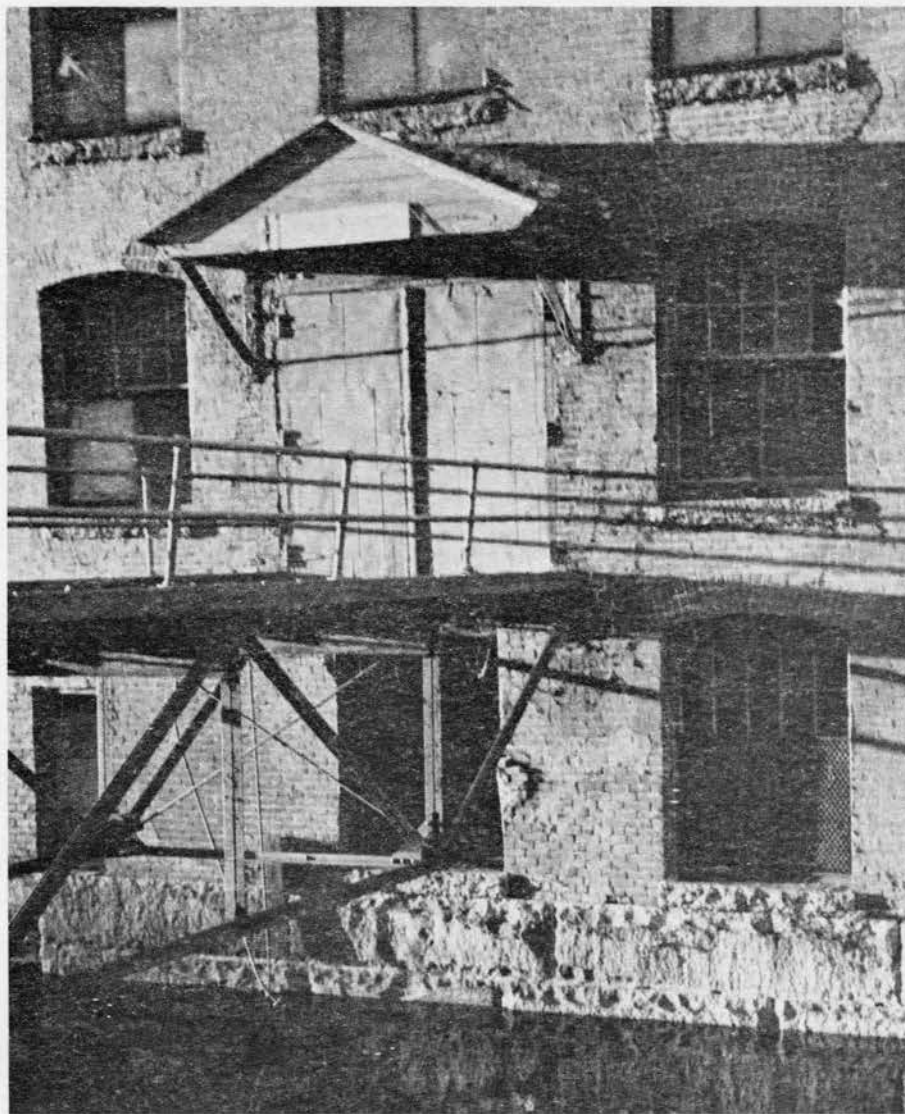


Figure 4-21 Detail of  
Mill #4, Appleton  
Manufacturing Company,  
1979.

development. All three retain most of their original exterior fabric, providing a unique opportunity within the District to preserve and rehabilitate a mutually reinforcing group of very early structures.

The Greater Central Street area has close ties to two other portions of the LHPD not yet discussed--the Middlesex and Jackson Streets area to the west, and the lands along the Concord River to the east and the south. The former area is physically and historically more closely related to the Central Street commercial area, and will be discussed first.

#### AREA SEVEN--MIDDLESEX-JACKSON STREETS

The Middlesex-Jackson Streets area contains industrial, commercial and residential structures plus important elements of the canal system and a few important examples of institutional buildings. The area is bounded on the north by the Pawtucket Canal, on the west by Thorndike Street, on the south by the edge of the district between Middlesex and Appleton Streets, and on the east by Central Street. The LHPD boundaries quite properly make an excursion along the south side of Appleton to include an important early row house there (Figure 3-11).

Forming the foundation of this area, historically and visually, are the Appleton and Hamilton Manufacturing Company mills on the power island between the Pawtucket and Hamilton Canals. These parallel canals form the purest manifestation of the ideal power island arrangement in the city. The 473-foot length of the ca. 1868 Hamilton storehouse (Figure 3-26) dominates the eastern end of Jackson Street, and Appleton buildings line both sides of that street toward its western end (Figures 4-20 and 4-21).

Both yards have lost their early buildings and all of their housing, but the remaining buildings include some of the best examples of Lowell industrial structures from certain periods. Hamilton's Mill #4 is the most intact mill of the mid-1840s surviving in the city, and that company's Counting

House and long storehouse on Jackson Street typify the wave of construction following the Civil War. The Appleton yard was almost entirely rebuilt in the first two decades of the twentieth century, but the company's "New Mill" of 1873 on the south side of Jackson Street was retained, and is a sterling example of a steam powered mill of the 1870s (Figure 3-25). The two long bridges that link the Appleton buildings on Jackson Street to the main millyard across the canal are particularly prominent features of this industrial landscape.

The north side of Middlesex Street originally was lined with the boarding houses of the nearby mills. Industrial expansion and sale to commercial developers eventually eliminated the boarding houses, and now that side of the street is a mix of parking lots and commercial/residential structures, mostly of late nineteenth century vintage.

The south side of the street has a similar blend, except for the central block between Elliot and South Streets, where three significant earlier structures fill the block. At the center is the Free Chapel (#150), long the home of the Ministry-at-Large, which attended to the secular as well as religious needs of Lowell's poor for nearly a century from the 1840s through the 1930s. The Queen Anne-style facade was added to the building in 1882 (Figure 4-22). From the sides and rear, the main body of the 1829 brick structure remains visible (Figure 4-23). It was originally constructed by the Hamilton and Appleton Companies to provide a schoolhouse for the children of their employees. East of the Free Chapel is the Elliot School (#140), built by the city in 1846 as a primary school. The small brick structure is now somewhat hidden by side wings and changes to the facade (Figure 4-22). At the west end of this group is a structure with a brick ground floor and wood-frame second floor (#160-170) built ca. 1848. It was occupied by grocers and a brewery through most of the nineteenth century. These three buildings are reminders of the boarding houses now gone from Middlesex Street, for all three provided services to the residents of the houses.



Figure 4-22 View of 140 Middlesex Street (the Elliot School, center) and 150 Middlesex Street (the Free Chapel, right) from the northeast.



Figure 4-23 Rear view of the Free Chapel and the Elliot School.

The Coburn Block on Appleton Street (#100-126) was not company-owned when it was built ca. 1832-34, but the Hamilton Company bought the whole row in the mid-1840s for employee housing. It was sold back into private ownership during the Civil War. Two of the original eight units of the two-and-one-half story row were lost behind a new facade in 1921, and a third received a mansard roof sometime earlier, but the majority of the row is still intact (Figure 3-11). It presents a fascinating combination of materials and styles with its brick facade, rubblestone side and rear walls, Federal-style elliptical-roofed dormers and rather bold use of granite trim, suggesting Greek Revival influence. A portion of the row is vacant, and prompt action should be taken in support of this unique early residence.

Just east of the Coburn Block, the Bancroft Block (90 Appleton Street) illustrates a multi-unit residence built fifty years later (ca. 1881-85). Only in its use of red brick does it identify with the earlier row, differing sharply in scale and style.

#### AREA EIGHT--CONCORD RIVERBANKS

The last five areas of the LHPD described in this chapter are primarily buffer zones for waterways important to Lowell's development. In some of these areas, the waterpower features are the principal historical resources, but several include additional assets. The largest and most varied of these areas extends south along both sides of the Concord River, and contains notable examples of industrial establishments that developed separately from the main Lowell corporations. The area also adds a few important residential, institutional, and commercial structures to the LHPD.

The east bank of the Concord is in the Belvidere neighborhood, but the LHPD boundaries do not extend into the historically prestigious residential sections traditionally associated with Belvidere. Aside from some developer's houses of the 1890s on Perry Street (#54-68) and some fragments of industrial complexes, especially tanneries, on the same street, that portion of the area adds



little to the visible historic fabric of the LHPD. Of greater historical interest are various structures on the west bank of the river, and the two nineteenth century stone-arch bridges that span the Concord at Church and Rogers Streets (built 1857-8 and 1884, respectively). Just north of the Church Street Bridge is the rubblestone factory D. C. Brown built in the 1840s. He manufactured reeds, heedles, and other power loom accessories for sale to the textile corporations.

There is a larger and more autonomous industrial zone at the southern extremity of the Concord River area. Just south of Hale's Brook, Oliver Whipple established in ca. 1821 a gunpowder mill off what is now Lawrence Street. He powered the mill with his own canal off the Concord River. In the 1840s, he expanded the canal to provide waterpower to a number of industrial tenants. In the 1860s, the Wamesit Power Company further expanded the canal to power larger factories that manufactured woolen goods, carpets, gunpowder, and other products. One of Whipple's early stone buildings and all or parts of four other factory complexes stand within the LHPD. More importantly, the Wamesit Canal itself, the heart of Whipple's alternative to the main Lowell canal system, still exists (Figure 4-25). It parallels the Concord for over 1,500 feet, then turns westward under Lawrence Street and empties into Hale's Brook, using the stream as its tail-race. This whole complex of river, stream, canal, and mills is of major importance, particularly for the contrast it provides to the main Lowell system.

Among the complex's individual components, the rubblestone powder mill building is probably the earliest industrial structure surviving in the city (Figure 3-3). Abandoned and open to the elements, it warrants prompt protective action. Two complete woolen mill complexes survive along the canal. The Stirling Mills (576 Lawrence St.) stand behind the powder mill on the bank of the river, a site of considerable natural beauty (Figures 4-24 and 4-25). The main mill building dates to ca. 1880. Considerably earlier and more visible to the passerby on Lawrence Street is Belvidere Woolen Mill No. 2 on the banks of Hale's

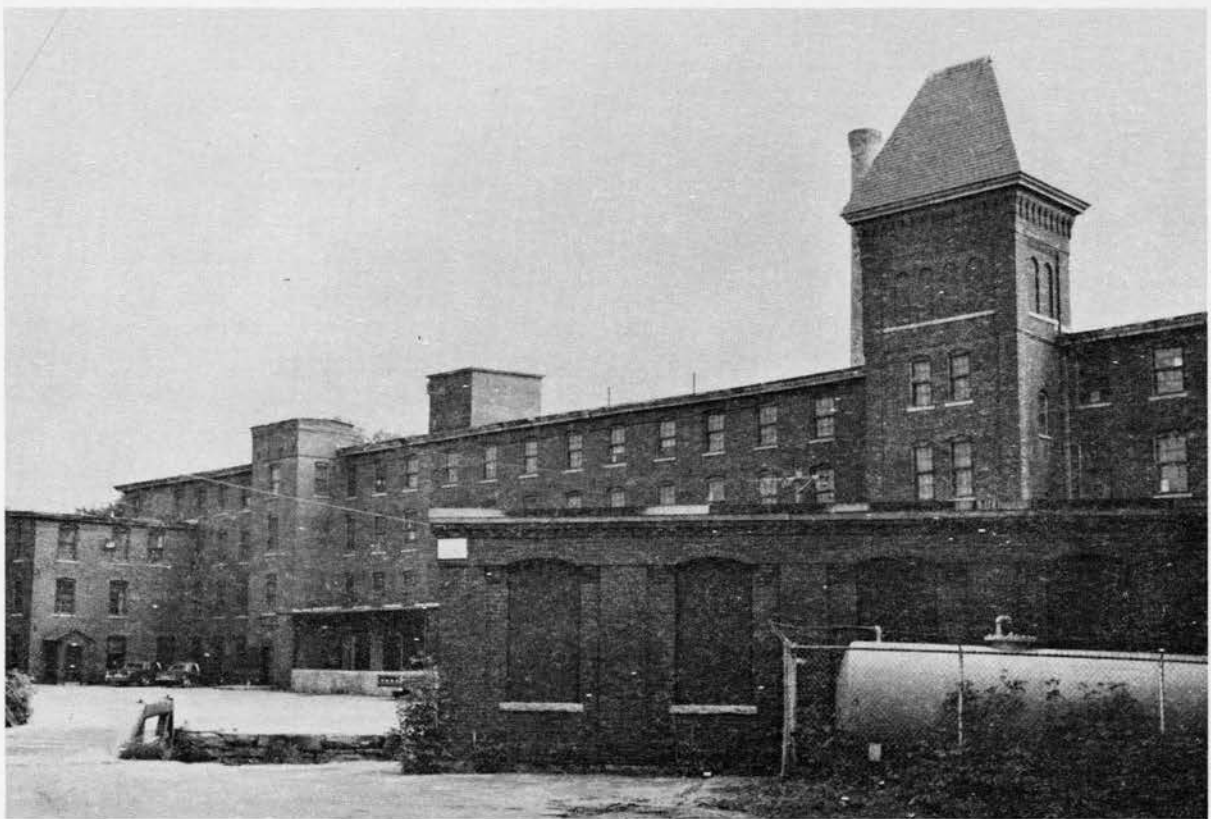


Figure 4-24 Stirling Mills, built ca. 1880, photographed 1979.



