

THE LOWELL NEIGHBORHOODS:

AN HISTORICAL & ARCHITECTECTURAL OVERVIEW



Prepared by Elizabeth Durfee Hengen as part of a Neighborhood Cultural Resource Inventory jointly funded by the City of Lowell through its Community Development Block Grant program and the Massachusetts Historical Commission through the National Historic Preservation Fund.

August, 1981

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PREFACE

In 1978, through an act of Congress, a major portion of downtown Lowell was designated a National Urban Park. Key industrial and commercial properties were incorporated into an interpretive framework intended to portray the origin and evolution of the nation's first textile city. Beyond the park, an even larger area of the city, encompassing most industrial, retail and business properties as well as waterways and several residential areas, was established as a preservation district.

In the summer of 1979, the National Park Service undertook an extensive architectural, historical and planning survey of each building and parcel of land located within this Lowell Historic Preservation District (LHPD). Its results comprise a 12 volume report. Included in the first volume is a comprehensive overview of Lowell's development, highlighting the industrial and commercial city.

The City of Lowell was concerned that a similar survey project be conducted for the city's extensive neighborhoods and the industrial sites outside the LHPD. In 1981, it contracted with Elizabeth Durfee Hengen, a professional preservation planner, to undertake this survey through a grant from the National Historic Preservation Fund.

Through field survey and research, detailed architectural and historical information has been recorded for more than one thousand buildings. The following overview summarizes major findings and is intended as a supplement to the LHPD report. Part One briefly outlines the city's historical development and its relationship to neighborhood evolution. Part Two discusses Lowell's architecture, with specific examples of buildings and areas located outside the LHPD. While dividing discussion of Lowell architecture into LHPD and non-LHPD activities is somewhat arbitrary and superficial, given their interwoven history, Lowell's residential architecture and neighborhood growth patterns are sufficiently interesting and complex to warrant separate discussion.

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area. Outside the district, a few pockets of neighborhood retail stores developed along major arteries. Bridge Street, in Centralville, had several 3 and 4 story frame commercial buildings by the late 1880's which served the 9,000 people residing in that area. These were simply adorned with classical or Queen Anne ornament usually located at the cornice. Similar, though more modest, structures are found on East Merrimack Street in Lower Belvidere, at the intersection of Pine and Westford Streets in the Highlands and along Textile Avenue in Pawtucketville. Two handsome early automobile showrooms on East Merrimack Street illustrate the popular use of poured concrete and the distinctive one-story storefronts being erected in many outlying commercial areas between 1910 and 1925.

Lowell's earliest commercial buildings were usually not intended solely for retail purposes. In the 1820-40's shops were frequently located in the basement or a downstairs room of a residence. Both Scripture's Bakery (#281) and the Spaulding House (#296) on Central Street on Chapel Hill had stories in basements that opened onto the street level. Cottage Row on Merrimack Street (#189) is another early brick building that combined commercial and residential use.

ECCLESIASTICAL BUILDINGS

Only three pre-Civil War churches survive outside the LHPD. St. Paul's, built in 1839, is the oldest remaining Methodist church in Lowell, erected 15 years after Methodists first arrived in the city. The brick structure is Greek Revival in design with a square cupola and flush boarded belfry. The oldest church in Belvidere is the High Street Church, begun in 1841 by an Episcopal group which, unsuccessful in its endeavor to establish a church in the newly-developed Washington Square area, sold the building to Congregationalists. This early Gothic Revival church was originally a "very porcupine of a building, prickly with tall pinnacles" (Coolidge, p.95). Contemporary comments likening it to "a great wooden sham ... painted in imitation stone ... whelked and horned ... a whittled representation of the many-headed beast of the Apocalypse" caused the Congregationalists to remove the high pinnacles ca. 1855, but the rest of the building remains virtually unchanged.

The Episcopalians met with greater success in their second attempt to establish a church. In 1861 they constructed St. John's (#263), a small stone Gothic Revival chapel, next to the courthouse. In its style, it reflects Richard Upjohn's designs for suburban churches, to which Episcopalians turned throughout the 19th century for architectural inspiration (Coolidge, p.96).

After the Civil War, Lowell's new churches ceased to harmonize with their surroundings in scale. The grand designs of such

ecclesiastical architects as S.S. Woodcock and P.C. Keely demanded space and attention. Their churches were intended to inspire awe and an awareness of the stature of their patron parishes. No longer clustered in downtown locations, these churches moved with their congregations to the growing neighborhoods. The expansion of Lowell's ethnic population, which by 1900 consisted of no fewer than 15 nationalities, explains the diversity and number of churches, chapels, missions and religious societies established in the next 25 years. Those with sufficient means erected buildings in which to hold meetings.

The Irish and French-Canadians comprised close to 45% of Lowell's population by 1912. Between 1871 and 1896 they erected at least five large masonry churches. The designs, dictated by the Roman Catholic Archdiocese in Boston, are similar, consisting of a central gabled transept flanked by square towers of unequal height. Patrick C. Keely was responsible for three: St. Peter's (1892-1900, #264), Immaculate Conception Church (1871-77, #372), and St. Michael's (1884-1896, #567). Within the neighborhoods, the churches were commanding landmarks, attesting to the growing status and prominence of the Irish and French-Canadians within the city.

No summary of Lowell's ecclesiastical architecture during the late 19th century would be complete without reference to the spacious Victorian churches erected by the city's Protestants. They were built in both masonry and frame, usually Victorian Gothic in style. Probably the most distinctive is the Eliot Church (1873-4; #255), which occupies a commanding position overlooking the South Common. Designed by S.S. Woodcock, it is a prototypical Victorian Gothic edifice with soaring height and rich detail. Also of interest is the Highlands Methodist Episcopal Church (1876, #65), a Gothic Revival building with stickwork trim.

For a brief period at the close of the 19th century, a number of neighborhood religious societies and small ethnic outposts of more established denominations took root. Many of these groups erected modest frame structures in which to hold their meetings. Over half a dozen of these survive, many now in the hands of secular organizations. In South Lowell, the Swedes built both an Evangelical Lutheran and a Methodist Church within 100 yards of each other (#355, 357). Both are small frame buildings suggesting Gothic Revival influence. Nearby is the Moore Street Mission, a gable end barn-like structure that was an offshoot of the Primitive Methodist Church (#362).

PRIVATE INSTITUTIONAL BUILDINGS

One of Lowell's finest Queen Anne structures is the Old Ladies' Home, built in 1881 according to plans drawn up by Otis Merrill, a local architect of some note. The home had been founded five

years earlier to provide lodging and life-long care for elderly women in exchange for all their possessions. The building is one of the few in the city built specifically for this purpose; most homes for children, the elderly and the mentally ill adapted former residences to their needs.

Educational buildings comprise the bulk of the private institutional buildings outside the LHPD. Most of the Catholic churches maintained parochial schools. St. Michael's School in Centralville has an imposing Georgian Revival facade, replete with statuary in recessed niches. Others, though less inspiring architecturally, nonetheless reflect the monumental scale established by their church.

