THE RIVER AND ITS CITY:

AN OUTLINE OF THE HISTORY OF LOWELL, MASSACHUSETTS

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I. THE MERRIMACK RIVER VALLEY: HISTORY AND PHYSICAL SETTING

The Merrimack is one of the largest rivers in New England and one of the most important river basins in the United States. It drains a territory in New Hampshire and Massachusetts of 5,000 square miles.

The Merrimack River's two hundred mile course links the mountains to the sea and the past to the present. The headwaters in the Fraconia mountains and the Pemigewasset Wilderness have forests and uplands similar to those of eight to ten thousand years ago (New England forests originally covered 95% of New England). The Merrimack runs to Newburyport past the manufacturing centers of Concord (New Hampshire), Manchester, Nashua, Lowell, Lawrence, Haverhill, and Amesbury.

Indians and the Merrimack

The Indian names for the river indicate its past and present physical qualities (many names were used by the Indians, especially for specific parts of the river, although "merremack" survived the longest):

"merremack"	meaning	"swift water place"
"kaskaashadi"	meaning	"a river of broken waters"
"namasket"	meaning	"high fish place" (Namoskeag/Amoskeag)
"cabassauk"	meaning	"place of the sturgeon"
"moniack"	meaning	"place of the islands"

The Indians dominated the Merrimack Valley until 1760 (the date that French Canada surrendered to Britain). The Indians had a strong attachment to the river; the Pennacook Confederacy lived along the river from its headwaters to the sea but it was debatable ground between rival tribes (i.e., the Pennacooks vs. the Mohawks).

EARLY EXPLORATION

The Merrimack is seldom mentioned by any of the earliest explorers probably because Plum Island at the mouth of the river was such a good camouflage. A sailor, David Ingram, may have been the first Englishman to set foot in the valley in 1589. The first historic mention was made by Champlain in 1604: "The Indians tell us of a beautiful river far to the south which they call the Merrimack..."

Supposedly the first-written description of the river by early explorers told of a "fair, large river, well-replenished with many fruitful islands; the air thereof is pure and wholesome; the country pleasant, having some high hills, full of goodly forests and fair valleys and plains fruitful in corn, chestnuts, walnuts and infinite sorts of other fruits, large rivers well-stored with fish, and environed with goodly meadows..."

The first Merrimack permanent settlement was the Newbury settlement in 1635. In 1641 the group split apart when John Lowell (a relative of Francis Cabot Lowell) along with others took up land in "Newburyport". The first survey of the river was made in 1638 as far as Lake Winnepesaukee (Endicott's Tree still stands as a marker) and Captains Willard and Johnson made the second survey up to Laconia in 1652.

The Uniqueness of the Merrimack

The Merrimack River has been known both for its beauty and its usefulness. It is reputed to have been the favorite, possibly, of more poets than any other river in the United States. Whittier, Thoreau, Emerson, and Frost, in addition to many poets and writers of local fame, have written of its beauty.

The river is also reputed to be the most hydraulically-developed river in the United States. The Merrimack was a direct stimulus for a continuous string of manufacturing centers which grew up along its length. In 1918 one-fourth of all the cotton fabrics in the United States were made here, one-fifth of all the cotton and woolen goods, and one-sixth of all the carpets.

The Merrimack is unique in its relationship to the culture and economy of New England. The cities developing along its banks have had a similar history and the river valley has been associated with many of the country's important figures such as Daniel Webster, Horace Greeley, Franklin Pierce, Benjamin Butler, and Robert Frost.

CHANGES ALONG THE MERRIMACK

The Merrimack has seen many changes occur along its banks: the idea of canal and river traffic and its subsequent failure, an agricultural economy shifting to the railroad and the textile industry, and then a century later its failure and the need for change.

The river has also seen many peoples: the Indians, the early Yankee settlers, and energetic Lowell forefathers, the waves of Irish, Greek, French Canadian, Polish, and Puerto Rican immigrants. It has been said that a river and its people are inseparable, that they ultimately grow to resemble each other...

II. FIRST INHABITANTS: THE PENNACOOK INDIANS

Lowell was known as Pawtucket and Wamesit Villages; the Indian period was approximately from 1620-1760.

PENNACOOK CONFEDERACY

The confederacy was a kind of Merrimack Valley treaty organization which looked after the safety of valley tribes. Their territory included all of New Hampshire and parts of Massachusetts and Maine. A number of different tribes, of which the Pennacooks were the ruling tribe, were united under one "sachem". Separate villages had local chiefs. Thousands of Indians camped in Lowell in the springtime for fishing at Pawtucket Falls. More permanent villages were also established at Pawtucket Falls and Wamesit Falls. The local Indians were known as the Pawtuckets and the Wamesits.

USE OF THE MERRIMACK RIVER

The Indians used the Merrimack primarily for sustenance, i.e., fish and water supply and the animals along its banks. They also used the river for transportation with their canoes, but the river itself was not changed or developed by the Indians. The river was a focal point in their lives; in addition to its usefulness the river was also used for pleasure such as canoe races or as a site for festivals and ceremonies.

LIFE-STYLE OF THE INDIANS

The Indians were a migrant people. From time immemorial the Indians gathered at the point where the Concord and Merrimack Rivers converged to catch and cure their fish. This was their great capital and before the plague of 1612-13 the permanent seat at the Falls supported nearly 3,000 Indians while during the spring fishing festivities at least 12,000 Indians congregated there. The spring festivities lasted for three weeks and then the Indians would return to their widely scattered villages.

Games and Sports

The spring festivities included many of the Indians favorite activities and pastimes. They were particularly noted for their wild parties, games, and feats of endurance. Active sports included football, shooting, running, and swimming.

1). Football

Football games were games of endurance. The ball was the size of a handball and was kicked with the bare foot. The game was played on a level plain with the goals placed about a mile apart. Often the game lasted for several days. Injury was not uncommon. Before the game all participants liberally covered themselves with war paint so that no man could recognize another. This was supposed to eliminate revenge in case of injury or hurt pride. While the game was in progress, the women danced and sang songs telling of their husband's victories. A feast was held at the end of the game.

2)Gambling

Gambling was a favorite Indian pastime and the Indians were intense, habitual gamblers. They played with colored bones which were shaped similar to dice. Often an Indian would lose all he had which might include such items as moose skins, kettles, and hatchet knives.

3) Shooting

Shooting matches were incredible displays of marksmanship. The Indian arrow rarely missed its target even at point-blank range with a moving, erratic target. The Indian boy and his bow were inseparable and small boys were given miniature bow and arrows. Another game involved shooting arrows at each other. Each brave developed a skill for sidestepping arrows, a training exercise which was very useful in time of war.

4) Swimming

Indians were natural swimmers and Indian children were taught to swim at a very young age. By the time he was a teenager the Pawtucket Indian was able to swim swiftly for long distances either in calm or rough waters. Indians also sparred with and rode black bears in the Merrimack River for sport.

Special Skills

1) Fishing

The Pawtucket Indian was an expert fisherman. He knew what bait to use and when to use it and was skillful in fishing in rivers, bays, in the rocks, or in the sea. Fishing lines were made of hemp and bone hooks were used. They also fished with nets which caught sturgeon up to 18 feet long. The nets were constructed of cord and were about 30 to 40 feet long. At night the Pawtuckets were out on the Merrimack with a long line which had a sharp-barked dart fastened on its end. The Pawtucket understood the sturgeon and knew how to deceive it with a birch bark torch moved over the waters. When the sturgeon came to play in the light, the Indian then thrust in his lance.

Ice fishing was a common winter sport -- round holes were cut in the ice and pike and perch were caught in this way. Probably families or large groups of Pawtuckets would form fishing excursions to the seashore. The Indian women were required to be the "lobstermen". It was their duty to catch lobsters for their husbands who used the meat as bait for catching bass and codfish. It was not uncommon to see an Indian woman hiking two or three miles with a 100-pound load of lobster on her back.

2) Smoking Fish

During the summer the lobsters were dried for winter use. Platforms were constructed in the hot sun and fires beneath would keep the flies away until the lobster meat was dry. Bass and other fish were dried and smoked in the same way without the use of salt. During the spring fishing festivities the river banks were dotted with hundreds of these platforms.

3) Canoeing

In addition to his fishing skills, the Pawtucket Indian was an expert canoeman. Pawtucket canoes were made from either pine or birch. Before the English introduced advanced tools, the Indian would burn-out a pine log and then scrape it with clam and oyster shells. The exteriors were shaped with stone hatchets. The birch canoes were made of bark which was fastened over broad, thin hoops. This canoe was extremely light and made purposely for transportation overland by one man. Both pine and birch canoes were barely a foot and a half to two feet wide and 20-feet long.

Social Life and Structure

The Pennacooks were noted for their hospitality and peacefulness. They were especially fond of gambling, dancing, and festivals and were noted for their adeptness in skilled labor. Marriage feasts were held along the river banks, especially near Lowell Tech.

Medicine men were the "intellectuals" of the tribes. Often they were chiefs as well and had immense power. It is probable that the medicine men kept the Indians down and suppressed advancement. (John Richardson) Whites later broke down the Indian governmental structure completely.

Housing and Roads

"Wigwam" means "house" and hundreds of these Indian houses dotted the cleared plains surrounding Pawtucket and Wamesit Falls. The Pawtuckets' wigwam was a simple but substantial house. It was framed with saplings and covered very skillfully with strong waterproof mats which were woven by the squaws from flagges growing along the Merrimack. The houses were completely weatherproof and were said to be warmer than English settler houses. The wigwams had a square smoke hole at the top which could be covered in stormy weather

with a good fire burning, the houses became so smoky that the Indians had to lie underneath the smoke. The wigwams were unfurnished except for the mats covering the earthen floor. The houses were smaller in the summer when the families dispersed. In winter houses fifty to sixty feet long were built which housed some forty of fifty Indians. During the summer, the Indian woman was expected to pack the house onto her back and carry it to some selected fishing or hunting location or to the planting fields.

The Indians also had a well-established road system which was wide enough for oxcarts. Foot trails radiated out from Wamesit toward other Indian settlements, hunting grounds, springs, ponds, and planting fields.

Agriculture and Hunting

The Indians were essentially an agricultural people. Fall was the planting season and the Indians cleared away the forests extensively for planting purposes. In fact, there are more woods in Lowell today than during the time of the Indians. (John Richardson) Any flat plain along the Merrimack from Lowell to Lawrence was an Indian planting field (watermelon, gourds, squash, pumpkins, corn, and tomatoes). (Professor Burtt) Belvidere and Pawtucketville (especially the area around Lowell General Hospital) were fertile fields. The Indians needed a lot of land just in order to exist; for instance, it took six square miles to feed one Indian family (or four Indians).

The winter was good for hunting animals. The Indians camped in the Lowell-Dracut forest in dug-out holes which were covered with brush for warmth. Deer yards were located in Spruce Swamp and at the apex of the Concord and Merrimack Rivers.

Changes in the Area

The Indians adapted themselves to conditions that they found in New England and learned the skills of survival. They were never masters of their domain and they changed New England very little.

ARCHAEOLOGICAL REMAINS

One can still find arrowheads in Lowell, particularly in the areas of Lowell Tech and the Lowell Cemetery. Several Lowell residents have collections of Indian artifacts. Burial grounds have been found at Lowell Cemetery and Fort Hill, Hard and Warren Streets, East Merrimack and High Streets, and Lowell Tech (several complete skeletons have been found). There are also other burials in the larger area and Professor Burtt thinks there is a large burial ground between Lowell, Dracut, and Pelham.

LITERARY ASSOCIATIONS

Literary associations with the Merrimack River began with the Indians:

"this swiftly flowing river,
this silver gliding river,
whose springing willows shiver,
in the sunsets of old . . ." (Passaconaway)

The Indians told many stories and legends about the Merrimack. The most famous legend occurring in Lowell is the legend of Princess Weetamoo, the daughter of the famous sachem, Passaconaway. She grew up at Pennacook (Concord), her father's royal residence, but in due time was married to a great Saugus Sachem's son and went to live with him along the coast. But her father grew lonely for her and it was agreed that she would go to visit him. Eventually misunderstandings set in between the Princess' husband and Passaconaway and thus the father wanted to keep his daughter with him. But Princess Weetamoo grew lonely for her husband and one day she secretly left by canoe (she was reputed to be a very good canoeist) to rejoin him. Her tragic fate came at Pawtucket Falls when she tried to shoot the rapids. She died near the spot where later Wannalancet had his wigwam. It is said that every spring the lovers of Indian lore come to the Falls to see under full moon the form of the Indian maiden in her canoe against the Falls.

HISTORY OF INDIAN CONTACT WITH THE EARLY WHITE SETTLERS

Passaconaway

Passaconaway was the first Merrimack River Indian of any historical account. He became the sachem of the Pennacooks sometime after the landing of the Pilgrims. He divided his residences between Pawtucket Falls, Amoskeag Falls (Manchester), and Pennacook Island (Concord).

A good understanding existed between Passaconaway and the early white settlers. Passaconaway wanted peaceful relations with the English; he perceived that for the Indians to contend with the English would be suicide. There are many examples of the help he give the English. For instance, he would warn the settler of Mohawk Indian attacks, and at one point he delivered all his guns to colonial authorities.

Skills Taught the Settlers

The Indians taught the settlers how to survive by teaching them the following skills: how to plant corn in hills, how to store food in cellars, how to bank their houses with bushes in the winter, the arts of camouflage and defense, how to take color from the forest (the Indians loved color), how to notch trees and collect

sap for syrup, how to store fresh fish for months packed in bark below ground, how to dry fruit and tobacco, fishing skills, knowledge of antidotes, poisons, lotions and painkillers, and finally, the Indians introduced the clambake to the settlers. (Professor Burtt)

Eliot and Christianization

The Christianization of the Indians began very early. As early as 1607 there were evidences of Jesuit priests in the Lowell area (beads and crucifixes found by Eliot) and many were converted to the Roman Catholic Church. The real christianization of the Indians, however, was begun under John Eliot during Passaconaway's rule. John Eliot, "Apostle to the Indians", learned the Indian language (the Pawtuckets spoke the same language as the Indians of the St. Lawrence River) and first visited Lowell in 1646. His second visit was in 1648 during the great fishing festivities. Passaconaway asked him to live with them and be their teacher. Although Eliot did not live with them he came many times to preach to them in Nahamkeage (meaning "fishing place", the Pawtucket name for the land along and near the river north and west of the Falls), in Wamesit village, and on Massic Island in the Concord River.

Eliot Church stands on the spot where Eliot often preached (Eliot's log cabin stood until the 1820's when it was finally torn down. There is a picture in the church of the original log cabin.) Eliot originally preached on the northern side of the river in the forest area, but later the "Strange" or unchristianized Indians seemed to live on this side, although not within the Indian "reservation". Eventually Eliot christianized nearly 10,000 Indians in the area. (Cowley) The various settlements were then known as "praying towns".

Passaconaway finally converted to the "God of the English" along the banks of the Merrimack. Eliot wrote the Bible in the Indian language and had it printed in Cambridge (it is now on display at Harvard). This was the first Bible to be printed in America (1663).

Indian "Reservation"

Eliot also fought for Indian rights. In 1629 Passaconaway sold land in the Lowell area to John Wheelwright (brother of Ann Hutchinson). The first settlement by twenty Englishmen came in 1652. In 1655 Chelmsford and Billerica were incorporated. The Indians were losing their land fairly rapidly and finally in 1653 Eliot got the passage of an act that would reserve land for the exclusive use of the Indians.

At this time the two Indian villages, Pawtucket and Wamesit, merged and were known as Wamesit. The entire Indian "reservation" of 2,500 acres was called by this name and included the 500 or more acres on the Dracut side of the river. The boundaries of the reservation, which were marked by a ditch, were enlarged in 1656

and 1660. The portion of the reservation on the Dracut side of the river ran all the way to the Spruce Swamp (Lowell-Dracut forest) and beyond to Long Pond (then called Lake Passaconaway and used for hunting and fishing) where an Indian settlement was located. There may still be traces of the ditch a few rods from Lowell General Hospital. (Richardson)

Passaconaway's Death

The famous farewell speech of Passaconaway in 1660 took place by the river bank: "I commune with the Great Spirit. He says, "Tell your people: Peace, peace is the only hope of your race..." The Passaconaway Monument is located in the Edson Cemetery.

Wannalancet and Wamesit Village

Wannalancet, the son of Passaconaway, became chief about 1669. His name, which means "breathing pleasantly", suggested his mild disposition and peaceful nature.

In 1674 Wamesit Village contained a population of 1,500 (there had been a loss of life from smallpox, syphilis, and tuberculosis, all contacted from the white settlers). The local ruler, Numphow, held monthly court in a log cabin near the Boott Canal. Judge Gookin had established his Indian court in the old Durkee House (now demolished). Samuel, the Indian "teacher", taught in a log cabin near the west end of Appleton Street. (Cowley) Wannalancet had his wigwam near the spot where the French-American School is located. He also built a fort on Fort Hill to protect his tribe from an attack by the enemy Mohawks. Fort Hill was also used as a camping place. The famous Indian PowWow Tree, under which the Indians held councils, can still be seen on Clark Road [illegible] Tewksbury line.

Wars Between the Indians ar[illegible]

Misunderstanding with the white s[illegible]
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this war was very great for the Indians.

When Wannalancet returned to Wamesit he found his cornfields had been seized by white settlers. He and his people were then placed under the guardianship of Colonel Jonathon Tyng of Dunstable and lands were given to them on Wickasee Island (Tyng's Island). In 1688 Wannalancet and the Indians at Wamesit, Pawtucket Falls, Nashua, Concord, and etc. sold all their land to Tyng and others.

2) King William's War

King William's War took place from 1689 to 1698. The Indians in Canada sided with the French (the French treated the Indian better than the English did and the Jesuits adopted to a greater extent the Indian modes of thought and life-style). There were many attacks on the Lowell area. Colonel Lynde of Charlestown fortified Lynde's Hill in Belvidere.