Figure 4-25 View of the Wamesit Canal behind Stirling Mills, 1979.

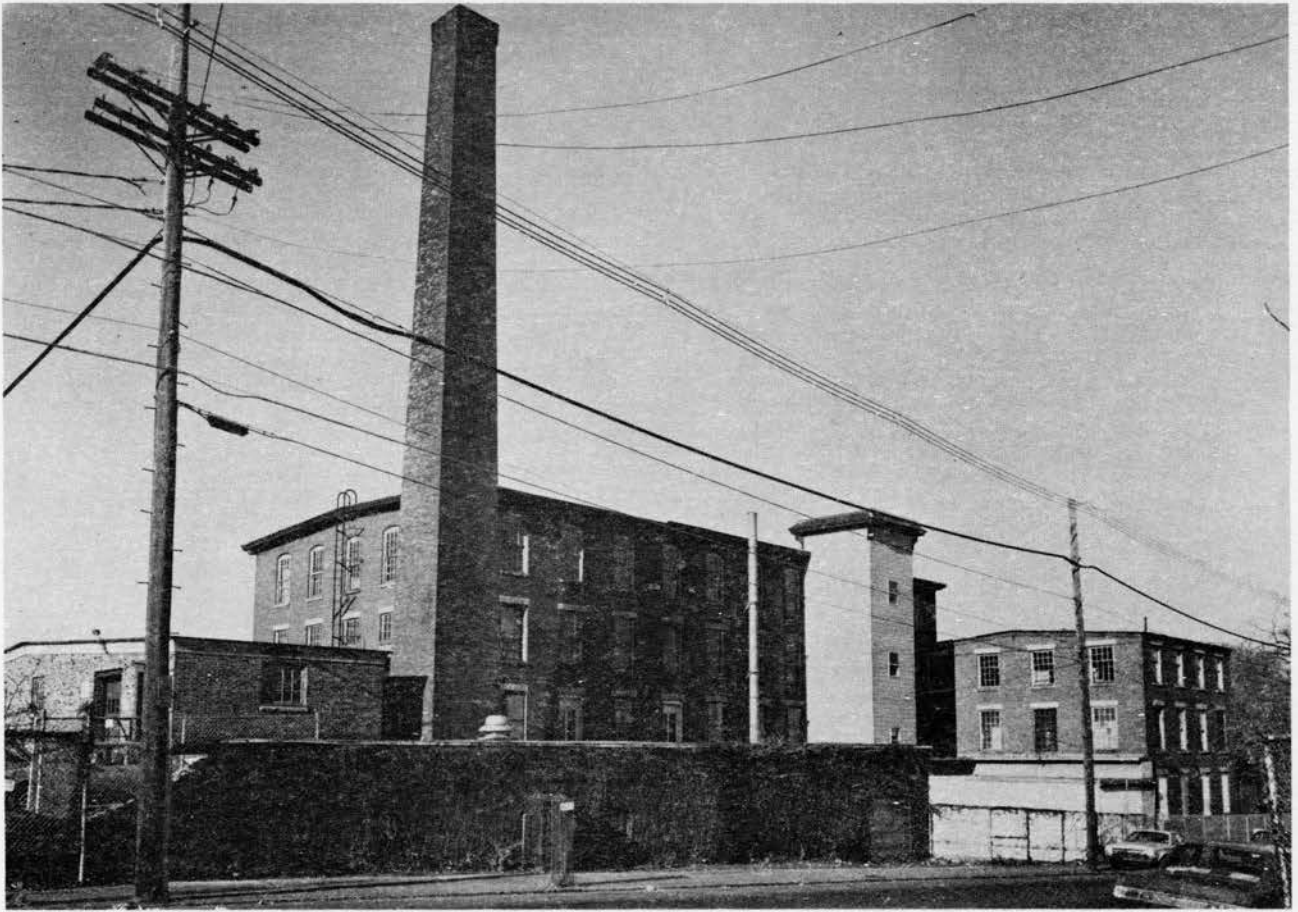


Figure 4-26 Belvidere No. 2 Mill, 645 Lawrence Street, built ca. 1863, photographed 1979.

## *BELVIDERE N<sup>o</sup> 2 MILL*

*Towell,  
Mass*

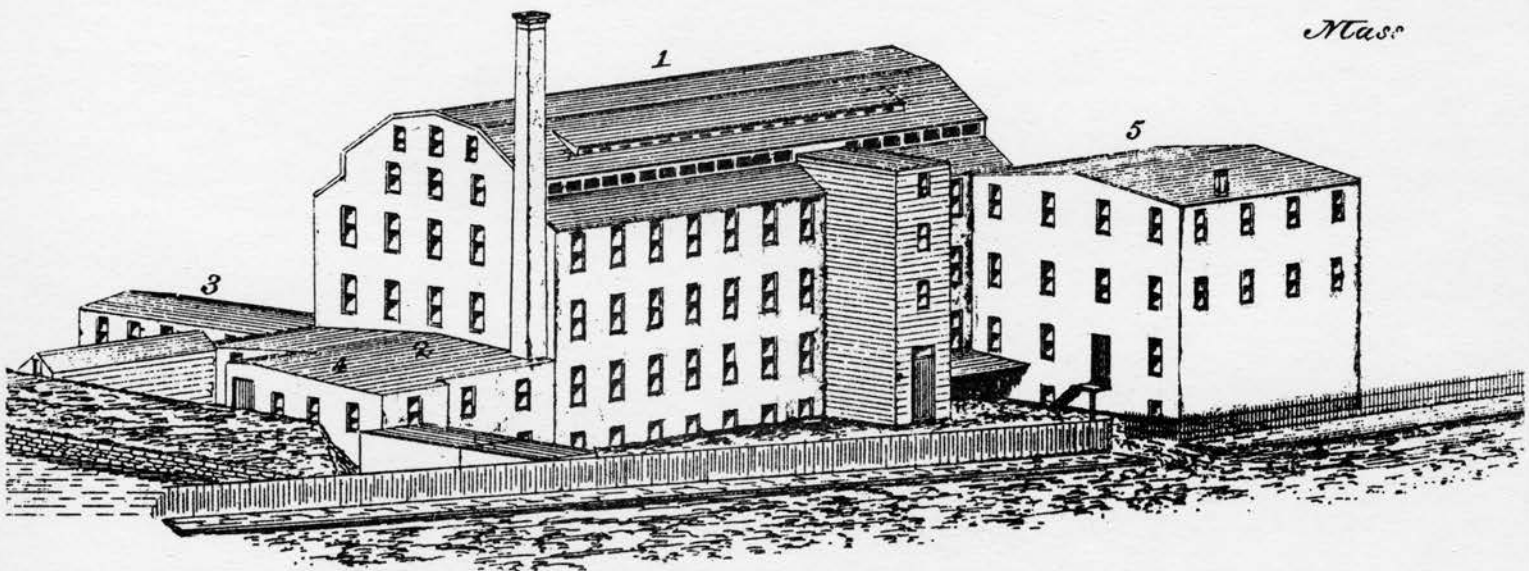


Figure 4-27 Detail of an 1880 insurance survey of Belvidere No. 2 Mill.

Brook (#645). Built ca. 1862, this complex retains its original mill, storehouse and stair tower, and its early power house (Figures 4-26 and 4-27). Inexplicably, the last three structures are within the LHPD boundaries, while the mill itself is just outside the line. Also excluded from the LHPD is the northern end of the Wamesit Canal, where it enters Hale's Brook.

Two other partial mill complexes off the Wamesit Canal are notable as examples of early twentieth century masonry construction techniques. Just south of Belvidere No. 2 at 685 Lawrence Street are two structures built ca. 1910 by the U. S. Cartridge Company. Although reduced in length by a recent fire, they remain Lowell's best demonstration of brick-pier industrial construction. The walls between the piers are given over almost entirely to wide, segmental-arched windows. The Waterhead Mills at the south end of the Wamesit Canal power island were also built ca. 1910. The main structure (900 Lawrence Street, rear) is also of brick-pier construction, but the use of English bond brickwork may be unique in Lowell.

The historic houses of the Concord River area serve as representatives of the greater wealth of such houses in Lowell outside the District. Some of these are as close as the west side of Lawrence Street, and others are not much further away in the Chapel Hill neighborhood and around the South Common. Within the District, the house at 48 Lawrence Street is more interesting for its historic occupants than for its present appearance. Luther Lawrence, the second mayor of Lowell and brother of the textile magnates Amos and Abbott Lawrence, built the house ca. 1831, and resided there until his death in 1837. From 1842 until 1875, Tappan Wentworth lived in the house, and his alterations probably brought it close to its present form. Wentworth was prominent in Lowell as a lawyer, investor, and politician, and served a term in Congress.

South of the Lawrence-Wentworth House, the Colburn School of 1848 (122 Lawrence Street) is a far less altered structure. It continues to serve its original function, and is the oldest schoolhouse in the city to do so. The historic houses further south on Lawrence Street more often sheltered workers from the various Concord River factories than employees of the factories and stores in central Lowell. 202 Lawrence Street is a Greek Revival cottage, built ca. 1840. 224-228 Lawrence (ca. 1870) links together two small, mansard-roofed cottages into a double house with U-shaped plan. 310-326 Lawrence, a five-unit wood-frame row house, was built ca. 1870, and like #224-228, it accommodated workers from the adjacent mill at Massic Falls. An anachronistic house at 8 Clarks Court was built ca. 1834-7 by and for a carpenter who worked at Whipple's Powder Mills.

The Concord River area also contains one of the LHPD's most unique and intact small commercial buildings, the Greenwood Bros. Store at 573 Lawrence Street (Figure 4-28). Located near the Wamesit Canal and its factories, it was built as a grocery store in 1872. The store retains its cast iron storefront and cast concrete trim, a decorative material seldom seen in the LHPD.

Before discussing the other areas, another historical building related to the Concord River area deserves mention, even though it is a few hundred feet outside the District, west of its southernmost end. Oliver Whipple's own house still stands on Moore Street at the corner of South Whipple Street. Whipple was the main developer of the industrial complex in that area and a major manufacturer of gunpowder in his own right. He was also a substantial figure in Lowell's civic affairs. His house dates from the 1820s, and is particularly interesting for its long rear wing. That feature, shown on maps as early as 1832, appears to have been built as a series of tenements, presumably for some of Whipple's employees. If so, this arrangement is in sharp contrast to the hierarchical separation practiced by the major Lowell corporations in housing the various industrial classes.



Figure 4-28 Greenwood Brothers Store, 573 Lawrence Street,  
built 1872, photographed 1979.