The most significant private 19th century institution in Lowell was the Lowell Textile Institute. The school was founded in 1895 in response to fierce competition from the South and other New England textile centers. Executives of Lowell's corporations were intent on developing a more highly skilled labor force, in order to obtain better quality goods and increased output. Three Neo-Classical yellow brick buildings, later joined by a fourth to form an enclosed quadrangle, were erected in 1897 on the north side of the Merrimack River. These became the nucleus of the Institute.

PUBLIC BUILDINGS

Lowell's publically owned buildings are among the most distinguished in the city. Most date from the fourth quarter of the 19th century during which period Lowell's population and acreage increased by more than 100%. Schools account for the largest number and are located both within and without the LHPD. The central firehouse is situated downtown, but several early neighborhood stations are found spread across the city.

Water System

From Lowell's incorporation in 1826, the problem of a pure water supply was evident. Though water piped from the Merrimack and the city's canals supplied the residents' needs, it was by no means a clean source. A reservoir was constructed in 1849 in Belvidere (#905) by Locks and Canals, but its purpose was to supply highly pressurized water to the mills in the event of fire.

In 1869, as a result of over a decade of study by the Water Commission, the city resolved to pump water from the river to a station in Centralville for filtration and purification. The water would then be piped up to two reservoirs on top of Christian Hill. The system as originally conceived is still in place and in use today.

The pumping/filtering complex on West Sixth Street (#908) originally included three buildings and a 105' octagonal chimney. The main engine house, still standing, is pressed brick with granite trim, slate roof and an interior handsomely finished in ash and black walnut. The enormous engine, capable of supplying ten times Lowell's daily needs when installed, was technologically advanced for its time and in use in only one other city in the country.

On top of Christian Hill a small brick gatehouse was constructed at the edge of the reservoir to shelter the automatic gates beneath. The building has decorative corbeling; an iron railing for visitors' observation once encircled the scalloped slate mansard roof. (#907).

Firehouses

Organized in 1830, the Fire Department's first hose houses were small frame structures. In 1855 the department had access to 10 engines (several were owned by the corporations) and owned six houses, two of which were brick.

With the water system in place by 1875, the city began replacing its frame houses with brick houses. Between 1875 and 1881 at least four were built. Each is a handsome Italianate building with granite keystones, bracketed overhanging eaves and an attached hose tower (#31, 163, 347, 552). The earliest station was designed by Cherrington and Cherrington, local builders/architects. Otis Merrill, who designed many city-owned buildings in the late 19th century, is credited with the Branch Street Firehouse (1877).

A second wave of brick firehouse construction in newly populated areas occurred between 1886 and 1891. The five stations surviving from this period range from Queen Anne and Victorian Gothic to Romanesque Revival in style. Frederick W. Stickney, Lowell's other foremost architect, designed the Lawrence Street Firehouse (1891, #364) and Frederick C. Miller the Central Street Station (1886-7, #280). Remaining stations from this period are located on High Street (#379), Fourth Street (#552), Mammouth Avenue (#657) and Westford Street (#111).

One of the most recent stations was built in the Oaklands, a newly opened suburb of the late 19th-early 20th century. In design it is a radical departure from the stations of a few decades earlier, but like them follows contemporary taste. The long bung-aloid building is cross-gabled in plan with a red tiled roof.

Schools

Prior to Lowell's incorporation, its schools were established and operated by the manufacturing corporations. In 1824, the Merrimack Company opened the first school, intended for children of its employees. Following the town's incorporation, six school

districts were created. The schools remained ungraded until 1832, when Lowell joined Boston and Newburyport with one of the state's three graded systems. Over the following years, numerous primary school buildings, which generally held separate schools on each floor, were erected. Grammar schools were fewer in number and more substantial in appearance. In 1831, the first high school was opened.

The oldest grammar school in Lowell is the brick Franklin School (#34). Built in 1845 to serve the Lower Highlands, its Greek Revival design resembles other public buildings of the period, including the 1848 Colburn School and 1857 Varnum School (#566). At the time of its construction, concern was voiced over ensuring adequate light and ventilation in schools. The Franklin School provided both.

Two primary schools built in 1858 are the earliest known extant examples. The Cottage Street (#302) and the Pond Street Schools (#380) are almost identical 2 1/2 story frame, gable end structures of Italianate design. Except for their expanded proportions and additional entrances, they are indistinguishable from contemporary residences. School documents at this time cited concern for children playing in the street; large school yards were located adjacent to each of these schools.

Corresponding to the surge in population, a tremendous number of schoolhouses were erected in the last quarter of the 19th century. These both replaced and supplemented existing buildings. The numerous small primaries scattered around the city were gradually replaced with plain, large, white frame structures with steep slate hip roofs, relieved only by Stick-like entrance hoods. Many of these remain standing: Central, Middlesex, Ames, Woburn and Pine Streets all have examples. In contrast to these primary schools, the grammar schools erected during this period were handsome brick buildings that closely adhered to popular architectural styles. F.W. Stickney was the recipient of more schoolhouse commissions than any other architect. Among his best school designs were the Highland and Butler Schools constructed in 1882-3. Only the Butler School still stands (#350). This handsome Queen Anne building manages to display many of the decorative motifs associated with the style while maintaining the seriousness deemed appropriate for a school. Stickney's Moody School (#408), completed ten years later, is a massive Romanesque Revival building. The firm of Merrill & Cutler was also chosen for several public schools designs. Among their more interesting is the one for the Eliot School (1889, #256). That brick Queen Anne building has sandstone trim and a picturesque skyline that can be seen from across the South Common.

Outside the densely populated areas of the city, small one-room schoolhouses remained in use for a longer time; at least two survive. Both were erected before their communities were annexed to Lowell. The Middlesex Village Schoolhouse (#7) is a frame

Greek Revival building from the 1830's. In Centralville is a brick broad gable Greek Revival schoolhouse built in 1836 and used as a school only 11 years (#599).

COUNTY BUILDINGS

In 1835, Lowell was designated the northern shiretown of Middlesex County. The designation was a boost to the city's growth; lawyers, businessmen and other professionals hitherto oriented toward Cambridge began flocking to Lowell. Two major buildings erected by the county in the 1850's anchored opposite ends of the South Common and survive today among the city's most significant resources.

The earlier building is the Middlesex County Courthouse (#266). Amni Burnham Young, architect of the Customs House in Boston and a student of Alexander Parris, who designed Quincy Market, was chosen by the county commissioners to design the courthouse. His Romanesque Revival building, completed in 1850, was the first public building in the city designed in the newly emerging fully romantic mode. Crisp, decorative wood trim contrasts with smooth brick sheathing, and an octagonal clock tower crowns one of its crossings. Young was later appointed Superintending Architect of the U.S. Treasury Department.

In 1895, the courthouse was partially dismantled, moved to the rear of its site and, in 1897, an addition was appended to its front. Designed by Olin Cutler, the Renaissance Revival addition is twice the size of the original building (still visible in the rear) and remains today one of the most monumental structures in Lowell.

Across the common is the Middlesex County Jail (#253), designed by James H. Rand in 1855-6. Rand was a local architect who undoubtedly was influenced by the romantic mode of the courthouse. His design for the jail (one of only three buildings attributed to him) was also Romanesque Revival. It was executed in granite with flanking brick wings. Two octagonal towers with pyramidal roofs are dominant features. Though Rand's design is not as sophisticated as the courthouse, the jail is nonetheless one of Lowell's most ambitious pieces of architecture and occupies an important role in the city's development.