Wannalancet's Death

Wannalancet died in 1696 on Tyng's Island. Near the Tyng house is a stone marker which reads: "In this place lived during his last years and died in 1696, Wannalancet, last sachem of the Merrimack River Indians, son of Passaconaway. Like his father, a faithful friend of the early New England colonists." He was buried in the Old Tyng Cemetery.

Indians Leave the Lowell Area

The Indians were sold into West Indian slavery, hung on trees in Boston, and burned to death in their wigwams. They were driven from the Merrimack Valley and sought refuge in Canada and Maine. By 1680 most of the Indians had left the Lowell area. They still had fishing rights and came back for occasional pilgrimages. They visited Lowell as late as the 1850's and apparently were on good relations with the Lowell citizens. The last Indian left Lowell permanently in 1840. The Pennacook tribe eventually merged with the St. Francis tribe in Canada (their reservation is located today at Odanak in Quebec).

III. PIONEERS: EARLY WHITE SETTLERS

Lowell was then known as East Chelmsford.

A. PERIOD OF WHITE/INDIAN WARS (1652-1800)

The early colonists were busy learning the art of survival and contending with the Indian wars and the Revolutionary War. During this period the settlers learned a great deal from the Indians. The Merrimack River was indispensable to them for water and fish.

USE OF MERRIMACK RIVER

The river was used primarily for fishing and rafting (two of the major occupations of the time, the other being farming). Lumber was brought down on rafts from New Hampshire. Fishing was confined to three days a week on the Merrimack and two days a week on the Concord. "Fish-wards" enforced the rules and these were the days of fish-houses and fish peddlars. Fishing Island was once the resort of fishermen who spread their seines in the river and hauled in shad and salmon. Passage across the Merrimack was chiefly be ferry until 1793 when the Pawtucket Bridge was built by the Pawtucket Canal Company. The Concord River was first bridged at Merrimack Street in 1774. However, this structure blew down before it was completed and it had to be rebuilt several times.

The Merrimack had a decided influence on the early settlers: "there was so much river and so little besides that the river seemed to dominate the whole town."

SETTLEMENT OF THE AREA

The history of Lowell is the history of Dracut, Chelmsford, and Tewksbury. Lowell is made up of parts from all three towns. In 1652 the first settlers, primarily farmers and fishermen, arrived in Chelmsford. The town was incorporated in 1655 and the eastern portion of it was known as the Indian Reservation.

In 1659 four members of the Ancient and Honorable Artillery Company received a grant of 1,000 acres for service rendered. Among the recipients was John Evered (alias John Webb). This grant was called the Military Grant and included land on the northern side of the Merrimack River. In 1664 John Webb became the sole owner and later in the same year he sold half of the "farm of Dracut" to Richard Shotswell and Samuel Varnum. Samuel Varnum was Dracut's first settler and he settled near Varnum Avenue in 1664. Dracut was incorporated in 1701. In 1734 Tewksbury was incorporated (its historic portion was annexed to Lowell in 1834.)

Settlers bought Wannalancet's old planting fields at Middlesex Village (known then as Chelmsford's Neck) in 1685. By 1714 the white settlers owned all of the Indian land. Belvidere was part of a grant of land given to Governor Winthrop's widow in 1649 which was later bought by several men.

WARS OF THE PERIOD

1) Indian/White Wars

Up until 1760 the white settlers were involved in the various Indian/White wars which were partially described in the preceding section. The French and Inidan War occurred from 1754 to 1763 and men from Tewksbury travelled to Canada to fight the French.

2) Revolutionary War

Men from all three towns fought in the Revolutionary War. Men of East Chelmsford fought with the Lexington farmers and at Bunker Hill under Captain John Ford who lived near Pawtucket Falls. Three-hundred-and-one men from Chelmsford fought in the war including Benjamin Pierce (father of President Franklin Pierce and a later governor of New Hampshire). Joel Spaulding of Chelmsford is said to have opened the Bunker Hill battle by firing upon the enemy before orders were given. Two companies of men from Dracut under Captains Peter Coburn and Stephen Russell fought at Bunker Hill and Lexington. One-hundred-seventy-seven men from Tewksbury, led by Captains Trull and Brown and Lt. Thomas Clark, fought at Concord.

RELIGION AND THE CHURCH

The church was the focal point of the early communities and the history of this period is often the history of religious feuds. A town meeting-house was usually the first public building erected. The first town meeting-house in Chelmsford was built in 1654, the first one in Dracut (the Old Yellow Meeting-House which is still standing) was built in 1715. In 1737 "liberty to warm the meeting-houses" was granted. Before that time the townspeople had met at noon in small houses called "Sabba-Day Houses" and discussed morning and afternoon sermons around the fireplace (a Sabba-Day House is still standing in Billerica).

EDUCATION

The first school-house in Dracut was built on Varnum Avenue in 1735 and was later known as the Coburn Mission (which has since been torn down). During Revolutionary times, the Committee of Safety met there. The first public school-house in Tewksbury was established in 1740. There were also several writing and reading schools kept by various masters. "Dame Schools" were located in private houses as women were not allowed to teach in public schools until 1771. Benjamin Pierce of Chelmsford attended school in a school-house that used to be located at the corner of School and Westford Streets. By 1882 there were two school-houses -- one at Pawtucket Falls and one on Chelmsford Street.

TRANSPORTATION

1) Roads

The Old Highway ran along Baldwin and Stedman Streets. There was also the Merrimack Road which ran along the river and then followed approximately its present course today. The Pawtucket-Boston Road ran along School Street and there were also Brook Road and Concord Road.

Most of the early settler roads followed Indian trails which were sufficiently widened. Totman Road was such a trail. The Indians followed this path via Spruce Swamp to another Indian village at Long Pond. Totman Road became the great highway for the early settlers for reaching the towns north of Dracut and continued as such until Mammoth Road was laid out in 1792 following the building of Pawtucket Bridge. Totman Road was then known as Zeel Road because of Barzillai Lew, a Negro, who lived on the road (Zeel is a contraction of Barzillai). Barzillai Lew was born in Groton in 1743 and later moved to Dracut. He served in the Revolutionary War as a fifer under Captain John Ford.

In 1668 a road was laid out opposite John Webb's home on the south bank of the Merrimack towards Chelmsford. Since a ferry was later established at the foot of this road (then known as Webb's Ferry) the road was designated Old Ferry Road.

Transportation of goods was either by slow oxen or rafts. The process of unloading the goods onto oxen teams as the rafts approached the Falls and the subsequent reloading onto the rafts took a good deal of time.

2) Ferries

Transportation across the river was primarily by ferry and for 117 years this continued to be the only way to cross the river excepting by ice in the winter. There were at least five ferries in the Lowell vicinity:

1) Deer Jump Ferry (named for the hoofprints of deer in the area) was for passengers only. It is now known as "Varnum's Landing".
2) Richardson's Ferry was located at the foot of Christian Hill and provided service for passengers to Belvidere.
3) Bradley's Ferry was located at the present Central Bridge and was a chain ferry used by oxen teams.
4) Clark's Ferry was also a chain ferry which crossed between the Dracut shore and the old Middlesex Tavern in Middlesex Village. Lafayette crossed by this ferry when he visited an old friend in Dracut.
5) Hamblett's Ferry connected Dracut with North Chelmsford.

ARCHITECTURE OF THE PERIOD

There are many houses, taverns and other buildings that date from this period. Of those still standing are the following:

BOWERS HOUSE (150 Wood Street) built in 1670; this house was the first to be constructed in East Chelmsford. It served as a meeting place for the early settlers and as a rendezvous in times of danger. In 1686 a still was licensed at this place for the manufacture of "strong waters" that could be sold to Christians but not to Indians.

PARKER HOUSE (137 Pine Street) built before 1700; this is the second oldest house in Lowell and the birthplace of the first white child. The addition of a porch has altered its original appearance.

VARNUM HOUSE (55 Varnum Terrace) built around 1702 and probably the third oldest house in Lowell. There was a ferry below this house at "Varnum's Landing" and the path to the ferry connected with "Methuen Road" where the Varnum House stands. General Joseph Varnum, Captain during the Revolutionary War and Major General in 1805 (also a member of the House and Senate in Massachusetts, a member of the Convention which framed the Constitution in 1780 and a member of the House and Senate of the United States), and his wife, Molly, are buried in the Varnum graveyard. Colonel Varnum died in 1820. The first settler of Dracut, Samuel Varnum, lived in the house and was a leading citizen of Dracut during the mid-1700's and active in politics and the development of the area.

PIERCE HOUSE (585 Chelmsford Street) built in 1750 was the home of Benjamin Pierce, Revolutionary War veteran and twice Governor of New Hampshire and also the father of President Franklin Pierce.

CLARK HOUSE (61 Clark Road) built in the 1700's. This was the home of Major Thomas Clark who won fame for his exploits during the Revolutionary War.

SPAULDING HOUSE (383 Pawtucket Street) built in 1761 and used both as a residence and an inn. It is now occupied by the D.A.R. The house has a long history. It was erected by Robert Hildreth between 1758 and 1761 and later bought by Moses Davis, a resident of Chelmsford and a soldier in the Revolutionary War. He used the place as a tavern. It passed through several other owners and then John Ford bought it in 1777. He kept it for 13 years but rented it out. Eventually Joel Spaulding bought it in 1790; Spaulding was a member of the Chelmsford Company during the Revolutionary War. Jonathon Spaulding came to the house at the age of fifteen. His son, Dr. Joel Spaulding, and daughter Sarah were born here. The house was at one time used as a stopover for runaway slaves going to Canada. It is said to have always been the home of men of "good New England Stock". At one time it was known as Davis Tavern and many stagecoaches stopped here.

OLD TYNG HOUSE (between North Chelmsford and Tyngsboro Road) built in 1670 by Colonel Jonathon Tyng. At one time it was the only block house between Woburn and Canada. It still has a window called "the lookout" which was used by Colonel Tyng in spotting Indians before an attack. The house is arrow-proof (sand used in the building materials). Colonel Tyng kept slaves and the old slave pen can still be seen under the roof. It also used to have an old slave bell. The stair rail was brought from England and the tiles from Holland. This house also has strong associations with Wannalancet who stayed with Colonel Tyng. Wannalancet is buried in the Tyng Cemetery. The house has had many notable visitors, among them Hannah Dustin who rested here on her way home to Haverhill after escaping from the Indians at Pennacook. There is also a story about a girl, Judith Thompson, who came to work in the Tyng house and fell in love with the son, John Tyng. John loved her until their child was born when he murdered them both. It is said that the ghost of Judith never left him and he had to leave the house in order to get away from her. The house is presently occupied by the Marist Brothers of the Roman Catholic Church.

Other homes from this period still existing are: THE CAPTAIN STEPHEN RUSSELL HOUSE on Pleasant Street in Dracut which was built in 1755 and typifies how the affluent lived in the pre-Revolutionary years and the REED HOUSE (Hildreth Mansion) which was built in 1786 and is located on Lakeview.

Important houses that have been razed of that no longer exist are the following;

DURKEE HOUSE which was also called the Captain Blood Tavern was built in 1660. In Revolutionary times it served as a rendezvous for the soldiers and the level fields adjacent to it were used as a training ground. It was originally the Indian and Colonial Court Building and later a garrison house, a tavern, and a dance hall. During King Phillip's War it was palisaded and used as a garrison by Edward Coburn and his sons. Coburn later sold it to the Blood family who in turn sold it to Major Durkee. It was the scene of many public gatherings and had a "whipping post". Before it was razed its location was at the foot of Old Ferry Road.

LIVERMORE HOUSE was built around 1769 and also called the Gedney House and the Old Yellow House. Its site was at 149 Stackpole Street where St. John's Hospital now stands. The land was part of the grant to Madame Winthrop and the house was erected by Timothy Brown with lumber from the Ford sawmill. The interior woodwork was prepared in England and shipped over. A British Consul named Gedney owned the house for awhile and then Judge Livermore purchased it in 1866. Livermore named his estate "Belvidere". His daughter, Harriet, has been immortialized in Whittier's poem, "Snowbound". The Old Yellow House entertained Washington at breakfast and was part of the underground railroad. Judge Livermore was a member of the House of Representatives. When he died he sold the land to Thomas and John Nesmith who planned streets for the area. It became part of Lowell in 1834. The house was razed in 1969.

Other houses not existing today are: CAPTAIN JOHN FORD'S HOUSE which was on the northwest corner of School and Pawtucket Streets and the first framehouse built in the village by William Fletcher in 1653 (it also served as the first town meeting-house).

Most of the garrison houses of the area no longer exist: both the Hunt Garrison House and the Garrison House on Riverside Street which was built in 1674 no longer are standing. However, there is a well-preserved garrison house, the 1690 Garrison House on Garrison Road in Chelmsford, which is one of the most typical 17th-century structures in the region and is used as a museum today.

Most of the taverns are also gone, particularly the famous Middlesex Tavern (or Clark's Tavern) on Middlesex Street in Middlesex Village which was built in 1780 or earlier.

Cemeteries dating from this period are: Woodbine Cemetery on West Meadow Road in Pawtucketville, the English Cemetery on Gorham Street, and School Street Cemetery on School Street.

B. PERIOD OF THE BEGINNING OF PROGRESS IN INDUSTRY AND TRNASPORTATION (1800-1822)

This was a short period of rapid improvement and change. It was the beginning of early industry in the area and the era of boating days on the river.

USE OF THE MERRIMACK RIVER

This was the beginning of change on the river. The river was changed by canals, locks, and dams which were built in order to improve transportation and trade between the interior of New Hampshire and Boston. During this time the first canal to be developed for the purpose of power utilization was built (Whipple's Canal on the Concord River at Lawrence Street). These changes will be elaborated below.

SETTLEMENT OF THE AREA

Housing was clustered around the sources of the two canals: at Middlesex Village and at Falls Village. Another group of houses was located at the point where the Concord Road met the Merrimack. There were also houses near the Public Landing and at the upper bridge over the Concord River. By 1820 the area had a population of 200.

TRADE

Lowell was the trade center between New Hampshire and Boston, the trading center being located at Middlesex Village. Produce was carried by wagons with canvas tops (they carried butter, apples, cheese, and maple sugar). In the winter horse sleighs were used. Farmers selling crops would use the ferries to cross the river; later bridges were built. Drivers often stopped at the old tavern (no longer existing) in Middlesex Village. In 1814 a bed cost from 6-8¢ and a meal 12¢.

EARLY FACTORIES AND MILLS

Sawmills and gristmills were started in the area in the late 1700's. By 1794 there were two sawmills at Pawtucket Falls and two on the Concord River plus the ironworks.

1) Hale's Mill

Moses Hale built his mill, Hale's Mill, on what was earlier known as Hale's Brook (now known as River Meadow Brook). The site is near Central Street on the Brook, but no longer stands. Between 1790 and 1801 Hale built a mill which eventually became the nucleus of large and prosperous industries including the woolen mills, a lumber business, and the manufacture of gunpowder. Hale purchased the first picker and carding machine in the country and he became famous for finishing cloth. The fame of the mills spread and the Governor of Massachusetts and his council made an official visit to them.

2) Hurd Mill

In 1813 Whiting and Fletcher started a cotton mill on the Concord River (above the canal entrance). Thomas Hurd purchased the mill in 1818 and turned it into a woolen mill. It was later bought by Boston capitalists and became the nucleus of the Middlesex Company in 1830.

3) Whipple's Powder Mill

Moses Hale and his son-in-law, Oliver Whipple, started a powder mill on the Concord River (just above the upper bridge) about 1812. It was later known as Whipple's Powder Mill and sold gunpowder all over the world. Whipple constructed a canal, the Whipple Canal, in 1821 and also owned part of the road to Boston. There was trouble in shipping the powder to Boston if there were other wagons on the road as they would sometimes bump into each other causing the powder to explode. Thus Whipple bought his own road. They also covered the horses' hoofs with cloth so that they couldn't strike any sparks which might set off the powder. It is believed that these buildings were wiped out by an explosion.

believed that these buildings were wiped out by an explosion.

The Concord River was important in the early history of Chelmsford; note that most of the manufacturing of early history utilized the power of the Concord River and River Meadow Brook while the Merrimack was only used to turn the sawmills at the Falls.

4) The Old Glass House

The first real attraction for skilled workers was the glass factory of Hunnewell and Company. Middlesex Village established in 1802 employed 60 people and had a boarding house built for its workers. It is an example of living quarters before the mills.

TRANSPORTATION

The boating days on the river and the era of the canals cover approximately fifty years, from 1800-1850. The canals were constructed in order to aid transportation. The problem with the Merrimack River was the existence of a number of falls. Artificial waterways were constructed to overcome the problems associated with circumventing the rocky shallows. The two famous canals of this period are the Pawtucket Canal and its successor, the Middlesex Canal. Initially the Middlesex Canal was more successful than the Pawtucket Canal although in the long-run the latter has had a much greater effect on the area than the Middlesex Canal.

Pawtucket Canal

A group of men in Newburyport wanted to find a way to use the river to help trade. They decided to build a canal around the Pawtucket Falls. The group met at the Varnum House to map the plans. In 1792 the Locks and Canals Company was incorporated "for the purpose of making possible the passage of boats and the transportation of freight from New Hampshire to the sea by the construction of dams, canals and locks around the several falls in the Merrimack River."

The canal was inaugarated in 1796; the opening ceremony was marred by the collapse of the boat. The canal was cut from near the "Great Landing Place" to "Lily Pond" to "Speen's Brook" and thence to the Concord River. It was one and a half miles long, thrity feet wide, had four locks and cost $50,000.

The four locks are still existing and are the Guard Locks, the Minx Locks, the Swamp Locks and the Concord River Locks. There is a footbridge over the latter enabling one to see lock construction.

The canal was used to ship logs, lumber and farm products to Newburyport. Thomas Clark was the superintendent of construction. The building of the Middlesex Canal in 1803 diverted most of the canal's trade. It was bought by Lowell's associates in 1821.