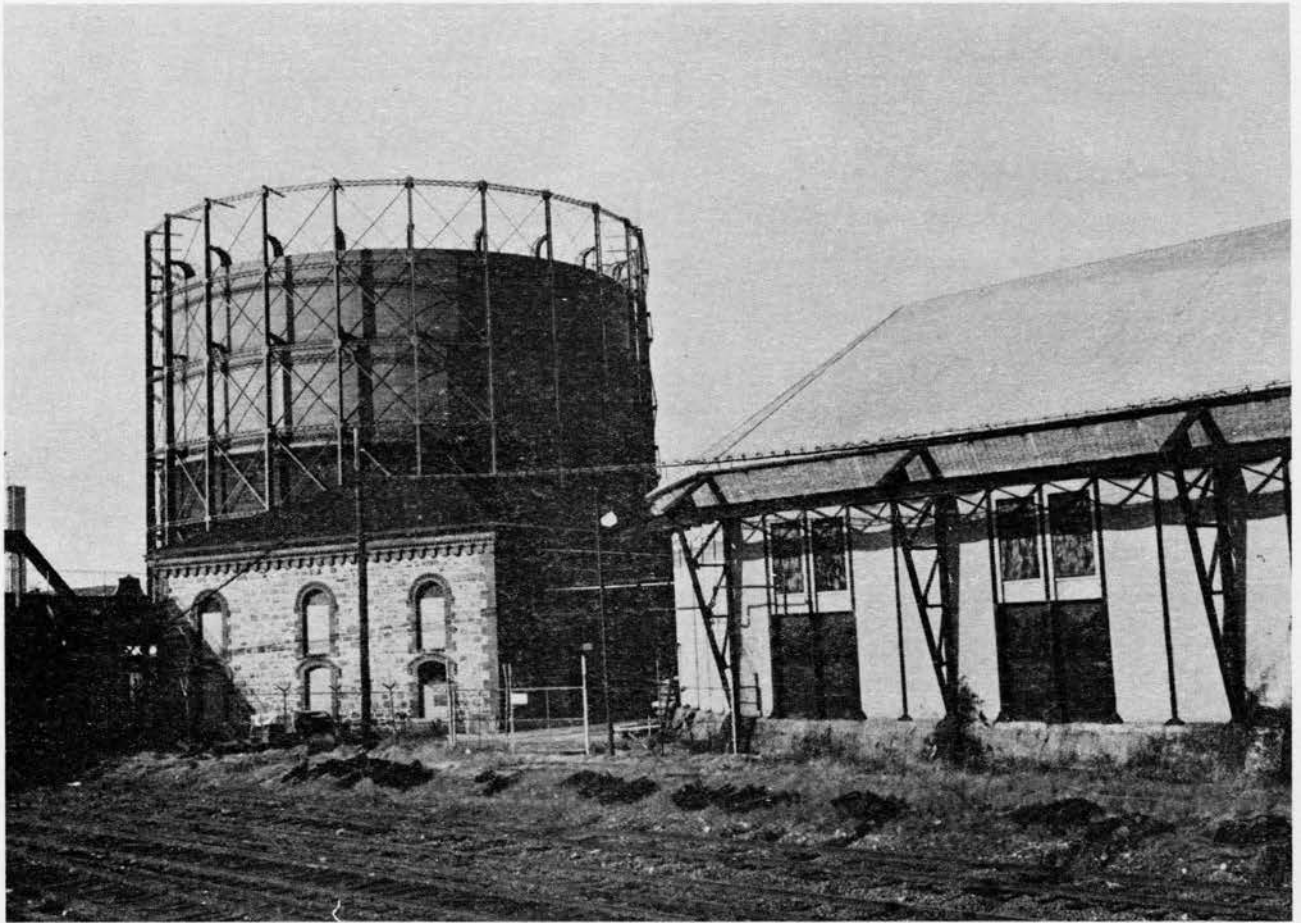


Figure 4-29 View of the gasworks of the Lowell Gas Light Company, 1979. The Coal Pocket (right) was built ca. 1901, the Purifying House (left) ca. 1870.

AREA NINE--MID-PAWTUCKET AREA

The Pawtucket Canal curves south, east, and north from Broadway Street toward the Swamp Locks, and that portion of the canal and the sections of the LHPD bordering it constitute the ninth area in this discussion. The broad canal itself is the major cultural resource of this area, but a few historical structures are scattered along its banks. On the south side, two former hotels stand in the shadow of the ramp that carries Middlesex Street over Thorndike Street. The Howard House at 533 Middlesex dates to the 1830s, and is similar to the Lowell Hotel at 80 Gorham Street in Area Six (Figure 4-19). Adjoining the Howard House is the old St. James Hotel (#543), an Italianate structure of the 1880s. It accommodated travelers from the railroad station which stood just across Middlesex Street.

On the north bank of the canal, Joan Fabric Company operates a plant in a group of late nineteenth and early twentieth century mill buildings on Western Avenue near Thorndike. From the start, operations in these buildings ran on steam rather than waterpower from the Pawtucket Canal, for they stand above the canal's first fall at Swamp Locks. The long, low structure at 275-285 Western Avenue was built by the Lowell and Nashua Railroad as a freight depot in the 1870s. At Western Avenue and School Street, the gasworks of the Lowell Gas Light Company include a pair of very handsome stone buildings trimmed with red brick. This combination of materials reverses the standard order of nineteenth century Lowell construction. One was built ca. 1865 as a machine shop, the other ca. 1870-75 as a purifying house. Beside them is the gaswork's Coal Pocket, an unusual building in plan and structure. The narrow, oval-shaped structure is over 400 feet long, and was constructed ca. 1901-05 in a manner that leaves much of the steel frame exposed.

Like the Concord River area, the mid-Pawtucket area stands close to some notable historical resources that are just beyond the LHPD boundaries. The triangular area north of Dutton Street and west of Fletcher Street contains several small nineteenth century industrial establishments, some



built of Lowell's characteristic rubblestone. They represent the broadened industrial opportunities steam power, and later electricity, brought to the city.

Also north of Dutton Street is a potential historical resource of quite a different kind. Six wooden cottages line a small street called Wamesit Court, each a mere story-and-one-half tall. The three cottages on each side of the court are linked together by lateral wings between the houses. Circumstantial evidence suggests that these cottages were early workers' houses moved to this site in the mid-nineteenth century from the Lowell Manufacturing Company's millyard. If that hypothesis is correct, Wamesit Court contains workers' housing of a type rare in Lowell even when they were built ca. 1828.

#### AREA TEN--FRANCIS GATE

Like the preceding area, the major historical resources of the Francis Gate area relate to the canal system, but here the most significant resources of the area are fairly concentrated rather than diffuse. This tenth area includes the canal and its adjacent lands from Broadway to Pawtucket Street.

The area is generally residential in character, but its two most prominent features are the Francis Gate complex on the canal, and the adjacent John Pilling Shoe Factory, which was recently converted to housing. The Gate complex includes a navigational lock, a gatehouse to regulate the normal flow of water (Figure 4-31) and James B. Francis' ingenious Guard Gate (Figure 4-30), designed to protect the heart of the city from floods. Ridiculed as unnecessary when completed in 1850, it successfully contained a record flood just two years later. The area around the Francis Gate complex and along the canal of the river is now a state park, but the dilemma of providing access while restraining vandalism has not yet been solved.

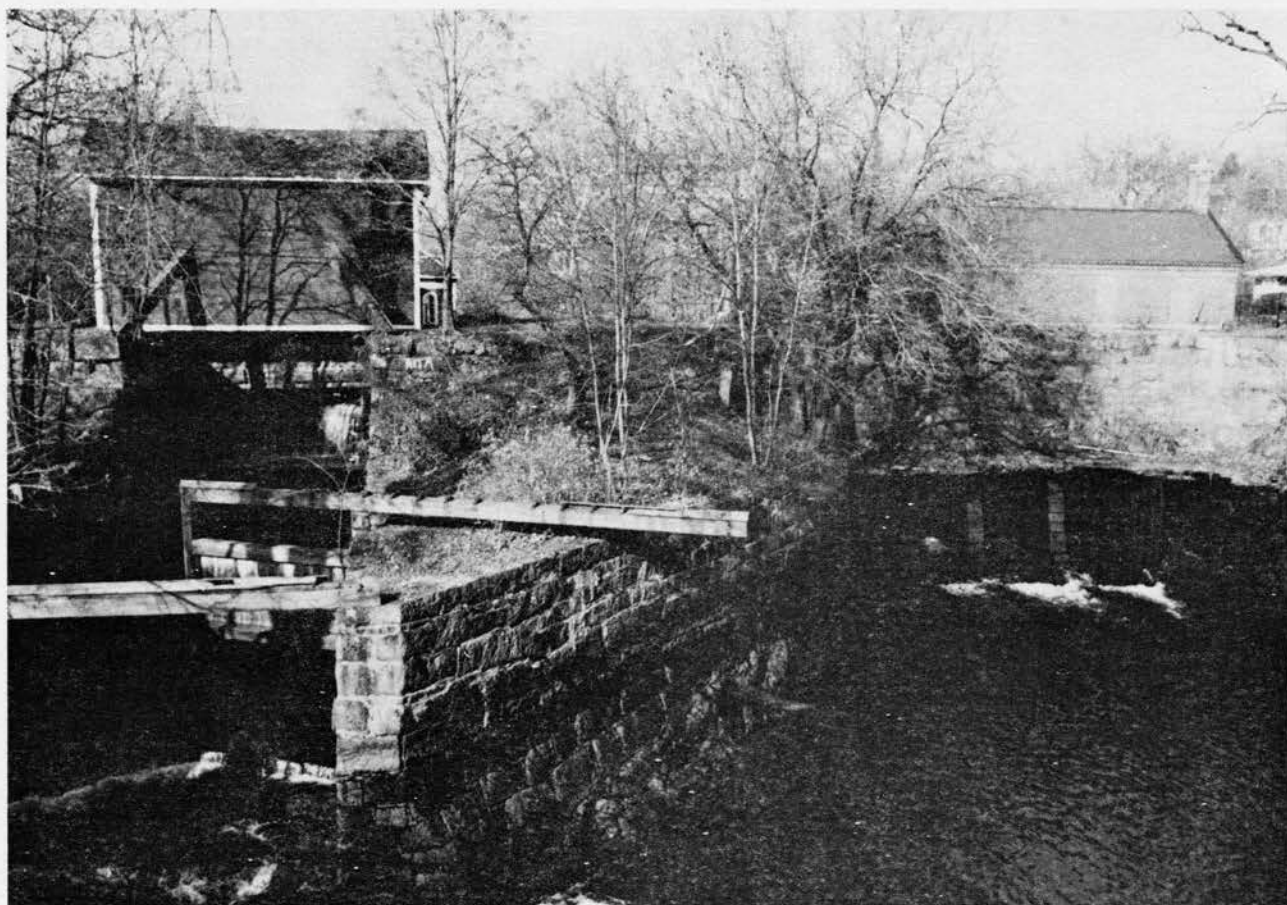


Figure 4-30 View from the south of the Francis Gate complex, 1979. At left is the navigational lock and the Francis Gate, at right the Guard Dam and its gatehouse.

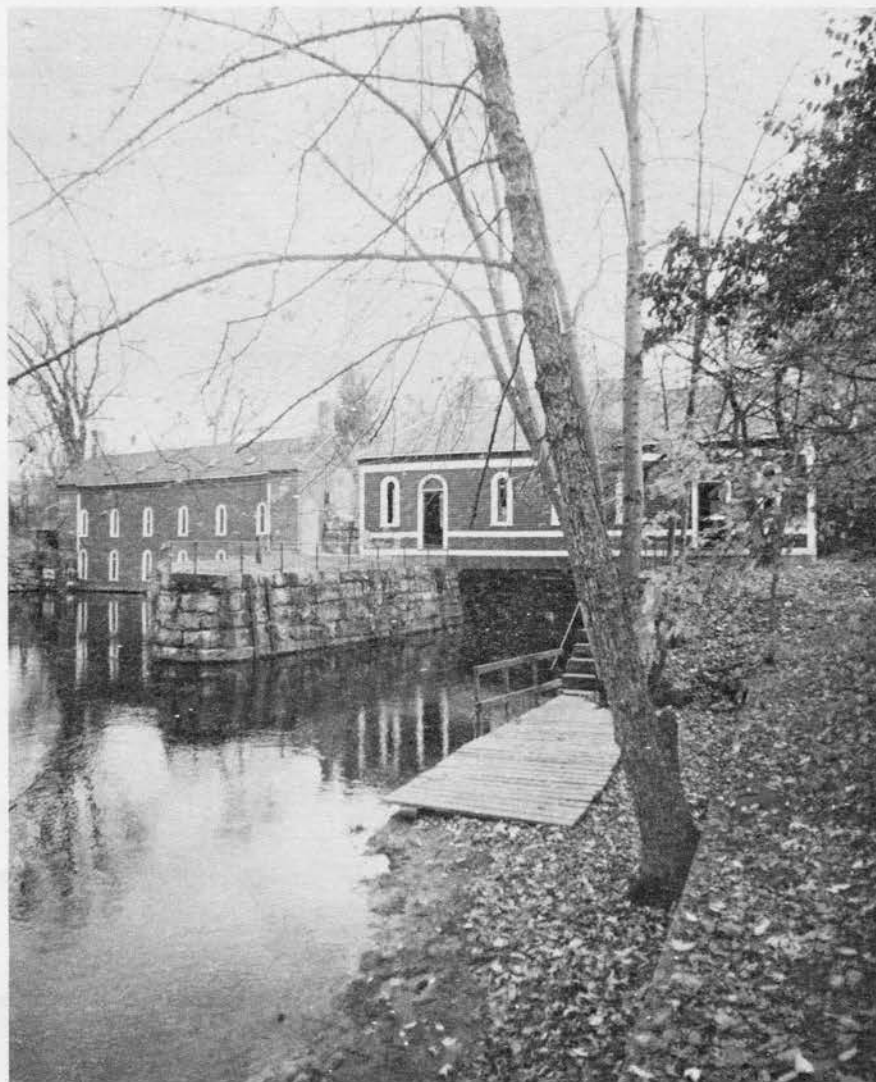


Figure 4-31 View of the Francis Gate complex from the northwest, 1979. At left is the gatehouse to the Guard Dam, at right the lock gatehouse.