RESIDENTIAL BUILDINGS

The vast majority of Lowell's buildings outside the LHPD are residential. Most of the housing stock dates from the 19th century and extends in all directions from the city center. Single or double family frame buildings predominate, though within the more congested areas of Chapel Hill, Lower Belvidere, Centralville and Pawtucketville, a number of 3-4 story apartment houses were

erected at the turn of the century. Of particular note are a couple of unique Victorian Gothic brick apartment units erected ca. 1876-80 (#51, 250). The centrally located residential districts were largely built up by 1870; radial streets led to adjacent towns, and farmland remained scattered throughout the area until the suburban development of the 1890-1920's. Between 1925 and 1960, as Lowell suffered from the Depression and the loss of its industries, little housing was constructed. In recent years, however, most of the remaining open outlying areas have been subdivided and built upon.

Much of the residential stock is better understood when viewed in the context of neighborhoods developed by people of similar background, taste and social standing. Thus, Chapel Hill and Centralville contain the largest clusters of pre-1860 workers' housing, while Belmont, Wilder and Livingston Streets, Belvidere Hill, Andover Street and Christian Hill were late 19th century enclaves for the city's wealthier citizens.

Crescent Hill in Centralville was settled primarily by French-Canadians, while the Acre was built up by Irish, and later Greek, immigrants. A handful of individual estates remain, although none retain more than a few acres; most have been completely enveloped by newer development.

1620-1825

Before analyzing Lowell's pre-industrial housing, it is necessary to remember that Lowell is a composite of portions of three older towns: Dracut, Tewksbury and Chelmsford. The Merrimack and Concord Rivers posed transportation obstacles and became built-in town boundary lines.

Surviving houses from this period date from ca. 1750-1825. Although each town was relatively self-contained, the structures are strikingly similar; each is a simple, traditionally constructed frame building of 2 1/2 stories, with a five bay facade and a modest Georgian or Federalist entrance. Over two dozen are extant, concentrated in three areas: Varnum Avenue (formerly Dracut), Andover/Clark Streets (formerly Tewksbury) and Middlesex Village (formerly Chelmsford).

The Varnum Avenue area was settled as early as 1669 when members of the Varnum and Coburn families arrived from Ipswich. King Phillip's roving bands destroyed all but their garrison house in the 1670's. Extant houses today were built after ca. 1750. Scattered along Varnum Avenue, their long, narrow lots originally extended to the river. Two houses built by the Varnum family in the mid-18th century are the best preserved. The Thomas Varnum House (#680) is of traditional Georgian design and still in Varnum family ownership. Unusually, it faces to the north, its back to

the river. Across the street is the Parker Varnum House (#675), also Georgian but with federalist modifications. 840 Varnum Avenue (#679) might have early 18th century origins, but its exterior alterations and extensive additions preclude accurate dating without a thorough interior analysis.

The largest cluster of pre-1825 houses is in Middlesex Village, where the canal and Glassworks prompted the development of a small village at the turn of the century. Federal houses predominate, of which the Hadley House (ca. 1822, #14), occupied by the Hadley family for over 100 years, is the best preserved. Samuel P. Hadley was manager of the Middlesex Canal, and his son Judge Samuel Hadley presided over Lowell's Police Court. Four other fine federal houses are scattered along Middlesex Street (#11, 12, 13, 16), but recently have been drastically altered; others have been demolished.

Of particular interest are three 1 1/2 story vernacular buildings built in the early 19th century by or for the Chelmsford Glassworks. Two are single family houses; the third consists of three adjoining units. These simple structures hug the ground and represent a unique vestige of early company housing (#4, 17, 18).

Just outside Middlesex Village is the Bowers House. The site has boasted a residence since 1671; it is widely assumed that portions of a 17th or early 18th century framing system survive within the building, but the house has been remodeled over the years. Its appearance today is primarily federalist, with some early 20th century alterations. It has remained in the Bowers family and, until recently, the land in agricultural use.

The third concentration of pre-1825 houses in the city is on outer Andover Street, which remained part of Tewksbury until 1906. Of the six surviving houses, four have associations with the Hunt or Clark families, original settlers of the area. Like other houses of the period in Lowell, these are sturdy, plain farmhouses, traditionally designed. Perhaps most architecturally distinguished is the Thomas Clark House (1790, #527), which has a fully developed Georgian entrance with a pedimented entablature.

Post-Industrial: 1820-1925

Lowell's architectural development following its ascension as a major textile center can best be discussed in two sections: pre-and post Civil War. The twenty-five year period closing with the Civil War set the stage for the rapid neighborhood and suburban expansion which followed. Houses constructed during the early period initially adhered to styles and forms that could have been found in smaller agricultural communities, although the density of the urban setting necessitated a higher percentage of double houses. The important sidehall, gable end building,

first introduced in the Greek Revival style ca. 1825, was used widely, but it took the frenzied burst of building between 1880 and 1900 to form the network of streets lined with gable end speculative housing that, for many, characterizes the city today.

Pre-Civil War

Federalist and Greek Revival: 1825-50

The Federalist houses built after Lowell's emergence as an industrial center were primarily limited to outlying areas such as School Street in the Acre and High Street in Lower Belvidere, where a unique group of three adjacent houses stand near the intersection with Andover Street (#384). Few of these houses were built as farmhouses, despite their distance from the mills; early occupants included painters, carpenters, letter carriers and tradesmen. Like their predecessors, 2 1/2 story, five bay houses with modestly defined center entries were the norm.

On Chapel Hill, the first area of concentrated residential growth, houses of this period already exhibit Greek Revival influence, most evident in finely detailed porticoes and trabeated doorways (1-3 Centre Street; #296; 557-61 Central Street; #282). Nearby, on Ames Street, is a more unusual example, constructed of coursed rubblestone ca. 1840 (#275). Approximately half a dozen rubblestone houses scattered west of the Concord River survive from this period. All are federalist or Greek Revival, with granite trim. Some are extremely refined, such as the seven bay house at 70 Howard Street (ca. 1849; #234), while others have crudely cut lintels, sills and quoins and ungainly proportions (26 Hutchinson Street; ca. 1831; #236). Of particular note is the broad gabled Greek Revival house at 47-9 South Whipple Street (ca. 1825; #363), with two stories tucked into the gable.

Most of the Greek Revival houses were modest, built by small shopkeepers, skilled laborers and small businessmen. The largest clusters were on Chapel Hill and Lower Belvidere (where few remain); smaller groupings turned up in Centralville, the Acre and Lower Highlands. The basic form is a 1 1/2 or 2 1/2 story, gable end building with an entablatured entrance and trabeated doorway (often recessed). Broad gabled and lateral double houses were common. Typical examples can be found at 98 Chapel Street (ca. 1830; #306), 101 Vernon Street (1840's; #586), 24-28 Mill Street (1850's; #314) and 42-44 Howard Street (1840's; #52). More fully developed examples include 280-2 Appleton Street (ca. 1845; #322) and 238 Appleton Street (ca. 1846; #321). Though most were built of wood, brick houses were not uncommon (478 & 492 Gorham Street: #309, 310).