Middlesex Canal

1) Early Beginnings

The Middlesex Canal was the first canal of its kind in the United States. It was begun by financial aristocrats in Boston who conceived of the idea in order to help Boston trade. The canal was part of a grand scheme to connect Boston with the Merrimack, then extending the canals to the Connecticut River and on to Lake Champlain and the St. Lawrence, thus connecting Boston with Montreal and lower Canada.

James Sullivan of Charlestown is the man credited with conceiving the idea. Sullivan was a justice of the State Supreme Court and Governor of Massachusetts. Other prominent shareholders in the venture included John Adams, Abbott Lawrence, James Winthrop, Harvard College, and Andrew Craigie of Cambridge.

2) Baldwin

Loammi Baldwin was the leading projector and chief engineer (Baldwin's name is also associated with the Baldwin apple which he was active in promoting). Baldwin became one of the early promoters of American civil engineering which developed along with the canals. He brought in an English engineer named Weston to survey the course. Western established two routes -- one through the supposed old Merrimack River channel which the Middlesex Canal eventually followed and another route which was later followed by the railroad. Weston sent one of his leveling devices to Baldwin which was the first perfected leveling instrument ever used in America. The son of Loammi Baldwin, Loammi Jr., is considered the father of American civil engineering.

3) Construction

The construction of the canal was a very difficult task. It is considered amazing that, with no knowledge of canal building and with its labor and management problems, that the Middlesex Canal was ever completed. It marked the beginning of two eras:

1) the birth of American civil engineering under Colonel Baldwin, and
2) the beginning of a new relationship between man and his work.

Actual construction began in 1794 and it took ten years until the work was completed. Digging and construction were undertaken by small contractors and the hired workers were usually local farmers. There was a shortage of labor and varying quality of different sections of the canal. The actual digging was done with a horse-drawn plow, pick and shovel, and the wheelbarrow. Primitive blasting methods were used and there were many casualties.

4) Completion and Upkeep

When it was finished in 1803 the canal was 27 miles long, 30 feet wide, four feet deep, and had fifty bridges crossing it and seven aqueducts (the famous Shawsheen Aqueduct still stands at Billerica.) The canal received its whole supply of water from the Concord River and Horn Pond. The water had to be drawn off at winter due to freezing which caused damage to the canal sides. The water was also drawn off in the spring in order to clean out the earth and stones and to repair the canal. The children in the area loved this event as it was a chance to search for lost articles and valuables. Upkeep of the canal was difficult due to building mistakes (use of wood for the locks). Men were employed to keep the banks and towing path in order and to cut the grass from the canal bottom.

5) Canal Boats

The canal boats could carry from 10 to 25 tons of cargo. The merchandise boats were 75 feet long, 9 feet wide and flat-bottomed. Some were owned and run by the proprietors and others were run by private parties. Many were painted with designs by their owners. The rudder was a long steering oar and the boat also had three large scull oars and three setting-poles. The crew consisted of the skipper and two bowmen. Going down the Merrimack (to the Middlesex Canal) the scull oars and sail were used. Once in the Middlesex Canal the boat was towed along a towpath by horse, usually without a driver, at about three miles per hour.

The principal articles transported were wood, timber, lumber, rye, oats, potash, and building stone. The timber used to repair the Constitution frigate was brought down the canal. Later it served the textile industries of Lowell and Manchester. The transport of timber was especially important and the shipyards on the Mystic relied on the Middlesex Canal for many years. The value of the timber was increased $5,000,000 by the canal.

6) Passenger Boats

The passenger boat was called the "Governor Sullivan" (sometimes erroneously refered to as the "General Sullivan") and had a covered cabin and seats, and was considered a model of comfort and elegance: "One of the most charming ways of travelling is to sit on the deck of a boat and see the country slide by you, without the slightest jar. . ."

The fare to Boston was 75¢ and the trip took seven hours. People came by stagecoach to watch the boat leave (a horn was blown to announce its departure). Visitors to Lowell, such as Charles Dickens and Davy Crockett, probably travelled via the Middlesex Canal. Thoreau took the canal from Billerica to Chelmsford during his week on the Merrimack and Concord Rivers. Horn Pond and Stoddard Locks became a popular resort; there were pleasure boats on the lake, bands, and always large crowds.

7) Era of Rivermen

By 1815 the Merrimack Boating Company ran a fleet of 25 boats as far north as Concord, New Hampshire. This was the era of rivermen and boatmen. The best known was Captain Isaac Merrill who was the pilot of the first steamer in 1817. He also rescued two men from drowning and won a long-talked-of boat race (his competitor died at the end of the race). Accidents on the river were less common than might be expected although several boats were lost over the falls.

The Tyler family is particularly connected with the history of the river and the canals. Nathan Tyler owned all the land from the head of the Pawtucket Canal to the Merrimack and mouth of the Concord River. His son, Jonathon, was the second superintendent of the Pawtucket Canal. Another son, Silas, was one of the first boat captains on the Merrimack River and the Middlesex Canal (he was Captain of the Governor Sullivan). The third son, Ignatius, was captain of the steamer between Lowell and Nashua.

The first packet boat passed through the Middlesex Canal from Boston to Concord in 1814. The first steamboat ran in 1819. A steamer called the "Herald" was built above the Pawtucket Falls and starting in 1834 it made regular trips between Lowell and Nashua. Later it floated over the Falls and on to New York to become a ferry there.

8) Further Construction

Following the construction of the Middlesex Canal other works to render the Merrimack navigable from Concord, New Hampshire to Lowell were begun. A series of dams, locks, and short canals were built which were often aided by the Middlesex Canal Corporation. Blodget completed the 52-mile scheme in 1807 with his construction of the Amoskeag Canal at Manchester.

9) The Middlesex Canal Era Ends

The Middlesex Canal was the first canal constructed in this country for both passengers and freight; it was also the first traction canal. However, it was a financial success for only eighteen years due to problems of upkeep and management. Governor Sullivan and Colonel Baldwin both died in 1808.

The coming of the railroad in 1835 deprived the canal of its business; the canal was not open in the winter and it also took a longer time to ship goods via the canal. The last boat passed through the Middlesex Canal in 1851. Then it dwindled into disrepair and the Corporation was eventually dissolved. At one time Caleb Eddy had proposed converting the canal for supplying Boston with water (Boston wells at the time were contaminated) but the proposal was not successful.

People who lived along the banks used the canal for skating in the winter. The towpath was the scene of Sunday promenades and picnics. The water in the canal was used for washing. The canal property was sold and eventually it was absorbed by the towns along its course. Few vestiges remain today; the best portion is at Billerica. There is a buried pier of the canal at the site of the proposed Kiernan Bridge in Middlesex Village. The Middlesex Canal Association also has plans to reconstruct a canal boat.

IV. LOWELL: QUEEN CITY OF THE MERRIMACK

A. THE GOLDEN AGE OF THE MILLS (1822-1865)

The city of Lowell was founded in 1822 and grew rapidly. The area changed from an agricultural economy to the textile industry. Transportation via canal and the river gave way to the railroad.

Lowell nicknames

Lowell has had a variety of nicknames, all of them indications of her unique qualities:

"Spindle City"
"Queen City of the Merrimack"
"Manchester of America"
"Little Canada"
"Venice of America"
"Acropolis of America"

Uniqueness of Lowell

Lowell's uniqueness in this period stemmed primarily from her spectacular growth, the many engineering and hydraulic inventions, the achievements in housing and city planning, and the fact that this was the first development of a city devoted primarily to industry. It was also a model manufacturing community.

SETTLEMENT OF THE CITY

1) Francis Cabot Lowell

Francis Cabot Lowell, upon returning from a trip to England where he had gone to see the machines used in the cotton mills, bought land in Waltham and with several others began the Boston Manufacturing Company. This was the only mill in the world where all the work to make cloth was done in one place.

2) A New Mill Site

After 1814 a larger mill was needed but since there was not enough waterpower from the Charles River it was necessary to search for another place. The other Boston businessmen involved were Nathan Appleton, Patrick Jackson, Ezra Worthen, and Paul Moody. Worthen knew of the Pawtucket Canal and suggested they could also ship goods to Boston via the Middlesex Canal. Their chief criterion for a new place was an abundance of waterpower and the Merrimack had plenty of that. So they bought the Pawtucket Canal, a then losing venture to the Middlesex Canal, and bought up the farmland in the area. Kirk Boott was named manager. The Merrimack Manufacturing Company was founded in 1822 and by 1826 the town was named Lowell (in honor of Francis Cabot Lowell who had died in 1817 but whose ideas guided Boott and others in setting up the town).

New England possessed the essential elements for textile manufacturing: rich merchants, adequate waterpower, a developed transportation system, the beginning of a labor supply, and pure water for bleaching. Lowell had set up the first successful American power loom in Waltham and for the first time the mass production of goods was possible.

PROBLEMS ENCOUNTERED

There were problems in setting up a large manufacturing organization at Lowell:

1) The Problem of Labor: there was a scarcity of labor at the time because of the ready access to Western lands so it was decided that the bulk of their employees would be the young unmarried women of the farms, called "spinsters" because they spent their time spinning cloth. These girls had time and were the least mobile element in the population but they had to be attracted by good wages.

2) The Problem of Public Relations: almost everyone in America at that time was opposed to the large-scale development of industry. They feared it would disrupt the American social structure and "deprave the working man" (this came from their familiarity with the English proletariat). Thus it was practical to make life in the factories "respectable enough to attract the daughters of Puritan Yankee farmers"; they had to guarantee that factory life would not corrupt them. It became necessary to provide low-cost housing, supervision, religious and cultural institutions, and long days to keep the girls occupied. It was said of Lowell that "a moral tone was maintained that amazed the statesmen of France and inspired the churchmen of England!"

3) The Problem of Capital: the old personal form of ownership had to be given up and in its place the modern limited liability corporation evolved. (Coolidge)

GROWTH OF THE CITY AND MILLS

The Merrimack Manufacturing Company set up in 1822 included Appleton, Jackson, Moody, and Boott (and later others). Boott was in charge and also responsible for the physical layout of the town. He followed Lowell's conception of the ideal community. This was not a utopian idea but based on work and the mills--these were all practical men who simply wanted to make the mills a going thing financially.

The physical layout was essentially made up to two zones:

1) a zone for the corporation, and
2) a zone for the bourgeosie.

Very simply, the plan of Lowell was a series of mills arranged on various waterways, a hinterland of housing, and a gridiron of

streets fitted into the space leftover. Boott was especially good in the layout and organization of the millyards (the plans of all of them are in the Lowell Tech Library).

Growth of the Mills

1822	Merrimack Mfg. Company	
1825	Hamilton Mfg. Company	
1828	Appleton Mfg. Company	
1828	Lowell Mfg. Company	
1830	Tremont Mfg. Company	
1830	Suffolk Mfg. Company	
1830	Lawrence Mfg. Company	
1830	Middlesex Mfg. Company	
1835	Boott Mills	By 1833 there were
1839	Massachusetts Mills	19 mills.

The Boott Mills are the best surviving example; also the Tremont, Suffolk, and Lawrence Companies still exist althought under different names.

Growth of the Population

1822	Founding of Lowell
1826	2,500 population (1,000 employees at Merrimack Company 263 Machine Shop employees 400 Hamilton Company employees 200 Locks & Canals Company employees 637 citizens)
1833	12,000 population 5,000 mill employees; 3,800 females).
1836	18,000 population (incorporation of Lowell as a city).
1840	21,000 population (second largest city in Massachusetts).
1845	30,000 population

In 1826 the town had three mills and two printworks, twelve stores, one church, one schoolhouse, a minister's house, and two hotels (Frye's Tavern on Central Street and the Old Stone House on Pawtucket Street).

By 1836 the town had a population of almost 18,000 (2,661 aliens and 44 colored), with 20 schools (average daily attendance of 1,370), 13 churches, and two national banks.

The growth during this period was chiefly in population and not in land area. In 1834 Belvidere was added and in 1851 Centralville became part of Lowell.

THE MILLS OF LOWELL

The following mill statistics of 1836 indicate the scope of the mills:

Mills	Capital	Spindles	Looms	Men	Females
Merrimack	$1,500,000	25,704	1,253	437	1,321
Hamilton	900,000	19,456	560	200	750
Appleton	500,000	11,776	380	65	470
Lowell	500,000	5,000	212	150	325
Suffolk	450,000	10,752	640	70	460
Tremont	500,000	11,520	616	70	460
Lawrence	1,200,000	31,000	910	200	1,250
Middlesex	500,000	4,620	130	185	350
Boott	1,000,000	two mills erected but not in operation			
TOTAL	7,000,000	119,000	4,701	1,377	5,416

Locks and Canals	600,000	290 males in machine shops
Bleachery and sm. mills	300,000	300 hands

Merrimack Mfg. Company

The Merrimack Mfg. Company was the first mill to be established and began production in 1823. The first shipment of goods was 16 bales which was sent to Boston in 1824. In 1826 the printworks were established which showed that calico prints could be made much cheaper and better in the United States than in England. The corporation was responsible for all of the moral, intellectual, and religious training of the early days. They established a school and a bank and built the first church; they gave $500 toward the purchase of books for a library. The first fire in town destroyed the mill in 1829. Later it increased to include 6 mills, storhouses, boardinghouses, stables, and small buildings. It had six turbine wheels and the tallest chimney in the country was built by the Merrimack Company in 1822 (it was 283 feet high and called the "jumbo chimney"). The Company had the largest payroll with 2,000 females and 1,100 men and occupied 24 acres.

Hamilton Mfg. Company

The Hamilton Company which was begun in 1825 started a savings bank for the benefit of its help in 1829 (now the Lowell Institution for Savings). It occupied 7 1/2 acres and had 6 mills, printworks, etc.

Lowell Mfg. Company

The Lowell Mfg. Company started with one mill in 1828 and two-thirds of the space was used for manufacturing coarse cotton cloth called Osnaburgs, or Negro Cloth, which was largely sold to the South for plantation wear. The Bigelow powerloom which worked such a revolution in carpet weaving was built and perfected in this mill in 1824.

Middlesex Mfg. Company

In 1813 Phineas Whiting and Josiah Fletcher had erected a wooden building on the banks of the Concord River and fitted it with cotton machinery. They retained ownership until 1818 when they sold the land and buildings to Thomas Hurd who converted the cotton mill into one for the manufacture of woolen goods. In 1830 the Middlesex Company bought the mill and eventually it included three mills with dyehouses. An example of the kind of goods made by the company: indigo-blue coatings, cassimeres, police, yacht, and cadet cloth, ladies' sackings, beavers, and shawls.

Suffolk and Tremont Mills

The Suffolk and the Tremont Mills were incorporated in 1831 and merged in 1871. There were 4 original building belonging to the Suffolk Company. In 1862 one of the original buildings was tron down and two of them joined together and an additional building was added. There was another period of rebuilding from 1890-1910. There were 6 mills with storehouses and boardinghouses, a machine shop, and a stable, with 97,550 spindles and 3,000 looms and 500 males and 1,100 females employed. The mills turned out 600,000 yards of jeans, cotton flannels, drillings, sheetings, shirtings, and printcloths per week.

Lawrence Mfg. Company

The Lawrence Company was incorporated in 1831 and in 1864 began the manufacture of cotton hosiery. Knitted underclothing was also made.

Massachusetts Cotton Mills

The Massachusetts Cotton Mills was the last of the manufacturing corporations (1839). In 1844 they purchased the Prescott Mills. The first wheels used were wooden ones until 1869 when the turbines superseded them. 1,700 were employed here and the mill had 115 tenements.

Lowell Machine Shop

The Lowell Machine Shop was begun for the building of cotton machinery and sold to Locks and Canals in 1826. The shop was the earliest builder of locomotives and machinists' tools in this country. The building of paper machinery began in 1858.

MILL GIRLS AND LIFE IN THE MILLS

Raw cotton was taken in from the picker on the lower floor of the mills, ascended in regular order through the processes of carding, spinning, and dressing, and came out of the weaving room in the upper story as finished cloth.

1) Mill Girls

Most of those employed in this work were female. The mill girls came from all over New England although chiefly from New Hampshire and Maine. Most of them were young and single although there were also widows, women escaping from their husbands, older spinsters, women supporitng invalid husbands, and etc. Mill girls were often the daughters of clergymen, physicians, businessmen, or were orphans, and they looked upon their work as temporary. They worked a comparatively short time in the mills -- on the average of 4 1/2 years -- and they usually went back home or to school in the summer. There was relatively little child labor (under 15 years) except for the "doffers" who collected empty bobbins, and they were required to go to school three months of the year.

2) A Work-Day

Work began at 5:00 on summer mornings and at daylight in winter. Breakfast was eaten by lamplight and a half-hour was allowed for it. The noon meal time was one-half hour to three-quarter of an hour. The only hours of leisure were from 7:30 or 8:00 to 10:00 in the evening. It was imperative that lights be out at 10:00. The dining room was used as a sitting room where the girls sewed, read and wrote, or studied. They made and mended their own clothes and did alot of fancy-work. They subscribed to many periodicals, took books from the libraries, and went to singing-schools, conference meetings, concerts and lectures. On Sundays they were in church.

3) Moral and Religious Tone

It was most likely a very "moral" and "upright" society that the girls came to work in. No "immoral" person was to be employed in the mills. Girls were required to go to church and there was a very high religious atmosphere. Supervision was strict in the beginning and the number of girls removed from boardinghouses for immorality was very low. There were only two illegitimate births during the first ten years.

The girls were often Sunday School teachers and often they taught the children of their mill superintendent. It has been said that the religious spirit was unquestionably the most widespread influence among the mill girls. On entering the mill, each girls was obliged to sign a "regulation paper" which required her to attend regularly some place of public worship. There were many denominations. In one boarding-house the girls belonged to eight different sects.

In 1843 there were 14 regularly-organized religious societies. Ten of these constituted a "Sabbath School Union" which consisted of over 5,000 scholars and teachers -- and 3/4 of these were mill girls.

Once a year on the 4th of July this Union marched in procession to a grave on Chapel Hill where a picnic was held with lemonade and long speeches by the ministers. Mill girls went regulalry to this meeting and to "Sabbath School". Their appearance in the streets on Sunday was often spoken of by visitors.