Figure 4-32 View up Clare Street from the south, 1979.

The Francis Gate area also contains some of the LHPD's best examples of certain periods and forms of residential development. The short stretch of Broadway Street within this area contains a half dozen small frame houses characteristic of the expansion of Lowell's residential areas in the 1870s. Clare Street was uniformly built with frame houses between 1895 and 1905 (Figure 4-32). Most were first owned and occupied by Irish-American working men and their families. Litchfield Terrace on the west side of the canal is a much smaller residential development of even more modest frame houses, built ca. 1910.

#### AREA ELEVEN--PAWTUCKET FALLS

The Pawtucket Falls on the Merrimack River, the natural feature that drew prehistoric and industrial man to Lowell, dominates the eleventh area of the LHPD. This area includes both banks of the river from the head of the Pawtucket Canal on the west to Textile Avenue on the east. The man-made structures that harness the falls--the Pawtucket Dam and Northern and Pawtucket Canals--are the most prominent historical features of this area, along with the Northern Canal Gatehouse (Figure 4-33) and the Great River Wall that carries that canal along the falls (Figure 3-17). The area also contains several significant historic houses, since the land around the falls on both sides of the river has traditionally been favored as a residential district. Among these houses are both the oldest and the grandest in the LHPD.

The oldest house in the District is the Spalding House of 1761 (383 Pawtucket Street). Indisputably the grandest is the Frederick Ayer Mansion of 1876 (335 Pawtucket Street). Both are on the south bank of the river, and like many of the houses along Pawtucket Street, both now serve institutional purposes. The Spalding House is a house museum and the headquarters of a D.A.R. chapter. The Ayer Mansion, along with substantial rear additions, houses the Franco American School. The Second Empire house at 295 Pawtucket Street, built ca. 1873 for a banker and his family, has been converted into a mortuary, as have several

other large houses along this street. The Old Stone House (267 Pawtucket Street), built of rubblestone in 1824, has been a tavern and hotel, mansion (of James C. Ayer, Frederick's brother), charitable home for young women and children, and is currently a residential hall for nuns from the nearby St. Joseph's Hospital (Figure 4-34).

The north bank of the Merrimack River remains residential in character. Three brick houses on Riverside Street (#22, #26-28, and #52) are the most notable ones in that section. They were built in the 1820s and 1830s, when that area was still West Dracut.

Further east, on a fine site on Colonial Avenue overlooking the falls, a half dozen houses (#22-92) built in the early twentieth century provide a middle class comparison to the more modest houses of Litchfield Terrace in Area Ten.

#### AREA TWELVE--CENTRALVILLE

The final area within the LHPD to be discussed extends between the Aiken Street Bridge and the Hunts Falls Bridge on the north bank of the Merrimack River, in the Centralville neighborhood. Centralville is rich in nineteenth century houses of various styles and dates. However, only a single side of a single street (Lakeview Avenue) is included in the LHPD, along with the V.F.W. Highway which blocks this neighborhood from the riverbank. Nonetheless, the street does contain a sampling of modest frame houses dating from most decades of the nineteenth century after 1840.

The key resource of this area, however, is not what is contained within it, but rather what can be seen from it. Lowell's nineteenth century "Mile of Mills" on the south bank of the Merrimack (Figure 4-35) was broken by the demolition of the Merrimack Manufacturing Company's mills and of the secondary Lawrence millyard (Figure 4-36). Nevertheless, the view from Centralville of the Massachusetts, Boott, and Lawrence yards and the city behind them remains the clearest comprehensive image of Lowell as the "City of Spindles."

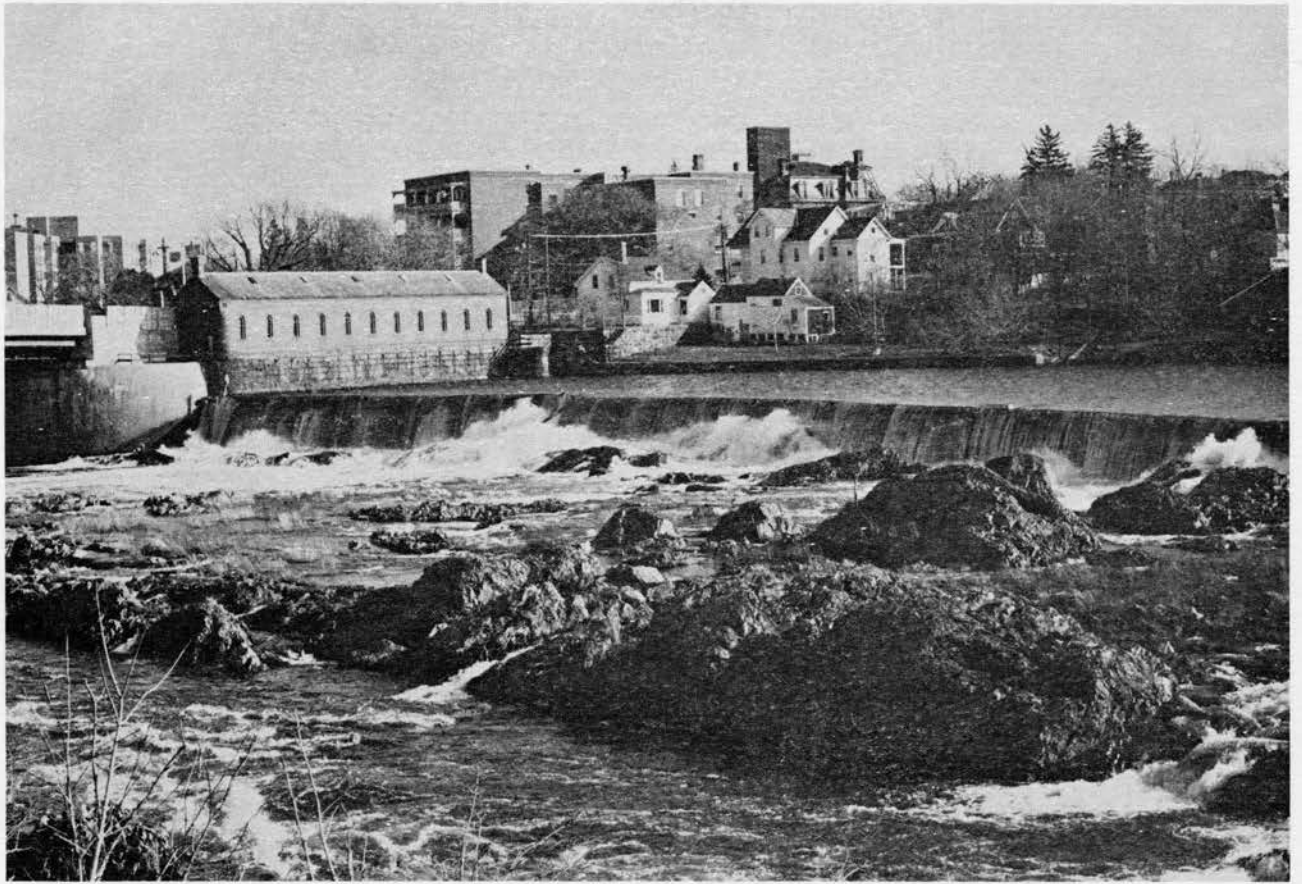


Figure 4-33 View from the southwest of the Pawtucket Falls and the Northern Canal Gatehouse, 1979.

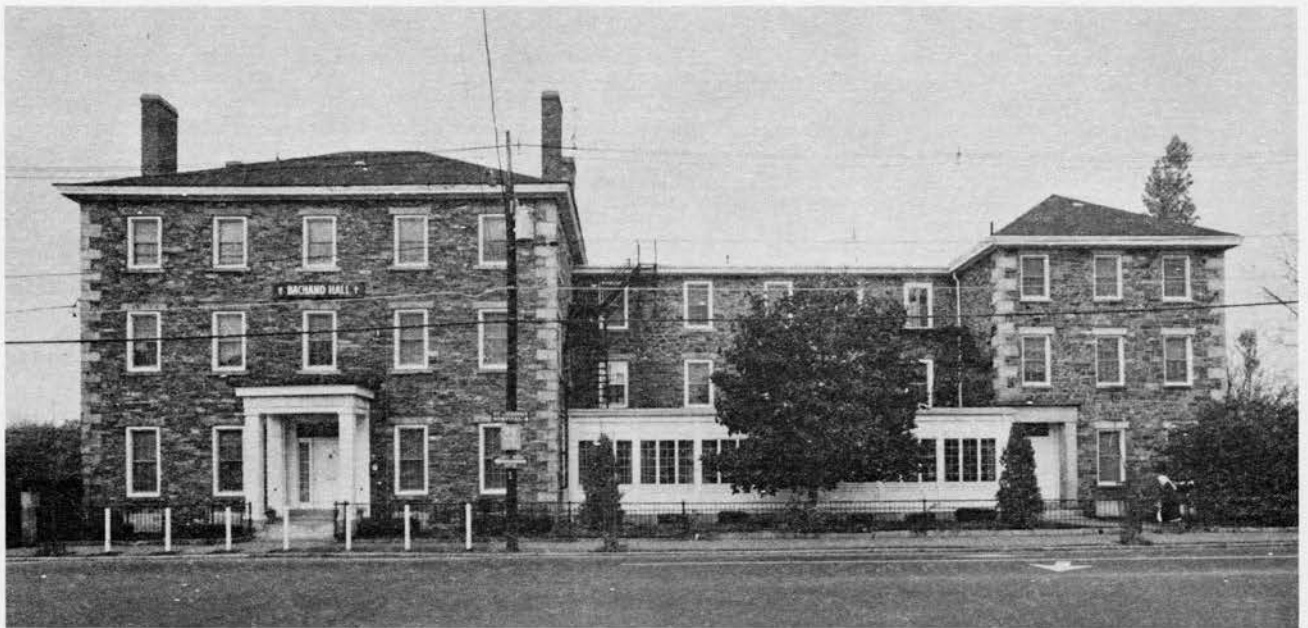


Figure 4-34 Old Stone House, 267 Pawtucket Street, built 1824, photographed 1979.

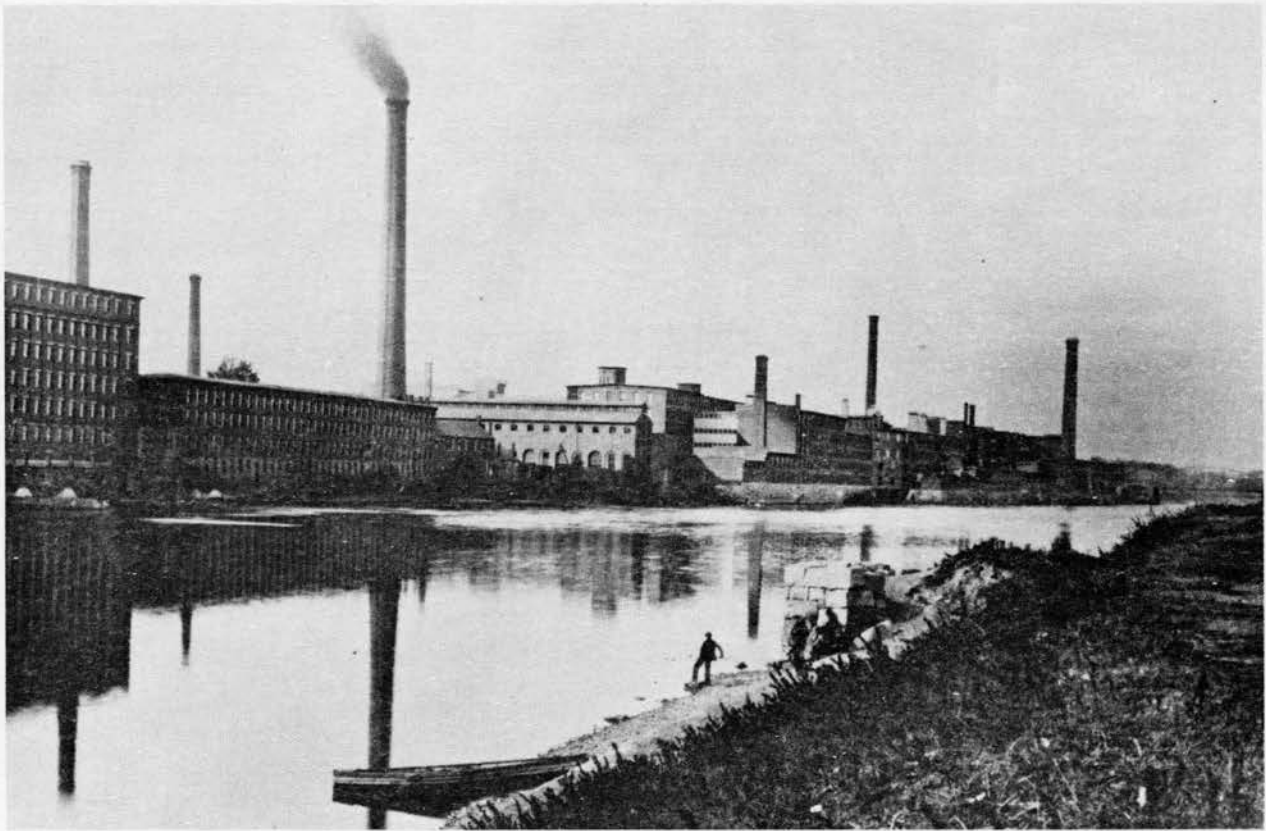


Figure 4-35 View from east across the Merrimack River to the Merrimack Manufacturing Company (left) and the Lawrence Manufacturing Company (center and right), ca. 1895.