At least three houses with full-width, two story Ionic porticoes were built on Chapel Hill. The best preserved is at 11 Centre Street (1841; #297). These were undoubtedly influenced by the Rogers House, Lowell's finest Greek Revival residence. Erected

in 1837-8, the full-width portico is supported by six Ionic columns. The house was built by Zadock Rogers, a wealthy farmer in Belvidere.

In the early 1840's, a peculiar Greek Revival/Regency style based on strong English precepts flourished briefly. Initiated by John Nesmith, a wealthy land owner and industrialist, the style is still best exemplified by his own house at 229 Andover Street (1841-3; #419). Its distinguishing features include full-length, recessed window niches articulated by broad pilasters which merge into the frieze. Only one other Regency mansion the Lawrence-Butler House appeared in the city; it was demolished in 1978. The style was interpreted on several houses of smaller scale, however, as may be seen in the Charles Hovey House (#453), located near the Nesmith House on Washington Square, and at 404, 426 and 434 Fletcher Street (#172-74), all built in the late 1840's.

Gothic Revival: 1845-55

Few domestic examples of the Gothic Revival appear in Lowell. The two best examples, however, superbly illustrate the style. 36 Howard Street (1840's; #50) combines classical and romantic features, including Ionic entry columns, lancet windows and a cusped bargeboard. More unusual still is the stone "Manse" (ca. 1847; #506), a cruciform-plan house with double hood labels and a piazza extending around its perimeter.

Italianate: 1843-80

The Italianate style first appeared in Lowell ca. 1843, around Washington Square in Belvidere. This area, the city's first planned fashionable neighborhood, attracted prosperous merchants, businessmen and industrialists. Most of their early Italianate houses still stand on Nesmith and Chestnut Streets. Greek Revival influence lingers in a refined use of detail, wide friezes and classically inspired porticoes. However, heavily molded window trim, bracketed overhanging eaves, quoins, and flush board siding signal a new development, derived not from Greek temples but from Italian Renaissance villas. The plan is squared off, with a three bay facade and shallow hip roof (#426, 446, 447, 448, 449, 450).

In the late 1850's and early 1860's, the Italianate style reached its zenith among the wealthy. The quiet dignity of the early period rapidly gave way to the richly embellished, ostentatiously romantic mode of the next decade. Overlooking the newly planted South Common, Highland Street was developed with almost exclusively Italianate houses of this period, typified by 58 Highland (#272). Smooth flush board siding scored to simulate stone provides an effective backdrop to this profusion of architectural detail.

INTRODUCTION

The story of Lowell's rapid development as the nation's first and leading textile city has been told many times. Within a period of a few years, the peaceful agrarian village of East Chelmsford was transformed into a thriving city of mills, corporations, workers and small businessmen. As the mills prospered and expanded, the city extended into Tewksbury, Dracut and further west into Chelmsford in a series of annexations that, by 1910, brought its population to over 100,000. Side by side with the industrial growth, there appeared several large nationally recognized businesses, smaller service-related businesses housed in a distinctive late 19th century downtown, minor textile and machinery industries and an explosion of housing to meet the needs of all income levels.

Throughout the 1850's, several estates were built in the Italianate style. Although the most flamboyant have been demolished, residences such as the William E. Livingston House (ca. 1860; #23), the Samuel Horn House (1851-2; #244), the Henry Read House (ca. 1855; #513) and the Elijah M. Read House (ca. 1850; #513) attest to the fashionable following the Italianate style attained.

It was among the working class, however, that the Italianate established itself most forcefully. More than any other, the style shaped the streets and neighborhoods of much of present day Lowell. Architectural elements borrowed from the wealthy residences were readily applied to the standard Greek Revival, three-bay sidehall plan. As John Coolidge noted:

"The conservative members of the lower middle classes stuck to the threebayed house which remained unchanged, save in details ... the old simplicity of the block is exchanged for a more elaborate composition of the masses. This was achieved largely by the ubiquitous sprouting of bay windows." (Mill and Mansion, p.91)

Examples of these houses remain plentiful; usually found in groups, they line the streets of Centralville, Chapel Hill, Lower Highlands, Acre and Lower Belvidere. The streetscapes they create are rich and rythmical with brackets, bay windows, raised rope molding and quoins. Third Street, in Centralville, (#574) is lined with early Italianate cottages which ressemble those on Cedar Street on Chapel Hill (#278), developed ca. 1848 after the Locks and Canals land auction. 128 and 129 Chapel Street (1850's; #303; late 1840's; #304) illustate different approaches to the Italianate. By the 1860-70's, the style was fully developed within the working neighborhoods. 5 New Street (#338), 128 Sixth Street (#569) and Grove Street (#47) illustrate these later 1 1/2 or 2 1/2 story sidehall houses. More flamboyant examples used a cross gable plan, often bisected by a square tower, as in two houses on Myrtle Street (#560, 562).

The Italianate style remained the favorite of the working class through the 1880's, although toward the end of the period it faced competition from the Queen Anne. Late examples were considerably muted, recognizable only by their brackets. Many houses in Pawtucketville reflect this late period of the Italianate.

Post-Civil War

Second Empire: 1860-1880

Like its predecessors, the Second Empire was embraced by people of all income levels. It flourished, however, within the fashionable neighborhoods. After a few houses were erected on Highland Street

in the early 1860's, interspersed with Italianate residences, the style became identified with newly-developed, prestigious areas. Industrialists and prosperous merchants erected spacious, elaborate houses. Three residences on Christian Hill illustrate the Second Empire's love of carved ornament, towers pierced by oculi, and polychromatic slate roofs with molded dormers: 697 Bridge Street (ca. 1881; #588), built for Leavitt and David Varnum, realtors; and 139 Methuen (ca. 1868; #598) and 42 Eleventh (ca. 1875; #591) built for successful businessmen. Between 1867 and 1872, more than six stylish Second Empire houses were built on Belvidere Hill. Perhaps the most conspicuous is 24 Fairmount (ca. 1868; #467). A patterned slate mansard roof, centrally placed tower and a variety of window treatment call attention to the high quality of its design. In the 1870's a group of important residences was built on Wilder Street. Charles Wilder's own house at 291 Wilder is the most outstanding; the carriage house and elements of the original landscape design are still intact (#123). The absence of known architects and the similarity of many of these houses to the widely distributed architectural pattern books suggest that their designs were derivative. Certainly the builders of a group of Second Empire houses near Mt. Vernon and Varney Streets (#180) were familiar with the pattern book models.

One of Lowell's unique residences is a round Second Empire house built in 1872 on Wannalancit Street (#147). It is constructed of local granite, and its round features extend to the cupola and even chimney. The Second Empire houses occupied by the middle class were generally 1 1/2 story cottages. Despite the attraction of increased space allowed by the mansard roof, they remained uncommon.

Stick Style: 1865-85

The evolution of the Stick style in Lowell bears strong parallels to the Second Empire's development. In fact, the two were often incorporated into the same design. The Stick style was also frequently meshed with the Queen Anne. Stick style houses first appeared on Summer Street fronting the South Common in the late 1860's and then quickly moved out to the expanding, wealthier neighborhoods. This fully romantic style freely applied exposed stickwork and jigsaw ornamental woodwork to steeply proportioned buildings. Its effect is usually morose and brooding. Some of Lowell's finest examples of this style are found on East Merrimack Street and in the Highlands. Both 362-4 and 442 East Merrimack feature shed window hoods, decorated gables and attenuated proportions (#497, 499). A unique pair of houses stands at 386 & 396 Andover Street. Built for E.W. Hoyt and F.B. Shedd in 1878, they are near identical. Surviving sandstone bollards, garden walls and gazebos make these an important representation of the Belvidere estate. 340 Wilder Street (ca. 1885; #128) is a remarkable combination of Stick ornament and a superb Eastlake porch. Most of the other houses on the street reflect Stick influence.