The mill girls also contributed to the building of churches. The Freewill Baptist Church was built largely of money belonging to over 100 factory girls who were induced by Elder Thurston of promises of large interest to draw their money fron the savings-bank. In the end, they did not even receive the interest on their money.

4) Education and Culture Among the Girls

There could only be evening classes for the mill girls as they worked 12-14 hours a day and were usually forbidden to have books at work. In later years they did manage to do a considerable amount of studying, but the paid for whatever instruction they received. Many girls came to Lowell precisely for its educational qulaities -- Lowell was famous for its circulating library.

Sometimes girls would study French or another language and would be excused from work for an hour twice a week. Others earned enough money to go to a private school for 3 or 6 months. Many taught in schools during the summer. The ranks of the primary and grammar schoolteachers in Lowell were often replenished from among the mill girls.

Almost every girl had some book with her, such as the Bible, Milton, or Bunyan's Pilgrim's Progress. One group of girls started an improvement circle (which later constituted material for the famous Lowell Offering). Many girls studied German or Moral Science or Botany. At the Lyceum Lectures two-thirds of the audience were mill girls.

Many were interested in anti-slavery reform and made up petitions for the abolition of slavery. By reading the newspapers, the girls knew all about the Mexican War. Lectures on the doctrine of Fourier were read and Mrs. Amelia Bloomer ("Bloomerites"), one of the early pioneers in dress-reform, found followers in Lowell. Parlor meetings were held at some of the boardinghouses to discuss the feasibility of this great revolution in the style of women's dress. A few of the girls were also interested in phrenology and had their heads examined by Professor Fowler who was the chief exponent of this theory in Lowell. Some girls were also interested in Mesmerism.

5) The Lowell Offering

The Lowell Offering was begun in 1841 and existed for five years. It attracted much attention in England as during the last three years the magazine was written, edited and published by mill girls. The number of contributors was about 70 and the only restriction on subject matter was against anything "sectarian". Themes were usually memories of home life or work.

6) Processions

It seems to have been the fashion of the mill girls to appear in processions on all publice occasions. In 1833 at Jackson's visit all of the mill girls turned out and walked in procession "like troops of liveried angles clothed in white with green-fringed parasols with cannons booming, durns, beating, bannners flying, and handkerchiefs waving."

7) Irregular Discharges

There are interesting records of the reasons for irregular discharges. First of all, no girl was employed who was "intemperate" or even known to drink. The power of opinion was an ever-present restraint on bad behavior. A girl that was even suspected of immorality or bad conduct lost "caste" and if not dismissed from her boardinghouse the other boarders would leave and would not speak to her; eventually the girl would leave of her own accord.

The names of all dismissed for bad conduct were recorded in a book and sent to all other mills so that the girl could never again obtain employment in Lowell. Many of the regular discharges were for sickenss, marriage, injuries, school, etc.

Of the irregular discharges in one record book, there were 6 for "mutiny, 3 for "disobedience", 1 for "impudence", I for "levity", 5 for "lying", and 1 for "hysterical". Other irregular discharges were for such things as "altering looms and thinning cloth", "theif and liar", "worthless character", "unproper conduct", "profanity", and "reading in the mill". (Bushman)

8) Health and Injuries

The health of the girls was generally good for the times. They were usually in good health when they came from the farms and very few died or went home sick. Ventilation seemed to be the main problem. Also, there were common injuries, such as losing a finger. During that time, typhoid was the major killer (judging from Lowell Corporation Hospital records) and consumption was next in line. In 1916-17 15.5% of the industries ahd injuires, 7.9% had fatal injuries.

There are interesting figures, though, for mortality by occupation:

Occupation	Average Age at Death
Females in Trades	39.10 years
Sailors	48.57 years
Professional Men	52.33 years
Farmers	66.29 years (Bushman)

This study of Fall River and Manchester found that the death rate for women, and especially married women, was higher than for men in operative work -- it is not clear why this was so.

9) Overseers and Agents

At first the relations of the mill girls with the overseers and agents was good. It later deteriorated with the influx of immigrant girls and new absentee agents.

Every room in the mills had a first and second overseer. One had charged of the care of the room, taking in the operatives he wanted, assigning jobs, superintending each process, directing repairs, answering questions, and granting permission of absence. He sat at a desk near the door where he could see all who came

in and went out. He was held responsible for the order and propriety of his room and for the attention to business. The management of the mill was dependent on good overseers. There were many applicants for these posts. They were usually married men with families and were permenent residents of Lowell.

10) Changes in the Mill Girls

In 1845 there were 6,230 female operatives in Lowell. Of these 2,276 were connected with Sunday School and 527 had been teachers; one-eighth of these girls were from Massachusetts, one-fourth from Maine, one-third from New Hamsphire, one-fifth from Vermont, one-fourth from Ireland, and one-seventeenth from Canada.

Later when wages were reduced and changes began taking place in the mills, the Yankee farm girls left and Irish immigrant girls began to replace them. With this change, the character and reputation of the mill girls also changed. In addition, new jobs for women began to open up and the Yankee daughters took advantage of this: the age of the immigrant mill girls then began.

THE LOCKS AND CANALS COMPANY

In 1832 the old charter of the Locks & Canals Company was reactivated to allow this company to purchase and hold all real-estate of the Merrimack Mfg. Company. It was authorized to sell or lease land and water power. It was responsible for the maintenance and repair of the canals, dams, bridges over the canals, and the locks.

By 1835 the Company also manufactured machinery, railroad engines and cars, and built complete mills. They had the largest shop in the country and employed between 500 and 1,200 people. The Company's position in Lowell has been compared to that of the church in the early settler's communities. It was the all-powerful institution in Lowell.

Lowell Power Canals

The Pawtucket Canal was widened in 1822 and a series of other canals were built: the Merrimack Canal in 1822, the Western Canal, the Estern Canal, the Hamilton Canal, and finally the Northern Canal in 1874 (the largest of the canals). Locks & Canals imporved the headwaters of the Merrimack so as to more than doulbe the waterpower available.

The canals are a very complicated piece of engineering. Underwater conduits serve as feeders and for discharge. The Locks & Canals Company decided and regulated the amount of mill-power each company would receive. The canals also work on several different levels. Water wheels were used to turn the mills and there are still several left. Three gatehouses were established to control the flow of water: the Merrimack Street Gatehouse, the Northern & Western Gatehouse, and the Northern Canal Gatehouse. Lowell has earned her nickname, "Venice of

America". There are 6 large canals in Lowell (the above mentioned plus the Wamesit Canal) each of which has numerous branches. In all they cover a total of five and one-half miles in length.

In addition to the Merrimack there is also the Concord River, River Meadow Brook, Clay Pit, Black Brook, and Flagg Meadow which run through Lowell. In former days the whole territory of Lowell between the Merrimack and the Concord was a large island, made so when the Middlesex Canal was built. There are a few natural islands in the Merrimack, but the city itself is made up of 7 different islands (or one large island), almost all of them heavily populated, made into islands by the canals which intersect the territory.

The Wamesit Canal (old Whipple Canal) is the one canal off the Concord River. It was built by Whipple, Hale and Tileston in 1846 and sold to the Wamesit Power Company in 1865. It has been used by the Faulkner Mills, the Belvidere Woolen Mills and U. S. Bunting.

Bridges

The Locks & Canals Company has built at least 26 bridges across the canals; in addition there are 3 bridges across the Merrimack, 14 across River Meadow Brook, a number across the Concord, Black Brook, Flagg Meadow, etc. The railroad built 17 bridges although the corporations furnished the majority. In all there are, or have been, approximately 186 bridges built in the area! Most of them were built during this period. The Pawtucket Bridge was a toll until 1861 when it was made free -- the toll gates were pulled down by horses amidst the blare of a brass band!

ENGINEERING AND HYDRAULIC ACHIEVEMENTS

The founders of Lowell tried to stimulate textile manufacturing by means of the best that science and technology could offer. Talented and energetic people were invited to the city. As a result the town struck visitors as one of youth and progress (few residents were more than 30 years old). The residents also included a large number of mechanics, inventors, engineers, and scientists.

Paul Moody, superintendent of the Merrimack Mfg. Company, did work on the power loom and found the solution to many mechanical problems. The use of leather belts instead of iron gearing for transmitting motion to the main shafting of a mill was introduced by Moody in 1828. It was a very important improvement and was entirely original in its application to the transmission of 50 or 100 horsepower by a single belt. It was generally adopted in the mills of New England.

Kirk Boott was responsible for bringing many mechanics and inventors to Lowell. Some were imported from nearby textile towns and other places in New England. Boott brought Elias Howe who later invented the sewing machine, Major Whistler, father of James Whistler, who built steam locomotives, and Warren Colburn, an educational reformer who lectured on astronomy, mechanics, and natural history.

Early Lowell was particularly distinguished in two technical fields:

1) industrial research in chemistry, and
2) hydraulics.

The two important figures in each of these fields, Samuel Luther Dana and J. B. Francis, had significant influence on the development of the American industrial system.

Samuel Luther Dana

In 1826 Dana was appointed as a chemist to the Merrimack Mfg. Company (he was a former physician of Waltham who from his contact with the Boston Manufacturing Company evolved the idea of applying chemistry to industrial research). In 1836 he developed the method known as the "American system of bleaching" which was widely used by his company. He also did work in phosphates and was the first to apply chemistry to agriculture. In addition he studied lead poisoning and published papers on it, made geological surveys of the state, and wrote a study on the manufacture of oil from rosin.

J. B. Francis

Francis came to Lowell in 1834 and at the age of 22 was made the chief engineer of Locks & Canals. He was an authority on a great variety of subjects but is best-known for his experiments in hydraulic motors and the flow of water over weirs and short canals. In 1846 he made the designs for the enlargement of water power.

He also constructed the Pawtucket Canal improvements and the famed Francis Gate (called "Francis' Folly" at the time). This gate, which can still be seen, is a piece of heavy lumber hanging over the canal lock by an iron strap. It saved Lowell from several floods.

In 1849 Franics was sent to England to observe methods of preserving timber from decay and out of that trip grew the construction of kyanizing works at Lowell, another first.

In 1844 Uriah Boydon designed a turbine for the Appleton Company; He also designed a dynamometer and a weir to gauge the quantity of water expended. Boydon also designed a large number of turbines for different manufacturing companies in

New England. In 1849 the companies at Lowell purchased the right to use all of Boydon's improvements relating to turbines. Francis then designed and was in charge of the construction of turbines for the companies. These trubines bear his name.

Francis also did the reconstruction of the dam in 1875. He did consulting all over the United States, i.e., on the Trinity Church tower in Boston, on irrigation in California, and had a great influence on the growth of engineering in American. His drawings can be found in the Lowell Tech Library.

Other Important Men

Other important figrues were Samuel Batcheldor, president of the Hamilton Company who was a prolific inventor of textile machinery (his dynamometer for the registration of power in belt-driven machinery was internationally known), Elisha Bartlett, the first mayor of Lowell who had formerly taught medicine at Pittsfield Medical School and who in 1842 published a study of fevers, and James Storrow, a Harvard-educated man who learned engineering under Loammi Bladwin. In 1832 Storrow directed the running of the first train from Boston to Lowell. Later he hoined Boston capitalists who were planning to repeat the Lowell experience ten miles down the river (Lawrence). Storrow built the dam there and in 1853 became Lawrence's first mayor.

The Lowell Machine Shop also pioneered in the construction of locomotives. Many of the early locomotive engineers were recruited from mechanics who were associated with the shop.

COMMERCE AND MANUFACTURING

Merrimack Street became the main commercial street. In 1834 clothing, shoes, silks, shawls, linens, lace, china, West Inidan goods, drugs, books and "fancy goods" were sold. #2 Merrimack Street had an advertisement for: "seasonable clothing/ oriental dressing gowns/gentlemen's opera tippets/India rubber garments".

In addition to the textile indsutry there was a growth in other manufacturing. In 1824 Lowell Manufacturing Company with the use of a new automatic carpet loom began the manufacture of carpets that became known all over the United States.

In 1843 the Ayer Company was established. They produced medicinal preparations that were shipped to all parts of the world. The U.S. Bunting Company in Lowell was the first company to manufacture the American flay fabric (it had been imported previously).

In 1834 Major Whistler was brought to Lowell and became superintendent of the Machine Shop. He designed and built steam locomotives and was the first in New England to do this. Whistler left Lowell in 1838 and went to Russia where he introduced railway construction in that country.

The first locomotive built in Lowell in 1835 was named the "Patrick" after Patrick Jackson and weighed about 9 tons. Other early locomotives were named "Boston", "Concord", "Lowell", "Merrimack", and "Nashua".

4) Train Crew

The early engineers, firemen and trainmen ahd a life of hardship in cold or stormy weather as there were no cabs on the locomotive until 1848 -- and no cabooses. Passenger crews rode on top of the cars and freight men rode on the locomotives. The first engineer was an imported Englishman, Robinson, who later was replaced by a skilled machanic from Locks & Canals.

The brakemen applied the brakes, cleaned the car and wheels, and took care of the stoves. The engineer was responsible for the entire care of the locomotive and renewed various parts. By 1850 cabs for shelter were provided. The method of water supply was by a force pump until 1875. The huge smokestack had to be replenished with wood and water along the way. Coal was not used for fuel until 1858 and not used on the Boston-Lowell until 1868.

5) Freight and Passenger Cars

The first freight cars were completely open and were merelv a platfrom on wheels. The merchandise was covered with canvas. The first freight train had 14 cars and could carry 50 tons. It also had no brakes!

The first type of passenger car resembled the ordinary stagecoach mounted on a frame with wheels for the rails. There were three compartments each with passengers sitting back to back and there was a seat on the roof for the conductor who whistled when the hand brakes were to be applied. The compartments were not lighted or heated.

The Boston-Lowell was a short link in the "Great Northern Route" between Boston and Canada. In 1851 the passenger cars between Boston and Montreal were stuffy and uncomfortable. By the middle 1850's they were improved and had flat roofs, small windows which rattled incessantly, and seats upholstered in black haricloth. There were iron stoves in the middle of the car for heat and two small whale-oil lamps. The second-class car had back-to-back seats and half-price fares plus a compartment for baggage. There was one such car which was ironically nicknamed "The Belvidere".

6) Stations and Ticketing

The old railroad station was at Merrimack and Dutton Streets where the YMCA now stands. This railroad station was erected on Merrimack Street in 1852. It was built so that part of the depot could be used as a "city hall". The upper floor was a large auditorium (Huntington Hall). It burned and was rebuilt in 1897 and burned again in 1903. Then it was replaced by the YMCA. There was also a "Northern Depot" on Middlesex Street.

The early railroad tickets were cardboard with the name of the station on one side and on the other side some sort of hieroglyphics which was supposed to prevent them from being coutnerfeited. After collection by the conductors, they were handed back to the ticket offices and used over and over again. There were also season tickets for one passage daily. In 1844 the fare from Boston to Lowell was reduced to 75¢. In 1845 it was reduced to 65¢ and in 1848 to 50¢.

7) Accidents

In 1838 the second track was laid and in the same year the Nashua-Lowell Railroad opened with the fare at 50¢ with one run each way daily. In 1841 a disastrous collision occurred. On the 4th of July freight cars were used to make room for all of the passengers and an extra train from Lowell was run into on a curve by the regular train from Nashua. Several people were badly injured. The regular train was on that day being run by a stagecoach driver and the extra train by a mechanic from a road repair shop.

The Boston-Lowell had no serious accidents until 1868 when the locomotive, "William Struqis", exploded in the Middlesex Street Station and killed its engineer.

8) Races and Records

A famous locomotive race took place on the Boston-Lowell run in 1851. Thousands of people gathered to watch the six entries.

There were 4 daily trains in 1835 and they were increased to 15 daily in 1851. In 1850 the engine, "The Whistler", made the run to Boston in 28 minutes! It seems rather strange that the old atlantic-type of steam locomotive was faster than today's diesel!

9) Mergers

Later the Boston-Lowell Railroad realized the impracticality of isolationism and began a series of mergers. In 1887 it was leased to the Boston & Maine which now owns and operates it.

The railroad dream had taken the place of the canal dream. It was a means of making the industrial centers more important and a means of opening up new rural areas. The introduction of the railroad into the Merrimack Valley coincided with the beginning of Merrimack industry.

RELIGION AND CHURCHES

1) The Merrimack Religious Society

In 1824 the Merrimack Religious Society was started. Services were held in the schoolhouse on Merrimack Street (where the Green School is) and the first minister was Rev. Theodore Edson.

2) St. Anne's Church

In 1826 St. Anne's Church was built. It was named after Kirk Boott's wife and built from stone in the bottom of the canals. Since Boott was Episcopalian so was this church. Boott decreed that all operatives muct go to his church and also pay 37¢ a month for its upkeep. This did not last long due to the founding of a number of other Protestant Churches. St. Anne's chimes were dedicated in 1867. There were eleven bells that were cast in Troy, New York.

3) St. Patrick's Church

St. Patrick's Church is closely identified with the development of the Irish community. In 1833 the Irish built their first church in the original Acre area but it was destroyed by fire. Native Yankees tried to wreck the Acre and the new St. Patrick's Church and a riot ensued. The present structure was erected in 1854 by the Irish residents.

4) Opposition Among Sects

This was a period of opposition between different sects. Universalism had become popular, but it frightened the other sects and their ministers preacherd against the new doctrine. "Infidel" and "atheist" were applied to it. Doctrinal feeling was strong and young people who went with the "awful Universalists" were looked down upon. Unitarians also came under the ban. Harriet Robinson (Loom and Spindle) had joined the Congregational Church but later she decided she didn't like it and stopped attending. For this she was excommunicated and ostracized by society.

EDUCATION

In 1822 the territory of Lowell was one school district with two schoolhouses, one near the Pound and the other at Pawtucket Falls near the Stone House. The first act of the Merrimack Manufacturing Company was to put up a school for the girls on Merrimack Street. The corporation paid the whole expense and put Rev. Edson in charge.