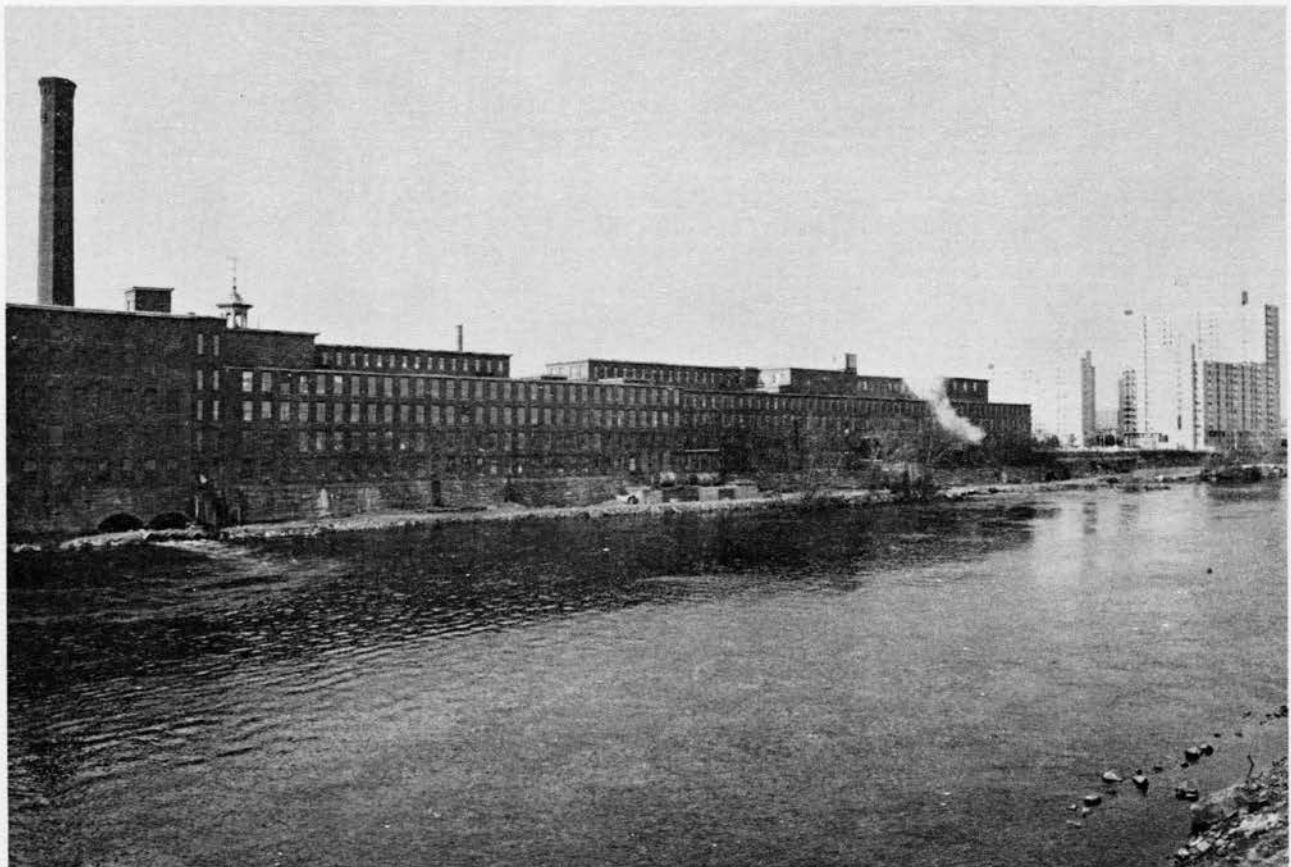
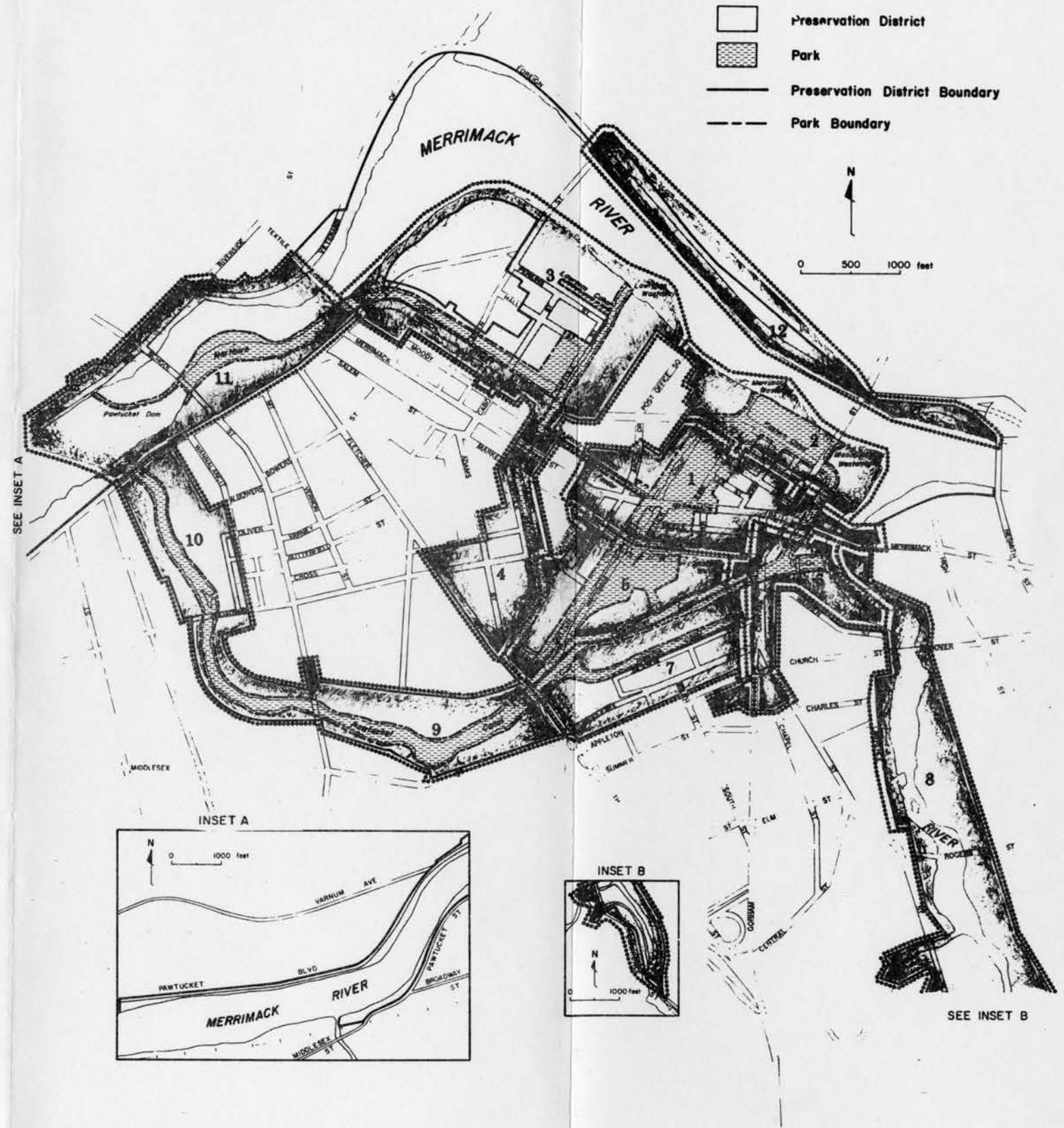


Figure 4-36 View from the east of the Boott Mills (left and center) and of the apartment towers on the site of the Merrimack Manufacturing Company (right), 1979.

The Park and the District encompass most of Lowell's historic waterpower features, large industrial complexes, and commercial center. The majority of these historic resources is concentrated in the central areas identified as One through Seven in this discussion, but the far-flung portions of the LHPD make substantial contributions. Lowell is fortunate to retain not only the main elements of its nationally significant industrial development, but also much of the nineteenth century city--inside and outside the Park and the District--that supported and was supported by the mills. Each enriches and provides context for the other. The magnitude of the Lowell Cultural Resources Inventory gives testimony to the scale of the Park and the District and to their wealth of resources, but the fourteen volumes should not obscure the truth that it is the city as a whole that is Lowell's real historical resource.



MAP OUTLINING TWELVE AREAS DISCUSSED IN CHAPTER FOUR.



## SOURCES FOR THE INVENTORY

Lowell is a richly documented city. The inventory project drew upon historic data in over a dozen collections, but by no means exhausted the available sources. Much more can and should be learned about Lowell's built environment, and hopefully the inventory will provide a reliable foundation for that work. The following list of sources is arranged in the approximate order of the frequency with which they were used in preparing the inventory.

### SPECIAL COLLECTIONS, ALUMNI-LYDON LIBRARY, UNIVERSITY OF LOWELL

Special Collections is the broadest-based repository of information on the history of Lowell. The comprehensive collection of maps and atlases, city directories, illustrated handbooks and guides, and other published materials gathered there was the most important source of historic information in carrying out the inventory. The maps and atlases provided the basic historic information on every property, and the directories were almost as frequently consulted.

Of similar importance is Special Collection's picture file of prints, photographs and other graphic materials related to Lowell, including many images on deposit from the Lowell Historical Society and the Lowell Museum. Filed separately are approximately four-thousand photographic negatives (and prints) exposed for the Proprietors of Locks and Canals, primarily showing canal and industrial features in the first half of the twentieth century. Together with the well-illustrated histories, guidebooks, yearbooks, and the like published in the late nineteenth and early twentieth centuries, a remarkably complete composite picture of Lowell's historic appearance, particularly in the late nineteenth century, can be formed.

Other Special Collections resources valuable to the inventory were the document file on Lowell people, places, corporations, and buildings; architectural and engineering drawings and millyard insurance surveys, mostly deposited by Locks and Canals; and

the collection of manuscripts, dissertations, and other research works on Lowell topics. The cooperation and active assistance of the Special Collections staff made these extensive holdings all the more useful.

PROPRIETORS OF LOCKS AND CANALS ARCHIVE,  
BOOTT MILLS, LOWELL

The Proprietors of Locks and Canals private archive at the Boott Mills is the best source of historic plans and drawings related to Lowell's power canal system and to the major industrial enterprises that used it. The archive also contains some Locks and Canals Directors' records and other invaluable documents. Lowell was initially a city built for industry, and this industrial archive contains unique sources related to the development of the town and city as a whole, particularly manuscript maps.

The broad scope of the inventory prevented an in-depth analysis of most of the very specific information available in the Proprietors of Locks and Canals archive. That repository should be an important point for further research on the canals and the major industrial sites.

Boott Mills is an active business, yet its staff was consistently generous in assisting the inventory team.

Memorial Library, City of Lowell

The city library's reference collection of Lowell histories, directories, maps, and atlases is very extensive, and includes a copy of the 1936 atlas of the city not found at Special Collections. A unique strength of this library is its exhaustive microfilm collection of Lowell newspapers, accompanied by a WPA-prepared index. The Memorial Library staff frequently advised the inventory team on specific research questions.

Registry of Deeds for the Northern District of  
Middlesex County

Lowell researchers are fortunate to have county registry of deeds records available locally.

The breadth and time frame of the inventory effort prohibited investigation of the title history of most properties, but the registry was consulted on many key parcels. Of particular interest were several detailed building contracts discovered in the course of title research, dating from the 1830s through the 1850s. A focused search for and analysis of such documents would tell much about early building practices in Lowell.

#### City of Lowell, Various Departments

The records of at least four city departments were consulted in the preparation of the inventory. The City Engineer's plates were used to determine current ownership of property. Other records and plans related to public works were not utilized, and represent a source for further research.