Lowell's Stone Mansions: Chateauesque and Richardsonian
Romanesque: 1880's

During the 1880's two monumental stone mansions were commissioned. In 1883, Abel Atherton, a local businessman, erected 236 Fairmount Street (#494). Lowell's only Chateauesque residence, it is built of rock-faced ashlar and trimmed with sandstone. Numerous gables, tall chimneys and a round turret present a picturesque silhouette, accentuated by expansive grounds and a dramatic setback.

82 Belmont Avenue was built in 1889-90 for Frederick Faulkner, who was engaged in a family woolen manufacturing business. Though a documented architect is not known, this superbly designed Romanesque Revival residence, sited at the crest of Belvidere Hill, is among the city's finest structures (#462). Stickney, who worked under H.H. Richardson and whose Memorial Hall (1893) is remarkably similar, may have been the architect.

Suburban subdivisions: Queen Anne, Shingle,
Revival Styles: 1880-1920

By 1906, the physical limits of present day Lowell were essentially established. For the previous 2 1/2 decades, the city had been expanding at a furious rate. Real estate speculators purchased and subdivided large tracts of land, simultaneously creating and satisfying the demand to live beyond the noise and stench of the mills. Developers lured prospective buyers of house lots with promotional brochures, appealing to the upward mobility of the middle class. As one trumpeted:

"There is a natural pride in the hearts of every family who own their home, and a very reasonable desire on the part of many more persons who would like to possess a house and land for themselves and families ... These persons belong to the industrious, intelligent, middle class who appreciate the comforts of home and the beauty of a desirable building locality with moderate improvements, which is easy of access, and far enough removed from the heart of the city to be free from its dust, smoke and noise."

(from the Oaklands promotional brochure)

Growing prosperity among early immigrant families allowed their migration to Centralville, Pawtucketville, South Lowell and sections of the Highlands. To accommodate these new arrivals, farmland was carved into house lots, and inheritors of large estates sold their land to developers. For example, Crescent Hill in Centralville, settled largely by French-Canadians in the early 1900's, was part of the Henry Read estate. The houses erected by the French Canadians there are unique in Lowell. Bringing their familiar native architecture with them, they

erected distinctive, classically inspired houses with bow-shaped gambrel roofs.

Elsewhere, the middle class adapted the by now familiar 3-bay sidehall house by applying fashionable Queen Anne detail to it. Lathe-turned millwork on porches and gables was applied liberally, creating rich, three-dimensional streetscapes. The largest concentration of this house type is in the Highlands, where there was the greatest amount of room to expand. Examples are also scattered throughout Centralville (May Street, #606) and Pawtucketville (Eighth Avenue #654-55).

Typical of the cheaper "no frills" speculative housing being built throughout the city in the 1890's are Corbett, Cosgrove, Stromquist and Bowden Streets in South Lowell; Concord and Pleasant Streets in Lower Belvidere; and West Adams Street in the Highlands.

It was among the wealthy that the Queen Anne and Period Revival styles fully developed. The city's finest residences were still being built in Belvidere, on the Hill and on outer Andover Street. Despite several enclaves of elegant residences elsewhere in the city, Belvidere remained the real center of wealth throughout the 19th and 20th centuries. One reason, besides the attractive topography of the area, is that development patterns there remained consistent and under control. Large lots were seldom subdivided. When they were, it was to provide a home for a married child or for an elderly parent. These "second generation houses", being of the same scale and architectural quality as neighboring properties, were fully integrated into the neighborhood. Elsewhere in the city, land was subdivided and sold more haphazardly, resulting in juxtapositions of large and small dwellings, often on the same street. This trend is particularly noticeable in the Highlands and on Christian Hill.

One of Belvidere's finest Queen Anne houses stands at 85 Fairmount Street (1887, #468). John Howe, a successful local contractor utilized a variety of materials to create the richly textured surface typical of the style. Its superb rear view overlooking the city suggests the affinity of the wealthy for Belvidere Hill; its height not only provided excellent vistas, but prevented the prevailing foul winds from reaching the residents. Other notable Queen Anne residences include the two Pollard Houses on Mansur Street (ca. 1882/83; #476, 477) and the nearby John Faulkner House on Belmont Avenue (#458).

Belvidere was the location, too, for the city's finest Colonial Revival houses. 124 Mansur Street's imposing two story classical portico is unmatched elsewhere in Lowell (ca. 1904; #478). Classical Revival styles found many followers in the 1890-1900's development of outer Andover Street. Edwin Clark, a Chelmsford architect, is credited with 366 and 791 Andover Street and with many of the houses in the Oaklands, a nearby suburban development.

The Colonial, Federal and Tudor Revival characterize turn of the century upper middle class subdivisions. Their names connoted pastoral qualities: "Oaklands", "Tyler Park", "Highland Heights", "Lawn Hill". Spacious houses were fused with ample, well-planted yards in the suburban fashion popularized in magazines such as Country Life and Suburban Life. The houses on Livingston Street in the Highlands (Area LV), erected in the 1890's, take full advantage of the rolling topography. Unlike the exuberant decorative displays seen in earlier Queen Anne areas, Livingston Street residences reflect the contemporary interest in academic architectural ideas. Nearby are smaller, but meticulously executed, Period Revival homes. Period Revival styles are also well represented on Hanks Street, overlooking Fort Hill Park.

Model Housing: 1890-1918

By the fourth quarter of the 19th century, the paternal system responsible for much of the mill laborers' housing earlier in the century had vanished. Most of the corporation boarding houses had closed by the mid-1890's. The densely populated areas of the Acre, Chapel Hill, Lower Belvidere and Centralville were rebuilt with 3-4 story tenements that provided cramped, squalid quarters with little air or light.

"The houses are old and dilapidated. Some of them have holes in the floor and the walls are hardly fit for human habitation ... it is almost impossible for them to keep clean and healthy in the miserable, overcrowded tenements which they occupy here."
(Kenngott, p.53)

Though most landlords adopted a laissez-faire policy, some attempted to provide alternative housing. Albert Viles was a market gardener with substantial real estate holdings. Wishing to provide clean decent housing at an affordable price, Viles built approximately 30 identical cottages on land he owned in Centralville near the intersection of West Sixth and Fulton Streets. Each of the plain 1 1/2 story houses had seven rooms, including a parlor, sitting room, dining room, kitchen and three bedrooms. A small yard offered space in which children might play.