Edson vs. the Corporation

At the first town meeting in 1826 a committee was appointed: Edson, John Green, Warren Colburn, Elisha Bartlett, and Sam Batcheldor. They were to divide the town into school districts. Six school district were, as a result, formed:

1) Green Schoolhouse
2) Falls Schoolhouse
3) The school near the Pound
4) The school near Hale's Mill ("Red Schoolhouse")
5) The school west of Central Street
6) The school on Central Street

$1,000 was allotted for the support of the schools. District committees were established to keep the schoolhouses in order, to select and contract a schoolmaster, and etc. The district committees also claimed the right to choose what books were used, and disputes arose between the general school committee and the district committees.

In 1832 the district system was abolished and a contest arose between Kirk Boott and Edson. At a town meeting to authorize the loan of $20,000 for the building of two large schoolhouses, Edson favored the motion and was opposed by the entire corporation, led by Boott. Boott declared that the schools were good enough and that ministers were not suitable persons to manage the expenditures of a town. Edson said that if business men would acquiant themselves with the needs of the schools, the minister would be glad to yield to them. In the end, money for the building of North and South grammar schools was appropriated. Boott, as a result, withdrew from St. Anne's Church and for several years the corporation took no interest in the public schools!

The Public Grammar Schools

The Companies thus far had provided almost wholly for the education of the children of those persons in their employment. Dr. Edson argued that the well-being of the whole community would be promoted by the advancement of common schools.

1) The Merrimack School began in 1829 with 165 pupils. In 1833 it moved to the new North School house and has had a succession of different names since, the last being the Bartlett School.

2) The Edson School opened in a small house on the corner of South and Middlesex Streets in 1827 but it later moved to a new schoolhouse on the South Common.

3) The Colburn School was established in 1848.

4) The Varnum School began in 1851.

5) The Washington School began in 1834 and was eventually united with the Edson School.

6) The Franklin School started in 1839 on Middlesex Street and was eventually merged with the Highland Grammar School.

7) The Moody School began in 1841.

8) The Green School was established in 1841 and first situated on Middle Street. It moved to its present location in 1868.

Schools for the Irish

Up until 1840 attempts to establish a school in the Acre were sustained chiefly by individual benevolence. For instance, in 1830 an article was passed to establish a separate school for the Irish and $50 was appropriated but it was kept only part of the time and later the school was suspended. Schools were carried on at various times in rooms under the Catholic Church.

Finally two Catholic schools were united in 1838 to form the Lewis Street School (later called the Mann School). From 1838-1851 669 pupils of this school received certificates to enter the mills (there were 2,070 pupils from all the schools during this period).

Salaries

In 1835 the salaries fixed by the school committees were:

Principal of High School	$1,000
Assistant	500
Grammar Master	600
Male Assistants	350
Female Assistants	175

By 1852 these salaries had gone up to $1,800 for Principal, $1,000 for Grammar Master and $600 for Female Assistants.

Lowell High School

The Lowell High School's early years were of a nomadic character. The high school was first organized in December 1831 under 30 year old Thomas Clark as Principal with 47 pupils. Its first sessions were held in a building at the corner of Eliot and Middlesex Streets. Three of Rev. Clark's students were General Butler, Gustavus Fox, and Governor Straw (New Hampshire).

Later the school was moved to the Free Chapel, then to the Edson School building, and later they reopened in Concert Hall on Merrimack Street. After several more moves, including a few attic lofts, they eventually moved to Kirk Street where in 1840 a new school building was built.

In the early days of its existence, some of the boys were only 9 or 10 years old. The average age was 13 years and 9 months. However, by 1883 the minimum age was 12 years and the average age was 15 years and 8 months.

In the beginning of its days no diplomas were issued and pupils were admitted four times a year. The early examinations of applicants were conducted orally by a committee and rarely was an applicant rejected. Students were not compelled to take any prescribed course of study and could remain as long as they wished. Some continued on for six or seven years. They could also graduate when they pleased by simply dropping out without a ceremony. In the early days a weekly paper was published with poems, essays, and dislogues in French.

As the number of applicants increased, a written test was used for admission. Then came the custom of awarding diplomas and having graduation classes in 1858. In the early years a catalogue containing a minute report of the standing of each pupil was published at the close of every term. This practice was finally discontinued and in its place, monthly reports were sent to the parents. In 1863 alumni associations were formed and reunions were held in Huntington Hall.

Prior to the building of the new school building in 1840, boys and girls had been in the same room. In the new school, however, females were separated entirely from the males, entering from a different street and occupying different rooms. The organization of the school also changed. Up until 1840 only male teachers had been employed. Now two female teachers were introduced, one as Principal and one as Assistant, in the Female Department. There was also a male principal. Other teachers were: "Teacher of Math", "Teacher of Languages", and "Teacher of Natural Science".

In 1867 the school was transformed into its present condition. Since that time, there has been no separate female department. Scholars were seated in different study rooms and the sexes mixed. Classes also were mixed so that the teachers had to teach a variety of studies. In 1844 music was introduced into the school. French was taught by special teachers in 1848, 1869, and 1874. Drawing was introduced in 1867. Since 1837 the schools of Lowell were required to open the morning exercises with devotional exercises.

CULTURE AND LITERARY ASSOCIATIONS

1) Reading and Writing

Reading was the prime recreation among the mill girls. Seven journals were printed in Lowell and one boardinghouse regularly subscribed to 15 newspapers and periodicals. The mill girls attended "improvement circles" (a group that read pieces they had written), the Lyceum Lectures (the cost was 50¢ for 25 lectures, which included Emerson), and some also had time to write during their days in the mills. The famous "Lowell Offering" was written by mill girls and was reviewed by the London Times as well as sent to French deputies.

2) Newspaper and Magazines

There were a number of newspaper published in Lowell. "Vox Populi" began in 1841 and was opposed to the "ruling interests".

The "Lowell Courier" was the newspaper of the corporation and defended the factory system.

In 1842 the following papers and magazines were published in Lowell: Lowell Courier (triweekly), Lowell Journal (weekly), Lowell Advertiser (triweekly), Lowell Patriot (weekly), Sound of Truth, Star of Bethlehem, Zion's Banner, Literary Souvenir, The Ladies Pearl (published local literature and had 4,000 subscribers), and The Lowell Offering.

3) Poets and Authors

From its early days Lowell has had many local poets. One of the most well-known was Lucy Larcom of "Lowell Offering" fame. Lucy Larcom Park in Lowell was named in her honor. John G. Whittier at one time resided in Lowell as editor of the Middlesex Standard. He wrote many poems about the Merrimack River and the poem "Snowbound" is about Harriet Livermore of the famous Livermore family in Lowell. Emerson and Thoreau were also of this era. Thoreau in particular wrote about the Merrimack. Chevalier, Dickens, and DeTocqueville all visited Lowell and wrote about it, marveling at its moral tone and amazing progress.

4) Artists

Artists James Whistler and David Neal were both born in Lowell. The "pioneer sculptress", Margaret Foley, worked for a year or more in a spinning room of the Merrimack Corporation and was one of the contributors to the Lowell Offering. Thomas B. Lawson made his home in Lowell. He was well-known as a portrait painter and Daniel Webster, Henry Clay, Whittier, and many of the mayors of Lowell sat for him. Sarah Whitman, who painted Bishop Brooks and Oliver Wendell homes and made the designs for the memorial windows in Memorial Hall in Cambridge, lived in Lowell during her girlhood.

5) Music and Theater

The first musical society was established in 1824 and called the Beethoven Musical Society. In 1827 the first professional entertainer in Lowell, a magician, performed in the Old Livermore Tavern. The first theater was located where the Hildreth Building is today.

6) Famous People Visiting Lowell

Davy Crockett, 1834
Lafayette
Charles Dickens
Michael Chevalier, 1833
DeTocqueville
President Jackson, 1833
President Roosevelt
E. A. Poe
Henry Clay, 1833
Alexander Bell
Presidents Polk, Pierce, Tyler, Van Buren, Lincoln, and Grant
A Chinese Legation

7) Celebrations

Dedication of St. Anne's Chimes
Lowell Manufacturing Company picnic for the other corporations (5,000 attended)
Andrew Jackson's visit and parade
4th of July celebrations on South Common
Centennial Celebration

CIVIC AND POLITICAL LIFE

1) Politics

Early Lowell was controlled by Yankee executives and residents. In 1836 the mayoralty system was adopted. During the 1840's the politicians split into two factions: coroporation and anit-corporation.

2) Civic Leaders

Street names reflect some of the early civic leaders (pioneers in industry): Boott, Jackson, Moody, Appleton, Worthen, Tyler. Prominent men in politics at the time were: Judge Livermore (Chief Justice of the Supreme Court of New Hampshire who gave Belvidere its name), Governor John Nesmith, General Benjamin Butler (Governor of Massachusetts), Judge Josiah Abbott (a famous lawyer who married one of the Livermore daughters), and Gustavus Fox (Secretary of the Navy).

3) City Development

The city fathers accepted communal activities as humdrum occupations so they were not glorified architecturally. Street development did not begin until 1845 when the Locks & Canals Company put land on sale. From 1845-1865 there was a great amount of building and rebuilding activity.

4) Hospital

The corporation started the first industrial hospital in the United States at the spot where St. Joseph's is now located. It cost 10¢ a day for a bed in the hospital.

5) Fire Department

The Fire Department was established in 1829. At first the chain line was used (every man with a bucket). The alarm was sounded by the ringing of the church bells. Later a bell was hung in the police station and eventually moved to the fire station on Middle and Palmer Streets.

6) Library

The Lowell City Library was built in 1844 and cost 50¢ a year for dues.

7) Recreational Facilities

Beginning in 1844 the city provided recreational facilities:

Lucy Larcom Park (1844), North and South Commons (1845), Belvidere Park (1860), Shedd Park (1862), and Fort Hill Park which used to be a zoo (1866).

SOCIAL STRUCTURE

1) Classes

The city was organized from the beginning into five distinct classes:

1) An oligarchy of corporation executives under Boott's leadership;
2) A gentry of skilled employees (junior executives to foremen);
3) The mill hands (farm girls responsible for production);
4) The day laborers (the proletariat of Irish immigrants who dug the canals and etc.
5) The settlers (lawyers, iminsters, tradesmen).

2) The Mill Girls

The mill girls received better wages than most women received in other occupations and many were earning money to educate members of their family. The work was light and not tiring and the 12 hour day was not uncommon then. There were also social and literary advantages for the girls in Lowell and many of them were active in church meetings and social occasions. They taught in the Sunday Schools, went to lectures, the theater, had picnics at the river, and enjoyed the endless stream of visitors to Lowell.

Females outnumbered the males 3 to 1 since there were few jobs for men and it is reputed that a man named Mercer Bells heard about all the unattached females in Lowell and came for a visit to bring back 19 girls for the Oregon pioneers!

3) Irish Laborers

There were many foreigners in the city and visitors came from all over the world. The Irish immigrants first came in 1822 when they heard of jobs in the mills. They walked all the way to Lowell from Charlestown. Later they wrote their relatives in Ireland.

The Irish were forced to live in wooden shacks as no housing had been planned for them. After 1845 the competition between rival mills increased and the companies began exploiting the workers for their own prosperity. Working conditions began to deteriorate and the immigrant Irish girls eventually took the place of the Yankee girls in the mills.

4) Changes

The changes began after 1845. There were new executives, a growing competition and resulting exploitation of workers, and a growing resentment at subservience to the mills.

New struggles ensued between competing concerns and various groups:

1) Mill against mill
2) Town against town
3) Mill vs. town
4) Employers vs. employees

The large corporations attemtped to control every activity and institution. In the early davs there was a feeling of respectful equality between all of the workers (the foremen and operatives were often of the same class) and the employers were interested in the welfare of the girls. Lowell became a "purveyor town". That is, the people owed their existence to the presence of an institution and their existence was completely focused on the running and supplying of that institution. (Coolidge)

ARCHITECTURE

1) Corporation Housing

The Merrimack Manufacturing Company undertook to provide housing for the executives, skilled workers, and the mill hands. The dwellings were arranged in a compact group near the mills due to the long working days. They were well-constructed and well-maintained. The various types of accomodation were strictly segregated. Luxuries in housing were doled out in proportion to the recipient's importance.

2) Boardinghouses

The girls' boardinghouses housed at least 30 girls and there were usually eight or more boardinghouses to a single block. They were two and a half or three story buildings with usually six girls to a room. The girls paid $1.25 per week for room and board and were supervised by an older woman.

The best example of a preserved boardinghouse today is the one on Cabot Street. Lowell Day Nursery Building was built in 1823 by the Merrimack Manufacturing Company for the use of its agents. There is also the Yorick Club at 91 Dutton which is an example of a mill overseer's home.

3) Day Laborers' Housing

The housing of the day laborers (Irish immigrants) was not planned for and was a disgrace. They clustered about St. Patrick's Church in "New Dublin", about an acre of land to 500 Irish. The squalor had deepened considerably by 1850.

4) Mills

The factories were remarkable for their size and the manner in which they were grouped. They were also noted for the way the mill year was intergrated with the housing. The mills were five stories high and had water wheels in the basements.

The Boott Mill is the most interesting surviving example of the mill buildings. The courtyard still retains the basic character of the 19th century.

5) Private Residences and Inns

BUTLER HOUSE (333 Andover Street) built in 1843. This house was the home of a very prominent figure in national, state, and local history. Butler was a lawyer, statesman, and soldier who befriended the Negroes and millworkers. He led a one-man crusade against the mill corporation in the 1840's. He won infamy in the South for his brutal tactics against the populace and the Confederate Army during the Civil War. Later he was Governor of Massachusetts and also a United States Senator. He is reputed to have been one of the leaders of the impeachment movement against Andrew Johnson. He is buried in the Hildreth family cemetery.

STONE HOUSE (267 Pawtucket Street) built in 1825. It has been used as a tavern and a hotel. Presently it is owned by St. Joseph's Hospital and is known today as Bachand Hall. In the past it was also called the Ayer Home as it was owned and remodeled by James G. Ayer. Its original name was Coburn's Tavern and in 1826 a town meeting was held in the building at which the inhabitants accepted legislation incorporating Lowell as a town. It was built as a family hotel, the first hotel to be built in Lowell. Its location was very convenient and it was always crowded. Guests included visiting stockholders for the mills. Formerly there were long balconies facing the river from which visitors could enjoy a view of the rapids.

AYER HOUSE (corner of Pawtucket and School Streets) built in the mid 1800's. This was the home of Frederick Ayer and the site of Phineas Whiting's store and Wannalancet's wigwam. It is now known as the Franco-American School.

TYLER MANSION (16 Tyler Parkway) built around the 1840's. Nathan Tyler originally built a house near Merrimack Square from lumber obtained at the sawmill at Pawtucket Falls. Later he sold part of his estate to the Merrimack Company and built another house in Middlesex Village. It was one of the most distinguished houses in the Highlands during the mid-19th century. Tyler was a prominent man in the textile industry. He gave some of his land, opposite the house, for a park.

THE MANSE (282 Andover Street) built in 1845. This house was built by Rev. Edson and served from time to time as a residence of various mill agents. It is a good example of residential architecture during the early 1800's.

NESMITH HOUSE (216 Nesmith Street) was built in 1841.

WHISTLER HOUSE (243 Worthen Street) built in 1825 by Paul Moody. This house commemorates the birthplace of artist James Whistler who spent his first years in this house. It became the home of the Whistler family in the 1840's. At one time James B. Francis also lived here. Presently it is used as a museum and an art gallery and is owned by the Lowell Historical Society.

OLD WORTHEN TAVERN (141-147 Worthen Street) built in 1841 and used as a tavern and an inn. This has long been a place for social gatherings and at one time it had rooms for visitors. It is still a favored gathering place. It is an example of construction in the core area of Lowell in the mid-nineteenth century.

6) Other Buildings

OLD CITY HALL (Merrimack Street across from St. Anne's) built in 1830. The lower floor and cellar were designed to be rented out for commercial uses. The meetinghouse was on the second floor. In 1844 one of the stores on the first floor was eliminated and the space was made into the City School Library. Later it was used for a hotel. The old city hall was vacated in 1893 when the new city hall was built. Alterations have made the present appearance considerably different from that of 1830.

LOWELL DAY NURSERY (119 Hall Street) built in 1823. This is an example of a mill-agent's residence. It was built by the Merrimack Company for the use of the company's resident agents. It continued to be used by various mill agents for the company throughout the 19th and early 20th century. In 1945 the building was sold to the Lowell Day Nursery. The building retained its distinctive 19th century style.

YORICK CLUB (91 Dutton Street). This building is an example of a mill overseer's home. Later the Yorick Club, organized as a young men's social club in 1882, bought it.

HILDRETH BUILDING built in 1884 is the site of the Old Museum Building which was built in 1837 as a place of worship for the Freewill Baptist Society. Eventually it was converted into a theater, museum, lecture hall, and offices.

LOWELL CORPORATION HOSPITAL built in 1839 by the corporation is at the site of St. Joseph's Hospital. It was much spoken of by Charles Dickens during his visit to Lowell. It established a training school for nurses and opened an outpatient department. Operatives without means were treated free.

AN IMPRESSION OF LOWELL

In 1825 the editor of the Essex Gazette in Salem described Lowell

at that time:

"As we ascended the high grounds which lie on the side of the Merrimack, the beautiful valley which has been chosen for the site of manufacturing establishments opened upon our view. It is indeed a fairy scene. Here we beheld an extensive city, busy, noisy and thriving, with immense prospects of increasing extent and boundless wealth . . .

On the banks of the Merrimack are already three superb factories and two immense piles of brick buildings for calico-printing. In front of these, on the banks of the factory canal which is fences in and ornamented with a row of elms, are situated the houses of the people. They are handsomely and uniformly painted, with flower gardens in front, and separated by wide avenues.

There is a beautiful Gothic stone church opposite the dwelling-houses, and a parsonage of stone. . . There is a post office, fine taverns, one of which is a superb stone edifice with out-buildings of the same materials, and perhaps 200 houses all fresh from the hands of the workmen.