The Buildings Office has an index of permit applications dating from 1906 to the present, and the documents themselves are available from 1924 to the present. These records can be very informative as to date, cost, materials, and other particulars on new construction, alterations, and demolition projects. The index is arranged by street name and date of application, but not by numerical address. Locating a permit of unknown date for a property on a long and active street (e.g., Merrimack Street) can be quite time consuming, and could only be done for a few particularly important buildings which raised questions that could not be answered from other sources.

The Assessor's Office assisted in determining the tax status of various properties. Other resources, such as annual property valuation books arranged by owner and address, were not used on the inventory, but could be useful in tracing alterations to specific properties.

The files of Division of Planning and Development's Neighborhood Analysis Project provided photographs of several properties demolished recently, particularly in the Acre neighborhood. Another resource is the Division's collection of photographs of areas affected by urban renewal projects.

### Other Sources

The inventory team's less extensive use of other repositories of historic Lowell information more accurately reflects the constraints of the project than the potential usefulness of those sources. The Manuscript Collection at Baker Library of the Harvard Business School has an extremely extensive collection of business records from many of the major Lowell corporations. A brief examination of the material on a single company confirmed that detailed information on the construction and operation of the mills can be uncovered in these records. Like the Proprietors of Locks and Canals' archive, the Baker Library represents a major source for further research on industrial Lowell.

The Merrimack Valley Textile Museum in North Andover includes considerable Lowell material in its library. This is a particularly useful source on the many industrial enterprises in Lowell other than the major corporations, such as the mills on the Concord River. The inventory team was able to devote few hours to the Museum's library, but the very helpful staff there made it time very well spent.

The Lowell Museum's files were consulted on several subjects, particularly concerning immigrant groups. In the course of the inventory, the Museum deposited its photographic file with Special Collections at Alumni-Lydon Library, and several images in that file contained information important to the project.

The Boston Athenaeum's collections include several architectural drawings for Lowell buildings, and an exquisitely detailed manuscript map of Lowell dated 1835. Both the drawings and the map warrant further examination.

The library of the Society for the Preservation of New England Antiquities has the largest and broadest collection anywhere of historic photographs related to New England architecture. The material in the collection on Lowell is extensive. Particularly useful to the inventory were the many stereographs of nineteenth century Lowell scenes.

The Massachusetts Historical Commission's records of archeological sites was consulted for the inventory

and this report. The Commission also provided the National Register of Historic Places nomination forms prepared for the Middle-Merrimack Streets, the Locks and Canals, and the City Hall Historic Districts. The Massachusetts State Archives provided some maps consulted in the course of the project. The State Department of Corporations and Taxation has a useful index to the charters and charter changes of all Massachusetts corporations.

## BIBLIOGRAPHY

The bibliography below lists other sources consulted for the Lowell Cultural Resources Inventory, which forms the basis of this report. The works cited in and consulted for Chapter Two of this report are listed separately, following that chapter.

### Maps, Atlases, and Insurance Surveys

#### Belvidere Woolen Manufacturing Company.

- 1878 "Belvidere Woolen M'f'g, Lowell, Mass." Barlow Insurance Survey, No. 5230.
- 1880 "Belvidere No. 2 Mill, Lowell, Mass." Barlow Insurance Survey, No. 6158.
- 1895 "Belvidere Woolen Mfg. Co. No. 2 Mill (Woolen Mill)." Associated Mutual Insurance Companies, insurance survey: plan and view--serial #4443. Merrimack Valley Textile Museum, North Andover.

#### Boott Cotton Mills

- 1879 Insurance Survey, by Barlow(?), updated to 1889. U. of Lowell, Lydon Library, Special Collections.
- 1911 "Boott Mills (Cotton Mill)." Associated Mutual Insurance Companies, insurance survey: plan and view--serial #9369, index #320. Proprietors of Locks and Canals Archive, Boott Mills.
- 1921 "Boott Mills (Cotton Mill)." Associated Mutual Insurance Companies, insurance survey: plan and view--serial #9369, index #320. U. of Lowell, Lydon Library, Special Collections, Locks and Canals photo #1734-A.
- 1932 "Boott Mills (Cotton Mill)." Associated Factory Mutual Fire Insurance Companies, insurance survey: plan and view--serial #24695, index #9320. Proprietors of Locks and Canals Archive, Boott Mills.
- 1940 "Boott Mills (Cotton Cloth)." Associated Factory Mutual Fire Insurance Companies, insurance survey: plan and view--serial #30036-R, index #9320. Proprietors of Locks and Canals Archive, Boott Mills.
- 1956 "Massachusetts Mohair Plush Co., Inc., Premises: Boott Mills." Insurance survey: plan--serial #12830. Proprietors of Locks and Canals Archive, Boott Mills.

- 1957 "Plan of the Mill Yard of the Boott Cotton Mills Showing Pipes Laid." Millyard fire protection plan, drawn August 1, 1896, updated September 1957. Proprietors of Locks and Canals Archive, Boott Mills.

Kitson Machine Shop (Saco-Lowell)

- 1919 "Saco-Lowell Shops 'Kitson Plant'." Associated Mutual Insurance Companies, insurance survey: plan and view--serial #13574, index #9352. U. of Lowell Library, Special Collections, Locks and Canals photo #1759-I and 1759-J.

Lawrence Manufacturing Company

- 1833 Indenture Drawing for the Lawrence Manufacturing Company, April 13, 1833. Proprietors of Locks and Canals Archive, Boott Mills.
- 1868 Insurance survey plan of the Lawrence millyard. U. of Lowell, Lydon Library, Locks and Canals Collection, Shelf 111, Sheet 2114.
- 1878 "Plan of the Mill-Yard of the Lawrence Manufacturing Company" insurance survey. U. of Lowell, Lydon Library, Special Collections.
- 1886 "Plan of the Mill-Yard of the Lawrence Manuf. Co." updated from the 1878 insurance survey. U. of Lowell, Lydon Library, Special Collections.
- 1910 "Lawrence Mfg. Co. (knitting Factory)," updated from September 28, 1897 insurance survey. Associated Mutual Insurance Companies: plan and view--serial #5084, 9227, 9228, index #306. U. of Lowell, Lydon Library, Special Collections, Locks and Canals photo #1744-A, 1721-B, 1737-A.
- 1910 "Tremont and Suffolk Mills 'Lawrence Division' (Cotton Mill)." Associated Mutual Insurance Companies, updated from October 1, 1907 survey: serial #8099, index #308. Proprietors of Locks and Canals Archive, Boott Mills.

Lowell (East Chelmsford)

- 1821 "A Plan of Sundry Farms etc. at Patucket in the Town of Chelmsford. 1821. John G. Hale, Surveyor and Civil Engineer, Boston." Reduced from the original plan for the Proprietors of Locks and Canals on Merrimack River, November 1871. (The original, hand-drawn plan of 1821 is in the Proprietors of Locks and Canals Archive, Boott Mills.)



- 1825 "A Plan of Sundry Pieces of Land Belonging to the Merrimack Manufacturing Co., Chelmsford, Mass., March 1825." By George R. Baldwin. Ms. map in Proprietors of Locks and Canals Archive, Boott Mills,

Lowell (Town of )

- 1831 "Plan of the Town of Lowell in the County of Middlesex. Surveyed in 1831 by John G. Hale." Massachusetts State Archives; 1830 Series; vol.8, p.2, no. 2029.
- 1832 "Plan of the Town of Lowell and Belvidere Village Taken by Measurement by Benj. Mather." Pendleton Lithography, Boston.
- 1835 "Plan of Lowell Village From a Survey by U. A. Boyden in March 1834. Drawn for the Boston & Lowell Rail-Road Co. with Additions by Philander Anderson March 1835." Ms. at Boston Atheneum.

Lowell (City of)

- 1841 "Map of the City of Lowell surveyed in 1841 by order of the Municipal Authorities by I. A. Beard and J. Hoar." Engraved by G. W. Boynton, Boston.
- 1845 "Plan of the City of Lowell by G. W. Boynton, From A Survey Ordered By The City."
- 1850 "Plan of the City of Lowell, Massachusetts from the actual surveys by Sidney and Neff 80 Walnut Street Philadelphia 1850." Published by S. Moody, Philadelphia.
- 1868 "Map of the City of Lowell, Massachusetts by R. W. Baker, C. E."
- 1876 "Birds Eye View of Lowell Mass. 1876." Drawn and published by H. H. Bailey and J. C. Hazon. Reproduced by Historic Urban Plans, Ithaca, New York, 1976.
- 1876 "Map of the City of Lowell Massachusetts. 1876." Compiled and published by Sampson, Davenport, and Co., Boston.
- 1879 City Atlas of Lowell, Mass. Compiled, drawn and published by G. M. Hopkins, C. E., Philadelphia.
- 1888 "Rippey's Index Map of Lowell, Mass."
- 1896 Atlas of the City of Lowell, Massachusetts published by L. J. Richards & Co., Springfield, Massachusetts.
- 1906 Atlas of the City of Lowell Massachusetts published by L. J. Richards & Co., Springfield, Massachusetts.
- 1924 Map of the City of Lowell. "This map is based upon and traced from the official sheet map at the City Engineer's Office."

- 1936 Property Atlas of City of Lowell, Northern District Middlesex County, Massachusetts Showing the Entire City complete in one Volume. Published by Franklin Survey Company, Philadelphia.

Lowell Machine Shop

- 1878 "Plan of the Yard of the Lowell Machine Shop," insurance survey. U. of Lowell, Lydon Library, Special Collections.
- 1894 "Lowell Machine Shop." Associated Mutual Insurance Companies, insurance survey: plan and view--serial #3945, index #1678 and 1680. Proprietors of Locks and Canals Archive, Boott Mills.
- 1911 "Lowell Shops--Main and Foundry Yards." Associated Mutual Insurance Companies, insurance survey: plan and view (updated to 1921)--serial #9348 and 9349. U. of Lowell, Lydon Library, Special Collections, Locks and Canals photo #1759-C and 1760-J.

Lowell Machine Shop (Saco-Lowell Shops)

- 1921 "Lowell Shops--Main and Foundry Yards." Associated Mutual Insurance Companies, insurance survey: serial #14417, index #9349. Proprietors of Locks and Canals Archive, Boott Mills.
- 1934 "Saco-Lowell Shops (Bldgs--tenanted)." Associated Mutual Insurance Companies, insurance survey: serial #25879, index #9352. Proprietors of Locks and Canals Archive, Boott Mills.

Lowell Manufacturing Company

- 1878 "Plan of the Mill Yard of the Lowell Manufacturing Company," Mutual Fire Insurance plan, with copy updated to March 1891. U. of Lowell, Lydon Library, Special Collections.
- 1896 "Lowell Mfg. Co. (Carpet Mill)." Associated Mutual Insurance Companies, insurance survey: plan and view--serial #3079, index #1660. Surveyed 6/20/1892, amended 2/7/1896. Proprietors of Locks and Canals Archive, Boott Mills.
- 1899 "Lowell Mfg. Co. (Carpet Mill)." Associated Mutual Insurance Companies, insurance survey: serial #5550, index #1660. Surveyed 5/12/1899. Proprietors of Locks and Canals Archive, Boott Mills.

Lowell Manufacturing Company (Bigelow Carpet)

- 1911 "Bigelow Carpet Co., Lowell, Mass." insurance survey: plan--serial #9500, index #9340; view--#7616, index #9340. U. of Lowell, Lydon Library, Special Collections, Locks and Canals photos #1758-E and 1706-B.

Lowell Manufacturing Company (Newmarket)

- 1932 "Newmarket Mfg. Co. (Rayon Weaving) Lowell, Mass." Associated Factory Mutual Fire Insurance Companies, insurance survey: serial #25017, index #9340.6. Proprietors of Locks and Canals Archive, Boott Mills.
- 1945 "Newmarket Mfg. Co., Lowell, Mass." Associated Factory Mutual Insurance Companies, insurance survey: serial #32465, index #9340.6. Proprietors of Locks and Canals Archive, Boott Mills.

Lowell Manufacturing Company (Bigelow)

- 1959 "Plan of the Mill Yard of the Former Bigelow Carpet Company." Millyard fire protection plan. Proprietors of Locks and Canals Archive, Boott Mills.

Massachusetts Cotton Mills

- 1911 "Massachusetts Cotton Mills' Massachusetts Yard." Associated Mutual Insurance Companies, insurance survey: plan and view-- serial #9419, 9420, index #328. U. of Lowell, Lydon Library, Special Collections, Locks and Canals photo #1757-E and 1758-C.
- 1957 "Plan of former Lowell Industrial Development Co. property." Millyard fire protection plan, updated to 1957. Proprietors of Locks and Canals Archive, Boott Mills.