Viles efforts were unique. No other benevolent housing was erected until the Commonwealth designated Lowell as the site of its experimental Homestead Commission Housing Program. The Commission sought not only to provide centrally located, low-cost housing in a wholesome environment, but also to encourage self-sufficiency. Each family was given a garden plot for food and supplementary income. In 1917, a cul-de-sac off Hildreth Street was laid out and ten houses built. (Area MH). Falling into three basic types, the houses had 4 or 5 rooms arranged for maximum flexibility. The plans of Kilham and Hopkins, Boston architects who had built similar housing in Salem, included fire-resistant and low main-

tenance materials. Though World War I put a halt to the Commission's activities, leaving these houses as its sole legacy, many city and town planning departments arose in response to the Commission's plea for carefully executing planning.

Carriage Houses & Barns

The large number of surviving barns and carriage houses in Lowell bear special mention. Tucked behind houses on tightly built streets are a surprising number of frame barns dating from the 1850-80's. They are rectangular structures, gable-end to the street, usually capped by square louvered cupolas. On the east side of Harrison Street stand all the barns that originally belonged to the 1850's Italianate houses on Nesmith Street (#904).

Scattered throughout the Highlands, Centralville and Belvidere are many spacious, well equipped carriage houses of the 1880-1910's. Particularly in the Highlands, most are of a standard type with no particular reference to the architecture of the main house: a cubical structure with a roof gable over the double doors, dormers, and square louvered cupola: 70 & 78 Methuen (#596, 597), 465 Westford (#117), 319 & 331 Wilder (#125, 127). Some of the more ambitious houses, however, boasted carriage houses that were their equal in stylishness: 52 Belmont Avenue (#460), 42 Eleventh (#591), 291 Wilder (#123).

Three carriage houses in Belvidere deserve individual attention because of their immense size and architectural quality. 565 & 571 East Merrimack, built for 386 & 396 Andover Street ca. 1892, are Queen Anne structures built into the hillside (#502). Each of the three stories is defined by a different material: sandstone, brick, clapboard and patterned shingles. Their interiors were as sumptuous as their exteriors, with many stalls, storage and wash rooms, and handsomely finished coachman's quarters. The third noteworthy carriage house was part of the Bonney estate at 236 Fairmount Street (#494). Now used as a private residence, the stone Chateausque structure features a round turret with a soaring conical slate roof.

PARKS AND OPEN SPACE

City-sponsored, open space planning date back to 1845, although it was almost 60 years before a Parks Commission was formed. In 1845, Locks and Canals sold most its land holdings not then in corporate use at auction. Since much of the land was adjacent to the downtown, it was highly desirable for residential development. The city itself was prompted to set aside two particularly large tracts as public commons. The South Common (22 1/2 acres) became the focal point of two fashionable streets. The North Common (11 1/2 acres), by contrast, was surrounded by some of the city's worst slums. Despite the erection of several pretentious houses along Fletcher Street, it never obtained the same appeal as the other common.

Over the next several decades, the city gradually acquired many of the small squares within major subdivisions. Washington (or Park) Square in Belvidere was purchased in 1860 and, in 1865, Vernon Square (Durant Park) in Centralville was acquired. A number of small park circles were donated by speculative subdividers. These included Hillside Park at "D" Street, Tyler Park and a tract in the Oaklands which was planted as a flower-bed. Though many were only fractions of an acre in size, they lent visual interest to the rapidly growing residential areas surrounding them. Among the late subdivision parks, only Tyler Park has a documented landscape architect. Its 1.81 acre park was designed by Charles Eliot in 1893 and is the best remaining example in Lowell. Eliot, who was a member of the Olmsted, Olmsted and Eliot firm, designed a rockery and other picturesque features which survive today. Parks and a garden-like environment were major selling points for late 19th - early 20th century subdivisions, often reflected in the suburban nomenclature: Belvidere Park, Oaklands, Highland Heights, Crescent Hill.

Lowell's largest picturesquely landscaped park is the 30 acre Fort Hill, designed by Ernest Bowditch in 1886. An extensive collection of flora was planted, including many European and experimental varieties. For many years, it was used by the Parks Department for cultivating plants intended for other city parks. The other recreational area of similar scale is Shedd Playground. Its 56 acre site was donated to the city in 1910 to be developed as a playground, rather than formal park.

Boulevards proved another popular means of introducing greenery into the city at the turn of the century. Pawtucket Boulevard was Lowell's best example. On a smaller scale, developers introduced landscaped boulevards into subdivision designs. Washington Parkway, Lincoln Parkway and Raven Road were designed to provide home builders with attractive settings.

Burial Grounds & Cemeteries

Lowell's burial grounds fall into two categories: family plots whose origins predate the industrial revolution and large, formally rendered cemeteries of the mid-late 19th century.

Early burial grounds are scattered around the periphery of the city; seven are visible today in varying states of neglect. An exception is the Hildreth Cemetery, privately owned, which is well maintained. Like the other burial grounds, slate and limestone headstones are carved with standard skull and tree motifs. Of particular interest are polished granite monuments in the rear, erected in the late 19th-early 20th century.

The Lowell Cemetery is the city's chief picturesque Victorian cemetery. Begun by a group of distinguished citizens in 1841, it is located on Fort Hill on the bank of the Concord River. The cemetery is one of the earliest picturesquely planned ceme-

teries in the country. It was laid out by George P. Worcester, its curvilinear paths and plantings showing the strong influence of Olmsted's Mt. Auburn Cemetery in Cambridge, designed only eight years earlier. Fine examples of sculptural cemetery art dot the grounds.

The Lowell Cemetery, however, had no influence on the Edson and Catholic Cemeteries laid out a few years later. The Edson in fact, seems to have been the antithesis of the exclusivity and expense of Lowell Cemetery lots. It was laid out in a strict grid with square and triangular lots.

CONCLUSION

In recent years, much of Lowell's landscape design, large estates and workers' housing have succumbed to development pressures. The automobile has contributed substantially to the erosion of landscape features, particularly in the cases of such buildings as Hood's Laboratory, which once had a circular drive set off by grass and some 3,000 tulips. Entire buildings have been removed in favor of parking lots. Middlesex Village is now unrecognizable due to shopping centers set behind expansive asphalt lots. Road intersection alignments have removed buildings and obliterated the pedestrian scale within many neighborhoods. Some of Lowell's finest architecture has been lost to housing developments: Butler & Thomas Nesmith Houses in Belvidere. Samuel Fox House in Varnum, H.M.G. Parker House in Centralville and the Tyler and Pratt Houses in Middlesex Village.

Yet much remains. The informed eye can still discern early buildings and estates hidden behind modern additions. Intact neighborhoods of workers' housing remain near brick or rubble-stone mills. Enough carriage houses and gazebos survive to allow interpretation of an earlier society. But only a sensitive, informed citizenry can ensure that not only the city's mills and downtown milieu are preserved, but that its neighborhoods will be recognized and appreciated for generations to come.

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PART ONE: THE HISTORICAL PERSPECTIVE

1650-1822

Until 1826, when Lowell was incorporated as a town, its downtown (and earliest portion) was part of East Chelmsford, a rural farming village. The first English settlement dates from 1653, when venturers from Concord and Woburn received a land grant from the General Court and established the town of Chelmsford. A section of land which included most of modern downtown Lowell was set aside as one of six "Praying Towns" in the Bay Colony, in which Native Americans were expected to remain confined and to adopt Christian ways. King Philip's War in the mid-1670's put an effective end to the native settlement. Alarmed by the frightened and angry English farmers, the local tribe abandoned the area. Their village, including those who had been left behind by the exodus, was torched in 1676. Ten years later the land was sold by the Indians to English settlers.