The ground is intersected with fine roads and good bridges. The whole seems like enchantment. About 300 persons, two-thirds of whom are females, young women from the neighboring towns, are employed. The women earn from a dollar to two dollars a week, according to skill.

We stood gazing at this fairy vision at the distance of a mile. The roar of the waterfalls is intermingled with the hum and buzz of machinery. There seemed to be a sone of triumph and exultation at the successful union of nature with the art of man. . ."

B. DECLINES OF THE MILLS (Post Civil War to Present)

After the Civil War the mills began to decline until the textile industry left Lowell. The railroad also lost its impact and trucking became more important. Social changes occurred with these economic changes. Most important was the heavy immigration of various ethnic groups to the city.

USE OF THE MERRIMACK

With the advent of electric power, the river was decreasingly used for power. The canals became an anachronism as far as power was concerned. Pollution of the river by the mills in particular has made it unusable for fishing and swimming. People living directly over the canals used them as garbage dumps. The Merrimack was used as a source of public water from 1870 to 1892. However, with the increasing pollution this had to be abandoned. In the 1880's the river was still used for sports, particularly boat racing.

CIVIL WAR

This period begins with the Civil War. Many men from Lowell fought in the war. Brigadier General Butler was the leader of four regiments. The first Lowell men to be killed were Ladd and Whitney and the monument near City Hall bears their names.

At the opening of the war the mills were closed down and the Yankee farm girls were forced to return home. This caused a break of 8 years in the economic life of Lowell.

DECLINING GROWTH

1855-1865	The population of Lowell declined for the first time.
1912	Population was over 100,000
1920-1930	Population declined by 12,000
1918	40,000 workers
1919	30,000 workers
1936	15,000 workers
1925	1,200,000 spindles and 26,000 looms
1936	250,000 spindles and 6,000 looms

Total value of manufactured products:

1918	Fifth of the cities in Massachusetts
1936	Ninth of the cities in Massachusetts

ECONOMY

The city's economy had expanded yearly until 1857 when the first recession hit. By 1900 the city was increasingly being controlled by stockholders outside the community. In 1911 three-fourths of the mill profits and one-tenth of the mill wages left the city.

During the mid-1920's Lowell finally began to pay the price of overdependence on one single industry. Mills began to close down and the textile industry migrated southward to lower wages. All of the mills either moved, closed down, or curtailed production.

In 1929 the stock market crash hit hard and there was economic instability for the next two decades. Employment within the textile industry plummeted to less than 10% of the 1924 peak. Then in 1936 the worst flood in Lowell's history hit the city. During the war years the existing industries were converted to war production. The city's economy has been stabilizing over the last thirty years.

REASONS FOR DECLINE

1) Environmental Features

The environmental features of Lowell came to assume less importance. The advantages that Lowell once had lost their significance. Natural power was replaced by modern electrical power and thus the chief location factor became not the source of energy but the transportation facilities. Lowell's inland position became a problem. Transportation developed elsewhere and the use of trucking detracted from Lowell's being at the rail foci.

2) Labor and Working Conditions

The competition that forced executives to economize also created worsened working conditions. The New England farm girls gradually left and their places were taken by the immigrant girls. This heralded the beginning of ethnic problems for Lowell. Also labor costs controlled efficiency and New England textile towns could not compete with the Southern mills and their lower standard of living.

3) Change in Management

After the Civil War there was also a revolution in management and new principles of administration were adopted. For the first 20 years Lowell was guided by a profitable paternalism. But after 1845 and especially after the Civil War Lowell fell to new agents and nepotistic mismanagement.

4) Breakdown of Utopian Community

The breakdown of the utopian community was prompted by the decline and collapse of the cotton industry, a fate which usually overtakes this kind of "purveyor town" community. The cycle had run thus:

1) The mills built the town and completely controlled it.
2) The citizenry became enlarged so that it was impossible to rule them directly.
3) The mills ceased to progress but the town had reached such a size that it "snowballed".
4) The town was upset by the decline of the mills.
5) The citizens now became "Scavengers" of the institution that nurtured them.

Lowell became divided into hostile groups. There was a deep cleavage between the citizens and the Corporation and the citizens permitted both the decay of the social system and the destruction of housing. (Coolidge)

IMMIGRATION PROBLEMS

After the Civil War the Irish replaced the Yankee girls in the mills. Eventually the Irish were replaced by the French Canadians who were in turn replaced by the Greeks. These waves of immigrants created racial, religious, and linguistic problems for the city. Often the ethnic groups wanted to live in separate communities and the French Canadians in particular refused to mix in the boardinghouses. They demanded separate boardinghouses. Eventually the company fathers lost patience in dealing with the national feuds and international riots and sold the company housing.

ETHNIC HISTORY

Irish

The first foreign colony in Lowell came from Ireland or the "Emerald Isle" in 1822. These Irish pioneers lived in "shanties" with no chimneys except pieces of stove pipe. They stood on the "Acre" and "Half-Acre" and were sometimes called "Paddy Camp Grounds". Some shared their shanties with their animals. Pigs were kept in the rear. Dennis Crowley is remembered as the first Irishman to apply whitewash to his shanty and Timothy Ford was the first to build for himself a framehouse. By 1930 those of Irish birth and parentage made up one-sixth of the population.

British

The British-born population came mainly from Renfrewshire in Scotland and Lancashire and Gloucestershire in England.

In 1825 the Merrimack Company was required to employ skilled artisans of Manchester in printing their calicos. They obtained John Prince in 1826 as the superintendent of the Print Works. He demanded a $5,000 a year salary and got it. Soon other men from Lancashire followed and were employed almost exclusively in the Print Works (designing, engraving, and printing). Prince was superintendent until 1855 and received Mrs. Trollope when she visited Lowell. Congressman Greenhalge was also a native of Lancashire.

The manufacture of ingrain carpets was introduced in Medway before Lowell and the men who introduced this were natives of Renfrewshire. All the early managers and overseers of the carpet company were from Renfrewshire and called "Paisley Men".

The Gloucestershire immigration dates from 1837. These men were engaged by the Middlesex Company. John Pitt, a son of the famous William Pitt, Prime Minister of Great Britain during the wars of Napoleon, settled in Lowell.

French Canadians

1) Immigration

Louis Bergeron was the first French Canadian to come to Lowell in 1841. By 1852 there were 8 more. Several lived in the boardinghouse on Middlesex Street. By 1860 there were 15 more. Louis Bergeron was a blacksmith and the others were mainly carpenters. The frist French Canadians were engaged in construction work and worked mainly on the canal. The first French Canadian doctor, Dr. Mighault, came in 1859. Between 1840 and 1850 the immigrants who came were the "pioneers". More followed in 1850-1860.

The first wave of French Canadian immigration ceased with the Civil War in 1861. Ten Canadians took part in the war. Prosperity returned in 1869. The population had been reduced by the war and now the corporations were wild for labor.

Mill agents from Lowell were all over Canada trying to induce French Canadians to come. The agents gave descriptions of the good salaries and the good life in Lowell. During the 1860's salaries in Canada were very low (day laborers were paid 25¢ a day) and everyone discussed the prosperity of the United States. Also old rural Quebec was becoming staturated -- the land could not sustain the large families and there was not enough work (machinery had replaced men). There were also the tariff policies of Canada which limited the market of Canadian farmers. Canadian industries were developing irregularly. All this led to "U.S. fever" or the "American illness".

There was massive immigration from Quebec in 1870. The Canadian parishes were depopulated. Emigration came by the car loads. In one month during 1868, 2,300 immigrants coming to New England factories crossed over the St. Alban, Vermont border. Most did not speak English.

2) The Parish

The ideal of the French community is to maintain the customs. First comes the church, then the school, then the cemetery, bank, hospital, orphanage, literary and cultural clubs.

The parish in Canada had always played a unique role. The parish belonged to the people and it embodied the aspirations of the French Canadians. It was decided in 1866 to found a parish in Lowell, but it did not work out. In 1866-68 the Canadian population of the dioces had doubled. The Bishop of Burlington, Vermont urged the establishment of a parish.

Finally in 1868 two priests arrived to found the church. The cost of the church which was bought on Lee Street (St. Joseph's) was $11,500. The people were very poor -- most worked in the mills. But in two or three weeks the priests had raised $6,000 for the church. Money was raised by renting pew seats by the year. The first celebration was held in 1868.

3) Societies

Two French Canadian societies were founded in 1868, the St. John the Baptist Society for benevolent work and the Canadian French Institute of Lowell (1868-69) which was a literary and political association to preserve French. It had a reading room and a night school where they taught French. However, the Institute lasted only a year.

In 1868 there was a society founded to work for the independence of Canada. Also in that year a mutual insurance association was founded plus sports clubs and reading rooms. In 1871 the second mutual insurance association was founded, St. Joseph's Union, which can still be seen on Dutton Street.

4) Cultural Activities

St. Joseph's Church was the pivot of all activities. Here new arrivals met with employees on the church steps on Sunday. The pastor also used the church as a post office as no one in the city post office could read French.

St. Joseph's held celebrations and plays in the cellar. The first French play was given in 1870. In 1873 the convention of French Canadians was held in Lowell and people came from all over New

England. There was a parade with 1,500 persons and a patriotic fervor which united the Canadians. A French play in 1881 had 1,000 spectators. A library in the boys's school had 300 volumes.

The first newspaper, "L'abeille", was founded in 1881. It became the first French Canadian dialy in the United States. There were 12 different newspapers over the years.

5) Education

In 1875 the priest gave French lessons in the cellar of the church. In 1876 a night school was organized in the cellar. In 1881 the city opened French evening classes at the Common Street School and 400 children turned up. The classes employed 30 French teachers per year.

Finally the parish French school was opened in 1883 which took boys up to 12 years of age. It was the first French parochial school in the Archdiocese of Boston. Another grammar school for boys was built on Merrimack Street in 1892 so the school on Moody Street became a school for girls. In 1891 there were 1,200 children in the parish schools and 1,043 in the public schools.

The French were very interested in elementary education but not in higher education (as opposed to the Greeks). They were essentially a working population and the children were sent off to work when they were of high school age in order to help support the large families.

6) The Anglicazation Movement

In 1877 the anglicazation movement began. The French Protestant Church was established in Lowell with about 200-300 people. It died out in 1910 because it blended in with the other Protestant churches and because the French members didn't feel part of the French community -- they couldn't belong to all the French societies and clubs because they weren't Catholic. Also the church had no school connected with it. The French Protestants also started a college in Lowell. It was later moved to Springfield where it is known today as the American International College.

7) Life in 1872

In 1872 the parish census indicated that there was a French Canadian population of about 3,700. An apartment for a family cost $8 a month and a pound of salt pork cost 11¢. A day laborer made $1.75 per day and a ten year old girl could earn $3.25 per week in the mills. Play tickets were 25¢. Immigration began to stabilize. Children of ten and eleven worked in the mills so there were entire French Canadian families working in the mills.

8) French Canadian Workers

Strikes were not frequent among the French Canadains. The mill agents liked the French Canadains because they were a conservative, docile labor force. They were largely a farm population and their clergy who kept them in tow were also conservative and believed in the "sanctity of work". The French Canadians were good workers. Work was abundant and life was relatively easy in comparison with farm life.

9) French Enter Lowell Life

The first wave of immigrants wanted to go back to Quebec, but by the 1880's the French Canadians were in Lowell to stay and were not interested in moving back to Canada. Immigration was strong until 1910. It reached its peak in 1895 with 20,000 becoming permanent residents. In 1881 232 French Canadians had succeeded in becoming nationalized (134 were in business or industry, 7 in municipal government, 83 taxpayers, and 6 mill overseers). In 1893 there were 2 lawyers, 22 doctors, 5 dentists, 1 veterinarain, 3 justices of the peace, 3 councillors, and 1,065 naturalized citizens among the French Canadian population. By 1930 people of Canadian birth and parentage made up one-fourth of the Lowell population.

Around 1876 the first French councilman was elected. French Canadians in Lowell are mostly Republican and are active in politics. The second city mayor was French. However, they are not as active today due to Plan E (majority instead of proportional representation).

10) Little Canada

Little Canada was established on empty land. In 1875 Samuel Marin had built the first block in Little Canada on Aiken Street. In 1881 there were a half-dozen houses there. The settlement spread to Moody Street and to Merrimack Street over to Mount Washington.

The majority of the population is now on the other side of Merrimack (to Fletcher Street). The church on Lee Street (now called St. Joseph's Shrine) is still there. Later the church on Merrimack was built which cost $205,000. Relationships with the Yankee population have been good although there has been some strain with the Irish.

11) Contributions

Culturally speaking, Jack Kerouac has been the most important French Canadian contribution. There was also Yvonne Lemaitre from Lowell who was a correspondent for the Courier Citizen in Paris and later wrote for the New Yorker. There have been

four published poets and several novelists. The author of the music for the Canadian national anthem, Claixa Lavallee, lived in Lowell for a number of years. There was also a family, the Champagnes, who published sheet music and were very big. They also had an outlet in Montreal.

The biggest contribution of the French Canadains, perhpas, has been their labor in the mills. Without them the city could not have expanded and prospered as it did. (Santerre)

Greeks

1) Immigration

The first Greeks came to Lowell in 1848. By 1864 there were a total of 77 Greeks in Lowell. By 1900 there were perhaps 1,800 Greeks. Nearly 350 of them were under 21 years of age. Most of them lived on Market and Suffolk Street and worked in the mills. The majority of these Greeks came from Mani or Laconia. By 1910 the Greeks and Albanians formed a compact little town along Market Street.

The causes of the exodus from Greece were:

1) The cost of living in Greece began about 1890 to mount rapidly while wages and salaries were very low.
2) The outlets of Rumania and Bulgaria to Greek labor closed due to increasing hostility.
3) The multiplication of ocean traders and the competition between the English, German and Italian lines to fill the boats helped the Greeks to cross to America.
4) The Greeks are born traders and fond of acquisition. (Coburn)

The coming of the Greeks in large numbers dates from the depression of 1893. They went to work in the mills and worked for less money than the other operatives, such as $4 a week. They were sturdy and reliable and the overseers asked them to bring over other Greeks. In 1894 there were 130 Greeks employes at the Lawrence Corporation and a few at work in Tremont and Suffolk Mills.

There was sometimes an exploitation of newcomers. Greeks who knew English were paid $10 by an overseer for each Greek secured. But these Greeks charged others $25 for obtaining work. It was later discovered what was going on and the system was broken up.

In 1897 war broke out between Greece and Turkey and 200 to 300 Greeks went back to fight. Later they came back to Lowell, bringing their fellow villagers. Up to 1897 the immigration had mostly come from Man. and Sparta but in 1898 they began to come from Thessalia, Macedonia, Epiros, and Albania.

In the beginning very few thought they were going to reamin in

America. Acutally only a few went back to Greece although quite a sizeable number did move out of Lowell to other American cities.

The peak period of immigration was in 1910-1920 when 25,000 Greeks came. Greeks came in large numbers during the 1900 strike at the Merrimack mills and provided cheap labor. Since World War II, 5,000 Greeks have come and most live within the radius of a mile from the church. Immigration comes from all over Greece and the islands, particularly Lesbos, Grete, Samos, and Mykonos.

2) The Church

The Orthodox Community began in 1893. In 1895 a society was formed with Michael Iatros as President. Rev. Kallinikos Delveis was called from New York as pastor. The history of the Greeks in Lowell really starts with the history of the Greek Orthodox Church.

The Holy Trinity Church was built in 1906. Of course, at that time, there were no Greek architects in Lowell, but the people still wanted a Byzantine church. So they hired an Irish architect from Lowell named Henry Rourke and sent him to Istanbul to study St. Sophia and to become a "Byzantine architect". The church that he built is almost a replica of St. Sophia. The gilded domes alone cost $3,000 and a German artist painted the ikons for $1,000.

3) Education

The first day Greek-American school in the United States was established in 1909 in Lowell. It was first called the Greek Parochial School and later changed to the Hellenic American School. Half of the curriculum was in Greek and half in English. English was taught by Irish teachers. The school took care of the first five years of schooling.

Greek children did very well in school. They were highly motivated and tried hard, and their families were interested in their children receiving a good education. The public schools were delighted to get the Greek children and therefore a good relationship developed between the school systems.

4) Cultural Activities

There have been two or three Greek newspapers in Lowell. There are none at present as Greek weeklys are available from Boston. The GOYA (Greek Orthodox Youth of America) group is still active. Other church-oriented groups were also founded, some that originated in Greece such as the Pan-Laconiac Society and the Macedonian Society.

5) Life in the Early 1900's

Most of the Greek immigrants were unskilled laborers and farmers.

Most came from peasant villages. About 10% were skilled laborers in 1912 and 30% were illiterate. There were more Greeks at work in the factories of Lowell than in any other city of the country. In fact, the Greek colony of Lowell is the most exclusive and distinctly Greek settlement in the United States.

In the early 1900's almost every store on Market Street was operated by a Greek. Greek life was virtually reproduced here with small grocery stores, restaurants, smoky coffeehouses, playing cards, etc. In 1912 the list of Greek businesses and professions was: 7 restaurants, 20 coffeehouses, 12 barbershops, 2 drugstores, 6 fruit stores, 8 shoeshing parlors, 1 drygoods store, 4 ticket agencies, 7 bakeries, 4 candy stores, 22 grocery stores, 5 coal and wood dealers, 8 truckmen, 1 pool room, 1 flavoring extract factory, 1 wholesale meat dealer, 4 physicians, 1 priest, 2 Protestant ministers, 3 milkmen, 5 farms, 200 farm laborers, 10 real estate owners, 1 real estate broker, 2 bankers, and 3 teachers. (Kenngott)

6) Civil War

In the 1920's there was a violent civil war within the Greek community and the church was divided by a tremendous schism. There were mainly two causes for this war:

1) In the 1920's the monarchy in Greece was supplanted by Venezilos or the Republican government. Greeks in Lowell became split down the middle over politics in Greece -- i.e., Royalists vs. Populists.

2) A certain bishop came to Lowell and set up an empire which virtually split the community.