Merrimack Manufacturing Company

- 1826 Plan of the millyard, May 3, 1826. Proprietors of Locks and Canals Archive, Boott Mills.
- 1910 "Merrimack Mfg. Co. (Cotton Mill and Print Works)." Associated Mutual Insurance Companies, insurance survey: plan--serial #9306, index #316. U. of Lowell, Lydon Library, Special Collections, Locks and Canals photo #1757-A, 1756.

Middlesex Manufacturing Company

- 1913 "Ipswich Hosiery and Middlesex Company, Lowell Mass." Associated Mutual Insurance Companies, insurance survey: plan and view--serial #11046, index #9333-34.

Prescott Yard (Massachusetts Mills)

- 1878 "Plan of Prescott Mill Yard." Insurance survey. U. of Lowell Library, Special Collections.

- 1911 "Massachusetts Cotton Mills--Prescott Yard." Mutual Insurance Companies, insurance survey: serial #9473, index #330. Proprietors of Locks and Canals Archive, Boott Mills.

- 1925 "Massachusetts Mills-Prescott Yard." Associated Mutual Insurance Companies, insurance survey: serial #17844, index #9330. Proprietors of Locks and Canals Archive, Boott Mills.

Tremont and Suffolk Mills

- 1915 "Tremont and Suffolk Mills." Associated Mutual Insurance Companies, insurance survey: view--serial #324-D, 325-D. U. of Lowell, Lydon Library, Special Collections, Locks and Canals photo #1759-E.

Wamesit Power Company

- 1874 Barlow's Insurance Survey (#3196).  
1887 Barlow's Insurance Survey (#9070).  
1894 Barlow's Insurance Survey (#9070 revised).  
Merrimack Valley Textile Museum, North Andover.

Books, Pamphlets, Articles, and Manuscripts.

Allen, Wilkes

1820 History of Chelmsford. P. N. Green, Haverhill, Massachusetts. Reprint: Chelmsford Revolutionary War Bicentennial Celebrations Commission, 1974.

American Architect and Building News.

1888 (July 21).

American Textile Reporter.

1969 (June 12).

Annual Statistics of Manufactures in Lowell and Neighboring

1835-1882 Towns. Vox Populi Press, Lowell.

Anthony Publishing Company

1892 Anthony's Standard Business Directory and Reference Book of Lowell and Nashua, presented with the compliments of the leading business firms. Anthony Publishing Company.

Appleton, Nathan

1848 Correspondence between Nathan Appleton and John A. Lowell in relation to the early history of the city of Lowell. Eastburn's Press, Boston.

Appleton, Nathan

1858 Introduction of the Power Loom, and Origin of Lowell. Printed for the Proprietors of the Locks and Canals on Merrimack River. B. H. Penhallow, Lowell.

Ayer, Frederick

1923 Reminiscences of Frederick Ayer. Private Printing, Boston. Reprint: Redwood Press, 1971.

Ayer, James Cook

1863 Some of the Usages and Abuses in the Management of Our Manufacturing Corporations. C. M. Langley and Company, Lowell.

Josephine Mellen Ayer; A Memoir.

1900 Kickerbocker Press, New York.

Baker Library

Harvard School of Business, Boston. Various manuscripts, company records, personal papers etc. relating to Lowell and Lowell corporations.

Barber, John Warner

1839 Historical Collections, Being a General Collection of Interesting Facts, Traditions, Biographical Sketches, Anecdotes, etc. Relating to the History and Antiquities of Every Town in Massachusetts, with Geographical Descriptions, Illustrated by 200 Engravings. Dorr, Howland and Company, Worcester.

Batchelder, Samuel

1863 Introduction and Early Progress of the Cotton Manufacture in the United States. Little, Brown and Company, Boston. Reprint: Augustus M. Kelley Publishers, Clifton, New Jersey, 1972.

Bender, Thomas

1975 Toward an Urban Vision, Ideas and Institutions in Nineteenth-Century America. University Press of Kentucky, Lexington.

Benjamin, Asher

1833 The Practice of Architecture. The author, and Carter, Hendie and Company, Boston.

Bigelow, Edwin S.

1892 Lowell on the Merrimack; an Art Souvenir Containing Fifty-Four Albertype Views of the Principal Public Buildings, Private Residences, Parks and Streets of the City of Lowell, Prepared Exclusively for this Work from the Original Negatives. Compiled and published by Edwin S. Bigelow, Lowell.

Bigelow, Erastus B.

1858 Remarks on the Depressed Condition of Manufactures in Massachusetts, with Suggestions as to Its Cause and Its Remedy. Little, Brown and Company, Boston.

Bishop, John Leander

1868 A History of American Manufactures from 1608 to 1860. Third edition, revised and enlarged. Edward Young & Company, Philadelphia.

Booth, Anne

1979 Lowell State Heritage Park: Entrance Site. Prepared for the Commonwealth of Massachusetts, Department of Environmental Management.

- Boyden, Uriah Atherton  
1828-1862 "Scrapbook," University of Lowell, Lydon  
Library, Special Collections.
- Bradlee, Francis  
1918 The Boston and Lowell Railroad. Essex Institute,  
Salem, Massachusetts. Reprint: Panorama Publica-  
tions, Melrose, Massachusetts, 1972.
- Burgess, Thomas  
1913 Greeks in America. Sherman, French, and Company,  
Boston. Reprint: Arno Press, 1970.
- Burgy, J. Herbert  
1932 The New England Cotton Textile Industry. Waverly  
Press, Incorporated, Baltimore.
- Charters, Additional Acts and Other Documents Relating to  
1859 the Proprietors of the Locks and Canals on  
Merrimack River...and the Manufacturing Companies  
at Lowell.... Allen and Farnham, Printers,  
Cambridge.
- City of Lowell, Massachusetts  
1835 (circa) Proposed charter for the City of Lowell, as  
reported by the Committee. Lowell.  
1836 An Act to Establish the City of Lowell.  
1836 The auditor's annual report of the receipts and  
and expenditures of the city of Lowell. Various  
publishers, Lowell.  
1838 The Charter and Ordinances of the City of Lowell:  
printed and published by virtue of a resolution of  
the City Council, adopted January 18, 1837.  
Leonard Huntress, City Printer, Lowell.  
1839 Papers relating to the Building of Houses for the  
High and Grammar Schools in Lowell, Printed by  
order of the Common Council. Adopted June 26,  
1839. Leonard Huntress, Printer, Lowell.  
1840 The Revised Ordinances of the City of Lowell,  
together with sundry laws of the Commonwealth.  
Leonard Huntress, Printer, Lowell.  
1846-52 The charter with its amendments, and revised  
ordinances of the city of Lowell together with  
sundry laws of the Commonwealth. Joel Taylor,  
City Printer, Lowell.  
1854 The Charter with its amendments and the revised  
ordinances of the city of Lowell together with  
sundry laws of the Commonwealth. S. J. Varney,  
City Printer, Lowell.

- 1862-1927 Lowell City Documents. University of Lowell, Lydon Library, Special Collections. Lowell.
- 1863 The Charter and Ordinances of the City of Lowell, together with the acts of the legislature relating to the city. J. E. Farwell and Company, Printers, Boston.
- 1876 Revised Charter and ordinances of the city of Lowell, with appendix. Marden and Rowell, Lowell
- 1883 The Charter and Ordinances of the city of Lowell, together with the statute provisions relating thereto. Vox Populi Press; Huse, Goodwin and Company, Lowell.
- 1886 Exercises of the 50th Anniversary Commemorative of the Incorporation of the City of Lowell, Thursday, April 1, 1886. Lowell.
- 1890 Specification of City Hall Building for Lowell, Massachusetts. Morning Mail Printers. Lowell.
- 1901 Exercises of the 75th Anniversary of the Incorporation of the Town of Lowell. Lowell.
- 1904 present Buildings Department records.
- n.d. Neighborhood Analysis Project, files and photographs. At Department of Planning and Development.

Clark, Mary Stetson

- 1974 The Old Middlesex Canal. Hilltop Press, Melrose, Massachusetts.

Clark, Victor Selden

- 1929 History of Manufactures in the United States; with an introductory note by Henry W. Farnum. Published for the Carnegie Institution of Washington by the McGraw-Hill Book Company, Incorporated. New York.

Coburn, Frederick A.

- 1924 "The Whistlers of Lowell and the Whistler House."

Coburn, Frederick William

- 1920 History of Lowell and Its People. Lewis Historical Publishing Company, New York.
- 1947 Thomas Bayley Lawson; Portrait Painter of Newburyport and Lowell. Newcomb and Gauss Company, Salem, Massachusetts.

Coburn, Silas R.

- 1922 History of Dracut, Massachusetts. Courier-Citizen, Lowell.



- Conklin, Edwin P.  
1927 Middlesex County and Its People, 4 vols. Lewis Historical Society, New York.
- Coolidge, John Phillips  
1942 Mill and Mansion: A Study of Architecture and Society in Lowell, Massachusetts, 1820-1865. Columbia University Press, New York. Reissued: Russell & Russell, New York, 1967.
- Copeland, Melvin T.  
1912 The Cotton Manufacturing Industry of the United States. Harvard University Press, Cambridge. Reprint: 1966, Kelley.
- Courier-Citizen Company  
1897 Illustrated History of Lowell, Massachusetts and Vicinity, done by divers hands. Courier-Citizen Company, Lowell.  
1925 Historical Sketch of Saint Anne's Church, Lowell, Massachusetts. Lowell.
- Cowley, Charles  
1856 A Handbook of Business in Lowell, with a History of the City. E. D. Green, Lowell.  
1868 A History of Lowell. Second revised edition. Lee & Shepard, Boston; B. C. Sargent and J. Merrill & Son, Lowell.  
1879 Reminiscences of James Cook Ayer and the town of Ayer. Third edition. Penhallow Printing Company, Lowell.
- Curtis, Josiah, M. D.  
1849 Brief Remarks on the Hygiene of Massachusetts, more particularly of the Cities of Boston and Lowell. Philadelphia.
- Cutler, William Richard  
1908 Historic Homes and Places and Geneological and Personal Memoirs Relating to the families of Middlesex County, Massachusetts. Lewis Historical Publishing Company, New York.
- Dean, F. W.  
1916 Mill Engineering, Lambs Textile Industries of the United States. Boston.

- Dickens, Charles  
1842 American Notes for General Circulation. Harper and Brothers, New York. Reprint: 1972, Penguin.
- Dickinson, C. A.  
1887 In Memory of William Kittredge. Rockwell and Churchill, Boston.
- Dinmore, Harry C.  
1968 History of the Lowell Cemetery, (monograph). Lowell.
- Drake, Samuel Adams  
1880 History of Middlesex County, Massachusetts, 2 vols. Estes and Lauriat, Boston.
- Eddy, Caleb  
1843 Historical Sketch of the Middlesex Canal. Boston.
- Edson, Theodore  
1849 An Address Delivered at the Opening of the Colburn Grammar School, In Lowell, December 13, 1848. James Atkinson, Lowell.
- Eno, Arthur L., Jr. (editor)  
1976 Cotton Was King: A History of Lowell, Massachusetts. New Hampshire Publishing Company, Manchester, New Hampshire.
- Ewing, John S., and Nancy P. Norton  
1955 Broadlooms and Businessmen: A History of the Bigelow-Sanford Carpet Company. Harvard University Press, Cambridge.
- Fairchild, Henry Pratt  
1911 Greek Immigration to the United States, Yale University Press, New Haven.
- Federal Cases: Circuit and District Courts, 1789-1880.
- Francis, James B.  
1855 Lowell Hydraulic Experiments. Little, Brown & Company, Boston. Second edition: 1868, D. Van Nostrand, New York.  
1865 On the means adopted in the factories at Lowell, Massachusetts, for extinguishing fires. Franklin Institute, Boston.

Gibb, George Sweet

1950 The Saco-Lowell Shops, 1813,-1949. Harvard University Press, Cambridge.

Goodfellow, W. H.

1895 Industrial Advantages of Lowell, Massachusetts and Environs. Goodfellow, Lowell.

Gould, Levi, S.

1905 Ancient Middlesex with Brief Biographical Sketches of the Men Who Have Served the County Officially since Its Settlement. Somerville Journal Print.

Green, John O.

1846 The Factory System, In Its Hygienic Relations. William S. Damroll, Boston.

Gregory, Francis W.

1975 Nathan Appleton, Merchant and Entrepreneur, 1779-1861. University of Virginia Press, Charlottesville.

Griffin, Sara Swan

1913 Quaint Bits of Lowell History; A Few Interesting Stories of Earlier Days. Butterfield Printing Company, Lowell.

1928 Little Stories about Lowell; Romances and Facts of Earlier Days. Butterfield Printing Company, Lowell.

Groner, Alex

1972 The American Heritage History of American Business and Industry. American Heritage Publishing Company, New York.

Hammond, Mathew Brown

1897 The Cotton Industry; An Essay in American Economic Association. S. Sonnenschein, and The MacMillan Company, London.

Handbook for the Visiter [sic] to Lowell.