Across the Merrimack River in the Varnum section of Dracut, initial development was similar to that of East Chelmsford. In 1668-9, land was bought by the Coburn and Varnum families of Ipswich. King Philip's men burned the first settlement. Though the families returned, the area grew slowly, remaining primarily agricultural until the late 19th century.

A third area of scattered early farmsteads arose in eastern Lowell, part of North Tewksbury until 1906. The 1790 map shows East Merrimack Street merging into Andover Street as the original East Chelmsford-Andover route. A few farms were located on it; by the early 19th century, the Clark and Hunt families had settled to the south on Clark and Butman Roads. Their orientation was toward North Tewksbury, whose town center lies just beyond present-day city limits.

On the other side of the city, about two miles west of East Chelmsford, two major events sparked the establishment of a small village on the banks of the Merrimack River. In 1793, a group of businessmen foresaw the possibility of linking the Merrimack River to Boston Harbor by digging a 27-mile canal. Construction began, and when the waterway opened in 1804, it proved a popular and economical means of transporting timber and, later, mill products. Almost simultaneous with the opening of the canal was the founding of the Chelmsford Glassworks. Begun in 1802, the company manufactured window glass for 37 years, employing about 20 families. Around the canal and glassworks Middlesex Village evolved. The first buildings appeared ca. 1790 and, by 1825, the village was largely in place. Its position at the head of the canal necessitated stables for the tow horses, a toll booth, storehouse, tavern and store to accommodate the traffic. A meeting-house, hotel, several small shops, a hat factory and approximately 30 houses completed the village. Despite Lowell's

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emergence as a nearby mill center, Middlesex Village retained its identity until the early 20th century.

1820-1865

The forty year period that ended with the Civil War was one of unprecedented change and growth in Lowell. In 1821-22, a group of Boston businessmen quietly bought the farmland of East Chelmsford and founded a textile manufacturing community on a scale yet unseen in the United States. The group had been formed by Francis Cabot Lowell in 1814, after a trip to England where he observed the power loom in operation. Lowell memorized the carefully guarded plans of the machinery and, once back in the United States, recreated it with the assistance of Paul Moody.

The Waltham site of the first American factory utilizing the new machinery was soon outgrown. Realizing the tremendous opportunity for expansion, the Boston Associates settled on Lowell, whose natural setting at the confluence of the Merrimack and Concord Rivers, supplemented by the Pawtucket Canal, made it ideal for a water powered factory system.

This report will not attempt to rewrite the history of the establishment and growth of Lowell's mills. That subject has been explored thoroughly and often, most recently in Volume I of the LHPD report. The aspects of Lowell's development which have been ignored to date, however, and upon which this survey focused, were the demands that the city's rapid industrial growth placed on housing, services and recreation.

Examination of the 1821, 1832 and 1841 maps convincingly illustrates the community's rapid transformation from an agricultural hamlet of 200 people to a city of 32,000 with a dense downtown, a network of outlying roads with scattered housing, and two major residential subdivisions, already spilling across the Merrimack and Concord Rivers into Dracut and Tewksbury. Belvidere Village, located just across the Concord River, was part of a large farming estate in 1820, with only one other house on it. Between 1822 and 1825, a small village evolved, with:

"four large general stores, one or more large new hotels, lawyers, physicians, apothecaries, jewelers, watch repairers, shoemakers, tailors, milliners and barber shops, an auction store, circulating library, bookstore, livery stable, provision dealers and all the appliances of a large and thriving population ... most of its trade supplied from the corporation establishments who did not feel obliged to patronize the company store."

(1870 news clipping, Lowell Historical Society).

Yet, the village still was not sufficient for its population's needs. A letter written in 1824 mentions the need for more pro-

fessional and skilled workers, particularly hatters, coopers, wheelwrights, tanners and tallow-chandlers.

In 1831, the 150 acre Livermore estate just east of Belvidere Village was purchased by John and Thomas Nesmith. The Nesmith brothers were entrepreneurs who later amassed a fortune through real estate and industry. They hired Alexander Wadsworth of Boston to lay out approximately 125 lots and a trapezoidal park, which they called "Washington Square." Wadsworth was at the same time occupied preparing plans for Mount Auburn Cemetery in Cambridge, the first picturesquely designed cemetery in the country. By contrast, the Washington Square area is highly formal, with perpendicular streets lined with trees and a double row surrounding the park. Washington Square was soon settled by Lowell's more prosperous merchants and industrialists. It was the city's first planned fashionable neighborhood and set the precedent for Belvidere's continuing allure as Lowell's most prestigious enclave. Both Belvidere Village and Washington Square were annexed to Lowell in 1834.

Across the river in Dracut was a second major 1830's subdivision. Formerly farmed by one Joseph Bradley, the land was sold to and subdivided by the Central Bridge Company. 448 lots were laid out, and another small park, on Third Street at the top of the hill, was set aside. The development was conveniently situated near Lowell's mills and, at the outset, aimed to attract the skilled laborers who had no use for corporation-owned housing. Unlike the Washington Square area, however, settlement proved slow; in order to encourage buyers, the Central Bridge Company offered to waive its bridge toll for residents. Until the toll was actually abolished, however, few lots were developed. The area was not annexed to Lowell until 1851.

A third area of early residential settlement was Chapel Hill. This section of Lowell was unique; it offered the only nearby land neither owned by a corporation nor separated from the city by a river. Gorham Street, the early route from East Chelmsford to Billerica, was soon paralleled by Central and Chapel Streets and connected to those arteries by a number of narrow cross streets. By 1832 approximately fifty buildings, including two churches, were located there. Early residents included bakers, tailors, masons, provision store keepers, policemen and the like. Central and Chapel Streets remained desirable locations for established civic leaders and merchants until shortly after the Civil War.

In the Lower Highlands, a residential cluster evolved near a belt of small factories and sawmills which sprang up on the west side of the Boston-Lowell-Nashua railroad line. A few speculators laid out lots and streets somewhat further west, at the intersection of Westford and School Streets. These were apparently intended for workers' housing, but no "mill village" evolved. Presumably, the area was either too distant from the mills, or the land too fertile to permit its diversion from farming.

Several other subdivisions, such as a grid in Centralville where the streets were named after the months of the year, were platted at the same period and experienced similar problems. The most interesting one was devised by Daniel Ayers. Ayers conceived of a new city, which he named after himself and located in the then southern most end of Lowell. Subdivisions began in the mid-1840's on the east side of Tanners Street. Intended for residential use, the lots and their attractions were widely publicized and offered for sale at auction. Probably due to their distance from the mills, the venture failed, leaving Ayer bankrupt. Undaunted, he reappeared a decade later with a proposal for a manufacturing district on the west side of Tanners Street. On the premise that Lowell's 40,000 inhabitants were in need of certain goods, Ayer laid out lots for a variety of enterprises: tannery, cattle market, pork and lard packing, coal and lumber yard and manufacturing of wooden ware, hemp and rope, glue, glassware, hardware and cutlery. Factory, Leather and Hide Streets have since changed their names, but Manufacturers and Tanner Streets have retained their early association.