The Transifguration and St. George's Churches are products of this war. (Jarvis)

7) Greeks Enter Lowell Life

After 1925 the Greeks began to move out of the Acre although there were still Greeks coming in all the time to replenish them. In the 1930's the Greeks began to become more significant in the political life of Lowell. Up until the 1930's the Yankees had controlled politics, along with a couple of French Canadians. During the 30's and 40's George Eliades was the first elected Greek councilman and later he became mayor.

While the first generation Greeks were peasants and unskilled laborers, the second generation became professionals. After the Depression and the War, Greeks really began to assert themselves professionally and politically.

After leaving the Acre, Greeks moved to Belvidere, the Highlands, Pawtucketville, and the suburbs. The new tides moved in to the

Acre area around Market, Drummer, Broadway, and Suffolk Streets. The churhc helped them to keep their identity and their culture.

8) Contributions

There was a famous Greek doctor from Lowell who worked with Dr. Dooley in Asia. Also James Demotropoulos, an artist in Boston, was born in Lowell.

The Greek contribution to Lowell has been their sense of determination and their vigor. They wanted to do well and become good Americans. They also have a flair for business and professional excellence. In the mills they worked very hard in order to support their families and so contributed to Lowell's growth and prosperity. (Jarvis)

Portuguese

The Portuguese population is mainly from the Azores and the Cape Verde Islands, few having come from Portugal itself. There were two distinct classes of immigrants:

1) Those from the Westward Islands who were of Caucasian block and closely allied to portugal in language, customs, and religion,
2) And those from Cape Verde Islands who were known as "Bravas" (many came from Brava Island) and who were Black with little Portuguese block, speaking Creole.

The Portuguese began to come around 1900 in large numbers and they worked largely in the mills. In 1912 they had acquired about $200,000 worth of real estate in the city and they built a large church and parish house on Central Street. In 1916 there were 3,000 Portuguese living in Lowell.

Other Ethnic Groups

Others also came. In 1916 there were 3,000 Russians (including Poles, Lithuanians, and Finns) living on the river front in Centralville, north of Bridge Street. There was also a small Scandanavain population. More recently there has been a large immigration of Spanish-speaking peoples, particularly Puerto Ricans.

Dramatic changes, therefore, in the ethnic composition of the city occurred in the late 1800's. By 1900 the foreign population was growing and included a large element of unskilled, illiterate, and non-English speaking people.

Figures for the Hamilton Manufacturing Company show the increase:

1844-46 There were 92.13% U.S.-born and 8.8% foreign-born
1854-56 There were 47.47% U.S.-born and 52.53% foreign-born

In 1912 out of a population of 100,000, 40% were non-English speaking. By 1930 the central and northern parts of the city were dominantly foreign and 73% of the population were either foreign-born or of foreign parentage. (Kenngott)

SOCIAL AND LABOR CONDITIONS

Housing Conditions

Originally conditions for the operatives and workers were good but in time they deteriorated. The company housing had been model housing because it was comprehensive in conception, efficient and functional. Also, housing was considered to be a right for all and not a reward.

However, some men began moving away from corporation housing when they had money to live elsewhere. They didn't want to be close to the mills and its supervision. With the advent of ethnic problems, tenements began to let to outsiders and the character of the boardinghouses changed as a result. Ethnic groups wanted separate housing and with the growth of the city it was easier to find private houses.

The boardinghouses became overcrowded and the well-to-do mill agents moved away to Belvidere. With the decline of corporate paternalism came to delcine of the boardinghouse system. Then came haphazard housing developments and tenements. By the 1880's Lowell had sever potential ghettos which the bourgeoisie exploited. The city felt no responsibility to preserve the housing when the manufacturing companies went out of business and so much of the housing was torn down.

Since 1900 almost all of the boardinghouses and tenement houses were sold and the rents doubled and trebled. The former tenants who were largely American have been supplanted by foreigners, two or three families or more crowding in where one family used to live. The houses were not kept up by the corporations.

The corporation houses were well-built and usually of brick, and for a long time were practically the only brick dwellings in the city. In 1908 94% of the buildings in the city were of wood and the danger of fire, especially in the crowded tenements of French Canada, the Greeks and the Portuguese, was great.

The Acre was established in 1833: "In the suburbs of Lowell,

near the canal, is a settlement called New Dublin, which occupies upwards of an arcre of ground. It contains not far from 500 Irish people, and about 100 cabins, from seven to ten feet high, built of slabs and rough boards, a fireplace made of stones in one end, topped out with several flour barrels or lime casks. . ." Since the Irish first occupied the Acre other immigrant groups have come in to replace them.

Health and Sanitary Conditions

In general the sanitary conditions in the mills were good although some did not have modern conveniences and improvements. In 1912 the situation of the average mill family was thus: The men worked largely in the mills, earning less than $9 a week for 56 hours of work, were fairly well-nourished, but often overcrowded where families numbered more than 4 members in congested districts. They had few comforts of life and a small chance of saving anything for times of sickness or unemployment.

In 1882 the tenements of Little Canada were said to be the densest population in the United States except for Ward 4 of New York. Such tenements were hotbeds of disease, especially in the summer. The highest death rates were in the Acre and in Little Canada.

There was widespread tuberculosis among the Greeks who had badly built housing in terms of heating and ventilation. In 1905 an anti-TB campaign among the Greeks was started by young physicians in the city. There was a smallpox epidemic in 1871. The first case was that of a child in an immigrant family who had come to Lowell in 1870. The epidemic caused 164 deaths of which 115 were among the Irish. In 1890 there were 123 deaths from typhoid -- Concord, Manchester, and Nashua all emptied their sewage into the Merrimack, and Lowell drank it. The Cook wells were sunk in 1893 and hydraulic wells in 1894. Typhoid deaths fell to only 11 in 1909.

A survey of health statistics of Lowell from 1850 to 1912 shows:

1) The high rate of mortality from pulmonary diseases, especially tuberculosis.
2) The excessive mortality among infants.
3) The high death rat from diseases caused by some form of fermentation germ, which are classed as preventable diseases.

The Board of Health was established in 1877. (Kenngott)

Strikes and Lockouts

1) The strikes of 1834 and 1836

The history of strikes and lockouts in Lowell shows that there have been comparatively few serious labor troubles. The first

strike on record was in 1834 caused by the announcement of a 15% reduction in wages. There was a speech on the rights of women which 800-2000 girls attended. Most later returned to work and a few of the ringleaders were refused entrance in the mills. The women strikers were generally criticized by the papers as the wages, even when reduced, were more than girls could get in any other occupation in New England.

The second strike occurred in 1836 and was the first time that a woman spoke in public. This strike was against an increase in board. The Factory Girls Association had 2,500 members and it adopted resolutions that it would not receive communication from the manufacturers except through the officers of the union. Before the end of the month the girls were defeated and returned to work.

2) Shorter Hours

The desire for shorter hours showed itself as early as 1840 when a body of factory operatives presented their demands to the corporations for a shorter workday. This request was unheeded. By 1851 the ten-hour day was the rule in the building trades although certain contractors refused to heed it. The working day was gradually shortened and by 1874 the ten-hour day was a reality.

3) Other Strikes

Since the first industrial disturbance in 1834 there have been 131 strikes and 5 lockouts (that is, up to 1912). In the period 1830-1879 there were only 9 strikes while over 100 strikes have occurred between 1879 and 1912. Of the 100 strikes, only three or four were serious. There has been only one general strike affecting nearly all of the mills (in 1903 for a 10% increase of wages) which failed after nearly nine weeks. (Information after 1912 was not available).

The textile corporations have been remarkably free from labor disputes as to wages, hours, or general conditions. Most of these disputes were rather recent and due to new immigrants. Of the strikes in Lowell, prior to 1912, one-fifth have been won by the employees, one-fifth have been amicably settled, and three-fifths have been lost. Though employees lost most of the single contests, they won the battle for shorter hours and the recognition of trade-unions.

4) Female Labor Reform Associations

The period of 1840-1860 was known as the age of lofty enthusiasm and humanitarianism. It was the age of social reform and trade unionism began to get a foothold. Closely connected with the efforts of the mill girls to improve conditons through strikes was the development of female labor reform associations. They drew their membership from the mill girls and Lowell became the center for their organization activity.

In 1845 the Lowell Female Labor Reform Association was established. It came into existence as a result of the agitation for shorter hours and higher wages that accompanied the strikes of the mill girls in the 40's. Miss Sarah Bagley, who worked for 10 years in the mills, was elected president of the association. The membership in Lowell was 450.

Early in 1845 Miss Bagley and others had gone before the Massachusetts Legislative Committee and testified as to the conditions in the mills. This was the first American governmental investigation of labor conditions, and it was due almost solely to the petitions of the working women. Their complaints were long hours, insufficient time for meals, and bad air.

The union continued a systematic effort to influence public opinion in favor of the mill girls. By newspaper articles, by "factory tracts", and by public speeches they extended their propaganda work to other parts of New England. About 1845 the women of the Lowell union purchased the press and type of the Voice of Industry, a leading New England labor weekly, and continued the paper in the interests of labor reform.

In 1846 a gathering at City Hall was held with speakers, a band, and refreshemtns. The proceeds went to the cause of labor reform. They also held a "May Party" which was very successful. An Industrial Refrom Lyceum was established which secrued the best speakers in the country on subjects dealing with the labor reform movement.

In 1847 the association changed its name to the Lowell Female Industrial Reform and Mutual Aid Society. There was an initiation fee of 50¢ and weekly dues of 6¢ and a sick fund of $2-5 per week if one was ill. Later the association expanded to all New England towns.

SOCIAL AND CIVIC INSTITUTIONS AND ASSOCIATIONS

In 1912 there were 71 churches and denominational missions, 3 hospitals, 3 orphanages, the Old Ladies Home, the YMCA and YWCA, the Lowell Art Associations, ten French, eight Greek and three Portuguese societies, and 40 clubs. There were 41 labor organizations and 143 secret and fraternal orders. (Kenngott)

1) Hospitals

In 1912 the corporations were still supporting the Lowell Hospital which was founded in 1839 by the corporations. None were refused because of inability to pay. for 27 years it was the only hospital in Lowell and it did not confine itself to corporation cases. Charles Dickens spoke of this hospital in his American Notes with much praise. The hospital established a training school for nurses and opened an outpatient department.

In 1863 the Sodality of the Holy Family in conjunction with St. Patrick's Church established a hospital in the Gedney house. The idea of a larger hospital evolved and it became St. John's Hospital with the purchase of the Livermore land and Old Yellow House in 1867.

2) Clubs and Associations

The Ministry at Large was incorporated in 1879 and helps needy families. It carried on special works and classes of relief and education. The evening school system was originated here, with classes offered in cookery, millinery, dressmaking, citizenship, fencing, dancing, debating, lectures on hygiene, and social and industrial economics.

The Lowell Boys' Club was organized in 1902, its mission being to keep the street boys out of reform schools and prisons. It established a game room, cobbling and carpentry courses, and athletics and manual training.

The Vesper Country Club is a union of the Vesper Boat Club (1875) and the Lowell Country Club (1892) in 1899. From 1875-1885 the clubhouse was one of the most active centers of awuatic interest in New England. At first the interest was in rowing. Then about 1881 it changed to canoeing, with bowling in the winter and bicycling in the summer.

The Yorick Club was organized as a young mens' social club in 1882 for the purpose of maintaining a clubhouse and a reading room.

The Middlesex North Agricultural Society was incorporated in 1855 to stimulate an interest in agricultural pursuits. It held annual agricultural fairs at the old fairgroudns on Gorham Street until 1906 when it moved elsewhere. In Civil War times the grounds was a military camp for assembling regiments, known as Camp Wilson and Camp Chase.

The YMCA began in 1867 and occupied Barristers Hall until 1889 when it moved to Hurd Street. Attendance was from 150 to 200 daily and there were evening educational classes and a series of lectures, concerts, and social entertainments.

The People's Club was opened in 1872 with reading rooms and lectures which were free to all. In 1878 a department for women was organized with classes in sewing, dressmaking, and milinery. Thousands visited the rooms each year.

3) The Middlesex Mechanics Association

The Middlesex Mechanics Association received its charter in 1825. In its original constitution and purpose it was an exact copy of the organization founded by Paul Revere. It was

primarily a trade guild and its early meetings were held at the tavern. Membership was limited to mechanics (painters, printers, tailors, masons, and macninists were among its charter members).

In 1835 agents, overseers, and mill hands were admitted and the trade guild functions became obsolete. Now the main function was the education of mechanics and mill operatives via a library, laboratory, and lectures. Prominent members were Warren Colburn and Theodore Edson. Mechanics Hall built on Dutton Street in 1835 was the "pet" of the corporations. Its accumulation of books in its library was one of the finest in the country.

In 1851 the association admitted all citizens to membership and the library became more literary and popular and less scientific. Its lectures began the famous Lyceum (an early course was given by Emerson with 6 lectures on Representative Men). The library had 25,000 volumes. Mechanics' fairs were held in 1851, 1857, and 1867. Later the things it did were better done by other agencies and it closed in 1896.

4) Churches

In 1912 there were 70 churches in Lowell, 50 of them non-Catholic for one-fourth of the populations, and the other 18 (Roman Catholic, Greek Orthodox, and Jewish) for the remaining three-fourths of the populations. There was a movement in the early part of 1911 for a federation of churches. About half of the Protestant churches elected delegates but the Catholics, Greeks, and Jews, who formed over half of the population, declined to unite with the Protestants in any movement.

The First Unitarian Church was organized in the old Stone Tavern on Pawtucket Street in 1829. The Sunday School began in 1830. Holly Tree Inn was established "to encourage temperance by offering hot coffee and pure milk at such prices that the poorest laboring man and woman could afford to buy them." They did manage to lessen the sales of liquor in the community. The Committee on Culture gave lectures, concerts, and readings.

5) Recreation

In 1912 there were 40 different recreational clubs, besides the many literary and travel clubs. There were 13 theaters, 32 billiard and pool rooms, 6 public bowling alleys, 25 Greek coffeehouses, 94 saloons and 28 parks including the playgrounds with two popular resorts (Lakeview on Lake Mascuppic and Canobie Lake) plus the two rivers for rowing, canoeing, and skating.

The 28 parks and playgrounds covered about 140 acres, most of them

covering only a few feet as "squares". Only 9 covered more than one acre and there were only two permanent parks (North and South Commons). The first municipal playground was laid out on the South Common in 1905 and was designed for young children.

The South Common was the most centrally located park and the most popular. It became the open-air auditorium for public gatherings and for meetings of socialists, temperance reformers and religious teachers. On the 4th of July it was converted into a midway with pink lemonade and peanut stands, restaurants, sideshows, snakecharmers, fortune tellers and ferris wheels. Attendance was large -- about 40,000 to 50,000.

The Boulevard along the Merrimack River in Pawtucketville was used for automobile races on Labor Day. They began in 1908 and consisted of three days of auto and cycle races, athletic contest, and banks strewn with people and concession stands. Fees were charged. The city of Lowell, in comparison to the average for the state, was not spending very much on health and sanitation, libraries, or recreation. (1912 figures from Kenngott)

6) Civic Improvements

The new City Hall and the City Library were both built in 1893. In 1877 Alexander Bell demonstrated the workings of the telephone in Huntington Hall. By 1878 eighty people owned a phone with fifteen people to a line.

TRANSPORTATION

Lowell Horse Railway started during the Civil War years. The first line began at Pawtucket Bridge, the second at Merrimack Square, the third at Middlesex Street, and the fourth ran up Westford and Chelmsford Streets. The Department of Public Works currently occupies the old horse barns.

In 1899 the first trolley cars were introduced in Lowell.

EDUCATION

1) Grammar Schools

From 1882 to 1885 three new grammar schools were built. Two older ones, Franklin and Mann, were discontinued. In 1882 Highland Grammar School was built. In 1883 Butler School was established and in 1884 the Pawtucket School. There were music teachers as early as 1849 and also writing masters.

2) 1899 Statistics

In 1894 Lowell built a new high school. In 1899 there was one high school, 9 grammar schools, 33 primary schools, one training school, 12 kindergardens, 273 teachers, 266 schoolrooms, and evening schools in the winter months with 152 teachers.

3) Evening Schools

Previous to 1855 the free evening schools were maintained by the Lowell Missionary Association. In 1855 they were brought under the supervision of the school committee. Day school rooms were opened for the evening schools and attendance increased. In 1872 three evening classes in drawing were formed, one in free-hand, one in architectural, and one in machine-drawing. A training school for the instruction of candidates in teaching was established.

4) Rogers Hall School

Zadock Rogers had purchased part of the Madame Winthrop land grant in 1805. In 1892 his daughter, Elizabeth Rogers, named a corporation, "Rogers Hall", and gave about an acre of land with the mansion built by her father in 1837 for a "private school for young ladies". The school was open to any religious sect or nationality and was the first all girls boarding school in the region. Girls graduating from Rogers Hall were admitted to the leading colleges for women. The school is located on Rogers Street.

5) Lowell State College

Lowell State College opened in 1897 under the name, The Normal School. Its first principal was Frank Coburn, former master of the Lowell High School.

6) Lowell Technological Institute

In 1890 the mills of Lowell were flourishing. The earlier system of employing girls to operate the machinery had passed due to technological changes and a flooded market of unemployed immigrants. The technological changes required a more sophisticated knowledge of the mill machinery and operations. Mill owners began a move in 1891 to establish a school designed to train people in the textile processes. The school was chartered in 1895 as the Lowell Textile School. It was the first school on this continent devoted exclusively to textile education and the largest of its kind in the world.

If offered instruction in the textile processes and had a cotton department, woolen and worsted department, weaving department, department of design, decorative art, and a department of mechanics.

It is now known as Lowell Technological Institute and offers

instruction in engineering, electronics, leather, paper, and plastics.

LITERARY ASSOCIATIONS

Robert Frost grew up in Lawrence and wrote about the Merrimack River.

Jack Kerouac was bron and raised in Lowell and wrote a book called The Town and the City which used Kerouac's hometown as a locale for the first half of the book.