1848 D. Bixby and Company, Lowell.

Hill, Frank P.

1884 Lowell Illustrated; A Chronological Record of Events and Historical Sketches of the Large Manufacturing Corporations. Huse, Goodwin and Company, Lowell.

- Hunt, G. W.  
1926 Historical Sketch of the First Baptist Church  
Lowell, Massachusetts, Centennial Anniversary.  
Lowell.
- Hurd, D. Hamilton  
1890 History of Middlesex County Massachusetts,  
with Biographical Sketches of Many of Its  
Pioneers and Prominent Men. 3 vols., J. W. Lewis  
and Company, Philadelphia.
- Kenngott, George F.  
1912 The Record of A City; A Social Survey of Lowell,  
Massachusetts. The Macmillan Company, New York.
- Knowlton, Evelyn Hope  
1948 Pepperell's Progress. Harvard University Press,  
Cambridge.
- Knox, S. H., and Company  
1904 Views of Lowell and Vicinity. Published exclusively  
for S. H. Knox and Company, Lowell, Massachusetts.  
L. H. Nelson Company, Portland, Maine.
- Lankton, Larry D., and Malone, Patrick M.  
1973 The Power Canals of Lowell, Massachusetts.  
Occasional paper, Lowell Urban National Park  
project. Human Services Corporation, Lowell.
- Lawler, Thomas H.  
n.d. Pictorial Lowell.
- Letter to the Directors of the Lawrence Manufacturing  
1866 Company.
- Levy, Herbert W.  
1971 "Changes thru Structure--the New England Industrial  
Building, 1787-1873." Paper submitted November 30,  
1971; shelved under "Architecture" in Special  
Collections, University of Lowell, Lydon Library.
- Lowell Board of Trade  
1902-1912 Yearbook of the Lowell Board of Trade.
- Lowell City Directory  
1832-1977 Various titles and publishers.

Lowell Daily Citizen

1893 Lowell, Chelmsford, Graniteville, Forge Village, Dracut, Collinsville of Today; their Commerce, Trade, and Industries, Descriptive and Historical. Daily Citizen, Lowell.

The Lowell Greek Study. Compiled from the work of various 1966 authors.

Lowell Historical Society

1913-1926 Contributions of the Lowell Historical Society. Lowell. (An index for all the volumes is available at the University of Lowell, Lydon Library, Special Collections.)

Lowell Housing Authority

1938 Appraisals, documents, and photographs of 1938 of buildings taken for the North Common Housing Project. At Lowell Museum.

Lowell Institution for Savings

1909 Annual Report of the Treasurer to the Board of Trustees of the Lowell Institution for Savings. Lowell.

1929 At the Meeting of the Waters; A Sketch of Lowell Life from the Discovery of the Merrimack to the Present Day. Lowell.

Lowell, Massachusetts Trades and Labor Council

1900 Lowell; a City of Spindles. Lawler and Company, Lowell.

Lowell Weekly Journal

1847 (November 22).

Malone, Patrick M.

1976 The Lowell Canal System. Lowell Museum in cooperation with the Slater Mill Historic Site and the Historic American Engineering Record, Lowell.

Massachusetts Cotton Mills

1911 (circa) Design and Construction of a Re-inforced Concrete Warehouse for the Massachusetts Cotton Mills. Aberthaw Construction Company and Lockwood,

Greene and Company (?). At Baker Library, Harvard University School of Business, Pepperell Manufacturing Company Collection.

Massachusetts Institute of Technology, Department of English and History  
1950 Lowell, an Early American Industrial Community.  
M.I.T. Press, Cambridge.

Master Builders' Exchange, Lowell, Massachusetts  
1895 Lowell: Past, Present and Prospective. Homer Barry, publisher, Lowell.

Meader, J. W.  
1869 The Merrimack River; Its Sources and Its Tributaries.  
B. B. Russell, Boston.

McGouldrick, Paul F.  
1968 New England in the Nineteenth Century; Profits and Investment. Harvard University Press, Cambridge.

McMaster, Marion  
1975 "The Development of the North Canal Housing Project in Lowell 1937-1941." Manuscript in the University of Lowell, Lydon Library, Special Collections.

Meserve, Henry Chamberlain  
1923 Lowell--An Industrial Dream Come True. National Association of Cotton Manufacturers, Boston.

Middlesex County Manual. Penhallow Printing Company,  
1878 Lowell.

Miles, Rev. Henry Adolphus  
1845 Lowell, As It Was and As It Is. Powers and Bagley, Lowell. Reprint: Arno Press, New York, 1972.

Molloy, Peter M. (editor)  
1976 The Lower Merrimack River Valley: An Inventory of Historic Engineering and Industrial Sites. North Andover: Merrimack Valley Textile Museum and HAER. Second edition, 1978.

Montgomery, James  
1840 Practical Detail of the Cotton Manufacture of the United States of America Contrasted and Compared with that of Great Britain. John Niven, Glasgow; Johnson Reprint Corporation, 1968.

The Morning Mail Company

- 1882-1893 Lowell Year Book, numbers 1-10. The Morning Mail Company, Lowell.
- 1887 "Memorial Services for Eli Wait Hoyt," Sunday February 20, 1887. Morning Mail Company, Lowell.
- 1890 City of Lowell, Massachusetts, Its Commercial and Financial Resources; Souvenir of the Lowell Morning Mail. Lowell.

Munce, James F.

- 1960 Industrial Architecture--An Analysis of International Building Practice. F. W. Dodge Corporation, New York.

Murcheson, Claudine T.

- 1930 King Cotton is Sick. University of North Carolina Press, Chapel Hill.

Nelson Colonial Department Store

- 1907 Lowell Illustrated; A Souvenir of the Textile Metropolis of Modern Industrial New England, and of the Great Nelson Colonial Department Store. Lowell.

New England Manufacturers and Manufactories. Volumes I 1879 and II. Van Slyck and Company, Boston.

O'Dwyer, George F.

- 1920 The Irish Catholic Genesis of Lowell. Sullivan Brothers, Lowell.
- n.d. "History of the Merrimack House." University of Lowell, Lydon Library, Special Collections.

Ogaspian, John

- 1977 Lowell and Old Saint Anne's: A Study in Nineteenth-Century Industrial-Church Relations. Historical Magazine of the Protestant Episcopal Church. 46: December.

Old Lowell National Bank

- 1928 A Century of Banking in Lowell, Massachusetts, issued by the Old Lowell National Bank, on the occasion of its one-hundredth anniversary (1828-1928). Lowell.

Old Residents' Historical Association

- 1879-1926 Contributions of the Old Residents' Historical Association. Lowell, Massachusetts. Lowell.

Orfant, Joseph R.

- n.d. Walking Tours of Lowell:  
Canals, West ("The Green Tour");  
South End ("The Brown Tour");  
Downtown ("The Red Tour").

Owen, Frank N.

- 1888 Fire Service of Lowell; A Souvenir Presented to the Appreciative Public of the City of Spindles. Lowell Firemen's Fund Association, Lowell.

Parker, Margaret T.

- 1940 Lowell: A Study of Industrial Development. MacMillan Company, New York. Reprint: Kennikat Press, 1970.

Perry, Albert

- 1939 Whistler's Father. The Bobbs-Merrill Company, Indianapolis.

Pickering, Octavius

- 1836 Reports of Cases Argued and Determined in the Supreme Judicial Court of Massachusetts. Hilliard, Grayland Company, Boston.

Pierson, William H., Jr.

- 1949 "Notes on Early Industrial Architecture in England." SAH Journal, Number 8.  
1978 American Buildings and their Architects. Technology and the Picturesque, The Corporate and Early Gothic Styles. Doubleday and Company, Incorporated, Garden City, New Jersey.

Proceedings in the City of Lowell at the Centennial Observ-

- 1926 ance of the Incorporation of the Town of Lowell, Massachusetts, March 1, 1926. Lowell.

Proceedings in the City of Lowell at the Semi-Centennial

- 1876 Celebration of the Incorporation of the Town of Lowell, Massachusetts, March 1, 1878. Lowell.

Proposal for the New City Hall and Memorial Building.

- 1890 Lowell.

Proprietors of Locks and Canals

- 1845 "Catalogue of 113 Lots of Land belonging to the Proprietors of the Locks and Canals on the Merrimack River to be sold at Auction April 15, 1845." North Middlesex Registry of Deeds, Plan Number 3.



- 1879-1921 Indentures, Agreements, and Other Documents Concerning the Proprietors of the Locks and Canals on Merrimack River and Other Corporations at Lowell, Massachusetts. 2 volumes. Lowell.
- 1889 Reports, etc. relating to the proposed extension of the penstock for discharging water into the lower end of the Eastern Canal. Lowell.
- Roberts, Christopher  
1938 The Middlesex Canal, 1793-1860. Cambridge, Massachusetts.
- Robinson, Harriet Hanson  
1898 Loom and Spindle; or Life Among the Early Mill Girls. Thomas Y. Crowell and Company, New York.  
Reprint: Press Pacifica, 1976
- Saco-Lowell Shops  
1924 Chronicle of Textile Machinery 1824-1924. Issued to Commemorate the 100th Anniversary of the Saco-Lowell Shops.
- Saloutos, Theodore  
1964 The Greeks in the United States. Harvard University Press. Cambridge.
- Sande, Theodore Anton  
1971 "The Architecture of the Cotton Mills of Lowell, Massachusetts, 1822-1860." Paper submitted December 10, 1971; shelved under "Architecture" in Special Collections, University of Lowell.  
n.d. The New England Textile Mill Survey. Selections from the Historic American Buildings Survey, No. 11.
- Santerre, Richard  
1972 The Franco-Americans of Lowell, Massachusetts. Franco-American Day Committee. Lowell.
- Scoresby, William  
1845 American Factories and Their Female Operatives. Ticknor, Boston. Reprint: Burt Franklin, 1968.
- "Selections, Historical and General, Mostly Concerning  
1894 Lowell and Vicinity." Largely from the Lowell Newspapers of the past thirty years. Scrapbook, 3 Volumes. University of Lowell, Lydon Library, Special Collections.

Spaulding, Robert V.

1963 The Boston Mercantile Community and the Promotion of the Textile Industry in New England, 1813-1860. New Haven.

Stone, Orra

1929 Massachusetts Industries. 4 volumes. Boston.

Tucci, Douglas Shand

1978 Built in Boston, City and Suburb. Boston.

University of Lowell, Alumni-Lydon Library, Special Collections. Books, photographs, prints, maps, documents, drawings, scrapbooks, etc. relating to the history of Lowell, including the Lowell Historical Society Collection and the Proprietors of Locks and Canals Collection.

Van Slyck, J. D.

1879 New England Manufacturers and Manufactories. Van Slyck and Company, Boston.

Vital Records of Lowell, Massachusetts, to the end of the 1930 year, 1849. 4 volumes. The Essex Institute, Salem, Massachusetts.

Vose, George L.

1887 A Sketch of the Life and Works of George W. Whistler, Civil Engineer. Lee and Shepherd. Boston.

Walton, Perry

1925 The Story of Textiles. Walton Advertising and Printing Company, Boston.

Ware, Caroline F.

1931 The Early New England Cotton Manufacture; A Study in Industrial Beginnings. Houghton Mifflin Company. Reprint: Johnson Reprint Corporation, New York, 1966.

Waters, Rev. Wilson

1917 History of Chelmsford, Massachusetts. Courier Citizen, Lowell.

Webber, Samuel

1879 Manual Power for Machines, Shafts, and Belts; with the History of Cotton Manufacture in the United States. D. Appleton and Company, New York.

Webster, Prentiss, (editor)

1849 The Story of the City Hall Commission, Including the Exercises at the Laying of the Corner Stones and the Dedication of the City Hall and Memorial Hall. Citizen Newspaper Company, Printers, Lowell.

Whitcomb, A. K.

1900 The Schools of Lowell, A Sketch of a Few Points in Their Development.

Whitney, Harry F., A.I.A., and Elsie Rathburn Whitney

1970 Biographical Dictionary of American Architects (Deceased). Hennesey and Ingalls, Incorporated. Los Angeles.

Whittier, John G.

1845 The Stranger in Lowell. Waite, Pierce and Company, Boston.

Woodbury, C.J.H.

1909 Bibliography of the Cotton Manufacture. Press of E. L. Barry, Waltham, Massachusetts.

Young, James H.

1961 The Toadstool Millionaires; A Social History of Patent Medicines in America Before Federal Regulation. Princeton University Press, Princeton, New Jersey.

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