Though Ayers' scheme was unusually ambitious, the purposeful creation of distinct villages was not uncommon. Wigginville was the brainchild of William H. Wiggin, a self-made businessman. His village was laid out ca. 1890, near the juncture of Lawrence Street and the Concord River, and consisted of a church, a school, a railroad station and over sixty houses. Atherton Village included nineteen tenements near its factory on Rogers Street.

1865-1920

Neighborhood development after the Civil War followed characteristic patterns. Farmland claimed by large, elegant estates in the 1850's was often subdivided into the more elegant residential areas of the 1880's and 1890's, such as Wilder and Livingston Streets in the Highlands, Eleventh and Methuen Streets in Centralville, Rogers Farm in Lower Belvidere and Wyman's Farm on Belmont Avenue. Peripheral farmland remained in agricultural use until much later. Outer Andover Street was important for its market gardens located behind spacious homes well into the 20th century. Dairy farms were scattered in the southern Highlands. In other outlying areas, platted subdivisions often remained undeveloped until the mid-late 20th century.

Closer to the center of the city, however, successive waves of house building met the demands of Lowell's growing labor force. Yankee farm girls had been largely replaced by immigrant workers, who settled in ethnic pockets within a 1 1/2 mile radius of the downtown. In 1874, three annexations more than doubled Lowell's population and land area. These were followed by other large annexations in 1879, 1888 and 1906. The advent of streetcar service in 1864 greatly facilitated access to the suburbs, so that the middle and upper classes alike could enjoy fresh air and peaceful surroundings.

The vast majority of Lowell's residents worked within the city. The wealthy occasionally commuted to Boston and certainly conducted business there. Taking the train into Boston for the evening was not unusual in the late 19th century. Yet, Lowell offered ample employment and services to be a self-contained community. Within its limits were elegant estates, stylish neighborhoods and working class tenements. Despite widening class distinctions, however, only Belvidere stood apart as a wealthy enclave. In other sections of the city, the homes of the different social strata were intermingled; a single large Queen Anne residence might be located around the corner from a string of speculative Queen Anne cottages. Land in Lowell was always scarce.

The city attracted many inventors and entrepreneurs, particularly those with industrial-related products. Inventions developed by Lowell's citizens include the store service device (a system of hollow balls that allowed quick transfer of cash and receipts between clerks and cashiers through vacuum pressure), safety stair treads, the circular knitting needle, the soda fountain, and hundreds of patented parts for textile machinery.

Lowell's unusual history provided a creative and exciting environment which encouraged the development of a rich architectural landscape. Within the neighborhoods this is most evident in the wide variety of residential architecture which spans the full range of styles and today includes some of the state's finest 19th century examples. Not to be overlooked, however, are outstanding public buildings and great numbers of churches spread across the city. These and other aspects of the built environment are discussed in Part Two.

PART TWO: NEIGHBORHOOD ARCHITECTURE

INDUSTRIAL BUILDINGS

The backbone of Lowell in the 19th century was, of course, its textile industry. All of the major mill buildings are located within the LHPD. But outside the mainstream of the city's industrial development -- and outside the LHPD -- several dozen minor textile and textile-related firms flourished. Most were sited close to a water source, though by the mid-late 19th century steam power had freed the mills from their dependence on canals and rivers.

No traces remain of the grist, carding and other small mills located along Hale's Brook and the Concord River prior to Lowell's industrial revolution. The only industrial sites from this period are Whipple's Powder Mill in the LHPD and housing which belonged to the Chelmsford Glassworks, in Middlesex Village. Established in 1802, this company produced window glass and used the nearby Middlesex Canal to transport its finished goods. The glassworks consisted of several small buildings, presumably frame, for storage and preparation, 2 furnaces, 11 ovens and a kiln. All have since disappeared, but three frame residences which housed workers remain. (See section on residential architecture)

The first textile manufacturing corporations appeared in 1821. Over the next ten years, eight major companies began producing both woollen and cotton goods.

Just a decade after the first textile mills began operations, the Lowell Bleachery was founded (1833; Area LB). Addressing the needs of the manufacturing corporations, it performed the unpleasant task of "bleaching, coloring, printing and finishing cotton and woollen goods" (Acts of Incorporation, 1833). Its buildings extended over a large area and included Hale's Brook, in which the fabrics were washed. None of the 19th century industrial buildings still stand; the brick building on the site, now owned by Prince Spaghetti Co., was built in 1919. But adjacent to it are facing rows of frame workers' housing and, around the corner, three small cottages. All date from ca. 1840 and represent some of Lowell's earliest intact industrial housing.

Just north of the Pawtucket Canal and west of Fletcher Street are four mid-19th century industrial sites, with extant rubblestone buildings. Random-laid rubblestone was a familiar building material in Lowell. First used as early as 1821 on Whipple's Mill, it appeared on both residential and industrial buildings until ca. 1860. It was extracted from the canal beds being excavated. The earliest of these mill buildings was erected ca. 1851 by D. Lovejoy for the manufacture of knives for paper and leather machinery (#166). (The one-story structure was still in its original use when it burned in 1981, during the course of this survey.)

Of the other three remaining rubblestone buildings, C.G. Sargeant's Machine Shop is of greatest architectural interest (#169). The three-story rectangular building trimmed with granite lintels, sills, and quoins was built ca. 1852, though later additions have encased sections of the original structure. The shop produced machinery for wool manufactureries. The Lowell Worsted Mills and Lowell Hosiery Company were also located in rubblestone buildings erected in 1860 and 1869 respectively.

Between 1875 and 1895, at least five industries of note were established outside the LHPD. Among these were three of national fame. Hood's Sarsaparilla Laboratory (#254) manufactured a variety of patent medicines, the best known of which was sarsaparilla. Begun in 1878, the company moved to its location on Thronkike Street in 1882. Over the next 10 years, its first building was enlarged until it became the largest building in the world devoted exclusively to the patent medicine business. Like other mill buildings built during this period, it was a four-story brick flat-roofed structure with multi-paned segmental windows and no decorative detail.

Though not as well known as Hood's, U.S. Bunting, founded in 1865, was the first American company to manufacture cloth (or bunting) for flags. Previously, material for American flags had been imported from England. Its earliest building is no longer standing; remaining structures built between 1890 and 1920 resemble Hood's Laboratory in their size and utilitarian design.

The Shaw Stocking Company was founded by Benjamin F. Shaw, inventor of the circular knitting needle, which allowed seamless stockings. All four of its brick buildings, erected between 1880 and 1907, are standing. The earliest, with its granite trim and a corbelled cornice, is most distinctive. In 1891 the Pickering Knitting Company, also manufacturers of knit clothing, built a 3 1/2 story brick mill near Middlesex Village. Its utilitarian appearance is relieved only by a centrally placed square stair tower.

Reinforced concrete and the emerging Neo-Classical style changed the appearance of some of Lowell's industrial buildings in the late 19th century. The Lowell Weaving Mill provides an early example of the use of reinforced concrete. Its two-story structure, with symmetrical entrance, flanking wings and classical proportions, was built in 1896. Across the street is the International Cotton Company, an imposing complex of reinforced concrete buildings. The two companies merged in 1913; cotton duck and tire fabric were their principle products.

COMMERCIAL BUILDINGS

Most of Lowell's commercial buildings are located within the LHPD and have been discussed at length in the inventory of that