The book vacillates between the beauty surrounding Lowell and the ugliness within it. There are many vivid descriptions of the river, the woods, and the fields, all boyhood delights. It was the fact that the mills and the businesses were surrounded by the forests and the river that made Lowell, in Kerouac's eyes a town and not a city. It was a town that was "rooted in earth in the ancient pulse of life and work and death."

When the boys grow up they see Lowell with different eyes. Most of them want to escape and get away from the town: "I've been working so hard and so long to get out of those mills and this damn town..." One of the teenagers sepcifically resents the "crude ugliness of the milltown and the ribaldry and coarseness of the people within it." Times are difficult (the book is set in the late 1930's and 1940's) and there is a depressed mood in the town. Kerouac alludes to ethnic fights and rivalry among children and teenagers. Moody Street is full of bars and carousing and the tenements are grimly depicted.

Still, Kerouac says that the town is unusual and has its own beauty: "The view from the Moody Street bridge is very beautiful. People park their cars on the bridge on Sunday afternoons, people from New Hampshire and Connecticut and Maine, just to watch the river. . ."

WORKING BIBLIOGRAPHY & RESOURCES ON LOWELL HISTORY

B O O K S

Allen, Wilkes. The History of Chelmsford. Good section on the Indians and early settlers of the Lowell area.

Bradlee, Francis. The Lowell Railroad. Complete history of railorads in Lowell. Edward Larter has a copy.

Browne, G.W. The River of Broken Waters. Includes information on the legends and history of the Merrimack River.

Changes in Lowell. Interesting information but brief. See the First Floor History Room in the Lowell Public Library.

Chevalier, Michael. Society, Manners and Politics in the U. S.

Clarke, Mary Stetson. Limner's Daughter. Children's book about the Middlesex Canal and Colonel Baldwin.

Coburn, F. W. History of Lowell and its People. 3 vols. One of the major sources on Lowell history.

Coolidge, J. Mill and Mansion. Excellent source on mills and economic background.

Courier Citizen Company. Illustrated History of Lowell.

Cowley, Charles. Illustrated History of Lowell. Another major source on Lowell history.

_____. Memories of the Indians and Pioneers of the Region of Lowell. 1862. Invaluable source on the Indian period. See First Floor History Room in the Lowell Public Library.

DeTocqueville, A. Democracy in America.

Dickens, Charles. American Notes. Interesting observations on Lowell from Dickens' famous visit.

Eddy, Caleb. Historical Sketch of the Middlesex Canal. (pamphlet) Boston, 1843.

Theodore Edson Diaries. See Lowell Historical Society.

Eliot, John. Brief Narratives. Describes Eliot's work with the Indians.

Ellis, George. The Lowell Book. Boston, 1899. Excellent photos and sketches. Edward Larter has a copy.

Factoires and their Female Operatives. Insights into the mill girls' life. Joseph Kopycinski has a copy.

Forbes, Allan. Other Indian Events of New England.

Francis, J. B. Lowell Hydraulic Experiments.

_____. Measurement of the Water Power Used by the Manufacturing Comapnies of Lowell. Edward Larter has a copy.

Gleanings from the Merrimac Valley. Contains poetry and essays. Joseph Kopycinski has a copy.

Griffin, Sara. Little Stories About Lowell. Butterfield, Lowell: 1913.

_____. Quaint Bits of Lowell History. Both this book and the above contain interesting material on Lowell and can be found in the First Floor History Room of the Lowell Public Library.

Hale, Edward Everett. A New England Boyhood. Cassell, New York, 1893.

Handbook for the Visitor to Lowell. 1848.

Holden, Raymond P. The Merrimack River. Major source book on the Merrimack River.

Hopkins, G. M. City Atlas of Lowell, 1879. See Joseph Kopycinski.

Jarvis, Charles. The Cathedral. An unpublished manuscript on Greek history in Lowell, particularly on the history of the Greek church. See Charles Jarvis at Lowell Technological Institute.

Josephson, Hanna. The Golden Threads. The best modern book about mill life.

Kenngott, G. F. The Record of a City. 1912. Major source book on sociological history of Lowell. Contains many maps and statistics and interesting photographs.

Kerouac, Jack. The Town and the City. New York: Harcourt Brace Jovanovich, Inc., 1950. Novel about Lowell by one of its native sons.

Kopycinski, Joseph. Librarian, Lowell Technological Institute. / Locks and Canals. Lecture delivered to the Lowell Historical Society, 1968.

Laurent, Joseph. Abenaki-English Dictionary. (1880's) Dictionary of Indian dialect.

Lowell Courier Citizen. Lowell Centennial Edition. 1936

Lowell Institution for Savings. At the Meeting of the Waters.

Lowell Illustrated. Excellent photographs. Edward Larter has a copy.

The Lowell Offering. Famous publication of mill girls' poetry and literature.

Massachusetts Institute of Technology. Lowell: An Early American Industrial Community. Invaluable collecting of essays and articles

Meader, J. W. The Merrimack River.

Miles, H. A. Lowell As It Was and As It Is.

Munro, Melville Smith. The Old Middlesex Canal in 1932. 3 vols.

_____. The Old Middlesex Canal: A Story in Pictures. 1937. Both Munro scrapbooks are in the Vault Room of the Tufts University Library.

Nickerson, Jan. Bright Promise. Children's book on the mill girls.

O'Dwyer, G. The Irish Catholic Genesis of Lowell. Can be found in the Joyce Collection at Boston College Library.

Old Residents Historical Association of Lowell, Contributions. 6 vols. Excellent collection of essays and articles on Lowell history.

Parker, M. T. Lowell: A Study of Industrial Development.

Property Atlas of the City of Lowell, 1936. See Joseph Kopycinski.

Roberts, Christopher. The Middlesex Canal, 1793-1860. Harvard University Press, Cambridge, 1938.

Robinson, Harriet. Loom and Spindle. Interesting reminiscences of a former mill girl.

Silver, Ruth. The Middlesex Canal. Manuscript. See Woburn Public Library.

Thoreau, Henry D. The Concord and the Merrimack. Arragned by Dudley Lunt. Thoreau's famous trip observations.

Trumbull, James, translator. Natick Dictionary. Eliot's compilation of the Indian language.

Willoughby, C. C. Antiquities of the New England Indians. Peabody Museum, Harvard University, 1935. To be reprinted and available in September, 1971.

Wood, William. The New England Prospect, 1634. Excellent reference on the Indian period. Also includes a brief Indian-English dictionary.

A R T I C L E S

"Historical Sketch, 1902," Towpath Topics. Middlesex Canal Association publication.

Holden, H., "The Middlesex Canal," Towpath Topics. Middlesex Canal Association publication

Kopycinski, Joseph, "Early History of the Locks and Canals," Towpath Topics. Middlesex Canal Association publication.

Lawson, "Middlesex Canal," Towpath Topics. Middlesex Canal Association publication.

"A Modern Ramble Along the Middlesex Canal, 1923," Towpath Topics. Middlesex Canal Association publication

Pevey, S. R., "Reminiscences of Middlesex Village," Towpath Topics. Middlesex Canal Association publication.

L I B R A R I E S

Libraries in the area which have varying amounts of material on Lowell history, Indians, and the Middlesex Canal include the following libraries:

Baker Library, Harvard Business School. Primary source material on the Middlesex Canal in particular.

Boston Athenaeum Library.

Boston Public Library.

Bostonian Society, Old State House, Boston.

Cambridge Public Library. See im particular the Local History Room.

Essex Institute, Salem. Information on the Middlesex Canal.

Harvard Graduate School of Education Library.

Lowell Public Library, Lowell. See the History Room on the first floor and the Historical Society Room on the second floor.

Lowell Technological Institute Library. See Joseph Kopvcinski, Librarian. Contains all of the Locks & Canals material plus some of the Historical Society material; also, maps, atlases, photographs.

Massachusetts Historical Society. Has a good collection of canal documents.

Massachusetts Institute of Technology Libraries.

Rotch Library, M.I.T.

Schlisinger Library, Radcliffe Yard, Brattle Street, Cambridge. Collection on women who worked in the Lowell mills. Includes Harriet Robinson letters.

Tufts University Library.

Wellesley Library. Has notebooks and photographs of the Middlesex Canal.

Widener Library, Harvard University.

Woburn Library, Woburn. See Historical Rooms.

M U S E U M S

The following are museums which contain information or material pertaining to Lowell history and the Industrial Revolution:

Middlesex Canal Musuem, Historical House, 36 Concord Road, Billerica. Contains glass slides of the canal, maps, prints, photos, books, and a boat model. See Louis Eno.

Peabody Museum, Harvard University, Cambridge. Excellent for studies of the New England Indians. Exhibits of Indian artifacts and a model of an Indian village on the first floor.

Textile Museum, Andover. Contains a collection of photos, books, and machinery. See Bob Leavitt, Director. Also four other curators for books, manuscripts, machinery, and textiles.

O R G A N I Z A T I O N S

The following are organizations or agencies in the area which have information or personnel resources on Lowell history and which can be helpful in developing Lowell's historical resources. Those agencies which have been contacted are starred.

D.A.R., 267 Pawtucket Street, Lowell.

*Department of Nautral Resources, State Office Building, 100 Cambridge Street, Boston. See Matt Connelly or John Richardson for work on the Indians an early settlers of Lowell or forest areas.

Indian Hobbyist Association, Lowell area. See Warren Chesley, 85 Dingwell Street, Lowell (457-7854), President, or Dick Cook of the Lowell Sun.

International Institute, Lowell. See Harry Dinsmore.

*Lowell City Planning Department (City Development Agency), 89 Appleton Street, Lowell (458-8766). See Bruce Hahl who helped put out the CDA's Historical Report on Lowell.

*Lowell Historical Society, Lowell. See Allen Gerson, President (455-5751) or Louis Eno, Vice President, 22 Shattuck Street, Lowell (452-8901). Collection of materials and books are presently on the second floor of the Lowell Public Library.

Lowell Model Cities Agency, 89 Appleton Street, Lowell.

*Lowell Model Cities Education Program, Smith-Baker Center, Lowell. See Pat Mogan, Director, or Peter Stamas.

Massachusetts Audubon Society. See Chuck Roth (259-9500).

Massachusetts Historical Society.

Massachusetts State Archives. Collection of maps of the area.

*Middlesex Canal Association, 36 Concord Road, Billerica. See Louis Eno, President (452-8901). The Association also maintains a canal museum and a publication, "Towpath Topics".

Model Railroad Association.

Northern Canal Urban Renewal, 89 Appleton Street, Lowell.

Northern Middlesex Planning. See George Johnson.

R E P O R T S

Lowell City Development Authority, "Historical Survey Report."

Lowell City Development Authority, "Neighborhood Analyses for the City of Lowell, Massachusetts."

Lowell Model Cities Agency, "Lowell Model Cities Agency Report."

NMAC, "Volume I Inventory -- Recreation and Open Space," see particularly Chapter 3, "Historic Sites."

R E S O U R C E P E R S O N S

*Adams, Dr. Douglas. Professor of Mechanical Engineering, Massachusetts Institute of Technology, Cambridge. Resource person on the Middlesex Canal; has information and plans for the Canal.

Arnold, Professor. Lowell Technological Institute, Lowell. Interested in the mills.

*Burtt, Professor. Lowell Technological Institute, Lowell. An authority on the Indians of the area and a amateur archaeologist. He has various Indian artifacts from various diggings. (454-7811, x353).

*Bushman, Claudia. 28 Oak Street, Belmont (484-3437). Writing a paper for Boston University and furure publication on the mill girls of Lowell, particularly with regards to health and sanitation. Extensive bibliographic references.

Callahan, George. Model Cities Agency. Has information on the Round House in Lowell.

Carroll, Professor Charles F. Assistant Professor of History at Lowell Technological Institute and a specialist in early American history.

Chesley, Warren. 85 Dingwell Street, Lowell. President of the Indian Hobbyist Association of Greater Lowell (457-7954).

*Clarke, Mary Stetson (Mrs. Edwin L.). 333 West Emerson Street, Melrose (665-7569). Writes children's books on history of the New England area. One of the books was on the Middlesex Canal. Bibliographic references on the Canal.

*Connelly, Matt. Department of Natural Resources, State Office Building, 100 Cambridge Street, Boston (727-3174). Director of a study on the Lowell-Dracut Forest.

Cook, Dick. Lowell Sun, Lowell. Member of the Indian Hobbyist Association and interested in Indian history.

Cowdrey, Judge Elliot. Information on the Pierce House.

Devonney, Jim. Lowell newspaperman who is interested in Lowell history.

*Linsmore, Harry. Member of the Lowell Historical Society and a good source on canal and general history.

Dixon, Jack. Chelmsford. Propietor of Locks and Canals before Melvin Lezberg. Knows a good deal about the canals.

*Doo, Louis. 22 Shattuck Street, Lowell (452-8901). Vice-President of the Lowell Historical Society and President of the Middlesex Canal Association and a general mine of information.

Fletcher, Roger and Fred. Former millowners.

Gleason, Allen. (455-5751). President of the Lowell Historical Society. Has a collection of old slides of Lowell.

Gravis, Bill. Market Street, Lowell. An artist who has painted early Market Street.

Grzyna, Stanley. Andover Street, Lowell. Has collection of Indian artifacts from Fort Hill.

*Hahn, Burce. City Development Authority, 89 Appleton Street, Lowell (458-8766). Helped write the Historical Survey Report for the CDA.

Hall Prescott. Melrose. Has colored slides of the Middlesex Canal.

Hall Charles. Room 134, Lowell High School, Lowell. Instructor in Social Studies who is writing a book on the history of Lowell.

Higgins, Sammy. Lowell. His grandparents worked in a mill.

Kaklamanis, Charles. Professor of Languages and Literature at Lowell Technological Institute (453-2177). Is writing a book on the Greek history of Lowell.

Johnson, George. Author of Northern Middlesex Planning Report.

Johnson, Neil. Wellesley. Author of a book on canals.

Karlawniczak, Dr. Knowledge of the old railroads in Lowell.

Klump, John. Adams House, Salem Road, North Billerica (667-4670). Instructor in high school in Billerica and interested in teaching youth about their historical heritage. Member of the Middlesex Canal Association.

*Kopycinski, Joseph. Librarian at Lowell Technological Institute Library and a member of the Lowell Historical Society. Knowledge of a general history of Lowell.

*Langenback, Randolph. 222 Concord Avenue, Cambridge (492-6823). Excellent source on mills and mill photographs. Is writing an article on the mills of Lowell.

*Larter, Edward. Wannalancet Mills (455-5479). Invaluable source of information and books, photos, maps of Lowell. A millowner, Director of the Lowell Historical Society, and interested in preserving mills and old machinery. Collection of old machinery and tools, old books, glass photos, maps of the mills and surroundings.

Lasher, Harry. Tewksbury. Did original illustrations of the Middlesex Canal.

Laurent, Stephen. Intervale, New Hampshire. Assistant postmaster at Jackson, New Hampshire who know the Abenaki (Indian) language.

Lawson, Fred. Member of the Middlesex Canal Association and author of articles on the Canal.

Leavitt, Bob. Textile Museum Director, Andover. Source of information on the mills.

Lezberg, Melvin. Resident Engineer of Locks and Canals (457-7521).

Livingston, Wilbutt. Has collection of Indian artifacts.

Lyons, Margorie. Worked for many years on the French newspaper, "L'Etoile."

Macheros, George. Has access to model of the Middlesex Canal.

Malthus, Christy. Model Cities Agency, 89 Appleton Street, Lowell. Has conal sketches and an aerial photo of Lowell.

McDonough, George. City Engineer, Lowell. Interested in Lowell history.

Mitchell, Neal. Neal Mitchell Associates, 149 Putnam Avenue, Cambridge. Wrote study on education in Lowell in conjunction with Pat Mogan.

*Mogan, Pat. Director of Model Cities Education Program, Smith-Baker Center, Lowell (459-2139).

O'Brien, Julia. MAPC plan of Middlesex Canal.

Parker, Arthur. Attorney in Lowell who helped in preparing the Historical Survey Report of the CDA. Has poles from one of the barges.

*Richardson, John. Department of Natural Resources, State Office Building (Room 1305), 100 Cambridge Street, Boston (727-3174). Excellent resource person on the Indians and early settlers of Lowell. Is gathering material for publication. Access to maps and old books.

Roth, Chuck. Massachusetts Audubon Society (259-9500), Lincoln. Also a member of the National Advisory Committee on Environmental Education.

Sampas, Charles. Lowell Sun. Knowledge of ethnic and general history of Lowell.

*Santerre, Richard. Lowell resident (452-0961) who is an instructor at Boston College (969-0100, x722). Is doing a major study of the French Canadain history in Lowell and has an extensive collection of books, essays, articles, newspaper clippings, etc.

Sears, John. MDC Commissioner who is interested in developing green strips on both sides of the Middlesex Canal.

Silva, Father. St. Anthony's Church, Lowell. Has information on the Portuguese history of Lowell.

*Stamas, Peter. Model Cities Education Program, Smith-Baker Center, Lowell.

Stone, Robert. Manager of Locks and Canals.

Tedesco, Mr. Norhteastern University. Has written case studies on early America for the Lowell area.

Tsavares, John. Model Cities Agency, 89 Appleton Street, Lowell. An interested "history buff."

Walsh, Frank. Professor and chairman of the History Department, Lowell Technological Institute. An urban historian with knowledge of Lowell history.

Zacharer, Francis. An attorney in Lowell who is preparing a paper on the Polish in Lowell for the Lowell Historical Society.

The custodian at Lowell High School is interested in Lowell history.

There is an "amateur archaeologist" in the Indian Hobbyist Association.

M I S C E L L A N E O U S

Church histories (i.e., St. Patrick's Centennial History; Synagogue histories). Check with the various churches of Lowell or with the Lowell Historical Society.

Lowell State history papers. See Pat Mogan.

Lowell Tech Pollution Grant for the Merrimack River.

Old newspapers in the Lowell Public Library. Also check with newspapermen in Lowell.